

# **FINANCIAL ANALYSIS/RATE STUDY**

## **City of Cave Junction**

Josephine County, Oregon

December 2013



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**Civil West**

Engineering Services, Inc.



Civil West Engineering Services, Inc.  
486 E Street • Coos Bay, Oregon 97420  
609 SW Hurbert Street • Newport, Oregon 97365

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EXPIRATION DATE: 12/31/14

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# 1.0 Executive Summary

## Section 1

### 1.1. Background

The City of Cave Junction authorized the preparation of a rate study for the City's water and wastewater system by Civil West Engineering. The purpose of the rate study is to form a basis or foundation for upcoming changes to the City's water/wastewater rate structure in support of major infrastructure improvements.

This Study included an analysis of infrastructure funds in the City of Cave Junction. The evaluation also reviewed the proposed budget for 2012-13. The Rate study focuses on:

1. The Water Fund
2. The Sewer Fund
3. The Water/Sewer Expansion Fund

In general, it was found that the current rates do not provide adequate funding to maintain a healthy and consistent balance in the water and sewer fund in the future. The water fund is in better condition than the sewer fund. The water fund has finished with a small surplus in recent years. While the sewer fund on the other hand has been more inconsistent. In two of the past three years it has finished with a deficit. In addition, the current rate is not capable of supporting additional improvements as is included in the City's Capital Improvement Plan for both sectors.

The existing water rates in the City of Cave Junction are made up of a combination of a base rate and consumption rate. The average rate, based on typical average monthly water consumption in Cave Junction is \$28.80/month. The existing sewer rates in the City of Cave Junction are made up of a base charge for all equivalent dwelling units (EDUs), then additional charges based on average water consumption. The average rate, based on typical average monthly water consumption of 4,203 gal/EDU, is \$31.62/month.

### 1.2. Overview of Rate Structure

The rate study analysis contained herein considers the financial requirements of the City for operation and maintenance of the water system. It also considers the financial requirements that will occur when the City undertakes the planned CIP projects. The following major milestones or questions were answered as part of the rate study analysis:

1. How much additional revenue is needed to fund the debt service resulting from the priority 1 projects in the water CIP and priorities 1-5 in the sewer CIP?
2. How much will each EDU (equivalent dwelling unit) need to pay to cover the needs of the City?
3. How much in annual increases are needed to keep each fund functioning in the positive?

The rate study analysis was completed to answer these questions and provide a specific recommendation to the City for their new water rates. The new rates and projected revenues provide the City with the necessary revenue required to support operations and improvement plans as well as providing the requisite debt service coverage for the lending institutions.

### **1.3. Proposed Rate Increase**

The rate study includes a recommendation to increase rates for both water and sewer. The monthly water rate increase should be \$14.77/EDU. This will help fund the priority 1 projects. This translates into an average monthly water bill of \$43.57/EDU. The monthly sewer rate increase should be \$10.00/EDU. This will help fund priorities 1-5 in the CIP list. This translates into an average monthly sewer bill of \$41.61/EDU. A wide range of combinations of base rate and consumption rate increases are provided that will result in this average rate increase in Section 3.3.

It is also recommend that the City adopt an annual rate increase philosophy to counteract the effects of inflation. For the purposes of this study, the inflation rate of 2% was chosen. It was determined that a minimum annual water rate increase of \$0.87 should be implemented each year for the next 20-years. For the existing sewer rates, this translates to a \$0.96 increase annually until 2035. Refer to Section 3.3 for more detailed information.

By setting and maintaining an adequate water rate, the City will not have to defer maintenance and work to catch up on deficiencies in the future when improvements are guaranteed to cost more.

## 2.0 Introduction to Rate Study

# Section 2

### 2.1. Obligations and Revenues

The City of Cave Junction owns and maintains a public infrastructure system that includes:

- A potable water system complete with a treatment plant, storage reservoirs, a pump station and a distribution system to deliver water to the customers of the city.
- A sanitary sewer system complete with a treatment plant, several pumping stations and a wastewater collection system.

The potable water system supplies the residents of Cave Junction and 127 accounts (approximately 305 residents) from the nearby Kerby Water District. The sanitary sewer system serves only the residents of Cave Junction.

City obligations include personnel services, materials and services needed to maintain and repair the water and wastewater system for treatment facilities and the distribution/collection facilities.

A summary of the water and sewer funds between 2009 and 2011 (fiscal years) are provided in the tables below, Table 2.1-1 and Table 2.1-2. Also provided in the table is the most current, or adopted, budget information (2012).

**Table 2.1-1 – Water Fund**

Description	Actual 09-10	Actual 10-11	Actual 11-12	Adopted 12-13
<b>Total Material &amp; Services</b>	\$127,367.00	\$128,375.00	\$179,387.00	\$188,000.00
<b>Capital Outlay</b>	\$9,607.00	\$9,607.00	\$4,057.00	\$5,000.00
<b>Contingency</b>	--	--	--	\$70,903.00
<b>Total Transfers Out</b>	\$288,897.00	\$288,897.00	\$288,897.00	\$289,597.00
<b>Total Expenditures</b>	\$425,871.00	\$426,879.00	\$472,341.00	\$553,500.00
<b>Unappr. Ending Fund Balance</b>	\$104,433.00	\$179,069.00	\$72,158.00	--
<b>TOTAL</b>	\$530,304.00	\$605,948.00	\$544,499.00	\$553,500.00

**Table 2.1-2 – Sewer Fund**

Description	Actual 09-10	Actual 10-11	Actual 11-12	Adopted 12-13
<b>Total Material &amp; Services</b>	\$122,623.00	\$122,983.00	\$122,497.00	\$166,000.00
<b>Capital Outlay</b>	--	--	\$10,420.00	\$80,000.00
<b>Contingency</b>	--	--	--	\$5,663.00
<b>Total Transfers Out</b>	\$260,787.00	\$325,787.00	\$295,787.00	\$297,687.00
<b>Total Expenditures</b>	\$383,410.00	\$448,770.00	\$428,705.00	\$549,350.00
<b>Unappr. Ending Fund Balance</b>	\$198,904.00	\$173,083.00	\$117,745.00	--
<b>TOTAL</b>	\$582,314.00	\$621,853.00	\$546,450.00	\$549,350.00

It can be observed from the table above that the water fund expenditures have been fairly consistent each year. The sewer fund expenditures have fluctuated up and down but are projected to increase during FY 2012 significantly. In both funds FY 2010 saw a significant increase in expenditures which could be attributed to the contract services associated with the Kerby Water District.

The city also has what they refer to as the water/sewer expansion fund. This is funds that they have available on hand for future maintenance or improvements. It also includes the SDC's that have been

gathered in the recent years. It is recommended that the city determine the total amount of SDC’s that are available for both water and sewer since those charges can be used to fund planning and other items that may be needed in the future. Table 2.1-3 below summarizes this fund. As the table illustrates, this fund is a running total which means the money rolls over from year to year.

**Table 2.1-3 – Water/Sewer Expansion Fund**

Description	Actual 09-10	Actual 10-11	Actual 11-12	Adopted 12-13
<b>Cash on Hand</b>	--	--	--	\$523,270.00
<b>Working Capital</b>	\$324,903.00	\$505,615.00	\$513,128.00	--
<b>Water SDC</b>	\$176,300.00	\$4,257.00	--	\$4,300.00
<b>Sewer SDC</b>	\$4,412.00	\$3,256.00	\$385.00	\$5,970.00
<b>Total Resources</b>	\$505,615.00	\$513,128.00	\$513,513.00	\$533,540.00
<b>TOTAL</b>	\$505,615.00	\$513,128.00	\$513,513.00	\$533,540.00

Existing revenues for the City include rate revenue from City customers, connection fees and service charges. In recent years the water fund revenues have exceeded the expenditures. This has allowed the water fund to function in the “black”. According to the city, approximate year end totals for the water fund were as follows:

- FY 09: +\$10,000
- FY 10: +\$84,000
- FY 11: +\$34,000
- FY 12: Expected to be a surplus (Final numbers not available at time of analysis)

The sewer fund revenues have been much more inconsistent. There have been years where the sewer fund has finished the year in the “red”. According to the city, approximate year end totals for the sewer fund were as follows:

- FY 09: +\$35,000
- FY 10: -\$26,000
- FY 11: -\$9,000
- FY 12: Expected to be a surplus (Final numbers not available at time of analysis)

## **2.2. Rate Structure**

### **2.2.1. Current Water Rate Structure**

The current water rate structure for the City of Cave Junction was implemented in September 2005 and has not been increased since that time. It has an initial base charge and then a tiered rate structure based on the amount of water used. The current rate structure for a 3/4” meter is shown in Table 2.2.1-1.

**Table 2.2.1-1 – Current Water Rates**

Consumption in Cubic Feet	Consumption in Gallons	Base Charge	Rate Per 100 cubic feet
0-500	0 - 3,740	\$28.00	N/A
501-1,000	3,741 – 7,480		\$1.30
1,001-2,000	7,481 – 14,960		\$1.40
2,001-3,000	14,961 – 22,440		\$1.50
3,001 +	22,441 +		\$1.60



The base charge for a single family dwelling (typical 3/4” meter) is \$28.00 with an average residential water use of 4,203 gallons per month (see Water Master Plan, 2013) per typical single family dwelling. This results in an average monthly water bill of \$28.80 for a Cave Junction resident. Additional charges also apply for delivery outside the city limits as follows:

- Under 1” = \$10.00/month
- 1” = 17.00/month
- 1 1/2” – 2” = \$34.00/month
- 3” = \$51.00/month
- 4” = \$68.00/month
- 6” = \$85.00/month
- 8” = \$102.00/month
- 10” = \$119.00/month
- 12” = \$136.00/month

In order to compare “apples to apples”, funding agencies often use a standardized consumption rate of 7,500 gallons per month as the “normal” residential use in Oregon. Under the current rate structure, the average residential rate per Equivalent Dwelling Unit (EDU) would be \$35.03 for 7,500 gallons per month. According to the funding agencies, the average water bill in the state of Oregon is approximately \$55.00 per EDU.

Similar to most communities, Cave Junction charges a connection fee when a new water service is installed inside the service boundary where no previous connection existed. The connection fee varies by type of connection and is meant to match the actual cost of labor, equipment, and material furnished by the City as required for providing and installing the service line and meter. The following table (Table 2.2.1-2) summarizes the connection fee assessed by the City. For all new service connections, where no previous service existed, a minimum of \$350 deposit is also required in addition to the fees listed below.

**Table 2.2.1-2 – Current Water Connection Fees**

<b>Connection Type</b>	<b>Fee Imposed</b>
Single-family/single commercial on single lot including subdivision lot	Actual costs incurred by the city plus 15% administrative overhead
Two-family/double commercial on single lot	Actual costs incurred by the city plus 15% administrative overhead; and \$200.00 for the second unit
Multi-family/multiple commercial (Includes apartment, mobile home parks, condominiums, shopping center, office complexes, etc.)	Actual costs incurred by the city plus 15% administrative overhead; and \$200.00 per unit thereafter
Connection made on line that has been installed for service to other lot	Actual costs incurred by the city plus 15% administrative overhead

### **2.2.2. Current Sewer Rate Structure**

The current sewer rate structure for the City of Cave Junction was implemented in September 2005 and has not been increased since that time. It is set up with a base charge for all equivalent dwelling units (EDUs), then additional charges based on average water consumption. Table 2.2.2-1 below shows the current rate structure.

**Table 2.2.2-1 – Current Sewer Rates**

<b>Establishment</b>	<b>Monthly Rate</b>
All equivalent dwelling units	\$31.00
Additional charges will be assessed at a rate of \$1.00 per 100 cubic feet of water consumed (Based on the average water consumption during the winter months) for usage over the 500 cubic foot minimum.	
An additional charge will be assessed at a rate of \$15.00 per unit recommended or required to have a sand or grease trap but having none.	
Schools	Total enrollment including staff divided by 15, multiplied by the equivalent dwelling unit rate.

Once again the average residential water use of 4,203 gallons per month (see Water Master Plan, 2013) will apply to the sewer bill for a single family dwelling. This results in an average monthly sewer bill of \$31.62 for a Cave Junction resident.

As stated in the previous section, funding agencies often use a standardized consumption rate of 7,500 gallons per month as the “normal” residential use in Oregon. Under the current rate structure, the average residential rate per Equivalent Dwelling Unit (EDU) would be \$36.02 for 7,500 gallons per month. Since there are no sewer customers outside the city, there are no surcharges for sewer service outside city limits.

The connections fees for the sewer system are very similar to the water system fees found in Section 2.2.1. One additional connection type is applied to sewer fees as shown in the table below, Table 2.2.2-2. For additional information about the connection fees refer to the previous section.

**Table 2.2.2-2 – Current Sewer Connection Fees**

<b>Connection Type</b>	<b>Fee Imposed</b>
Single-family/single commercial on single lot including subdivision lot	Actual costs incurred by the city plus 15% administrative overhead
Two-family/double commercial on single lot	Actual costs incurred by the city plus 15% administrative overhead; and \$200.00 for the second unit
Multi-family/multiple commercial (Includes apartment, mobile home parks, condominiums, shopping center, office complexes, etc.)	Actual costs incurred by the city plus 15% administrative overhead; and \$200.00 per unit thereafter
Connection made on line that has been installed for service to other lot	Actual costs incurred by the city plus 15% administrative overhead
Renewal of service connection to line installed prior to July 1, 1979, that has been out-of-service for more than one year	Actual costs incurred by the city plus 15% administrative overhead

### **2.3. Capital Improvement Plan (CIP) Projects**

Recently, the City completed a comprehensive water system master plan and wastewater facilities plan (Civil West, 2013) that evaluated all of the existing City facilities, identified deficiencies, and developed projects to address those deficiencies over a 20-year planning horizon. The recommended projects were

organized into priority groups listed in the order that they should be undertaken. Together, this group of projects has become the City’s Capital Improvement Plan (CIP) for the water and wastewater system.

A detailed description of each project, project cost estimates, and other information can be found in the respective master plan and facilities plan. A summary of the water system CIP projects is shown below in Table 2.3-1. The costs shown in the following tables are based on 2013 dollars with a related ENR Index value of 9666.

**Table 2.3-1 – Water System CIP list**

<b>Item</b>	<b>Project Description</b>	<b>Budget Estimate</b>	<b>Priority</b>
<b>WS-1</b>	Rockydale well field restoration	\$307,894	1
<b>WS-2</b>	Investigation of possible well site near IVHS	\$78,376	2
<b>WS-3</b>	Investigation of additional well at Daisy Hill	\$78,376	2
<b>WT-1</b>	Filter media replacement	\$83,382	1
<b>WT-2</b>	Modify sedimentation basins	\$423,228	1
<b>WT-3</b>	Replace WTP disinfection system	\$174,168	1
<b>WT-4</b>	Install covers over sedimentation basins	\$123,276	1
<b>WT-5</b>	Install parking pad at purchase station	\$9,564	1
<b>WSF-1</b>	Reservoir #1 maintenance	\$735,597	1
<b>WSF-2</b>	Reservoir #3 maintenance	\$100,958	1
<b>WSF-3</b>	Reservoir #4 maintenance	\$708,848	1
<b>WSF-4</b>	Clearwell maintenance	\$383,283	1
<b>WSF-5</b>	New 500,000 gallon reservoir	\$1,289,910	2
<b>WDS-1</b>	Alley waterline replacement between Caves Ave. & Redwood Hwy.	\$89,453	2
<b>WDS-2</b>	Installation of additional fire hydrants	\$113,357	2
<b>WAC-1</b>	Junction Ave. waterline replacement	\$431,875	2
<b>WAC-2</b>	Terrace Dr. waterline replacement	\$82,486	2
<b>WAC-3</b>	Lister St. waterline replacement	\$50,585	2
<b>WAC-4</b>	Alley waterline replacement between Cave Ave. & Redwood Hwy.	\$45,484	2
<b>WAC-5</b>	Hussey Ave. waterline replacement	\$121,360	2
<b>WAC-6</b>	Tracy Lane waterline replacement	\$25,364	2
	<b>TOTAL</b>	<b>\$5,456,824</b>	

The City cannot undertake all projects simultaneously and not all projects are as critical as the next. Therefore, an effort was made to organize the projects into priority categories. It should be understood that all projects on the CIP are important and none should be considered as optional. However, if the City wishes to undertake projects in a systematic and orderly manner, the priorities listed above were recommended in the Cave Junction Water Master Plan, 2013.

Based on this phasing plan, the City must undertake just under \$5.5-million in improvements over the planning period. Of that, \$3-million is considered the highest priority with another \$2.4-million being

considered as priority 2. See Section 7 of the 2013 Water Master Plan for more details on phasing information.

Depending on when projects are undertaken and how fast they are completed, the project costs will increase over time. As such, rates will need to be reviewed to confirm that the City has the revenue required to fund the projects over time. Table 2.3-2 below summarizes the sewer system CIP list.

**Table 2.3-2 – Sewer System CIP list**

<b>Project No.</b>	<b>Project Description</b>	<b>Cost Estimate</b>	<b>Priority</b>
<b>1</b>	Manhole Repair	\$58,000	1
<b>2</b>	Pipeline Rehabilitation	\$1,015,250	2
<b>3</b>	Replace Headworks Screen	\$436,450	10
<b>4</b>	RV Receiving Station	\$145,000	9
<b>5</b>	Septage Receiving Station	\$599,575	5
<b>6</b>	Additional Blower	\$203,000	4
<b>7</b>	Disinfection Upgrade	\$516,200	7
<b>8</b>	Effluent Disposal	\$913,500	8
<b>9</b>	Aerobic Digester Aerator Upgrades	\$401,650	6
<b>10</b>	Biosolids Disposal	\$188,500	3
	<b>TOTAL</b>	<b>\$4,513,375</b>	

The sewer projects listed above are prioritized in the far right column. These projects are not grouped into priorities as the water projects were, instead they are prioritized as individual projects relative to each other. So based on this CIP list, the City must undertake a total of just under \$4.5-million in improvements over the next 20 years. See Sections 4 and 6 of the 2013 Wastewater Facilities Plan for more details on phasing information.

As with the water CIP projects, depending on when projects are undertaken and how fast they are completed, the project costs will increase over time. As such, rates will need to be reviewed to confirm that the City has the revenue required to fund the projects over time.

## **2.4. CIP Project Funding Options**

### **2.4.1. Background Data for Funding**

Funding for municipal water/wastewater system capital improvements occurs with loans, grants, principal forgiveness, bonds, or a combination thereof. Parameters such as the local and State median household income (MHI), existing debt service, user rates, low/moderate income level percentages, financial stability, and project need are used by funding agencies to evaluate the types and levels of funding assistance that can be received by a community.

The calculation for the user rate can incorporate, when applicable, fee-equivalents derived from other local funding sources that are or will be used to pay for the system, including any special levy on taxable property within the system’s territory.

## 2.4.2. Infrastructure Finance Authority

Recent restructuring in the State has resulted in the creation of the Oregon Business Development Department (OBDD) / Infrastructure Finance Authority (IFA) from what previously was the Oregon Economic and Community Development Department.

IFA administers resources aimed at community development activities primarily in the water and wastewater infrastructure areas. The IFA Regional Coordinator for Josephine County is Fumi Schaadt (503-986-0027) and any application process should begin by contacting her. The funding programs through IFA include:

- Community Development Block Grants (CDBG)
- Safe Drinking Water Revolving Loan Fund (SDWRLF)
- Special Public Works Funds
- Water/Wastewater Financing

The SDWRLF generally must be used to address a health or compliance issue and could potentially provide a loan up to \$6 million per project. To receive a loan the project must be ranked high enough on the Project Priority List in the Intended Use Plan developed by the State. A Letter of Interest (LOI) must be submitted before a project can be listed in the Intended Use Plan. The LOI process is now open year round for submissions. Loan terms are typically 3-4% interest for 20 years, however, “Disadvantaged Communities” can potentially qualify for 1% loans for 30 years as well as some principal forgiveness.

All recipients of SDWRLF awards need to complete an environmental review on every project in accordance with the State Environmental Review Process (SERP), pursuant to federal and state environmental laws. The Environmental Report typically required can cost \$25,000 to \$75,000 depending on the specific biological, cultural, waterway, and wetland issues that arise.

Loans and grants are available through the Special Public Works Funds and Water/Wastewater Financing depending on need and financial reviews by IFA.

## 2.4.3. Rural Development/Rural Utilities Service (RUS)

The United States Department of Agriculture (USDA) Rural Utilities Service (RUS) has a Water and Wastewater Programs Division which provides loans, guaranteed loans, and grants for water infrastructure projects for towns of less than 10,000 persons. Grants are only available when necessary to keep user costs to reasonable levels (very similar to IFA threshold rate). Loans can be made with repayment periods up to 40 years. Interest rates vary but often are around 4% for design/construction loans. Environmental reporting is required similar to that for the SDWRLF but with slightly different criteria.

## 2.4.4. Bond Sales

A brief summary of the types of bonds that are available is presented below.

**General Obligation Bonds.** General obligation or GO bonds are municipal bonds that are “backed” by the full faith and credit of the issuer. GO bonds are generally repaid through an increase in property taxes. For a community such as Cave Junction, the GO bonds can be an attractive option as the property tax payments are tax deductible, are not based on use, and are collected whether a customer occupies the home full or part time. GO bonds guarantee a stable and consistent stream of revenue. As they are

considered a lower risk investment, the interest rates on GO bond issues is generally lower than other alternatives. GO bonds require voter approval for issuance.

The City of Cave Junction could benefit from getting a GO bond and raising the property taxes. As most property owners do not want to risk losing their property for unpaid tax bills, they will generally pay their increased taxes and the City will be able to pay back the GO bond. Additionally, the GO bond generally has a low interest rate so the cost of borrowing the money is lessened. A GO bond also does not take into account the price of water within the City as compared to the State average.

**Revenue Bonds.** Revenue bonds differ from GO bonds in that they are repaid through a municipality's revenue stream or by user rates. The full faith of the issuer is not behind revenue bonds; therefore, the interest rate on revenue bonds is generally higher than GO bonds. One advantage of revenue bonds is that they do not require voter approval.

A revenue bond is supported by the revenue from a specific project. They are used to finance an income-producing project within a municipality. As most of the projects recommended in earlier in the section are not income-producing and general improvements to the systems, this source of funding may not be the best for the City of Cave Junction.

## 2.4.5. Other Funding Sources

### Clean Water State Revolving Fund (CWSRF)

The Clean Water State Revolving Fund (CWSRF) Loan Program administered by the Oregon Department of Environmental Quality (DEQ) provides low-cost loans for the planning, design and construction of a variety of projects that address water pollution. The loans through the CWSRF program are available to Oregon's public agencies, including cities, counties, sanitary districts, soil and water conservation districts, irrigation districts and various special districts.

Congress established the CWSRF in 1987, to replace the Construction Grants program, which had provided direct grants to communities to complete sewer infrastructure projects. The CWSRF program provides several types of loans and varying interest rates. Currently, loans are available with terms of 5 years at 0.97% APR to 20 years at 2.52% APR.

There are six different types of loans available within the program. These include traditional planning, design and construction loans. There are also loans available for emergencies, urgent repairs and local community projects. Each of these loan types has different financial terms, and is intended to provide communities with choices when financing water quality improvements. Interest rates are based on the nation's bond buyer's index and fluctuate quarterly. The interest rates of various loans are substantially discounted from the bond rate. For example, with a quarterly bond rate of 5.0%, the CWSRF interest rates (depending on the type of loan) would range from 0.97% to 3.88%. Loan payback periods vary, ranging from 5 to 20 years. Loans do include an annual loan fee of 0.5% of the outstanding balance. Planning loans are exempt from this fee.

Eligible projects include:

- Wastewater system plans and studies
- Secondary or advanced wastewater treatment facilities
- Irrigation improvements
- Infiltration and inflow correction
- Major sewer replacement and rehabilitation

- Qualified storm water control
- Onsite wastewater system repairs
- Matching funds for some U.S. Department of Agriculture conservation programs
- Estuary management efforts
- Various nonpoint source projects (stream restorations, animal waste management, conservation easements)
- Qualified brownfields projects

All eligible proposed projects are ranked based upon their application information and entered on the program's Project Priority List. Points are assigned based on specific ranking criteria. Newly ranked projects are integrated into the priority list on a regular basis. The Project Priority List is incorporated within DEQ's annual Intended Use Plan which indicates the proposed use of the funds each year.

Projects are funded based on the availability of loan monies. If monies are insufficient to fund all the approved projects, funds are distributed to as many projects as possible based on the Project Priority List. Each time new monies become available, those monies are allocated to as many unfunded or partially funded projects as possible.

For additional information on the CWSRF loan program, call (800) 452-4011 or visit the DEQ website at <http://www.deq.state.or.us/wq/loans/loans.htm>.

### **Private Funding – Wedbush Securities**

Wedbush has an agreement with the League of Oregon Cities and the Oregon Council of Governments to work with public agencies to fund public infrastructure and other public projects. Wedbush has developed a number of funding mechanisms tailored specially to serve the public funding requirements.

One particular program, called LOCAP. “LOCAP” stands for Local Oregon Capital Assets Program. Under the LOCAP program, public agencies can obtain funding for public infrastructure projects, equipment purchases, real property purchases, and refinancing or interim financing needs. The LOCAP program includes the following aspects:

- An agency must pledge the full faith and credit of the community. However, it does not require a public vote as the program is set up to be paid for through revenues similar to a revenue bond.
- The term length on the loan is usually equal to the useful life of the improvement being funded. If a new water reservoir is being funded that has a practical useful life expectancy of 40 years, the term on the loan can be up to 40 years. However, an agency has the autonomy to fund the project for a shorter term than the expected life.
- Interest rates for the LOCAP program are based upon the market rate and are set the morning of pricing of the bond certificates. With historical low market rates, interest rates on LOCAP are very attractive.
- The funding process is relatively quick. From the completion of the application, funds are generally available to the agency within 45-60 days.
- The LOCAP program can allow multiple agencies to “bundle” their funding needs and issue a single bond sale to fund all project needs. In this case, the agencies can share the issuance and administrative costs of the bond sale thus reducing the individual cost for each agency.

The following website will provide additional information as needed for this particular funding option, <http://www.wedbush.com/office/portland>. The direct contact would be Brendan Watkins.



## 3.0 Proposed Rate Structure

### Section 3

### 3.1. Rate Structure

There are a number of options available for establishing rates. The structure presented in this section relies on common methods and industry standards for rate structures.

### 3.2. Rate Options

#### 3.2.1. Base Rate

The base rate is the rate charged per connection. This rate may or may not be dependent on the amount of water used by a connection. If the base rate includes a certain amount of use, it means a higher base rate and less control over the size of a utility bill for the customer. Some communities use a base rate with a fixed amount of water provided to try and “capture” segments of their water customer population within certain rate “steps”.

Base rates that do not include consumption allow individual customers the freedom to lower their effective monthly rates by reducing consumption. Rates of this type also encourage greater conservation, and typically make customers more aware of their monthly water use.

#### 3.2.2. Consumption Rate

A consumption rate is a charge that is applied to defined units of consumption in a community. Usually based on blocks of 100 cubic feet or 1,000 gallons, a water/sewer supplier can charge an equitable amount per unit based on what it costs to produce and provide utility services for that unit. Many consider the consumption rate the best approach for utility sales, as those who use a great deal will pay an appropriate amount based on what they used. Also, customers can relate to consumption billing as it compares to familiar practices for fuel, electricity, phone bills, and other common billing practices.

The City of Cave Junction has relied upon the consumption rate to charge their customers for water and sewer use. The current consumption water rates vary per use and are found in Section 2.2. The current consumption sewer rates are simply \$1.00/100 cubic feet of water consumed over 500 cubic feet.

### 3.3. Potential Rate Structures

#### 3.3.1. Revenue Requirements

There are various scenarios that can occur in order to finance the CIP lists presented in Section 2. The following tables will illustrate the increases in revenue that will need to occur throughout the 20-year planning period of the master plan and the facilities plan for the City of Cave Junction.

In order to provide the following analysis some assumptions were made. The interest rate and loan period were typical rates and terms at the time of this analysis. These rates and terms will vary depending on a number of variables that will need to be assessed at the time of funding. During this analysis, the EDU's that were used were based on the 2013 Water Master Plan completed prior to this analysis. According to the meter data that was obtained from the city, the total amount of meters translates to approximately 1,330 EDU's. This number is then used throughout the period of the loan, or 20 years.

**Table 3.3.1-1 – Water system CIP list funding, 100% loan**

	<b>Full CIP</b>	<b>Priority 1 only</b>	<b>Priority 2 only</b>
<b>Capital Cost</b>	\$5,456,824.28	\$3,050,198.89	\$2,406,625.38
<b>Loan Needed</b>	\$5,456,824.28	\$3,050,198.89	\$2,406,625.38
<b>Interest Rate</b>	3.5%	3.5%	3.5%
<b>Loan Period</b>	20	20	20
<b>Annual Annuity</b>	\$383,473.24	\$214,349.89	\$169,123.36
<b>Monthly Income Required</b>	\$31,956.10	\$17,862.49	\$14,093.61
<b>Monthly Income Required + 10%</b>	\$35,151.71	\$19,648.74	\$15,502.97
<b>No. of EDU's at 4,203 gallons</b>	1330	1330	1330
<b>Add'l Monthly Cost per EDU</b>	\$26.42	\$14.77	\$11.65

**Table 3.3.1-2 – Water system CIP list funding, 75% loan**

	<b>Full CIP</b>	<b>Priority 1 only</b>	<b>Priority 2 only</b>
<b>Capital Cost</b>	\$5,456,824.28	\$3,050,198.89	\$2,406,625.38
<b>Loan Needed</b>	\$4,092,618.21	\$2,287,649.17	\$1,804,969.04
<b>Interest Rate</b>	3.5%	3.5%	3.5%
<b>Loan Period</b>	20	20	20
<b>Annual Annuity</b>	\$287,604.93	\$160,762.42	\$126,842.52
<b>Monthly Income Required</b>	\$23,967.08	\$13,396.87	\$10,570.21
<b>Monthly Income Required + 10%</b>	\$26,363.79	\$14,736.55	\$11,627.23
<b>No. of EDU's at 4,203 gallons</b>	1330	1330	1330
<b>Add'l Monthly Cost per EDU</b>	\$19.82	\$11.08	\$8.74

**Table 3.3.1-3 – Water system CIP list funding, 50% loan**

	<b>Full CIP</b>	<b>Priority 1 only</b>	<b>Priority 2 only</b>
<b>Capital Cost</b>	\$5,456,824.28	\$3,050,198.89	\$2,406,625.38
<b>Loan Needed</b>	\$2,728,412.14	\$1,525,099.45	\$1,203,312.69
<b>Interest Rate</b>	3.5%	3.5%	3.5%
<b>Loan Period</b>	20	20	20
<b>Annual Annuity</b>	\$191,736.62	\$107,174.94	\$84,561.68
<b>Monthly Income Required</b>	\$15,978.05	\$8,931.25	\$7,046.81
<b>Monthly Income Required + 10%</b>	\$17,575.86	\$9,824.37	\$7,751.49
<b>No. of EDU's at 4,203 gallons</b>	1330	1330	1330
<b>Add'l Monthly Cost per EDU</b>	\$13.21	\$7.38	\$5.83

**Table 3.3.1-4 – Water system CIP list funding, 25% loan**

	<b>Full CIP</b>	<b>Priority 1 only</b>	<b>Priority 2 only</b>
<b>Capital Cost</b>	\$5,456,824.28	\$3,050,198.89	\$2,406,625.38
<b>Loan Needed</b>	\$1,364,206.07	\$762,549.72	\$601,656.35
<b>Interest Rate</b>	3.5%	3.5%	3.5%
<b>Loan Period</b>	20	20	20
<b>Annual Annuity</b>	\$95,868.31	\$53,587.47	\$42,280.84
<b>Monthly Income Required</b>	\$7,989.03	\$4,465.62	\$3,523.40
<b>Monthly Income Required + 10%</b>	\$8,787.93	\$4,912.18	\$3,875.74
<b>No. of EDU's at 4,203 gallons</b>	1330	1330	1330
<b>Add'l Monthly Cost per EDU</b>	\$6.61	\$3.69	\$2.91

These four scenarios show that the rates and revenues required vary greatly depending on the city’s ability to obtain grant funding. It should also be noted that these additional monthly costs per EDU don’t take into account regular inflation. Inflation is discussed in more detail in Section 3.3.4.

The sewer CIP list can be analyzed in the same way to show the increases that would have to occur to fund those projects as well. One table below, Table 3.3.1-5, shows the sewer rate CIP list loan funding broken down in the same percentages as the water system CIP. Then Table 3.3.1-6 and Table 3.3.1-7 are analyzed based on priorities.

**Table 3.3.1-5 – Sewer system full CIP list**

	<b>100% loan</b>	<b>75% loan</b>	<b>50% loan</b>	<b>25% loan</b>
<b>Capital Cost</b>	\$4,513,375.00	\$4,513,375.00	\$4,513,375.00	\$4,513,375.00
<b>Loan Needed</b>	\$4,513,375.00	\$3,385,031.25	\$2,256,687.50	\$1,128,343.75
<b>Interest Rate</b>	3.5%	3.5%	3.5%	3.5%
<b>Loan Period</b>	20	20	20	20
<b>Annual Annuity</b>	\$317,173.23	\$237,879.92	\$158,586.61	\$79,293.31
<b>Monthly Income Required</b>	\$26,431.10	\$19,823.33	\$13,215.55	\$6,607.78
<b>Monthly Income Required + 10%</b>	\$29,074.21	\$21,805.66	\$14,537.11	\$7,268.55
<b>No. of EDU's at 4,203 gallons</b>	1330	1330	1330	1330
<b>Add'l Monthly Cost per EDU</b>	\$21.85	\$16.39	\$10.93	\$5.46

**Table 3.3.1-6 – Sewer system priorities 1-5 on CIP list**

	<b>100% loan</b>	<b>75% loan</b>	<b>50% loan</b>	<b>25% loan</b>
<b>Capital Cost</b>	\$2,064,325.00	\$2,064,325.00	\$2,064,325.00	\$2,064,325.00
<b>Loan Needed</b>	\$2,064,325.00	\$1,548,243.75	\$1,032,162.50	\$516,081.25
<b>Interest Rate</b>	3.5%	3.5%	3.5%	3.5%
<b>Loan Period</b>	20	20	20	20
<b>Annual Annuity</b>	\$145,068.52	\$108,801.39	\$72,534.26	\$36,267.13
<b>Monthly Income Required</b>	\$12,089.04	\$9,066.78	\$6,044.52	\$3,022.26
<b>Monthly Income Required + 10%</b>	\$13,297.95	\$9,973.46	\$6,648.97	\$3,324.49
<b>No. of EDU's at 4,203 gallons</b>	1330	1330	1330	1330
<b>Add'l Monthly Cost per EDU</b>	\$10.00	\$7.50	\$5.00	\$2.50

**Table 3.3.1-7 – Sewer system priorities 6-10 on CIP list**

	<b>100% loan</b>	<b>75% loan</b>	<b>50% loan</b>	<b>25% loan</b>
<b>Capital Cost</b>	\$2,412,800.00	\$2,412,800.00	\$2,412,800.00	\$2,412,800.00
<b>Loan Needed</b>	\$2,412,800.00	\$1,809,600.00	\$1,206,400.00	\$603,200.00
<b>Interest Rate</b>	3.5%	3.5%	3.5%	3.5%
<b>Loan Period</b>	20	20	20	20
<b>Annual Annuity</b>	\$169,557.27	\$127,167.96	\$84,778.64	\$42,389.32
<b>Monthly Income Required</b>	\$14,129.77	\$10,597.33	\$7,064.89	\$3,532.44
<b>Monthly Income Required + 10%</b>	\$15,542.75	\$11,657.06	\$7,771.38	\$3,885.69
<b>No. of EDU's at 4,203 gallons</b>	1330	1330	1330	1330
<b>Add'l Monthly Cost per EDU</b>	\$11.68	\$8.76	\$5.84	\$2.92

### 3.3.2. Calculation of New Rates

The above scenarios show us the worst possible cases where much of the funding will have to come through loans. It is likely that there will be opportunities to obtain funding through grants, but in order to plan for the worst, the tables above will be used to calculate new rates.

### 3.3.3. Recommended New Rate Structure

The recent water master plan recommends that the priority 1 projects be completed in the next five years. Therefore the additional funding that will be required to fund those projects is considered first in this analysis. Since we don't know the exact funding that will be obtained by the city, the worst case scenario is used which is funding these projects through 100% loans. In order to fund priority 1 projects the additional monthly cost will be \$14.77/EDU. This translates into an average monthly water bill of \$43.57/EDU for the average rate of consumption of 4,203 gallons.

Once again, the standardized rate of 7,500 gallons per month should be applied here. If \$14.77 is added to the standardized rate of \$35.03, the monthly water bill would be \$49.80/EDU. This falls below the Oregon average rate of \$55.00. Therefore, the city may be required to meet the Oregon average before becoming eligible for more financial assistance for future funding needs. This comparison should help the city compare rates to the average Oregonian.

Varying rate combinations will accomplish this proposed water rate. There are options to raise the base charge, while trying to keep the consumption rate low. The opposite is also a possibility of raising the consumption rate while keeping the base charge low. Table 3.3.3-1 illustrates some of the possibilities of rate increases to achieve the \$43.57/EDU needed to fund priority 1 projects. The monthly rates below are based on the average consumption in Cave Junction per EDU, 4,203 gallons.

**Table 3.3.3-1 – Proposed sample water rate combinations based on typical Cave Junction consumption, 4,203 gallons**

Base Charge	Base Consumption Rate	Monthly Rate per EDU
\$28.00	\$2.80	\$43.73
\$28.50	\$2.70	\$43.67
\$29.50	\$2.60	\$44.41
\$30.00	\$2.50	\$44.05
\$31.00	\$2.30	\$43.92
\$33.00	\$1.90	\$43.67
\$34.50	\$1.70	\$44.05
\$35.00	\$1.60	\$43.99
\$36.50	\$1.30	\$43.80

Once the base consumption is decided the tier rates would then be calculated. The table above is only showing the base consumption because the average water usage for Cave Junction falls in that category.

The recent wastewater facilities plan prioritized each item from one to ten. This shows the recommended importance of each of the projects related to the others. By running through the same process as the water rates above, the increased sewer rate combinations were determined (Table 3.3.3-2). The monthly rates below are based on the average consumption in Cave Junction per EDU, 4,203 gallons.

The monthly rate increase for priorities 1-5 would be \$10.00/EDU (Table 3.3.1-6). This translates into a typical monthly bill of \$41.61 for the average rate of consumption of 4,203 gallons in order to fund the

projects. Once again, the standardized rate of 7,500 gallons per month should be applied here. If \$10.00 is added to the standardized rate of \$36.03, the monthly sewer bill would be \$46.03/EDU. This comparison illustrates how the City of Cave Junction compares to the standardized rate that financing groups use to provide funding throughout the state.

**Table 3.3.3-2 – Proposed sample sewer rate combinations based on typical Cave Junction consumption, 4,203 gallons**

Base Charge	Consumption Rate	Monthly Rate per EDU
\$31.00	\$1.90	\$41.67
\$31.50	\$1.90	\$42.17
\$32.00	\$1.80	\$42.11
\$32.50	\$1.70	\$42.05
\$33.50	\$1.50	\$41.93
\$34.00	\$1.40	\$41.87
\$35.50	\$1.10	\$41.68
\$36.00	\$1.00	\$41.62

The table above shows that the sewer rates have the option to stay close to the existing rates in a couple of different ways depending on the decision of the city and how they would like to fund these projects.

### 3.3.4. Annual Rate Increases

Inflation continues to increase the cost of operating and maintaining the water system as time passes. The rate of inflation varies due to an abundance of variables that are all beyond the ability of the City to control. Agencies have to respond to inflation by either increasing their charges to their patrons or by reducing services or operating costs. As most public agencies are already operating with lean staff and resources, we are not recommending that the City have a policy of addressing inflationary impacts through budget cuts.

The most recent inflation rate, October 2013, was 0.96%. The most recent full year inflation rate, 2012, was 2.07%. The following table, Table 3.3.4-1, shows the average yearly inflation rate for the previous five full years. It is obvious that there is a wide range of numbers. Because of the wide range of variables and numbers, inflation is very difficult to predict for a study like this. However, the City should be aware of the need to combat inflation and maintain their water rate structure so that they do not “fall behind”. The only real response to not keeping up with inflation is to defer or delay maintenance. Systems that fall into this trap eventually have to make major investments in their infrastructure to catch up.

**Table 3.3.4-1 – Average yearly inflation rate, InflationData.com 2013**

Year	Average Annual %
2012	2.07%
2011	3.16%
2010	1.64%
2009	-0.34%
2008	3.85%
Average	2.08%

For the purposes of this study, the inflation rate of 2% was chosen. This is approximately the five year average of the data listed in the table above. For the existing water rates, this translates into a \$0.58 increase in the first year. Then in the final year of the planning period, 2035, the rate increase would be

\$0.87. In order to cover the inflation now and in the future the annual rate increase should be at least \$0.87. This increase can be done by increasing the base rate only, the consumption rate only or a combination of both.

For the existing sewer rates, this translates to a \$0.63 increase in the first year. Then in the final year of the planning period, 2035, the rate increase would be \$0.96. In order to cover the inflation now in the future, the annual rate increase should be at least \$0.96. This increase can be done by increasing the base rate only, the consumption rate only or a combination of both.

If the City adopts a policy of annual rate increases which will counter inflation rate increases, they will be able to avoid the steep vertical increases that communities face when they only raise rates once every ten years. They will also find that they will be in a better position to operate and maintain their system rather than defer maintenance to offset cost increases delivered by inflation.

### **3.3.5. Conclusions and Recommendations**

Based on our analysis of the previous studies, financial records, and other information and taking into account conservative considerations and assumptions as set forth in this report, we conclude and are of the opinion that:

1. The City's current water and sewer rate structure is not adequate nor is it capable of supporting planned CIP upgrades as set forth in the City's Water Master Plan and Wastewater Facilities Plan. Therefore, a rate increase is recommended at this time to fund at least the priority 1 water projects and priorities 1-5 of the sewer projects.
2. Based on the analysis herein, the City should increase water rates by \$14.77 per month per EDU. This will allow the City to undertake the priority 1 projects. This would increase the monthly water bill to \$43.57/EDU. The City should also increase the sewer rates by \$10.00 per month per EDU. This will allow the City to undertake priorities 1-5 on the CIP list. This would increase the monthly sewer bill to \$41.61/EDU. Any changes to the forecast or conditions of assumptions outlined in this analysis could change these conclusions.
3. The City should implement an annual increase of water and sewer rates to account for inflation. This will prevent the city from getting into situations where they may have to have major rate increases at one time. This will keep the water and sewer funds operating in good condition. A flat rate annual water rate increase should be at least \$0.87. A flat rate annual sewer rate increase should be at least \$0.96. This increase is separate from the increases needed to fund CIP lists.
4. Before moving on to the next phases of the CIP projects (Priority 2 for water and Priorities 6-10 for sewer), the City should complete an updated rate study to reassess the condition of the water and sewer fund, update assumptions, and prepare appropriate adjustments to rates for undertaking those future phases of the work.
5. The current water and sewer rates are both below state standardized averages. This can limit funding that will be needed for future capital projects. The sooner that the city can bring the current rates in line with the standardized averages the better off they will be in the future.