M E M O R A N D U M

TO: Board of Trustees

THROUGH: Steven J. Pinkerton
General Manager

FROM: Joseph J. Pomroy, P.E.
Director of Public Works

SUBJECT: Utility Rate Study Presentation - 2016

DATE: January 4, 2016

I. RECOMMENDATION

That the Board of Trustees provides direction and comment to Staff on the 2016 Five Year Utility Rate Study and proposed utility rate increase for 2016. Some possible recommendations are stated below.

1. Direct staff to prepare documents and Ordinance 2 and Ordinance 4 amendments for a one year 3.2% utility rate increase.
   Or
2. Direct staff to prepare documents and Ordinance 2 and Ordinance 4 amendments for a three year 10.0% utility rate increase, average 3.3% utility rate increase per year.
   Or
3. Direct staff to bring back other options for the February 4, 2016 Board Workshop as specified by the Board.

II. DISTRICT STRATEGIC PLAN

The Utility Rate Study supports Long Range Principle #2, Finance; The District will ensure fiscal responsibility and sustainability of service capacities by maintaining effective financial policies for operating budgets, fund balances, capital improvement and debt management. Under Objectives for 2015-17, it specifically states, Prepare a five year projection of financial results and performance measures for operations, capital improvement and debt service as a part of budget deliberations.

III. FINANCIAL IMPACT AND BUDGET

2016 Five Year Rate Study

The utility rate study for 2016 has been prepared to determine the next five years of operating and capital expenses and to provide sufficient and stable revenue to meet the operating cost increases and the near term capital needs. The analysis is done on a cash flow basis in order to achieve a target reserve fund balance. The reserve fund is set by Board Policy. In the five year period of this rate study reserves will be at target policy levels of $2.5 million while we accumulate additional savings to fund the Effluent Export Project.

Funding for capital asset replacement in Public Works is a blend of funds already collected for that purpose in previous years and current year capital revenues. The District also uses borrowing to pay replacement of capital assets to place some of the financial burden on future beneficiaries of the assets. These have been the traditional methods used in paying for capital in Public Works. We are currently using about 15% of the collected capital revenue to pay for debt. In 2012/13, two significant loans were paid off while we also began payments on the new $3 million, 20-year State Revolving Fund Loan that financed the Burnt Cedar Water Disinfection Plant Project that renovated our water disinfection facilities to achieve compliance with Federal Regulations. The District has a total of four other State Revolving Fund Loans for water and sewer infrastructure.

The rate model is prepared to determine the revenue needs to meet operating and capital expenses while maintaining prudent reserves. Once a revenue target is established, the water and sewer rates are adjusted to generate that revenue in the most equitable way possible. The revenue is also balanced among the various rate components to pay for fixed, variable and capital components. Then the new rate structure is modeled for all of the customer classes and analyzed for equity among the customer classes.

The proposal is to increase raise water rates by 2.4% and sewer rates by 3.8% for a total utility rate increase of 3.2%. The utility rates are scheduled for an average 3.4% increase for the next five years to meet the projections presented in this memo.

5-Year Look Back to the 2011 Utility Rate Study

In 2011, the five year utility rate study was presented to the Board with the following information. (Excerpt from Board Memo, February 9, 2011).

At the end of the 5-year projection we expect to draw down reserves by a net total of $3.2 million and also to borrow $3 million to pay for major capital infrastructure. The rates are currently scheduled for an average 5.8% increase per year for five years to meet the projections presented here. This is greater than last year's projection that rates would increase by 4.6% per year for five years. This caused the need to raise an additional $400,000 in revenue to pay the District's larger share of the Export Project costs. The rate increases for the next two years average 7.5% per year to ramp up this additional CIP revenue requirement.

Looking back now that the five years are complete the rates increased for all customers by an average of 6.1% per year as compared to the projected 5.8% increase per year. Over 5 years, the rates actually increased a total of 34.3% compared to the projected increase of 32.2% projected in the 2011 utility rate study. The driver of this change was the need to increase the capital rate to collect funds for the effluent export project because the Section 595 Program was no longer being authorized at the time.

Utility Rates

The utility rates are being adjusted to meet expected cost increases and to fund future capital replacement. Increasing rates by a constant percentage is a basic concept but it must be verified that in adjusting the rates that no customer class sees a disproportionate change in rates that would unfairly shift the cost burden to other rate payers.

The following table compares the current and the proposed residential water rate. The rates below include a $1.05 total defensible space charge to each user. The base rate for water is increasing by $0.76 per month. The water consumption and tier rates were thoroughly analyzed this year to confirm the cost basis for those rate components. The base consumption charge and the 2nd tier water rate saw increases in the unit rate while the 1st tier water rate was decreased to align with expenses.

Residential Water Rate Comparison

2015 Rate Component	2015 Rate		2016 Rate Component	2016 Rate	Change
Base Rate	$ 9.74		Base Rate	$ 10.00	$0.26
Capital Improvements	$ 13.96		Capital Improvements	$ 14.36	$0.40
Customer Account Fee	$ 3.35		Customer Account Fee	$ 3.45	$0.10
Defensible Space	$ 1.05		Defensible Space	$ 1.05	-
Monthly Water Bill	**$ 28.10**		**Monthly Water Bill**	**$ 28.86**	**$0.76**
Consumption	$ 1.35		Consumption	$ 1.39	$0.04
1st Tier	$ 1.02		1st Tier	$ 0.97	($0.05)
2nd Tier	$ 1.18		2nd Tier	$ 1.23	$0.05

Consumption, 1st Tier, and 2nd Tier are per 1000 gallons of water use.

The following table compares the current and the proposed residential sewer rate. The base rate for sewer is increasing by $1.88 per month and the sewer use rate is increasing by 0.11 per thousand gallons of water use. The sewer use is capped in the summer months for residential customers

Residential Sewer Rate Comparison

2015 Rate Component	2015 Rate		2016 Rate Component	2016 Rate	Change
Base Rate	$ 15.81		Base Rate	$ 16.52	$ 0.71
Capital Improvements	$ 28.79		Capital Improvements	$ 29.86	$ 1.07
Customer Account Fee	$ 3.35		Customer Account Fee	$ 3.45	$ 0.10
Monthly Sewer Bill	**$ 47.95**		**Monthly Sewer Bill**	**$ 49.83**	**$ 1.88**
Sewer Use Rate	$ 2.79		Sewer Use Rate	$ 2.90	$ 0.11

Sewer Use Rate is per 1000 gallons of use.

Operating Revenues and Expenses

The operating revenue is the portion of revenue generated from the water and sewer rates that is not the CIP charge. The operating revenue is increasing by an average of 3.3% per year for five years and is a mix of rate increase and sales of water and sewer. The information below represents the net income for operating, excluding the capital revenue and the depreciation expense. The rate study goal is to keep a balance between operating expenses and revenues over the five year period. The variance between operating revenue and expense is within 3% and the slight loss over 5 years is a conservative, prudent projection. Typically, the Public Works Department beats its budget projection and the projected operating loss is not realized. Every year Public Works budgets the normal and customary expenses plus some additional amount for emergency repairs that may or may not be utilized. There is also a small existing operating reserve fund.

The rate model is revisited annually and recalibrated with actual financial results from the completed fiscal year. Any budget savings stay in the utility fund to offset future rate increases.

The operating expense is the staff costs, services and supplies, utilities, insurance, legal and audit fees, central services expense and the defensible space costs but it does not include depreciation. Years two through five are escalated at a nominal 2% per year over the five year period. The 2016-17 value is not the final budget number but an estimate used for rate setting purposes and is approximately 1% greater than the 2015-16 budget. Final budget numbers are inputted into the rate study for future rate adjustments. We are budgeting increases in wages and benefits, remaining flat for service and supplies and a decrease in utility expenses because of the recent NV Energy rate decrease.

The five year rate study is presented below for operating revenues and expenses.

5-Year Plan	2016-17	2017-18	2018-19	2019-20	2020-21	5-Yr Sum
Operating Revenue	6,543,000	6,759,000	6,982,000	7,214,000	7,454,000	$34,952,000
Operating Expense	(6,847,000)	(7,037,000)	(7,237,000)	(7,441,000)	(7,650,000)	($36,212,000)
					Subtotal	**($1,260,000)**

Capital Revenues and Expenses

The capital revenue is the summation of monthly capital fees collected in the utility rates, connection fees, and interest income and increases by approximately 3.5% per year averaged over 5 years.

The capital expense is the capital improvement projects net of grants. This is the current five year capital plan that is being developed as part of the budget process. The five year capital expenses and revenues are presented in the following table.

5-Year Plan	2015-16	2016-17	2017-18	2018-19	2019-20	5-Yr Sum
Capital Revenue	4,715,000	4,878,000	5,047,000	5,222,000	5,403,000	$25,265,000
Capital Expense	(4,783,000)	(4,295,000)	(4,637,000)	(4,343,000)	(4,642,000)	($22,700,000)
					Subtotal	**$2,565,000**

It is important to remember that the capital expenses are budget estimates with further refinement to occur in the CIP budgeting process. The goal of the rate study is to collect sufficient revenues to fund capital expenses over the following five years.

With the 2012-13 budget year, Public Works began accumulating $2,000,000 per year in savings for the construction of the Effluent Export Project. We expect to have accumulated a total of $10,000,000 by the early construction project start date in spring 2017 while also continuing to collect $2 million annually for this critical project.

Federal Funding of Capital Projects

Over the last 12 years the District has received Federal Funding in the amount of $15,500,000 for the Sewer Effluent Export Project and $3,346,000 for Water Infrastructure Projects. This combined amount of $18,846,000 over 12 years equates to a total savings of $2,095 per residential customer or on average $15 per month. The Effluent Export Project funding comes through our partnership with the US Army Corp of Engineers and we receive funding from the Section 595 Program of the Water Resources and Development Act of Congress. The Water Infrastructure funding comes through the Lake Tahoe Fire Partnership led by the South Lake Tahoe Public Utilities District and is funded through the US Forest Service.

Summary

The proposed utility rate increase is to raise water rates by 2.4% and sewer rates by 3.8% for a total utility rate increase of 3.2%. The rates are currently scheduled for an average 3.4% increase per year for five years to meet the projections presented in this memo.

In 2015-16, total water and sewer revenues for Public Works are budgeted to be $10.85 million and are proposed to be $11.19 million in 2016-17 under this rate

study. This is an increase in revenues of $340,000 from increased commodity sales, additional users and from the rate increase.

The current reserve balance had been built up in preceding years to pay for some of the major capital expenses in the last few years such as the Burnt Cedar Water Disinfection Plant Improvements Project and water and sewer main projects. The reserve balance is a critical fund to be managed in Public Works. The amount of the bonding will be adjusted to insure the reserve fund remains at a prudent balance while also considering the costs of borrowing, the economic conditions in Nevada and the susceptibility of the funds. The contributions to the reserve will be less than $1.5 million over the next five years as we expect to have an uncommitted reserve fund balance in 2021 of $3.0 million.

2015 Five Year Rate Study	**5-Year Total**
Operating and Capital Revenue	$60,217,000
Operating and Capital Expense	$58,912,000
Net increase in reserves	**$1,305,000**

Schedule

The schedule for rate adoption is proposed as follows.

Utility Rate Study	**Date**
Utility Rate Study Presentation	January 14, 2016
Utility Rate Study Presentation (if necessary)	February 4, 2016
Set Date for Public Hearing to Adopt New Utility Rates	March 3, 2016
Conduct Public Hearing and Adopt New Utility Rates	April 27, 2016
New Utility Rates go into effect	May 19, 2016

IV. BACKGROUND

Rate Study Fundamentals

The Public Works Department conducts an annual rate study to calculate the appropriate rates for water and sewer service to meet revenue and expense demands while maintaining an appropriate reserve fund balance. The rate study includes a five year projection for revenues and expenses with an eye out for large capital projects outside of the five year window. This annual effort insures rates are meeting the needs of the District and that adjustments can be made efficiently and effectively. The rate study is based on utility management strategies and industry best practices that are briefly described below.

Effective Utility Management

In 2006, the Environmental Protection Agency (EPA) worked alongside the six largest water and wastewater professional organizations (American Water Works Association (AWWA), Water Environment Federation (WEF), American Public Works Association (APWA), National Association of Water Agencies, National Association of Clean Water Agencies, Association of Metropolitan Water Agencies) collaboratively to develop a benchmarking document called the "Ten Attributes of Effectively Managed Water Sector Utilities". The major strategies that were identified are as follows:

- Financial Viability
- Product Quality
- Customer Satisfaction
- Employee and Leadership Development
- Operational Optimization
- Operational Resiliency
- Community Sustainability
- Infrastructure Stability
- Stakeholder Understanding
- Support and Water Resource Adequacy

Public Works uses all of these management strategies to maximize our resources, improve performance, and safeguard the community's assets for the future. The primary purpose of our annual rate study is to make sure we utilize

the management strategy of financial viability as stated above and more fully described in the next section.

Financial Viability

The water utility sector management strategy defines financial viability as understanding the full life-cycle cost of the utility and establishing and maintaining an effective balance between long-term debt, asset values, operations and maintenance expenditures, and operating revenues. It also establishes predictable rates consistent with community expectations and acceptability to recover costs, provide for reserves, maintain support from bond rating agencies, and plan and invest for future needs.

In other words, the water and sewer rates need to collect revenues equal to the full cost of operations, maintenance and capital replacement of the utility over the long term. This has been dubbed, Full Cost Pricing. Without fully funding a Utility, the value of the community asset will suffer and jeopardize disinfection and the delivery of safe potable water and the collection and treatment of wastewater. Conversely, performing long term financial planning insures that future generations will enjoy the same benefits as customers today in being able to rely on safe potable drinking water and properly collected and treated wastewater to protect the environment. This allows the customer to make personal and economic decisions based on the signaling they receive from the utility rates and system performance.

AWWA Principal of Water Rates, Fees and Charges

The American Water Works Association (AWWA) has 61 Manuals of Practices. The AWWA manual on Principles of Water Rates, Fees and Charges was first written in 1954, and is over 300 pages long covering the detailed practice of setting water rates and charges for a financially viable utility. Manuals such as this are developed by industry experts over decades using the best practices that have been implemented in the industry. This shared knowledge base assists all water agencies in developing and implementing rate structures. It also helps customers when they move from town to town across the United States so they can expect some consistency in how water and sewer services will be charged because of agency acceptance of these best practices.

The District has a long history (25 plus years) of using the principles in this AWWA Manual for determining the type of rate structure that we have to collect the necessary revenues to pay for all costs to operate the water and sewer system. The rate structure used by the District is called the commodity demand

method where costs of service are divided into commodity costs, demand costs, customer costs and direct fire protection costs. This is more fully explained under the rate structure section where fixed, variable and capital improvement costs are described. Generally, it is important to know that the rate structure utilized by the District is a best practice supported by the AWWA and is similar to water rate structures across the United States.

Rate Structure

The Public Works budget is comprised of water, sewer, and trash funds. Water is further broken down into water supply, pumping, treatment, transmission and compliance services. Sewer is further broken down into effluent disposal, pumping, treatment, collection and compliance. General administration includes billing, meter reading, customer service, legal, lobbying, central services and other utility wide expenses. The general administration is spread evenly between sewer and water. Trash will not be a part of the utility rate study.

The water and sewer rates are based on the water and sewer budgets and are made up of three main components - fixed charges, variable charges, and capital improvement charges. Each major division in the water and sewer budget has a portion of fixed and variable costs and the rates are designed to fund these expenses. The fixed, variable and CIP rate components are discussed in more detail below.

Fixed Charges (Water and Sewer Base and Admin Rates)

To provide water and sewer services, there is a portion of the costs that are fixed charges. These are sometimes called the ready to serve costs. Essentially, there is a certain level of costs that are incurred to staff, operate and maintain our system prior to delivering any water or treating any wastewater from our customers. There is a regulatory requirement for minimum staffing to be prepared to provide service, a certain amount of supplies such as tools, training, and equipment that are needed to be ready to serve and there are electrical and gas charges to our facilities so that they can be ready to serve. These fixed charges are calculated as a percentage of the budget components to determine the fixed charges of operating the water and sewer system.

Variable Charges (Water and Sewer Consumption)

To provide water and sewer services, there is a portion of the costs that are variable charges. These charges are the costs to treat and distribute water and to collect, treat and dispose wastewater. The variable charge for water is essentially the cost to pump it out of Lake Tahoe, treat the water and deliver it to the customer. The variable charge for sewer is essentially what it costs to collect the wastewater from each property and deliver it to the wastewater plant, treat the

wastewater, pump and dispose of the effluent and biosolids to the Carson Valley per State and TRPA requirements. This requires staff, chemicals, supplies, tools, equipment, and energy to perform these services.

Capital Improvement Charge

The capital improvement charge funds the replacement of water and sewer infrastructure. There are separate connection fees to new customers to buy into existing infrastructure. The capital charge is based on funding the costs of the five year capital improvement plan with a consideration for the multi-year capital plan out a total of twenty years.

Summary of CIP Rate Changes for the Effluent Export Project

The Effluent Export Project has been the major driver in raising the sewer rates over the last four years and has been discussed in each of the last five utility rate studies. The District currently does not have sufficient reserves to fund this project and it has been necessary to collect the funds through sewer rates in advance of the project. The District has initiated Phase II of the Effluent Export Project to replace the remaining six miles of effluent export pipeline in the Tahoe Basin at a cost of $23 million. Previous capital budgets showed that up to 75% of this work was to be funded through the Section 595 Program. The District is still working with our Federal Legislative Advocate to secure new funding through the Section 595 program. The capital plan has been modified to show that we receive no funding for the Effluent Export, since the availability of these funds appears to be unlikely. The District is also pursuing funding options with other project partners.

The District has worked with the Tahoe Transportation District (TTD) for the last three years on the feasibility of co-locating the new section of effluent export pipeline with the Tahoe Bike Path. At the October 2014 Board of Trustees meeting, the District entered into an amendment of the existing Interlocal Agreement that would allow the completion of the next steps of the project: completion of preliminary engineering and design and conducting the necessary environmental analysis of the proposed alignment to satisfy the National Environmental Policy Act (NEPA) and the Tahoe Regional Planning Agency (TRPA) requirements.

Should TTD be able to secure funding for the final design and construction of the proposed SR-28 bikeway, District Staff estimates there will be substantial savings by co-locating the pipeline within the bikeway. Depending on the total length of pipeline eventually replaced, the District could save upwards of $7,000,000 via co-location and cost sharing with TTD over replacing the pipeline entirely within the SR-28 roadway.

At this time, borrowing costs for long term loans are quite high because of uncertainty in the economy. The District is also a low priority on the Clean Water State Revolving Loan Fund Project list and we do not expect to receive funding under current State Loan funding levels.

Residential Utility Rate Summary

The following table provides the average monthly water and sewer utility bill for our average residential user (71,578 gallons water use per year) in the District's service area from 2011 to the proposed 2016 rates.

Year	Monthly Water Charge	Monthly Sewer Charge	Total Monthly Water and Sewer Charge
2011	$32.81	$43.42	$76.23
2012	$33.97	$46.04	$80.01
2013	$34.66	$51.24	$85.90
2014	$35.41	$55.75	$91.16
2015	$36.15	$57.96	$94.11
2016-Proposed	$37.15	$60.24	$97.39

The average residential rate has increased $21.16 per month from $76.23 in 2011 to $97.39 in 2016. There has been an increase of $11.78 per month to pay for the effluent export project which is 55% of the total rate increase of $ 21.16 per month over the last five years. The following table presents the five year total and annual average rate increases for the median residential customer.

	Monthly Water Charge	Monthly Sewer Charge	Total Monthly Water and Sewer Charge
% of Change 2011-2016	13.2%	38.7%	27.8%
Annual Change over 5 yrs	2.2%	6.8%	5.0%

Over the last five years, the residential family median user has seen an average rate increase of 5% per year. The capital rate has increased by 3.9% and the operating rate has increased by (a total of $5.12) 1.3% per year for 5 years.

The breakdown of the median residential user utility bill by the variable and fixed portions is provided in the following table.

Charge	Amount	% of Bill
Variable	$18.70	19%
Fixed	$33.42	34%
Capital	$44.22	46%
Defensible Space	$1.05	1%
Total	$97.39	100%

IV. ALTERNATIVES

The rate structure used by the District has been in place since the installation of water meters over 25 years ago.

V. COMMENTS

Staff has investigated the equity of the rate structure for the various customer classes in 2015. Equity is calculated by determining the proportion of fixed and variable demand on the water and sewer system (size of water meter, water consumption, sewer consumption, etc) by each customer class compared to the fixed and variable revenue collected from each customer class (water and sewer rate revenue). The current rate structure exhibits equity amongst the major user classes. Miscellaneous accounts include effluent sales, state park facilities, construction accounts, etc.

Customer Class	Revenue as % of Water Revenue	Demand as % of Water Demands
Commercial	10.5%	10.5%
Residential	82.2%	81.3%
IVGID Facilities	5.3%	6.2%
IVGID Snowmaking	1.6%	1.8%
Misc accounts	0.4%	0.2%

Customer Class	Revenue as % of Sewer Revenue	Demand as % of Sewer Demands
Commercial	10.5%	10.2%
Residential	87.6%	88.1%
IVGID Facilities	1.4%	1.4%
IVGID Snowmaking	0%	0%
Misc accounts	0.5%	0.3%

The current use patterns are showing the rate structure is equitable among the customer classes but we are beginning to see some changes in use patterns that will need to be monitored for the impact to equity. We have seen a change in the multi-family use patterns as occupancy rates are decreasing. The current rate structure is a full service cost model with a pay for what you use commodity charge. This naturally creates a rate structure that is equitable since all customers will pay for what they use. A customer's base rate is calculated from the meter size which is equivalent to the customer's demand potential. The District's irrigation and snowmaking accounts do not pay excess tier charges on water which is why that revenue is less than the demand for those customer classes.

Area Water and Sewer Rates

The presentation at the Board meeting includes a slide on the area water and sewer rates. The Table below shows the area water and sewer rates using the average IVGID customer for the use pattern.

Agency	Monthly Water and Sewer Rate
Incline Village GID	$ 97.39
South Tahoe PUD	$ 93.21
Tahoe City PUD	$ 134.76
North Tahoe PUD	$ 113.69
Truckee Donner PUD	$ 107.46
Kingsbury GID	$ 149.52
Round Hill GID	$ 111.00

VI. BUSINESS IMPACT

This item is a "rule" within the meaning of Nevada Revised Statutes, Chapter 237, but it does not impose a direct and significant economic burden on a business, or directly restrict the formation, operation or expansion of a business, and therefore does not require a Business Impact Statement.