

Staff Report

for the Board Meeting of February 26, 2020

TO: Board of Directors

FROM: Marvin Davis, MBA, CPA, Finance Manager/Treasurer
Alex T. Handlers, MPA, CIPMA, Bartle Wells Associates
Erik W. Helgeson, MBA, Bartle Wells Associates

DATE: February 21, 2020

SUBJECT: Water 2020 Cost of Service (COS) Workshop

FINANCE

RECOMMENDATION:

Review and discuss the Water 2020 COS report.

BACKGROUND:

At the April 24, 2019 Board meeting, the Board adopted Resolution 2019-06, receiving the 2019 Water COS report. During the meeting, the General Manager was directed to develop a COS report that determines the costs to provide raw and treated water based on actual costs. Staff followed the below process to secure a firm to assist with this project.

Process to Update Water Rates

Staff commenced updating the District's cost to provide water by securing an outside consulting firm with many years of experience. Following Procurement Policy 3080, staff issued the Request for Proposal (RFP) to eleven firms and received a response from two firms. Members of the management team reviewed both responses and selected Bartle Wells Associates through this process. The District contracted with Bartle Wells to provide the attached Water COS report. This firm is familiar with the District's internal costs structure and was used to provide the District's 2009 Water COS report. Please see the attached resumes of the project managers completing the rate report.

Development & Methodology

Upon receipt of the assignment, staff developed an internal tracking system and began requiring administrative employees to allocate their time. The internal tracking system was used for personnel who normally would not allocate their time between the treated and raw operations. Staff tracked their time from July 2019 through December 2019. The 2020 COS report provides more detail.

Staff and the consultants reviewed the detailed transactions from FY 2017 through December FY 2019. Essentially, the following approach was used to complete the assignment:

- Complied labor and non-labor transactional data over this period, approximately 200,000 rows of data
- Identified and mapped projects and facilities (assets) to the service zones for treated, campground treated and raw water systems
- Assets, such as watersheds, reservoirs, canals, etc. benefit both customers, so staff used a percentage ratio on these costs based on the treated/raw AF delivered.
- For structures such as offices, a 50/50 ratio was used
- There are non-labor transactions not associated with a project or facility. To allocate these costs, staff used the cumulative percentage (2017 – 2019) determined for that asset to spread these costs.
- For labor transactions not associated with a project or facility, we used percentages returned from the FY 2020 internal labor tracking system.
- Staff multiplied the percentages determined from the above methodology against the transaction dollars
- Created 3 Year average summary charts and tables
- Developed a narrative report

Findings

The historical analysis indicates, on average, treated operations consume 53.7% of the system's operating costs while raw operations consume 46.3% of the system's operating costs. For raw water customers to achieve consistency with the COS consumption percentage, their revenue contribution (approx. 32%, see Table 4 page 5) must increase to 46.3%. If we assume a sustainable transfer in the amount of \$6 million, these customers' contributions must increase another 25.5% as the 2020 budgeted transfer-ins are \$13.5 million.

It is important to recognize that Campground water systems have been transferred into the Water Fund and are recognized as treated water systems. The COS report segregated them to demonstrate these systems' costs consumption because the systems are beginning to require additional resources to maintain. As of FY 2019, the systems consumed \$312,173 in resources (see Table 8, page 10), which is a little more than a 1% increase in rates.

Strategic Goal

The development of detailed cost reports achieves Goal Number 1 of the District's Strategic Plan by demonstrating proactive management of our financial resources.

BUDGETARY IMPACT: To be discussed.

/MD

Attachments: (2)

- 2020 Water COS Report
- Consultant Resumes



Nevada Irrigation District Cost of Service Study February 2020



BARTLE WELLS ASSOCIATES
INDEPENDENT PUBLIC FINANCE ADVISORS



BARTLE WELLS ASSOCIATES
INDEPENDENT PUBLIC FINANCE ADVISORS

1889 Alcatraz Avenue
Berkeley, CA 94703
510 653 3399 fax: 510 653 3769
www.bartlewells.com

February 20, 2020

Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945

Re: Cost of Service Study

Bartle Wells Associates is pleased to submit the attached *Cost of Service Study*. The study estimates the cost of service for NID's treated and raw water systems and also to the separate zones served by each system. The study is based on a comprehensive effort by District staff to identify expenses incurred by each of the District's divisions and zones over past three fiscal years 2017 through 2019.

Based on analysis of data from the past three years, NID's treated water system accounts for approximately 53.7% of total operating and maintenance expenses and the raw water system accounts for approximately 46.3% of total operating expenses. The study also identifies funding sources that offset the revenue requirements from rates, compares the revenues from NID's treated and raw water rates to the cost of service for each system, and identifies the level of rate adjustments that would be needed to align rates with costs of service.

I enjoyed working with the District on this assignment and appreciate the input and assistance received from the District. Please contact me anytime if you have questions about the analysis presented in the report.

Sincerely,

BARTLE WELLS ASSOCIATES

Alex Handlers
Principal/Vice-President

Nevada Irrigation District Cost of Service Study



Table of Contents

1. Background, Objectives & Summary of Findings.....	1
Background.....	1
Objectives.....	1
Water Division Revenues & Expenses.....	2
Hydroelectric Division Revenues & Expenses	3
Funding Sources that Subsidize Water Rates.....	4
Cost of Service vs. Rates	5
Summary of Treated vs. Raw Water Cost of Service.....	6
Water Rates vs. Cost of Service	8
2. Cost of Service by Water System & Zone	9
Cost of Service by Zone.....	9
3. Cost of Service Methodology.....	11
Cost of Service Methodology Overview.....	11
Historical Cost Development	11
Allocation of Salaries	13
Allocation of Benefits	14
Allocation of Other Operating Expenses.....	15

Appendix A – Map of Water System Zones

Appendix B - Supporting Tables

1. Background, Objectives & Summary of Findings

Background

The Nevada Irrigation District (NID or District) provides water service to over 25,000 homes, businesses and farms throughout a 450 square-mile service area that includes portions of Nevada, Placer, and Yuba Counties. The District provides raw water, primarily for agricultural irrigation, and treated potable water for domestic, commercial, municipal and industrial needs. The District also produces hydroelectric energy and provides recreational services at its reservoirs in the foothills of the Sierra Nevada Mountains. NID was formed in 1921 and is governed by a five-member board of directors elected from five regions within the District's service area.

NID's water supply comes from natural runoff from over 70,000 acres of high mountain watershed in the Sierra Nevada Mountains. NID owns and operates 10 major and 17 minor reservoirs, more than 475 miles of canals, six water treatment plants, 13 water systems, and over 400 miles of treated water pipelines. NID's water system serves approximately 19,000 treated water customers and 6,000 raw water customers.

NID is a leader among Northern California water agencies in the production of clean, hydroelectric energy. The District began producing power in 1966 and has seven power plants that generate enough electricity to supply the equivalent of more than 60,000 homes. NID's hydroelectric division generates revenues that are used to help defray the costs of operating NID's water systems. NID also operates recreational facilities and campgrounds and provides opportunities for boating and other water sports at District reservoirs.

Objectives

NID retained Bartle Wells Associates (BWA) to assist the District with a comprehensive effort to identify the cost of service for a) providing treated water vs. raw water service, and b) providing both treated and raw water service to each of the District's service zones. The analysis is based on data collected by the District from the past three years, 2017 to 2019. The findings presented in this report were developed with input from District staff and represents a comprehensive effort to identify costs associated with providing treated and raw water service. It is important to note that the cost of service analysis differs from a full rate analysis in that it only identifies the historical breakdown of funding requirements for each division and zone. As a subsequent step, this information could be incorporated into a rate study.

Water Division Revenues & Expenses

To provide some financial background, Table 1 shows a breakdown of water division revenues and expenses for 2019 and 2020. The top section of the table shows operating revenues and expenses, and the bottom section of the table shows non-operating revenues and capital expenses. As shown on the table, the water division relies on substantial funding from multiple sources other than water rates to pay for both operating and capital expenses.

Table 1 – Water Division Revenues & Expenses

	2019 Estimates	2020 Budget
WATER DIVISION		
Operating Revenues		
Treated Water Rate Revenues	16,544,000	19,208,000
Raw Water Rate Revenues	7,616,000	7,358,000
Interest Earnings	1,487,000	971,000
Hydro Transfer In	8,991,000	13,580,000
Grants for Operations	736,000	600,000
Other Revenues/Transfers	2,656,000	2,309,000
Total	38,030,000	44,026,000
Operating Expenses & Debt Service		
Salaries	13,456,000	14,334,000
Benefits	9,661,000	12,407,000
Materials/Chemicals/Consultants	8,853,000	12,466,000
Other Operating Expenses	1,617,000	1,837,000
Debt Service	4,190,000	4,190,000
Total	37,777,000	45,234,000
Operating Revenues Less Expenses	253,000	(1,208,000)
Non-Operating Revenues		
Property Taxes	12,677,000	13,057,000
Grants for Capital Projects	4,277,000	0
Drawdown of Bond Proceeds	2,290,000	10,492,000
Transfer In - CapFee, Hydro	1,375,000	400,000
Total	20,619,000	23,949,000
Non-Operating Expenses		
Capital Projects	20,619,000	22,922,000
Non-Operating Revenues Less Expenses	0	1,027,000
Water Division Net Income	253,000	(181,000)

Hydroelectric Division Revenues & Expenses

Table 2 shows annual revenues and expenses of NID’s hydroelectric division for 2019 and 2020. The hydroelectric division generates substantial net income that is transferred to other divisions to help fund operating expenses. Before accounting for any transfers to other divisions, the hydroelectric division generated about \$9.1 million of net income in 2019 and is budgeted to generate a little less than \$8.0 million of net income in 2020. The amount of net income generated by the hydroelectric division is projected to decrease to roughly \$6 million per year in future years, largely due to projected debt service funding requirements for an anticipated bond issue in 2021.

As shown near the bottom of the table, transfers from the hydroelectric division to other divisions exceed the amount of net income generated each year, resulting in budget deficits that require a substantial drawdown of hydroelectric fund reserves.

Table 2 – Hydroelectric Division Revenues & Expenses

	2019 Estimates	2020 Budget
HYDROELECTRIC DIVISION		
Revenues		
Hydroelectric Fees	24,311,000	24,888,000
Operating Expenses		
Salaries	2,938,000	3,938,000
Benefits	1,787,000	2,549,000
Materials/Chemicals/Consultants	4,039,000	3,923,000
Other Operating Expenses	1,580,000	2,156,000
Total	10,344,000	12,566,000
Hydro Capital Projects	4,818,000	4,345,000
Revenues Less Expenses (Net Income)	9,149,000	7,977,000
Transfer to Water & Rec	10,980,000	13,895,000
Hydroelectric Net Income After Transfers	(1,831,000)	(5,918,000)

Funding Sources that Subsidize Water Rates

NID’s costs of providing water service are supported by a number of funding sources other than water rates. These other funding sources substantially reduce the funding requirements from NID’s water rates and allow NID to levy water rates that are significantly below to the cost of service. These other revenue sources include:

- **Property Tax Revenues** – NID receives property tax revenues that are used to fund the District’s capital improvement programs and fund reserves for repairs and replacements.
- **Hydroelectric Transfers** –NID’s hydroelectric division generates substantial budget surpluses which are used to help pay water division operating and maintenance expenses. Some years, water division operations receive additional subsidies from drawdowns of hydroelectric division fund reserves. The amount of net revenues generated by the hydroelectric division is projected to decrease to roughly \$6 million per year in future years. Funding in excess of this level would require additional drawdowns of hydroelectric division fund reserves.
- **Other Non-Rate Revenues** – NID generates revenues from interest earnings, connection fees, timber sales and other miscellaneous fees and revenues that are used to help offset the funding requirements from water rates.
- **Grant Funding** – Although grant funding is difficult to obtain, NID has been successful in obtaining grant funding and actively pursues grant funding when applicable.

Table 3 – Summary of Funding Sources that Offset Water Rate Funding Requirements

	2019 Estimates	2020 Budget
Property Taxes	12,677,000	13,057,000
Hydro Transfer In (from Annual Revenues)	8,991,000	7,977,000
Hydro Transfer In (from Hydro Fund Rsrvs)	0	5,603,000
Grants	5,013,000	600,000
Other Revenues & Transfers	4,031,000	2,709,000
Total	38,030,000	44,026,000

Note: Excludes projected \$12,782,000 drawdown of bond proceeds over the two years shown.

Cost of Service vs. Rates

Tables 4 and 5 compare NID's treated and raw water rate revenues to various operating funding targets for 2019 and 2020. The funding targets exclude capital improvement expenditures which are primarily funded by NID's property tax revenues. As shown, NID's combined treated and raw water rate revenues funded only 64% of total water operating expenses in 2019 and 59% of total operating expenses in 2020. After accounting for the various other funding sources – including substantial transfers in from the hydroelectric division – water rate revenues slightly exceeded the net operating funding requirement in 2019 and are budgeted to fall about \$1.2 million short of the net operating funding requirement in 2020.

Table 4 – 2019 Water Rate Revenues as % of Operating Expenses

	2019 Estimated Revenues	% of Water Rate Revenues	% Cost Recovery from Water Rates		
			% of Total Water Operating Exps	% of Funding Req't Before Hydro Trnsfr	% of Net Rate Requirement*
Funding Targets			\$37,777,000	\$32,898,000	\$23,907,000
Treated Water Rates	\$16,544,000	68%	44%	50%	69%
Raw Water Rates	<u>7,616,000</u>	<u>32%</u>	<u>20%</u>	<u>23%</u>	<u>32%</u>
Total	24,160,000	100%	64%	73%	101%

* Net Funding Requirement after a transfer in of \$8,991,000 from the hydroelectric division.

Note: Funding Targets exclude capital improvement project costs which are funded separately by property taxes.

Table 5 – 2020 Water Rate Revenues as % of Operating Expenses

	2020 Budgeted Revenues	% of Water Rate Revenues	% Cost Recovery from Water Rates		
			% of Total Water Operating Exps	% of Funding Req't Before Hydro Trnsfr	% of Net Rate Requirement*
Funding Targets			\$45,234,000	\$41,354,000	\$27,774,000
Treated Water Rates	\$19,208,000	72%	42%	46%	69%
Raw Water Rates	<u>7,358,000</u>	<u>28%</u>	<u>16%</u>	<u>18%</u>	<u>26%</u>
Total	26,566,000	100%	59%	64%	96%

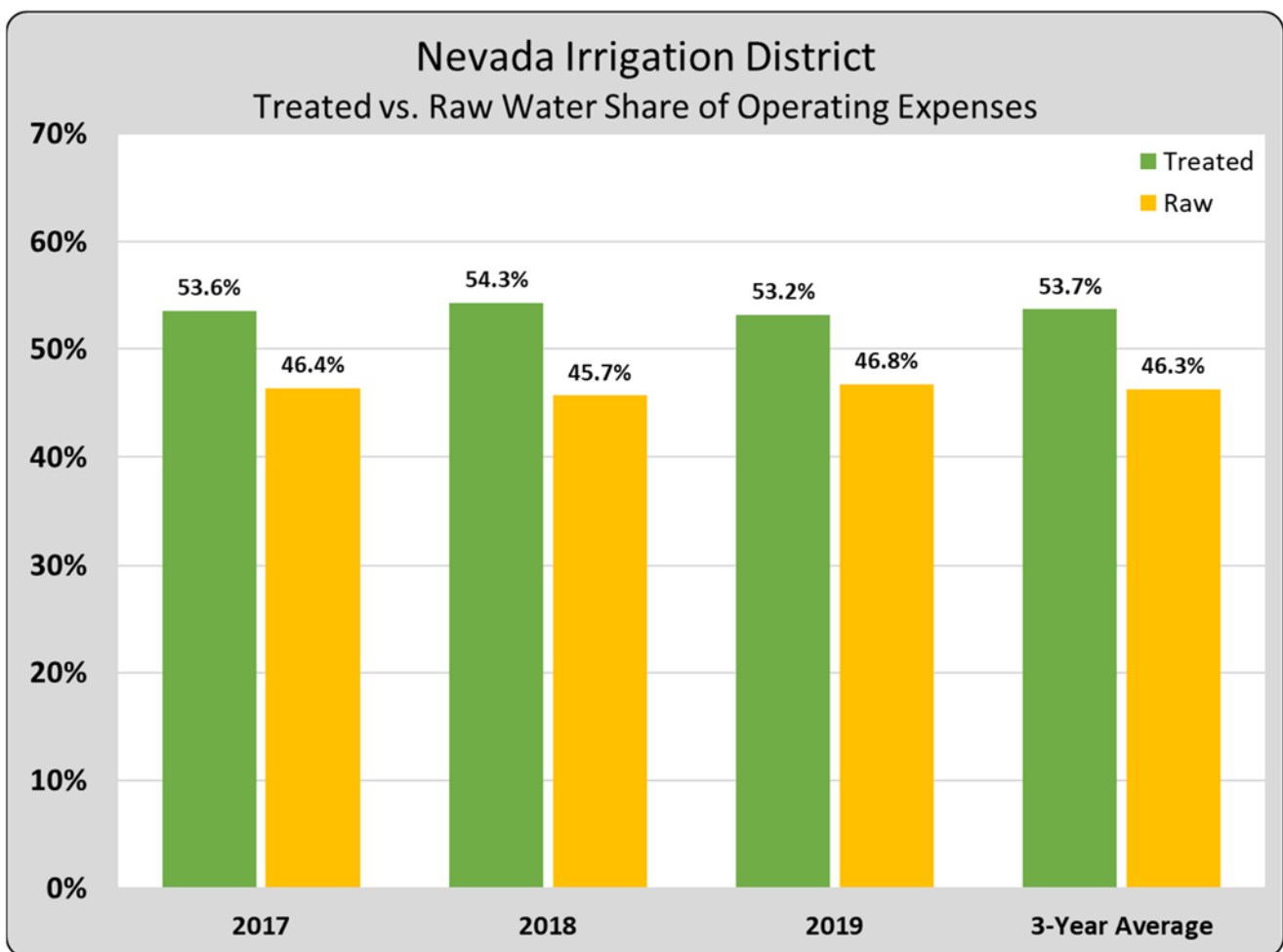
* Net Funding Requirement after a transfer in of \$8,991,000 from the hydroelectric division.

Note: Funding Targets exclude capital improvement project costs which are funded separately by property taxes.

Summary of Treated vs. Raw Water Cost of Service

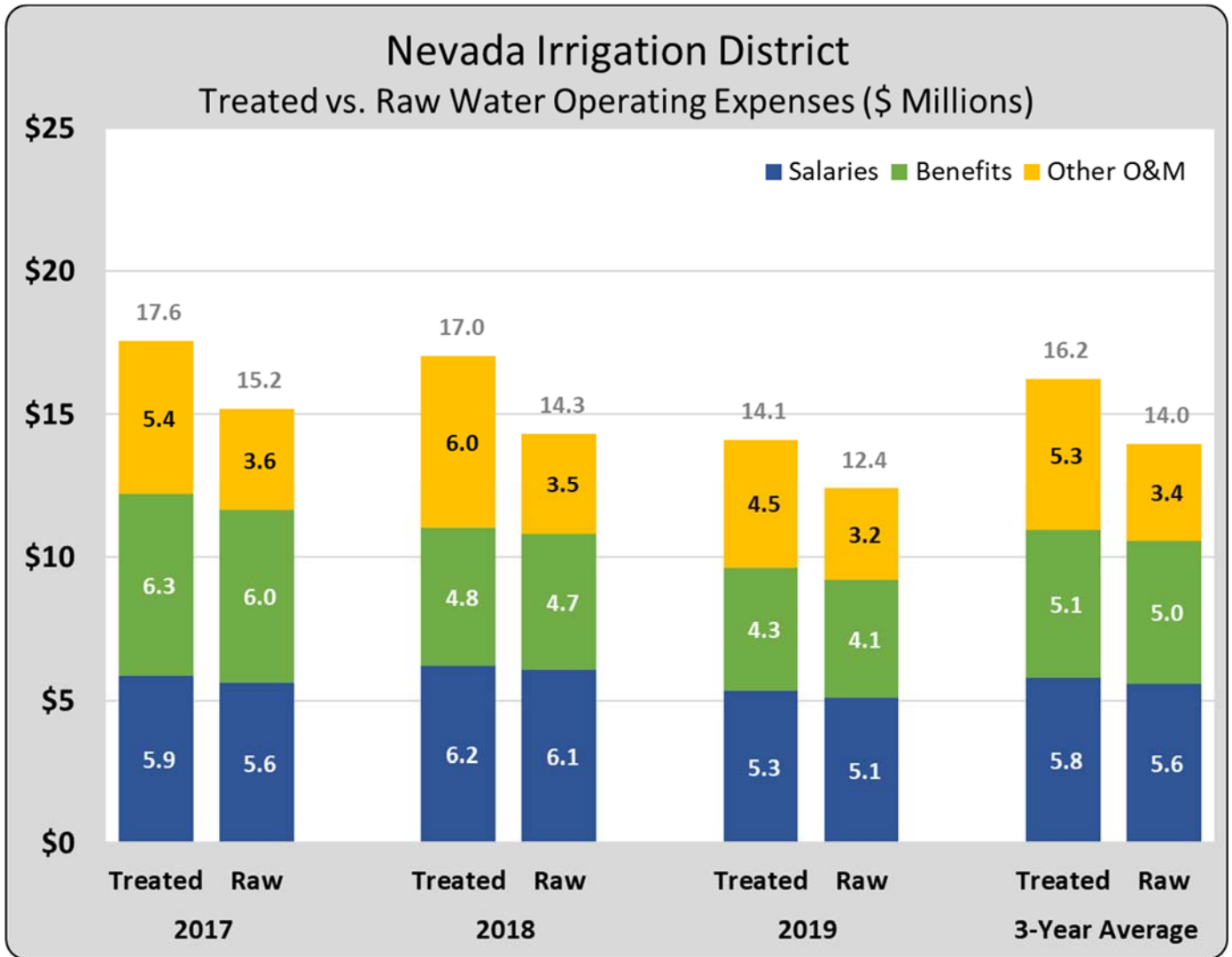
Treated Water vs. Raw Water: Comparison of Annual Operating & Maintenance Expenses

The chart below compares the percentage of annual operating and maintenance expenses – excluding capital improvement expenditures – associated with providing treated water vs. raw water service for the past three years. Capital expenditures are excluded because they are typically funded separately by NID from annual property taxes. Based on a 3-year average, treated water accounts for roughly 53.7% and raw water accounts for roughly 46.3% of operating and maintenance expenses for water service. The share of costs for treated vs. raw water service remained relatively consistent over the past three years.



Note: 2019 numbers reflect partial year data from January - October.

The following chart shows a breakdown of the various operating cost components for treated vs. raw water service.



Water Rates vs. Cost of Service

Table 6 compares revenues received from treated and raw water rate rates vs. the net operating funding requirement from water rates based on the cost of service analysis. The table shows the percentage rate adjustment for treated and raw water rates needed to align rates with the net operating funding requirement for 2019, 2020, and for 2020 assuming only a \$6 million transfer in from the hydroelectric division. Based on financial projections, the hydroelectric division can generate a sustainable level of roughly \$6 million per year in net revenues for transfer to the water division. As shown in the bottom section of the table, treated water rates would decrease and raw water rates would need to substantially increase in order to align each system's rates with the estimated cost of service.

Table 6 – 2019 Rate Differential with Cost of Service

	2019 Estimates	2020 Budget	2020 \$6M Hydro Trsfr
Water Rate Operating Funding Requirement			
Water Operating Expenses*	\$37,777,000	\$45,234,000	\$45,234,000
Less Other Funding Sources	(4,879,000)	(3,880,000)	(3,880,000)
Less Hydro Transfers In	<u>(8,991,000)</u>	<u>(13,580,000)</u>	<u>(6,000,000)</u>
Net Funding Requirement from Water Rates	23,907,000	27,774,000	35,354,000
Operating Cost of Service			
<i>% based on 3-year average cost of service analysis</i>			
Treated Water	53.7% 12,838,000	14,915,000	18,985,000
Raw Water	46.3% <u>11,069,000</u>	<u>12,859,000</u>	<u>16,369,000</u>
Total	23,907,000	27,774,000	35,354,000
Water Rate Revenues			
Treated Water	16,544,000	19,208,000	19,208,000
Raw Water	<u>7,616,000</u>	<u>7,358,000</u>	<u>7,358,000</u>
Total	24,160,000	26,566,000	26,566,000
Difference: Cost of Service Less Rate Revenues			
Treated Water	(3,706,000)	(4,293,000)	(223,000)
Raw Water	<u>3,453,000</u>	<u>5,501,000</u>	<u>9,011,000</u>
Total	(253,000)	1,208,000	8,788,000
Rate Adjustments to Fund Cost of Service			
Treated Water Rate Adjustment	-22.4%	-22.4%	-1.2%
Raw Water Rate Adjustment	<u>45.3%</u>	<u>74.8%</u>	<u>122.5%</u>
Overall Rate Adjustment	-1.0%	4.5%	33.1%

Note: Operating funding requirement excludes capital improvements which are funded by property taxes, not rates.

2. Cost of Service by Water System & Zone

Cost of Service by Zone

The following tables shows a 3-year average of operating and maintenance expenses by service zone for the treated and raw water systems based on the cost of service analysis.

Table 7 – Three-Year Average of Operating Expenses by System & Zone

System & Zone	Treated Water O&M	Raw Water O&M
	3-Year Average	3-Year Average
Treated Water System		
E. George	3,961,335	4,448
Lake of the Pines	1,929,614	13,881
Lake Wildwood	2,039,298	610
Loma Rica	2,344,329	11,155
North Auburn	2,013,072	4,582
Smartsville	278,398	0
Support Systems	9,414	2,616
Subtotal	12,575,460	37,291
Treated & Raw System		
Cascade	200,906	1,495,986
Deer Creek South	432,640	1,599,757
Support Systems	1,493,823	1,511,032
Subtotal	2,127,369	4,606,775
Raw Water System		
Auburn Ravine	14,777	1,046,733
Cascade	200,906	1,495,986
Combie Ophir	25,140	2,359,941
Combie Phase	382,896	651,813
Combie Phase & Ophir	1,169	2,945
Deer Creek North	166,264	1,269,879
Deer Creek South	432,640	1,599,757
Fiddler Green	604	51,952
Support Systems	163,199	840,428
Subtotal	1,387,595	9,319,434
Campground Water System		
Jackson Mead. Aspen	9,000	0
Jackson Mead. Woodcamp	3,022	0
Long Ravine	0	0
Peninsula	3,107	0
Recreation	60	0
Scotts Flat I	45,327	0
Scotts Flat II	14,270	0
Support Systems	66,599	8,434
Subtotal	141,385	8,434
Grand Total	16,231,809	13,971,933
% of Annual Total	53.7%	46.3%

Table 8 – Three-Year Annual Expenses by System, Zone & Asset

System & Zone	Treated Water O&M				Raw Water O&M			
	2017	2018	2019	3-Year Avg	2017	2018	2019	3-Year Avg
Treated Water System								
E. George	3,797,980	4,213,936	3,872,090	3,961,335	2,781	10,029	533	4,448
Lake of the Pines	1,878,783	1,919,589	1,990,470	1,929,614	3,682	29,336	8,625	13,881
Lake Wildwood	2,504,574	2,355,909	1,257,410	2,039,298	-	629	1,200	610
Loma Rica	2,135,628	2,874,639	2,022,720	2,344,329	376	21,231	11,859	11,155
North Auburn	2,119,326	2,454,785	1,465,105	2,013,072	1,232	3,956	8,557	4,582
Smartsville	304,061	317,773	213,361	278,398	-	-	-	-
Support Systems	5,994	12,851	9,397	9,414	-	1,245	6,602	2,616
Subtotal	12,746,346	14,149,480	10,830,555	12,575,460	8,070	66,425	37,377	37,291
Treated & Raw System								
Cascade	278,993	159,029	164,696	200,906	1,569,510	1,569,782	1,348,666	1,495,986
Deer Creek South	1,148,837	8,403	140,681	432,640	1,846,036	1,522,928	1,430,308	1,599,757
Support Systems	1,098,560	1,633,593	1,749,316	1,493,823	969,608	1,623,283	1,940,204	1,511,032
Subtotal	2,526,390	1,801,024	2,054,692	2,127,369	4,385,154	4,715,993	4,719,178	4,606,775
Raw Water System								
Auburn Ravine	(644)	13,867	31,108	14,777	1,046,640	1,013,977	1,079,580	1,046,733
Cascade	278,993	159,029	164,696	200,906	1,569,510	1,569,782	1,348,666	1,495,986
Combie Ophir	12,656	52,150	10,615	25,140	2,649,796	2,497,079	1,932,948	2,359,941
Combie Phase	467,183	366,675	314,830	382,896	586,960	826,600	541,880	651,813
Combie Phase & Ophir	860	-	2,647	1,169	6,472	-	2,364	2,945
Deer Creek North	239,210	153,566	106,015	166,264	1,987,894	969,460	852,284	1,269,879
Deer Creek South	1,148,837	8,403	140,681	432,640	1,846,036	1,522,928	1,430,308	1,599,757
Fiddler Green	1	1,129	682	604	75,222	38,282	42,351	51,952
Support Systems	130,536	223,848	135,212	163,199	1,036,390	1,109,335	375,558	840,428
Subtotal	2,277,631	978,668	906,485	1,387,595	10,804,921	9,547,443	7,605,938	9,319,434
Campground Water System								
Jackson Mead, Aspen	-	-	27,001	9,000	-	-	-	-
Jackson Mead, Woodcamp	-	-	9,066	3,022	-	-	-	-
Peninsula	-	-	9,321	3,107	-	-	-	-
Recreation	-	179	-	60	-	-	-	-
Scotts Flat I	4,481	106,118	25,383	45,327	-	-	-	-
Scotts Flat II	-	-	42,810	14,270	-	-	-	-
Support Systems	-	1,204	198,592	66,599	-	-	25,301	8,434
Subtotal	4,481	107,501	312,173	141,385	-	-	25,301	8,434
Grand Total	17,554,849	17,036,674	14,103,905	16,231,809	15,198,144	14,329,861	12,387,795	13,971,933
% of Annual Total	53.6%	54.3%	53.2%	53.7%	46.4%	45.7%	46.8%	46.3%

Note: 2019 numbers reflect partial year data from January - October.

3. Cost of Service Methodology

Cost of Service Methodology Overview

The objective of the cost of service analysis was to determine a) costs associated with the District's treated water vs. raw water divisions and b) costs allocable to each service zone within those divisions. The analysis was based on District financial data from the past three years 2017 – 2019 which includes a detailed breakdown of expenses by division and by zone. Costs that were not assigned to a specific service zone were reallocated to the treated and raw water divisions and subsequently to each service zone within the treated and raw water divisions based on the best information available. In order to verify the cost of salaries that were not initially assigned to any specific zone, the District conducted a detailed time-tracking analysis in 2019 to identify the amount of administrative and support staff time spent on activities related to each of the District's four divisions: treated water, raw water, hydroelectric, and recreation.

Historical Cost Development

District staff completed a comprehensive effort to identify costs associated with its various divisions and service zones. Detailed financial data developed by staff for 2017 through October 2019 was used by BWA to develop the cost of service analysis presented in this report. The following approach was used in the cost of service analysis:

- District staff compiled labor and non-labor transactional data over the cost evaluation period resulting approximately 200,000 rows of data
- For transactions coded to projects and facilities, District staff allocated the percentage of expenses to the treated and raw water systems, as well as to the hydroelectric and recreation divisions
- Projects and facilities were mapped to each service zone to facilitate a breakout of the cost of service for each zone
- A little over half of salaries were directly mapped to specific facilities and zones over the 3-year evaluation period. For general salary transactions not allocated to a specific project or facility – salaries mostly for administrative and support services – costs were reallocated to each zone on a pro-rata basis according to each zone's share of total allocated salaries.
- Additionally, staff conducted a detailed time-tracking analysis in 2019 to provide additional verification of the share of unassigned operating expenses allocable to treated vs. raw water.

- Benefits were allocated to each service zone in proportion to the share of salaries allocated to treated and raw water and to each zone.
- Roughly half of non-labor operating expenses were directly mapped to specific facilities and zones over the 3-year evaluation period. For general operating expense transactions not allocated to a specific project or facility – non-labor expenses mostly for administrative and support services – costs were reallocated to each zone on a pro-rata basis according to each zone’s share of total allocated non-labor expenses.
- Based on the approach described above, all costs were directly or proportionally mapped to the treated and raw water systems and to each zone, resulting in a 3-year average operating cost allocation for the treated and raw water systems
- The treated and raw water operating cost percentages were subsequently applied to the funding requirements for 2019 and 2020 to determine the adequacy of existing rates and to identify treated and raw rate adjustments needed to bring each system’s rates in line with the cost of providing service.
- BWA developed a number of tables mapping costs to the water systems, zones, and assets as well as tables and charts summarizing the findings that are incorporated into this report
- District staff developed a 5-year financial forecasting model to project future funding needs and rate requirements for internal planning purposes

Based on NID’s financial data, the cost of service analysis included the following three categories of operating expenses.

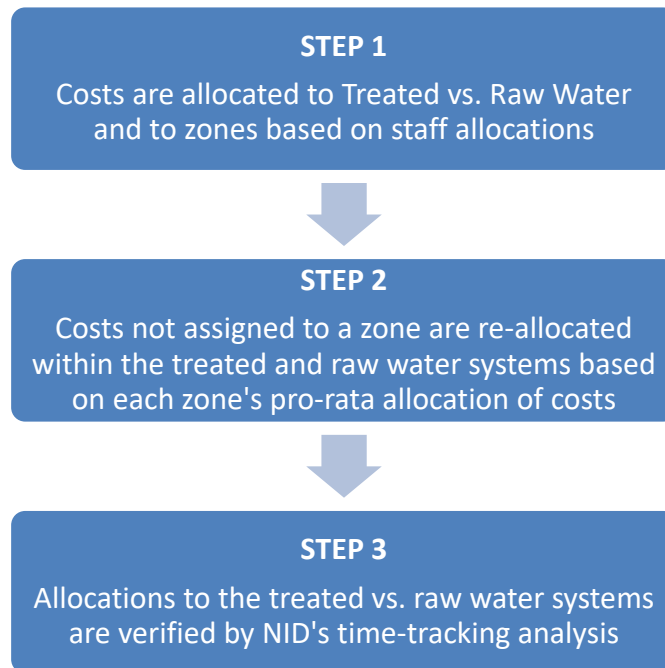
- Salaries
- Benefits
- Other Operating Expenses

The following sections of the report describe how costs were allocated for each of the three operating expense categories listed above. BWA acknowledges that other approaches could have been used to allocate costs – particularly for administrative and support service. However, BWA believes the cost allocations presented in this report reasonably reflect NID’s costs of providing treated and raw water service.

Allocation of Salaries

Salaries are allocated to the treated and raw water systems and to each zone based on District staff allocations from the past three years. Cost allocations to specific zones account for a little over half of total salaries. The remaining share of salaries not assigned to any specific zone are apportioned to treated vs. raw water service based on staff allocations from the 3 years of financial data. These costs are further allocated to the service zones within each system based on the proportionate share of salaries initially allocated to each zone within the treated or raw water systems. Additionally, staff conducted a detailed time-tracking analysis in 2019 to provide additional verification of the share of administrative and support service salaries allocable to treated vs. raw water. The District's time tracking analysis is very close to the results from staff salary allocations from the past three years with only a slightly higher share of salaries allocated to the raw water system.

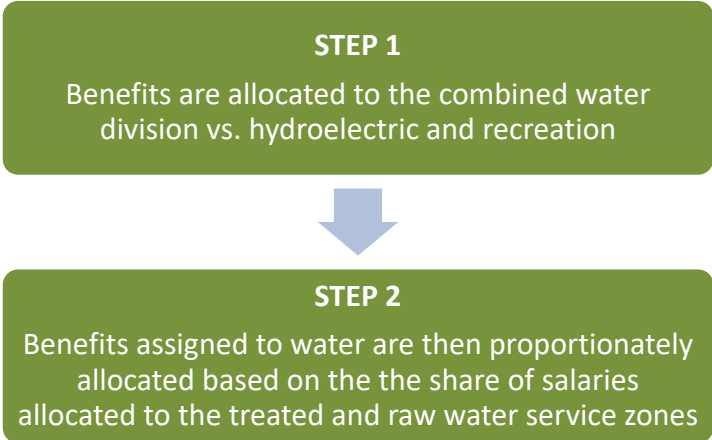
Cost Allocation of Salaries



Allocation of Benefits

Based on NID’s financial data, benefits are first assigned to the District’s combined water divisions (including both treated and raw water) vs. the other divisions (hydroelectric and recreation). Subsequently, the share of benefits assigned to the combined water divisions is further allocated to treated and raw water divisions and service zones based on the share of salaries allocated to the treated and raw water service zones. As such, the share of water division benefits allocated to treated vs. raw water and to each zone correspond with the share of salaries allocated to each division and zone.

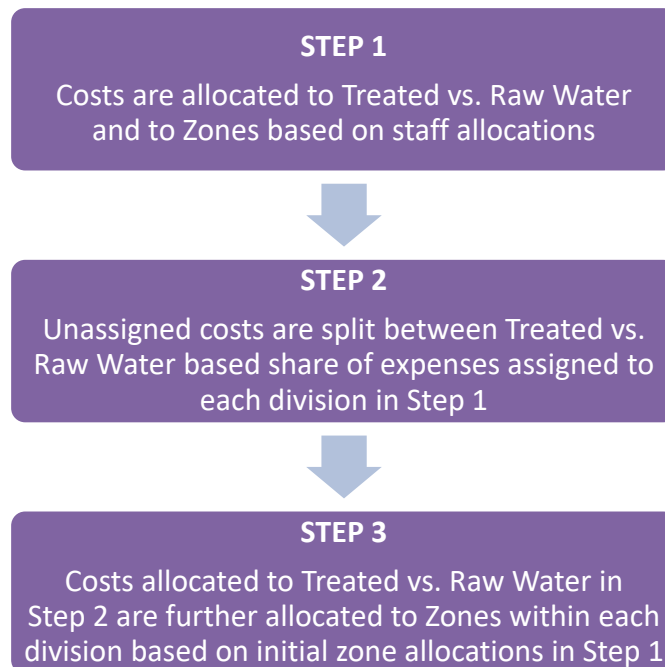
Cost Allocation of Benefits



Allocation of Other Operating Expenses

Other non-labor operating expenses (excluding salaries and benefits) are allocated to treated vs. raw water and to each service zone based on District staff allocations from the past three years. On average, these initial allocations accounted for a little less than half of total non-labor operating expenses over the past three years. The remaining roughly non-labor operating costs that were not assigned to any specific zone are first allocated to the treated vs. raw water divisions based on the share of non-labor operating costs initially allocated by District staff to specific zones within the treated and raw water divisions. Subsequently, the unassigned costs allocated to treated and raw water are further allocated to the service zones within each division based the proportionate share of non-labor operating costs initially allocated to each zone within the treated or raw water divisions.

Cost Allocation of Non-Labor Operating Expenses

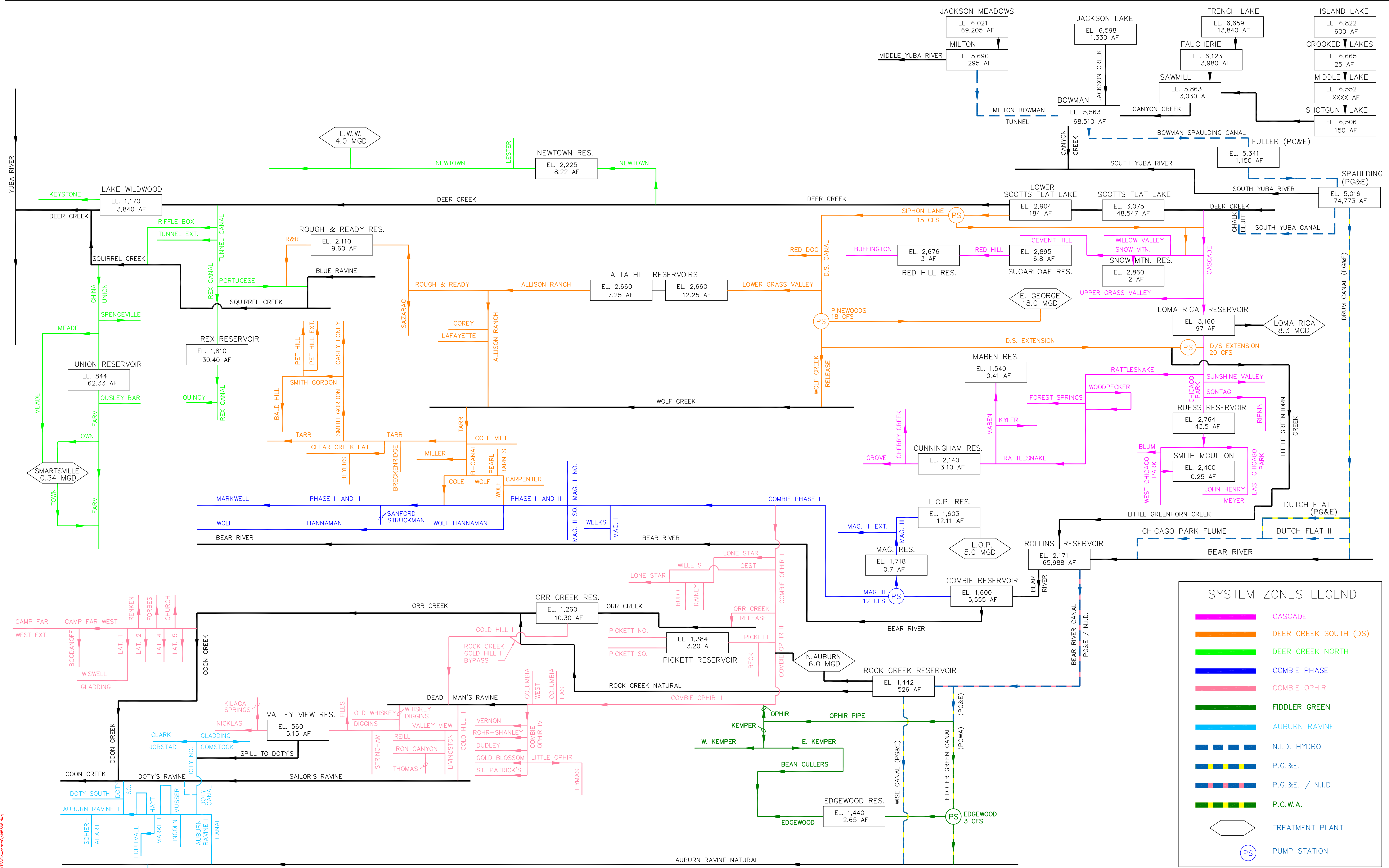




Cost of Service Study

Appendix A

Map of Water System Zones



INITIALS	REVISION	DATE	REV. NO.

NEVADA IRRIGATION DISTRICT
 NEVADA COUNTY -- PLACER COUNTY
 GRASS VALLEY
 CALIFORNIA

N.I.D. IRRIGATION WATER ZONES FLOW SCHEMATIC

DESIGNED:	DATE:	JOB NO.
RECOMMENDED BY:	DRAWN: D. HUNT	DATE: 01/20
APPROVED BY:	CHECKED:	SHEET NO. 5568
		1 of 1



Cost of Service Study

Appendix B

Supporting Tables

Table 1

2017 - 2019

Nevada Irrigation District

Cost of Service Study

Cost Mapping to System & Zone with Pro-Rata Reallocation of Support Systems

System & Zone	Treated Water O&M				Raw Water O&M			
	2017	2018	2019	3-Year Avg	2017	2018	2019	3-Year Avg
Treated Water System								
E. George	3,797,980	4,213,936	3,872,090	3,961,335	2,781	10,029	533	4,448
Lake of the Pines	1,878,783	1,919,589	1,990,470	1,929,614	3,682	29,336	8,625	13,881
Lake Wildwood	2,504,574	2,355,909	1,257,410	2,039,298	-	629	1,200	610
Loma Rica	2,135,628	2,874,639	2,022,720	2,344,329	376	21,231	11,859	11,155
North Auburn	2,119,326	2,454,785	1,465,105	2,013,072	1,232	3,956	8,557	4,582
Smartsville	304,061	317,773	213,361	278,398	-	-	-	-
Support Systems	5,994	12,851	9,397	9,414	-	1,245	6,602	2,616
Subtotal	12,746,346	14,149,480	10,830,555	12,575,460	8,070	66,425	37,377	37,291
Treated & Raw System								
Cascade	278,993	159,029	164,696	200,906	1,569,510	1,569,782	1,348,666	1,495,986
Deer Creek South	1,148,837	8,403	140,681	432,640	1,846,036	1,522,928	1,430,308	1,599,757
Support Systems	1,098,560	1,633,593	1,749,316	1,493,823	969,608	1,623,283	1,940,204	1,511,032
Subtotal	2,526,390	1,801,024	2,054,692	2,127,369	4,385,154	4,715,993	4,719,178	4,606,775
Raw Water System								
Auburn Ravine	(644)	13,867	31,108	14,777	1,046,640	1,013,977	1,079,580	1,046,733
Cascade	278,993	159,029	164,696	200,906	1,569,510	1,569,782	1,348,666	1,495,986
Combie Ophir	12,656	52,150	10,615	25,140	2,649,796	2,497,079	1,932,948	2,359,941
Combie Phase	467,183	366,675	314,830	382,896	586,960	826,600	541,880	651,813
Combie Phase & Ophir	860	-	2,647	1,169	6,472	-	2,364	2,945
Deer Creek North	239,210	153,566	106,015	166,264	1,987,894	969,460	852,284	1,269,879
Deer Creek South	1,148,837	8,403	140,681	432,640	1,846,036	1,522,928	1,430,308	1,599,757
Fiddler Green	1	1,129	682	604	75,222	38,282	42,351	51,952
Support Systems	130,536	223,848	135,212	163,199	1,036,390	1,109,335	375,558	840,428
Subtotal	2,277,631	978,668	906,485	1,387,595	10,804,921	9,547,443	7,605,938	9,319,434
Campground Water System								
Jackson Mead. Aspen	-	-	27,001	9,000	-	-	-	-
Jackson Mead. Woodcamp	-	-	9,066	3,022	-	-	-	-
Peninsula	-	-	9,321	3,107	-	-	-	-
Recreation	-	179	-	60	-	-	-	-
Scotts Flat I	4,481	106,118	25,383	45,327	-	-	-	-
Scotts Flat II	-	-	42,810	14,270	-	-	-	-
Support Systems	-	1,204	198,592	66,599	-	-	25,301	8,434
Subtotal	4,481	107,501	312,173	141,385	-	-	25,301	8,434
Grand Total	17,554,849	17,036,674	14,103,905	16,231,809	15,198,144	14,329,861	12,387,795	13,971,933
% of Annual Total	53.6%	54.3%	53.2%	53.7%	46.4%	45.7%	46.8%	46.3%

Note: 2019 numbers reflect partial year data from January - October.

Table 2
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Zone with Pro-Rata Reallocation of Support Systems

System & Zone	Treated Water						Raw Water					
	Salaries	+ Realloc	Benefits	Other O&M	+ Realloc	Total	Salaries	+ Realloc	Benefits	Other O&M	+ Realloc	Total
Reallocated Support Structures		2,756,934	4,287,605		1,854,644			2,060,174	4,103,475		1,615,433	
Treated Water System												
E. George	822,855	880,753	1,369,754	468,339	330,390	3,872,090	176	119	238	-	-	533
Lake of the Pines	347,739	372,207	578,860	405,560	286,103	1,990,470	1,599	1,083	2,156	1,863	1,923	8,625
Lake Wildwood	226,992	242,964	377,859	240,169	169,427	1,257,410	271	183	365	187	193	1,200
Loma Rica	384,862	411,942	640,656	343,170	242,089	2,022,720	3,489	2,362	4,704	642	663	11,859
North Auburn	233,906	250,364	389,369	346,809	244,657	1,465,105	930	629	1,254	2,827	2,917	8,557
Smartsville	46,970	50,274	78,187	22,241	15,690	213,361	-	-	-	-	-	-
Support Systems	2,345	2,510	3,903	375	265	9,397	1,930	1,307	2,603	375	387	6,602
Subtotal	2,065,669	2,211,015	3,438,587	1,826,663	1,288,620	10,830,555	8,396	5,683	11,320	5,894	6,083	37,377
Treated & Raw System												
Cascade	27,157	29,068	45,207	37,095	26,168	164,696	375,490	254,177	506,272	104,686	108,042	1,348,666
Deer Creek South	33,500	35,858	55,766	9,122	6,435	140,681	353,490	239,285	476,609	177,615	183,309	1,430,308
Support Systems	189,675	203,021	315,740	610,325	430,554	1,749,316	238,260	161,283	321,244	600,091	619,327	1,940,204
Subtotal	250,333	267,947	416,714	656,541	463,157	2,054,692	967,240	654,744	1,304,125	882,393	910,677	4,719,178
Raw Water System												
Auburn Ravine	3,303	3,535	5,498	11,007	7,765	31,108	289,152	195,733	389,863	100,801	104,032	1,079,580
Cascade	27,157	29,068	45,207	37,095	26,168	164,696	375,490	254,177	506,272	104,686	108,042	1,348,666
Combie Ophir	2,741	2,934	4,562	222	157	10,615	548,514	371,300	739,559	134,630	138,945	1,932,948
Combie Phase	66,297	70,962	110,360	39,410	27,802	314,830	110,901	75,071	149,527	101,563	104,818	541,880
Combie Phase & Ophir	555	594	923	338	238	2,647	555	375	748	338	348	2,364
Deer Creek North	23,775	25,448	39,576	10,095	7,121	106,015	268,604	181,823	362,158	19,536	20,162	852,284
Deer Creek South	33,500	35,858	55,766	9,122	6,435	140,681	353,490	239,285	476,609	177,615	183,309	1,430,308
Fiddler Green	183	195	304	-	-	682	11,489	7,777	15,490	3,738	3,858	42,351
Support Systems	24,238	25,943	40,347	26,201	18,484	135,212	103,076	69,774	138,976	31,364	32,369	375,558
Subtotal	181,748	194,536	302,544	133,488	94,169	906,485	2,061,270	1,395,314	2,779,202	674,269	695,883	7,605,938
Campground Water System												
Jackson Mead. Aspen	6,045	6,471	10,063	2,593	1,829	27,001	-	-	-	-	-	-
Jackson Mead. Woodcamp	2,261	2,420	3,763	365	257	9,066	-	-	-	-	-	-
Long Ravine	-	-	-	-	-	-	-	-	-	-	-	-
Peninsula	2,496	2,671	4,154	-	-	9,321	-	-	-	-	-	-
Recreation	-	-	-	-	-	-	-	-	-	-	-	-
Scotts Flat I	6,739	7,213	11,217	126	89	25,383	-	-	-	-	-	-
Scotts Flat II	8,475	9,071	14,107	6,542	4,615	42,810	-	-	-	-	-	-
Support Systems	51,936	55,591	86,455	2,703	1,907	198,592	6,548	4,432	8,828	2,703	2,790	25,301
Subtotal	77,951	83,436	129,760	12,329	8,697	312,173	6,548	4,432	8,828	2,703	2,790	25,301
Grand Total	2,575,701	2,756,934	4,287,605	2,629,021	1,854,644	14,103,905	3,043,453	2,060,174	4,103,475	1,565,260	1,615,433	12,387,795
												53.2%
												46.8%

Note: 2019 numbers reflect partial year data from January - October.

Table 3
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Zone with Pro-Rata Reallocation of Support Systems

System & Zone	Treated Water						Raw Water					
	Salaries	+ Realloc	Benefits	Other O&M	+ Realloc	Total	Salaries	+ Realloc	Benefits	Other O&M	+ Realloc	Total
Reallocated Support Structures		3,418,687	4,797,188		1,998,196			2,593,534	4,709,159		1,649,550	
Treated Water System												
E. George	650,588	799,933	1,122,486	1,098,097	542,830	4,213,936	3,244	2,410	4,375	-	-	10,029
Lake of the Pines	330,940	406,908	570,984	408,715	202,043	1,919,589	9,440	7,011	12,731	82	72	29,336
Lake Wildwood	429,332	527,887	740,744	440,293	217,653	2,355,909	88	65	119	190	166	629
Loma Rica	510,050	627,134	880,010	573,796	283,649	2,874,639	6,868	5,101	9,262	-	-	21,231
North Auburn	336,906	414,244	581,277	751,075	371,284	2,454,785	1,280	950	1,726	-	-	3,956
Smartsville	65,059	79,994	112,250	40,466	20,004	317,773	-	-	-	-	-	-
Support Systems	384	473	663	7,582	3,748	12,851	384	285	518	30	27	1,245
Subtotal	2,323,259	2,856,572	4,008,414	3,320,024	1,641,211	14,149,480	21,304	15,823	28,730	303	265	66,425
Treated & Raw System												
Cascade	32,942	40,504	56,837	19,236	9,509	159,029	453,532	336,858	611,644	89,478	78,269	1,569,782
Deer Creek South	2,044	2,513	3,527	214	106	8,403	404,175	300,198	545,079	145,875	127,600	1,522,928
Support Systems	208,780	256,706	360,217	540,634	267,256	1,633,593	178,095	132,279	240,183	572,204	500,522	1,623,283
Subtotal	243,766	299,724	420,580	560,084	276,870	1,801,024	1,035,802	769,336	1,396,906	807,557	706,391	4,715,993
Raw Water System												
Auburn Ravine	3,471	4,268	5,989	93	46	13,867	239,384	177,801	322,839	146,129	127,823	1,013,977
Cascade	32,942	40,504	56,837	19,236	9,509	159,029	453,532	336,858	611,644	89,478	78,269	1,569,782
Combie Ophir	13,139	16,155	22,669	125	62	52,150	655,214	486,656	883,636	251,543	220,031	2,497,079
Combie Phase	74,622	91,752	128,749	47,882	23,670	366,675	192,701	143,127	259,881	123,160	107,731	826,600
Combie Phase & Ophir	-	-	-	-	-	-	-	-	-	-	-	-
Deer Creek North	23,436	28,816	40,435	40,741	20,140	153,566	290,811	215,998	392,195	37,582	32,874	969,460
Deer Creek South	2,044	2,513	3,527	214	106	8,403	404,175	300,198	545,079	145,875	127,600	1,522,928
Fiddler Green	286	351	493	-	-	1,129	8,928	6,632	12,041	5,697	4,984	38,282
Support Systems	36,631	45,040	63,201	52,850	26,126	223,848	189,977	141,104	256,207	278,466	243,581	1,109,335
Subtotal	186,571	229,400	321,899	161,140	79,657	978,668	2,434,722	1,808,375	3,283,522	1,077,930	942,893	9,547,443
Campground Water System												
Jackson Mead. Aspen	-	-	-	-	-	-	-	-	-	-	-	-
Jackson Mead. Woodcamp	-	-	-	-	-	-	-	-	-	-	-	-
Long Ravine	-	-	-	-	-	-	-	-	-	-	-	-
Peninsula	-	-	-	-	-	-	-	-	-	-	-	-
Recreation	-	-	-	120	59	179	-	-	-	-	-	-
Scotts Flat I	26,832	32,991	46,294	-	-	106,118	-	-	-	-	-	-
Scotts Flat II	-	-	-	-	-	-	-	-	-	-	-	-
Support Systems	-	-	-	806	398	1,204	-	-	-	-	-	-
Subtotal	26,832	32,991	46,294	926	458	107,501	-	-	-	-	-	-
Grand Total	2,780,429	3,418,687	4,797,188	4,042,173	1,998,196	17,036,674	3,491,828	2,593,534	4,709,159	1,885,790	1,649,550	14,329,861
							54.3%					45.7%

Note: 2019 numbers reflect partial year data from January - October.

Table 4
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Zone with Pro-Rata Reallocation of Support Systems

2,017

System & Zone	Treated Water						Raw Water					
	Salaries	+ Realloc	Benefits	Other O&M	+ Realloc	Total	Salaries	+ Realloc	Benefits	Other O&M	+ Realloc	Total
Reallocated Support Structures		2,950,397	6,328,069		2,273,480		2,559,554	6,044,875		1,542,293		
Treated Water System												
E. George	548,291	555,048	1,190,478	866,389	637,775	3,797,980	726	611	1,443	-	-	2,781
Lake of the Pines	279,952	283,402	607,846	407,563	300,019	1,878,783	962	809	1,911	-	-	3,682
Lake Wildwood	326,920	330,948	709,824	654,837	482,045	2,504,574	-	-	-	-	-	-
Loma Rica	510,480	516,770	1,108,379	-	-	2,135,628	98	83	195	-	-	376
North Auburn	302,198	305,922	656,148	492,508	362,550	2,119,326	322	271	640	-	-	1,232
Smartsville	57,673	58,384	125,223	36,161	26,619	304,061	-	-	-	-	-	-
Support Systems	651	659	1,413	1,885	1,388	5,994	-	-	-	-	-	-
Subtotal	2,026,165	2,051,133	4,399,311	2,459,341	1,810,396	12,746,346	2,108	1,773	4,188	-	-	8,070
Treated & Raw System												
Cascade	37,834	38,300	82,147	69,529	51,182	278,993	326,213	274,400	648,048	181,490	139,359	1,569,510
Deer Creek South	274,594	277,978	596,212	31	23	1,148,837	391,786	329,558	778,314	195,931	150,447	1,846,036
Support Systems	101,088	102,334	219,488	389,170	286,479	1,098,560	81,090	68,210	161,091	372,890	286,327	969,608
Subtotal	413,516	418,612	897,848	458,729	337,685	2,526,390	799,089	672,168	1,587,453	750,310	576,133	4,385,154
Raw Water System												
Auburn Ravine	(154)	(156)	(334)	-	-	(644)	222,969	187,554	442,946	109,268	83,903	1,046,640
Cascade	37,834	38,300	82,147	69,529	51,182	278,993	326,213	274,400	648,048	181,490	139,359	1,569,510
Combie Ophir	2,918	2,954	6,336	258	190	12,656	602,573	506,864	1,197,057	194,191	149,111	2,649,796
Combie Phase	93,122	94,270	202,192	44,696	32,902	467,183	107,820	90,694	214,192	98,567	75,686	586,960
Combie Phase & Ophir	205	208	446	-	-	860	1,691	1,422	3,359	-	-	6,472
Deer Creek North	43,099	43,630	93,579	33,927	24,974	239,210	428,618	360,540	851,483	196,426	150,828	1,987,894
Deer Creek South	274,594	277,978	596,212	31	23	1,148,837	391,786	329,558	778,314	195,931	150,447	1,846,036
Fiddler Green	0	0	1	-	-	1	17,005	14,304	33,782	5,730	4,400	75,222
Support Systems	23,181	23,466	50,331	19,329	14,229	130,536	142,986	120,275	284,053	276,648	212,427	1,036,390
Subtotal	474,800	480,651	1,030,910	167,769	123,500	2,277,631	2,241,662	1,885,613	4,453,234	1,258,252	966,161	10,804,921
Campground Water System												
Jackson Mead. Aspen	-	-	-	-	-	-	-	-	-	-	-	-
Jackson Mead. Woodcamp	-	-	-	-	-	-	-	-	-	-	-	-
Long Ravine	-	-	-	-	-	-	-	-	-	-	-	-
Peninsula	-	-	-	-	-	-	-	-	-	-	-	-
Recreation	-	-	-	-	-	-	-	-	-	-	-	-
Scotts Flat I	-	-	-	2,581	1,900	4,481	-	-	-	-	-	-
Scotts Flat II	-	-	-	-	-	-	-	-	-	-	-	-
Support Systems	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	2,581	1,900	4,481	-	-	-	-	-	-
Grand Total	2,914,482	2,950,397	6,328,069	3,088,421	2,273,480	17,554,849	3,042,859	2,559,554	6,044,875	2,008,562	1,542,293	15,198,144
							53.6%					46.4%

Note: 2019 numbers reflect partial year data from January - October.

Table 5
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Zone Before Reallocation of Support Systems

2017 - 2019

System & Zone	Treated Water O&M				Raw Water O&M			
	2017	2018	2019	3-Year Avg	2017	2018	2019	3-Year Avg
Treated Water System								
E. George	2,006,274	2,252,144	1,952,794	2,070,404	1,510	5,755	318	2,528
Lake of the Pines	989,577	995,752	1,032,893	1,006,074	2,000	16,827	4,748	7,858
Lake Wildwood	1,334,495	1,201,864	649,669	1,062,009	-	346	676	341
Loma Rica	1,061,275	1,478,548	1,037,474	1,192,432	204	12,182	6,936	6,441
North Auburn	1,120,771	1,348,695	768,783	1,079,416	669	2,270	4,504	2,481
Smartsville	156,062	155,871	106,975	139,636	-	-	-	-
Support Systems	3,238	8,264	4,605	5,369	-	712	3,858	1,523
Subtotal	6,671,692	7,441,138	5,553,194	6,555,341	4,383	38,092	21,041	21,172
Treated & Raw System								
Cascade	148,185	77,671	86,087	103,981	859,680	893,977	782,082	845,246
Deer Creek South	570,905	3,839	69,557	214,767	1,010,446	862,820	815,323	896,196
Support Systems	599,330	910,979	952,505	820,938	541,473	888,118	1,029,919	819,837
Subtotal	1,318,420	992,489	1,108,150	1,139,686	2,411,599	2,644,915	2,627,323	2,561,279
Raw Water System								
Auburn Ravine	(320)	6,250	16,965	7,632	572,816	570,761	622,440	588,673
Cascade	148,185	77,671	86,087	103,981	859,680	893,977	782,082	845,246
Combie Ophir	6,325	23,431	5,166	11,641	1,446,925	1,413,793	1,124,166	1,328,295
Combie Phase	238,296	180,251	159,011	192,519	322,722	464,982	301,631	363,112
Combie Phase & Ophir	427	-	1,338	588	3,515	-	1,338	1,618
Deer Creek North	123,529	82,312	52,985	86,275	1,087,513	553,438	504,106	715,019
Deer Creek South	570,905	3,839	69,557	214,767	1,010,446	862,820	815,323	896,196
Fiddler Green	1	506	329	279	41,084	21,535	24,464	29,027
Support Systems	67,521	117,828	69,927	85,092	573,913	615,456	217,315	468,895
Subtotal	1,154,868	492,090	461,367	702,775	5,918,614	5,396,762	4,392,865	5,236,081
Campground Water System								
Jackson Mead. Aspen	-	-	13,499	4,500	-	-	-	-
Jackson Mead. Woodcamp	-	-	4,443	1,481	-	-	-	-
Long Ravine	-	-	-	-	-	-	-	-
Peninsula	-	-	4,502	1,501	-	-	-	-
Recreation	-	120	-	40	-	-	-	-
Scotts Flat I	2,581	47,596	12,282	20,820	-	-	-	-
Scotts Flat II	-	-	21,831	7,277	-	-	-	-
Support Systems	-	806	96,398	32,401	-	-	14,515	4,838
Subtotal	2,581	48,522	152,955	68,019	-	-	14,515	4,838
Unassigned Support Systems								
Subtotal	2,756,934	2,216,661	1,854,644	6,828,240	2,060,174	1,656,444	1,615,433	5,332,050
Grand Total	11,904,496	11,190,900	9,130,310	15,294,062	10,394,770	9,736,213	8,671,177	13,155,420
% of Annual Total	53.4%	53.5%	51.3%	53.8%	46.6%	46.5%	48.7%	46.2%

Note: 2019 numbers reflect partial year data from January - October.

Table 6
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

System & Zone	Treated Water				Raw Water			
	Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated Water System								
E. George	822,855	661,601	468,339	1,952,794	176	142	-	318
Lake of the Pines	347,739	279,593	405,560	1,032,893	1,599	1,286	1,863	4,748
Lake Wildwood	226,992	182,509	240,169	649,669	271	218	187	676
Loma Rica	384,862	309,441	343,170	1,037,474	3,489	2,805	642	6,936
North Auburn	233,906	188,068	346,809	768,783	930	748	2,827	4,504
Smartsville	46,970	37,765	22,241	106,975	-	-	-	-
Support Systems	2,345	1,885	375	4,605	1,930	1,552	375	3,858
Subtotal	2,065,669	1,660,862	1,826,663	5,553,194	8,396	6,751	5,894	21,041
Treated & Raw System								
Cascade	27,157	21,835	37,095	86,087	375,490	301,906	104,686	782,082
Deer Creek South	33,500	26,935	9,122	69,557	353,490	284,217	177,615	815,323
Support Systems	189,675	152,505	610,325	952,505	238,260	191,568	600,091	1,029,919
Subtotal	250,333	201,276	656,541	1,108,150	967,240	777,691	882,393	2,627,323
Raw Water System								
Auburn Ravine	3,303	2,656	11,007	16,965	289,152	232,487	100,801	622,440
Cascade	27,157	21,835	37,095	86,087	375,490	301,906	104,686	782,082
Combie Ophir	2,741	2,204	222	5,166	548,514	441,022	134,630	1,124,166
Combie Phase	66,297	53,305	39,410	159,011	110,901	89,168	101,563	301,631
Combie Phase & Ophir	555	446	338	1,338	555	446	338	1,338
Deer Creek North	23,775	19,116	10,095	52,985	268,604	215,966	19,536	504,106
Deer Creek South	33,500	26,935	9,122	69,557	353,490	284,217	177,615	815,323
Fiddler Green	183	147	-	329	11,489	9,237	3,738	24,464
Support Systems	24,238	19,488	26,201	69,927	103,076	82,876	31,364	217,315
Subtotal	181,748	146,131	133,488	461,367	2,061,270	1,657,326	674,269	4,392,865
Campground Water System								
Jackson Mead. Aspen	6,045	4,861	2,593	13,499	-	-	-	-
Jackson Mead. Woodcamp	2,261	1,818	365	4,443	-	-	-	-
Long Ravine	-	-	-	-	-	-	-	-
Peninsula	2,496	2,007	-	4,502	-	-	-	-
Recreation	-	-	-	-	-	-	-	-
Scotts Flat I	6,739	5,418	126	12,282	-	-	-	-
Scotts Flat II	8,475	6,814	6,542	21,831	-	-	-	-
Support Systems	51,936	41,758	2,703	96,398	6,548	5,264	2,703	14,515
Subtotal	77,951	62,675	12,329	152,955	6,548	5,264	2,703	14,515
Support Systems/Unassigned								
Subtotal	2,756,934	2,216,661	1,854,644	6,828,240	2,060,174	1,656,444	1,615,433	5,332,050
Grand Total	5,332,635	4,287,605	4,483,665	14,103,905	5,103,627	4,103,475	3,180,693	12,387,795
				53.2%				46.8%

Note: 2019 numbers reflect partial year data from January - October.

Table 7
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

2018

System & Zone	Treated Water				Raw Water			
	Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated Water System								
E. George	650,588	503,458	1,098,097	2,252,144	3,244	2,511	-	5,755
Lake of the Pines	330,940	256,098	408,715	995,752	9,440	7,305	82	16,827
Lake Wildwood	429,332	332,239	440,293	1,201,864	88	68	190	346
Loma Rica	510,050	394,702	573,796	1,478,548	6,868	5,315	-	12,182
North Auburn	336,906	260,715	751,075	1,348,695	1,280	990	-	2,270
Smartsville	65,059	50,346	40,466	155,871	-	-	-	-
Support Systems	384	297	7,582	8,264	384	297	30	712
Subtotal	2,323,259	1,797,855	3,320,024	7,441,138	21,304	16,486	303	38,092
Treated & Raw System								
Cascade	32,942	25,493	19,236	77,671	453,532	350,966	89,478	893,977
Deer Creek South	2,044	1,582	214	3,839	404,175	312,771	145,875	862,820
Support Systems	208,780	161,564	540,634	910,979	178,095	137,819	572,204	888,118
Subtotal	243,766	188,639	560,084	992,489	1,035,802	801,556	807,557	2,644,915
Raw Water System								
Auburn Ravine	3,471	2,686	93	6,250	239,384	185,248	146,129	570,761
Cascade	32,942	25,493	19,236	77,671	453,532	350,966	89,478	893,977
Combie Ophir	13,139	10,168	125	23,431	655,214	507,037	251,543	1,413,793
Combie Phase	74,622	57,746	47,882	180,251	192,701	149,122	123,160	464,982
Combie Phase & Ophir	-	-	-	-	-	-	-	-
Deer Creek North	23,436	18,136	40,741	82,312	290,811	225,044	37,582	553,438
Deer Creek South	2,044	1,582	214	3,839	404,175	312,771	145,875	862,820
Fiddler Green	286	221	-	506	8,928	6,909	5,697	21,535
Support Systems	36,631	28,347	52,850	117,828	189,977	147,013	278,466	615,456
Subtotal	186,571	144,378	161,140	492,090	2,434,722	1,884,110	1,077,930	5,396,762
Campground Water System								
Jackson Mead. Aspen	-	-	-	-	-	-	-	-
Jackson Mead. Woodcamp	-	-	-	-	-	-	-	-
Long Ravine	-	-	-	-	-	-	-	-
Peninsula	-	-	-	-	-	-	-	-
Recreation	-	-	120	120	-	-	-	-
Scotts Flat I	26,832	20,764	-	47,596	-	-	-	-
Scotts Flat II	-	-	-	-	-	-	-	-
Support Systems	-	-	806	806	-	-	-	-
Subtotal	26,832	20,764	926	48,522	-	-	-	-
Support Systems/Unassigned								
Subtotal	3,418,687	2,645,552	1,998,196	8,062,435	2,593,534	2,007,007	1,649,550	6,250,091
Grand Total	6,199,116	4,797,188	6,040,370	17,036,674	6,085,362	4,709,159	3,535,340	14,329,861
								54.3%
								45.7%

Table 8
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

2017

System & Zone	Treated Water				Raw Water			
	Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated Water System								
E. George	548,291	591,594	866,389	2,006,274	726	784	-	1,510
Lake of the Pines	279,952	302,062	407,563	989,577	962	1,038	-	2,000
Lake Wildwood	326,920	352,739	654,837	1,334,495	-	-	-	-
Loma Rica	510,480	550,796	-	1,061,275	98	106	-	204
North Auburn	302,198	326,065	492,508	1,120,771	322	347	-	669
Smartsville	57,673	62,228	36,161	156,062	-	-	-	-
Support Systems	651	702	1,885	3,238	-	-	-	-
Subtotal	2,026,165	2,186,185	2,459,341	6,671,692	2,108	2,275	-	4,383
Treated & Raw System								
Cascade	37,834	40,822	69,529	148,185	326,213	351,976	181,490	859,680
Deer Creek South	274,594	296,280	31	570,905	391,786	422,729	195,931	1,010,446
Support Systems	101,088	109,072	389,170	599,330	81,090	87,494	372,890	541,473
Subtotal	413,516	446,175	458,729	1,318,420	799,089	862,199	750,310	2,411,599
Raw Water System								
Auburn Ravine	(154)	(166)	-	(320)	222,969	240,579	109,268	572,816
Cascade	37,834	40,822	69,529	148,185	326,213	351,976	181,490	859,680
Combie Ophir	2,918	3,149	258	6,325	602,573	650,162	194,191	1,446,925
Combie Phase	93,122	100,477	44,696	238,296	107,820	116,335	98,567	322,722
Combie Phase & Ophir	205	222	-	427	1,691	1,824	-	3,515
Deer Creek North	43,099	46,503	33,927	123,529	428,618	462,469	196,426	1,087,513
Deer Creek South	274,594	296,280	31	570,905	391,786	422,729	195,931	1,010,446
Fiddler Green	0	0	-	1	17,005	18,348	5,730	41,084
Support Systems	23,181	25,012	19,329	67,521	142,986	154,279	276,648	573,913
Subtotal	474,800	512,299	167,769	1,154,868	2,241,662	2,418,701	1,258,252	5,918,614
Campground Water System								
Jackson Mead. Aspen	-	-	-	-	-	-	-	-
Jackson Mead. Woodcamp	-	-	-	-	-	-	-	-
Long Ravine	-	-	-	-	-	-	-	-
Peninsula	-	-	-	-	-	-	-	-
Recreation	-	-	-	-	-	-	-	-
Scotts Flat I	-	-	2,581	2,581	-	-	-	-
Scotts Flat II	-	-	-	-	-	-	-	-
Support Systems	-	-	-	-	-	-	-	-
Subtotal	-	-	2,581	2,581	-	-	-	-
Support Systems/Unassigned								
Subtotal	2,950,397	3,183,410	2,273,480	8,407,287	2,559,554	2,761,700	1,542,293	6,863,548
Grand Total	5,864,878	6,328,069	5,361,902	17,554,849	5,602,414	6,044,875	3,550,855	15,198,144
								53.6%
								46.4%

Table 9
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

3-Year Average

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated Water System									
E. George	10303 E. George Trmt Plt	164,801	145,335	312,907	623,043	-	-	-	-
	10311 Cascade Shores System	9,232	9,261	13,010	31,502	-	-	-	-
	10313 E George System	432,389	370,058	368,097	1,170,545	-	-	-	-
	Treated Asset	30,371	24,558	33,380	88,310	465	360	-	-
	Other	37,117	36,339	83,548	157,005	917	785	-	1,702
	Subtotal	673,911	585,551	810,942	2,070,404	1,382	1,145	-	1,702
Lake of the Pines	10307 Lake Of The Pines Trmt Pl	91,647	80,740	256,521	428,909	-	-	-	-
	10317 Lake Of The Pines System	196,761	170,314	150,730	517,806	3,699	2,973	621	7,293
	Other	31,135	28,197	27	59,360	301	237	27	565
	Subtotal	319,544	279,251	407,279	1,006,074	4,000	3,210	649	7,858
Lake Wildwood	10305 Lake Wildwood Trmt Plt	116,103	103,911	218,544	438,558	-	-	-	-
	10315 Lake Wildwood System	207,242	181,159	223,663	612,063	90	73	62	225
	Other	4,403	4,093	2,892	11,388	29	23	63	115
	Subtotal	327,748	289,162	445,099	1,062,009	120	95	126	341
Loma Rica	10304 Loma Rica Trmt Plt	104,613	91,900	97,541	294,054	-	-	-	-
	10314 Loma Rica System	317,089	279,436	202,281	798,807	279	224	214	718
	Other	46,762	46,977	5,833	99,572	3,206	2,517	-	5,723
	Subtotal	468,464	418,313	305,655	1,192,432	3,485	2,742	214	6,441
North Auburn	10308 North Auburn Trmt Plt	111,583	98,801	319,725	530,110	198	159	942	1,300
	10318 North Auburn System	168,086	148,580	202,058	518,723	-	-	-	-
	Treated Asset	-	-	8,347	8,347	-	-	-	-
	Other	11,334	10,902	-	22,236	646	536	-	1,182
	Subtotal	291,003	258,282	530,130	1,079,416	844	695	942	2,481
Smartsville	10306 Smartville Trmt Plt	51,060	45,363	29,083	125,505	-	-	-	-
	10316 Smartville System	4,496	3,939	3,873	12,309	-	-	-	-
	Treated Asset	1,012	811	-	1,823	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	56,567	50,113	32,956	139,636	-	-	-	-
Support Systems	Treated Asset	217	234	3,271	3,722	-	-	125	125
	Other	910	728	10	1,647	772	617	10	1,398
	Subtotal	1,127	962	3,281	5,369	772	617	135	1,523
System Total >>>		2,138,364	1,881,634	2,535,343	6,555,341	10,603	8,504	2,066	20,347

Table 9
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

3-Year Average

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated & Raw System									
Cascade	Treated & Raw Asset	166	161	-	327	265	265	-	530
	Other	32,479	29,222	41,953	103,654	384,814	334,684	125,218	844,716
	Subtotal	32,645	29,383	41,953	103,981	385,078	334,949	125,218	845,246
Deer Creek South	Treated & Raw Asset	-	-	109	109	-	-	109	109
	Other	103,379	108,266	3,013	214,658	383,151	339,906	173,031	896,087
	Subtotal	103,379	108,266	3,122	214,767	383,151	339,906	173,140	896,196
Support Systems	10230 Main Office	-	-	112,046	112,046	-	-	112,240	112,240
	10231 Placer Office	-	-	4,205	4,205	-	-	4,205	4,205
	10319 Nid Water Laboratory	-	-	14,433	14,433	-	-	-	-
	Multiple Facilities	-	-	-	-	-	-	-	-
	Treated & Raw Asset	-	-	180,796	180,796	-	-	196,720	196,720
	Watershed Asset	-	-	201,896	201,896	-	-	201,896	201,896
	Other	166,515	141,047	-	307,562	165,815	138,960	-	304,775
	Subtotal	166,515	141,047	513,376	820,938	165,815	138,960	515,062	819,837
System Total >>>		302,539	278,696	558,451	1,139,686	934,044	813,815	813,420	2,561,279

Table 9
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

3-Year Average

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Raw Water System									
Auburn Ravine	10490 Auburn Ravine Natural	-	-	-	-	5,510	5,326	375	11,211
	10491 Auburn Ravine Canal I	-	-	-	-	35,965	32,100	11,256	79,321
	10492 Chevallier Pipe	-	-	-	-	3,588	3,348	676	7,613
	10493 Auburn Ravine Canal II	-	-	-	-	85,525	73,350	36,569	195,443
	10494 Lincoln Canal	-	-	-	-	9,866	8,567	3,702	22,134
	10495 Musser Canal	-	-	-	-	6,971	5,914	9,564	22,449
	10496 Markell Canal	-	-	-	-	5,030	4,197	1,709	10,935
	10497 Fruitvale Canal	-	-	-	-	2,593	2,360	1,017	5,969
	10498 Sohier Ahart Canal	-	-	-	-	1,855	1,591	817	4,263
	10499 Hayt Canal Extension	-	-	-	-	5,311	4,575	2,534	12,420
	10502 Doty So Canal	-	-	-	-	14,166	12,403	7,259	33,828
	10503 Doty North Canal	-	-	-	-	43,736	38,759	17,337	99,832
	10504 Comstock Gladding Canal	-	-	-	-	2,617	2,312	1,910	6,840
	10505 Clark Jorstad Canal	-	-	-	-	5,912	5,203	3,089	14,204
	10506 Hemphill Canal	-	-	-	-	5,743	5,027	6,676	17,446
	24100 Auburn Ravine	855	687	3,669	5,211	855	687	3,669	5,211
	24200 Hemphill Canal	-	-	-	-	11,251	10,123	25	21,399
	Other	1,352	1,038	31	2,421	4,008	3,597	10,549	18,154
	Subtotal	2,207	1,725	3,700	7,632	250,502	219,438	118,733	588,673
Cascade	10320 Cascade Canal	19,234	18,122	29,585	66,941	35,721	33,654	54,944	124,319
	10323 Cement Hill Canal	-	-	-	-	5,305	4,613	631	10,549
	10324 Lake Vera Pipe	-	-	-	-	2,283	1,791	1,040	5,114
	10325 Sugar Loaf Reservoir/Pipe	-	-	-	-	715	608	2,146	3,469
	10326 Red Hill Canal	-	-	-	-	9,539	8,671	7,522	25,732
	10329 Upper Grass Valley Canal	536	448	-	984	536	448	7	991
	10330 Loma Rica Reservoir	2,005	1,870	11,812	15,687	3,724	3,472	21,937	29,133
	10331 Chicago Park Canal	-	-	-	-	55,743	48,768	4,661	109,172
	10333 Sontag Canal	-	-	-	-	3,803	3,509	262	7,574
	10336 Chicago Park East Canal	-	-	-	-	2,811	2,449	829	6,088
	10337 Chicago Park Pipe	173	158	2	333	-	-	2	2
	10338 Chicago Park West Canal	-	-	-	-	2,596	2,339	1,816	6,752
	10340 Blum Pipe	423	327	-	750	75	81	234	390
	10341 Smith Moulton Res & Pipe	-	-	-	-	466	463	177	1,107
	10342 John Henry Meyers	357	277	153	787	554	489	153	1,196
	10343 Rattlesnake Canal	-	-	-	-	51,815	47,437	3,346	102,598
	10344 Woodpecker Canal	-	-	-	-	2,950	2,479	1,381	6,809
	10345 Forest Springs Canal	-	-	-	-	14,897	12,142	4,168	31,206
	10346 Maben Canal	-	-	-	-	9,812	9,217	2,775	21,804
	10347 Kyler Canal	-	-	-	-	3,233	2,889	1,678	7,800

Table 9
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

3-Year Average

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10348 Maben Reservoir & Pipe	-	-	-	-	127	118	5	250
	10349 Cunningham Reservoir	-	-	-	-	589	578	794	1,961
	10350 Grove Canal	-	-	-	-	3,160	2,816	509	6,485
	11400 Loma	994	836	-	1,831	4,698	3,759	-	8,457
	11603 Maben Canal	-	-	335	335	36,890	31,539	2,858	71,287
	Other	8,922	7,346	67	16,335	133,038	110,620	11,342	255,000
	Subtotal	32,645	29,383	41,953	103,981	385,078	334,949	125,218	845,246
Combie Ophir	10424 Combie Ophir I	87	78	23	188	8,605	7,745	2,309	18,659
	10425 Lone Star Canal	-	-	-	-	26,591	24,013	16,877	67,481
	10426 Ruud Canal	-	-	-	-	282	278	69	628
	10427 Rainey Canal	-	-	-	-	249	215	37	500
	10428 Oest Canal	-	-	-	-	3,793	3,203	1,951	8,947
	10429 Willits Canal	-	-	-	-	3,761	3,259	1,124	8,144
	10431 Orr Creek Reservoir	1	1	-	3	676	561	314	1,551
	10432 Gold Hill I	-	-	-	-	31,745	27,739	10,807	70,292
	10433 Camp Far West Canal	-	-	-	-	37,086	34,979	28,753	100,818
	10434 Lateral 5 Canal (Cfw)	-	-	-	-	911	828	628	2,367
	10435 Lateral 4 Canal (Cfw)	-	-	-	-	1,812	1,617	1,341	4,771
	10436 Lateral 2 Canal (Cfw)	-	-	-	-	975	911	526	2,413
	10437 Lateral 1 Canal (Cfw)	-	-	-	-	2,912	2,867	4,801	10,580
	10438 Wiswell Gladding Canal	-	-	-	-	466	430	1,595	2,491
	10439 Church Canal	-	-	-	-	710	645	1,721	3,076
	10440 Forbes Canal	-	-	-	-	823	724	988	2,535
	10441 Renken Canal	-	-	-	-	1,594	1,465	1,169	4,228
	10442 Bogdanoff Canal	-	-	-	-	1,480	1,350	2,928	5,758
	10443 Camp Far West Canal Ext	-	-	-	-	11,992	10,409	3,967	26,368
	10444 Combie Ophir II	254	231	59	543	25,137	22,866	5,795	53,798
	10445 Pickett Canal	-	-	-	-	9,230	8,977	1,154	19,362
	10447 Pickett Reservoir	-	-	-	-	719	725	58	1,503
	10448 Pickett North Canal	-	-	-	-	1,653	1,498	700	3,851
	10449 Pickett South Canal	-	-	-	-	1,444	1,509	820	3,773
	10450 Rock Creek/Gold Hill	161	153	17	331	161	153	17	331
	10451 Combie Ophir III	34	28	4	66	3,359	2,771	431	6,561
	10452 Columbia East	-	-	-	-	1,489	1,292	421	3,202
	10453 Columbia West	-	-	-	-	1,291	1,206	249	2,746
	10454 Combie Ophir IV	278	300	109	687	55,913	51,656	15,445	123,014
	10455 Vernon Canal	-	-	-	-	3,633	3,352	2,315	9,300
	10456 Rohr Shanley Pipe	-	-	-	-	6,393	6,608	828	13,829
	10458 Dudley Canal	-	-	-	-	22,778	20,274	11,261	54,313
	10459 Gold Blosson Canal	-	-	-	-	23,286	19,638	2,544	45,469

Table 9
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

3-Year Average

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10460 St Patricks Canal	-	-	-	-	4,239	3,656	803	8,697
	10461 Little Ophir Canal	-	-	-	-	5,272	4,643	646	10,561
	10462 Hymas Canal	-	-	-	-	878	853	91	1,822
	10463 Gold Hill II	3,267	2,622	-	5,889	21,819	18,487	5,256	45,561
	10465 Whiskey Diggins Canal	-	-	-	-	5,235	4,572	2,333	12,139
	10466 Old Whiskey Diggins Canal	-	-	-	-	1,982	1,685	856	4,524
	10467 Valley View Canal	-	-	-	-	56,250	49,707	8,837	114,794
	10468 Files Canal	-	-	-	-	522	457	74	1,053
	10469 Valley View Reservoir	-	-	-	-	5,328	4,736	5,855	15,920
	10470 Kilaga Springs Canal	-	-	-	-	6,154	5,670	513	12,336
	10471 Nicklas Canal	-	-	-	-	828	747	133	1,708
	10472 Livingston Canal	-	-	-	-	4,159	3,514	411	8,084
	10473 Rielli Canal	-	-	-	-	1,636	1,527	608	3,771
	10474 Iron Canyon Canal	-	-	-	-	11,139	9,028	4,092	24,259
	10475 Thomas Canal	-	-	-	-	1,961	1,706	383	4,049
	10476 Stringham Canal	-	-	-	-	2,095	1,885	252	4,232
	22304 Oest Canal	-	-	-	-	11,237	8,696	-	19,932
	22401 Orr Creek Reservoir	-	-	-	-	6,470	5,253	6,602	18,325
	22906 Valley View R	-	-	-	-	1,784	1,429	-	3,213
	Raw Asset	274	220	4	499	274	220	4	499
	Other	1,910	1,540	(15)	3,435	159,887	138,507	31,762	330,157
	Subtotal	6,266	5,173	202	11,641	602,100	532,740	193,455	1,328,295
Combie Phase	10411 Combie Phase I	53	50	8	112	5,273	4,980	790	11,043
	10412 Magnolia III Pumps	685	604	940	2,229	1,027	906	1,410	3,343
	10414 Magnolia III Canal	6,549	6,728	42,480	55,757	35,868	30,246	63,720	129,834
	10415 Magnolia III Canal Ext	534	509	482	1,525	801	764	722	2,288
	10416 Combie Phase II & III	147	114	50	310	28,255	26,054	14,188	68,497
	10417 Magnolia I Canal	-	-	-	-	1,484	1,385	309	3,178
	10418 Weeks Canal	-	-	-	-	1,347	1,239	87	2,672
	10419 Magnolia II South Canal	-	-	-	-	1,466	1,402	286	3,154
	10420 Magnolia II North Canal	-	-	2	2	9,107	7,651	1,914	18,672
	10421 Markwell Canal	-	-	-	-	2,993	2,685	6,445	12,123
	10422 Wolf Hannaman Canal I&II	-	-	-	-	6,689	5,987	6,667	19,343
	10423 Sanford Struckman Canal	-	-	-	-	4,298	3,923	3,244	11,465
	22000 Combie Phase	62,505	55,543	35	118,083	433	348	2,327	3,109
	Other	7,541	6,961	-	14,502	38,100	30,636	5,654	74,390
	Subtotal	78,014	70,509	43,996	192,519	137,141	118,208	107,763	363,112
Combie Phase & Ophir	10410 Combie Reservoir	5	5	113	123	500	540	113	1,152
	Other	248	217	-	465	248	217	-	465
	Subtotal	253	223	113	588	749	757	113	1,618

Table 9
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

3-Year Average

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10395 China/Union Canal	-	-	29	29	-	-	2,910	2,910
	10396 Spenceville Canal	-	-	-	-	-	-	600	600
	10397 Meade Canal	-	-	7	7	-	-	222	222
	10399 Ousley Bar Canal	-	-	-	-	-	-	254	254
	10400 Town Canal	-	-	2	2	-	-	193	193
	10401 Farm Canal	-	-	-	-	-	-	1,087	1,087
	10402 Smartville Irrigatio	-	-	-	-	-	-	190	190
	10403 Keystone Canal	-	-	-	-	-	-	234	234
	14605 Casey Loney Canal	3,023	2,430	2,043	7,496	3,023	2,430	2,043	7,496
	Other	100,084	105,597	109	205,791	138,713	116,761	22,159	277,632
	Subtotal	103,379	108,266	3,122	214,767	383,151	339,906	173,140	896,196
Fiddler Green	10482 Ophir Canal	-	-	-	-	719	581	49	1,349
	10483 Kemper Canal	-	-	-	-	747	645	400	1,792
	10484 Kemper East Canal	-	-	-	-	612	585	41	1,239
	10485 Kemper West Canal	-	-	-	-	477	417	125	1,019
	10486 Bean Cullers Canal	-	-	-	-	744	609	48	1,401
	10488 Edgewood Reservoir	-	-	-	-	322	256	27	605
	10489 Edgewood Canal	-	-	-	-	6,669	6,603	4,345	17,618
	22700 Combie Ophir	11	9	-	20	1,125	904	-	2,029
	Other	145	114	-	258	1,059	897	19	1,975
	Subtotal	156	123	-	279	12,474	11,498	5,055	29,027
Support Systems	10232 Placer Yard	18,521	15,584	25,030	59,135	18,521	15,584	25,030	59,135
	10233 Property Mgmt-General	60	52	28	140	60	52	28	140
	14000 Deer Creek South	-	-	57	57	-	-	57	57
	21000 Combie Reservoir	2,715	2,173	929	5,817	29,673	25,017	88,313	143,003
	Raw Asset	616	534	6,738	7,888	44,757	40,686	81,547	166,989
	Other	6,106	5,938	11	12,055	52,335	46,717	517	99,570
	Subtotal	28,017	24,282	32,793	85,092	145,346	128,056	195,493	468,895
System Total >>>		281,040	267,603	154,133	702,775	2,245,885	1,986,712	1,003,484	5,236,081

Table 9
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

3-Year Average

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Campground Water System									
Jackson Mead. Aspen	10707 JM Aspen Water System	64	51	864	979	-	-	-	-
	Other	1,951	1,569	-	3,520	-	-	-	-
	Subtotal	2,015	1,620	864	4,500	-	-	-	-
Jackson Mead. Woodcamp	10708 JM Woodcamp Water System	80	65	122	267	-	-	-	-
	Other	673	541	-	1,214	-	-	-	-
	Subtotal	754	606	122	1,481	-	-	-	-
Long Ravine	10705 Long Ravine Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Peninsula	10706 Peninsula Water System	21	17	-	37	-	-	-	-
	Peninsula Water System	-	-	-	-	-	-	-	-
	Other	811	652	-	1,464	-	-	-	-
	Subtotal	832	669	-	1,501	-	-	-	-
Recreation	Orchard Springs Water System	-	-	-	-	-	-	-	-
	Recreation Asset	-	-	-	-	-	-	-	-
	Other	-	-	40	40	-	-	-	-
	Subtotal	-	-	40	40	-	-	-	-
Scotts Flat I	10702 Sf Gate 1 Water System	216	173	42	431	-	-	-	-
	Other	10,975	8,554	860	20,389	-	-	-	-
	Subtotal	11,190	8,727	902	20,820	-	-	-	-
Scotts Flat II	10703 Sf Gate 2 Water System	753	606	2,181	3,540	-	-	-	-
	Other	2,071	1,666	-	3,737	-	-	-	-
	Subtotal	2,825	2,271	2,181	7,277	-	-	-	-
Support Systems	10254 Upper Division - Rec	-	-	116	116	-	-	116	116
	10257 Peninsula - Rec	-	-	86	86	-	-	86	86
	Recreation Asset	20,358	15,820	5,221	41,398	6,404	5,022	699	12,126
	Scotts Flat Water System	15,130	12,165	-	27,294	-	-	-	-
	Other	(18,175)	(14,065)	(4,253)	(36,493)	(4,222)	(3,267)	-	(7,489)
	Subtotal	17,312	13,919	1,170	32,401	2,183	1,755	901	4,838
System Total >>>		34,928	27,813	5,279	68,019	2,183	1,755	901	4,838
Unassigned									
System Total >>>		3,042,006	2,681,874	2,042,107	7,765,987	2,404,421	2,141,717	1,602,425	6,148,563
Grand Total		5,798,877	5,137,620	5,295,312	16,231,809	5,597,134	4,952,503	3,422,296	13,971,108

Note: 2019 numbers reflect partial year data from January - October.

53.7%

46.3%

Table 10
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated Water System									
E. George	10303 E. George Trmt Plt	127,963	102,886	204,783	435,632	-	-	-	-
	10311 Cascade Shores System	1,130	909	443	2,481	-	-	-	-
	10313 E George System	593,105	476,875	262,513	1,332,493	-	-	-	-
	Treated Asset	88,054	70,798	600	159,453	-	-	-	-
	Other	12,602	10,133	(0)	22,735	176	142	-	318
	Subtotal	822,855	661,601	468,339	1,952,794	176	142	-	318
Lake of the Pines	10307 Lake Of The Pines Trmt Pl	95,467	76,759	251,406	423,632	-	-	-	-
	10317 Lake Of The Pines System	251,872	202,513	154,154	608,540	1,199	964	1,863	4,027
	Other	400	322	-	721	400	322	-	721
	Subtotal	347,739	279,593	405,560	1,032,893	1,599	1,286	1,863	4,748
Lake Wildwood	10305 Lake Wildwood Trmt Plt	81,502	65,530	113,271	260,304	-	-	-	-
	10315 Lake Wildwood System	143,985	115,769	126,898	386,651	271	218	187	676
	Other	1,504	1,210	(0)	2,714	-	-	-	-
	Subtotal	226,992	182,509	240,169	649,669	271	218	187	676
Loma Rica	10304 Loma Rica Trmt Plt	99,124	79,699	137,374	316,198	-	-	-	-
	10314 Loma Rica System	283,086	227,610	205,796	716,492	837	673	642	2,153
	Other	2,652	2,132	-	4,784	2,652	2,132	-	4,784
	Subtotal	384,862	309,441	343,170	1,037,474	3,489	2,805	642	6,936
North Auburn	10308 North Auburn Trmt Plt	87,967	70,728	229,578	388,274	594	478	2,827	3,899
	10318 North Auburn System	142,877	114,877	94,589	352,343	-	-	-	-
	Treated Asset	-	-	22,642	22,642	-	-	-	-
	Other	3,063	2,462	-	5,525	336	270	-	606
	Subtotal	233,906	188,068	346,809	768,783	930	748	2,827	4,504
Smartsville	10306 Smartville Trmt Plt	40,276	32,383	21,720	94,379	-	-	-	-
	10316 Smartville System	3,886	3,125	520	7,531	-	-	-	-
	Treated Asset	2,808	2,257	-	5,065	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	46,970	37,765	22,241	106,975	-	-	-	-
Support Systems	Treated Asset	-	-	375	375	-	-	375	375
	Other	2,345	1,885	-	4,230	1,930	1,552	-	3,483
	Subtotal	2,345	1,885	375	4,605	1,930	1,552	375	3,858
System Total >>>		2,065,669	1,660,862	1,826,663	5,553,194	8,396	6,751	5,894	21,041

Table 10
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

2019

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated & Raw System									
Cascade	Treated & Raw Asset	29	23	-	52	54	43	-	97
	Other	27,128	21,812	37,095	86,035	375,436	301,862	104,686	781,985
	Subtotal	27,157	21,835	37,095	86,087	375,490	301,906	104,686	782,082
Deer Creek South	Treated & Raw Asset	-	-	327	327	-	-	327	327
	Other	33,500	26,935	8,795	69,231	353,490	284,217	177,288	814,996
	Subtotal	33,500	26,935	9,122	69,557	353,490	284,217	177,615	815,323
Support Systems	10230 Main Office	-	-	68,193	68,193	-	-	68,193	68,193
	10231 Placer Office	-	-	8,597	8,597	-	-	8,597	8,597
	10319 Nid Water Laboratory	-	-	12,809	12,809	-	-	-	-
	Multiple Facilities	-	-	-	-	-	-	-	-
	Treated & Raw Asset	-	-	222,186	222,186	-	-	224,761	224,761
	Watershed Asset	-	-	298,541	298,541	-	-	298,541	298,541
	Other	189,675	152,505	-	342,180	238,260	191,568	-	429,828
	Subtotal	189,675	152,505	610,325	952,505	238,260	191,568	600,091	1,029,919
System Total >>>		250,333	201,276	656,541	1,108,150	967,240	777,691	882,393	2,627,323

Table 10
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2019

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Raw Water System									
Auburn Ravine	10490 Auburn Ravine Natural	-	-	-	-	3,187	2,562	173	5,922
	10491 Auburn Ravine Canal I	-	-	-	-	32,489	26,122	8,349	66,960
	10492 Chevallier Pipe	-	-	-	-	2,333	1,876	125	4,333
	10493 Auburn Ravine Canal II	-	-	-	-	106,335	85,497	17,134	208,966
	10494 Lincoln Canal	-	-	-	-	13,884	11,163	2,480	27,528
	10495 Musser Canal	-	-	-	-	10,669	8,578	22,787	42,033
	10496 Markell Canal	-	-	-	-	10,861	8,732	2,157	21,750
	10497 Fruitvale Canal	-	-	-	-	2,556	2,055	726	5,338
	10498 Sohier Ahart Canal	-	-	-	-	1,154	928	521	2,603
	10499 Hayt Canal Extension	-	-	-	-	5,800	4,664	2,051	12,515
	10502 Doty So Canal	-	-	-	-	13,158	10,580	6,095	29,833
	10503 Doty North Canal	-	-	-	-	51,237	41,196	13,401	105,834
	10504 Comstock Gladding Canal	-	-	-	-	1,655	1,331	1,665	4,652
	10505 Clark Jorstad Canal	-	-	-	-	6,606	5,312	3,398	15,316
	10506 Hemphill Canal	-	-	-	-	9,009	7,244	8,731	24,985
	24100 Auburn Ravine	2,564	2,062	11,007	15,633	2,564	2,062	11,007	15,633
	24200 Hemphill Canal	-	-	-	-	13,747	11,053	-	24,800
	Other	738	594	-	1,332	1,907	1,534	-	3,441
	Subtotal	3,303	2,656	11,007	16,965	289,152	232,487	100,801	622,440
Cascade	10320 Cascade Canal	-	-	4,293	4,293	-	-	7,973	7,973
	10323 Cement Hill Canal	-	-	-	-	-	-	777	777
	10324 Lake Vera Pipe	-	-	-	-	-	-	542	542
	10325 Sugar Loaf Reservoir/Pipe	-	-	-	-	-	-	3,200	3,200
	10326 Red Hill Canal	-	-	-	-	-	-	5,477	5,477
	10329 Upper Grass Valley Canal	-	-	-	-	-	-	21	21
	10330 Loma Rica Reservoir	-	-	31,742	31,742	-	-	58,950	58,950
	10331 Chicago Park Canal	-	-	-	-	-	-	2,846	2,846
	10333 Sontag Canal	-	-	-	-	-	-	275	275
	10336 Chicago Park East Canal	-	-	-	-	-	-	410	410
	10337 Chicago Park Pipe	-	-	5	5	-	-	5	5
	10338 Chicago Park West Canal	-	-	-	-	-	-	4,937	4,937
	10340 Blum Pipe	-	-	-	-	-	-	656	656
	10341 Smith Moulton Res & Pipe	-	-	-	-	-	-	378	378
	10342 John Henry Meyers	-	-	51	51	-	-	51	51
	10343 Rattlesnake Canal	-	-	-	-	-	-	3,515	3,515
	10344 Woodpecker Canal	-	-	-	-	-	-	251	251
	10345 Forest Springs Canal	-	-	-	-	-	-	214	214
	10346 Maben Canal	-	-	-	-	-	-	3,805	3,805
	10347 Kyler Canal	-	-	-	-	-	-	226	226

Table 10
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2019

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10348 Maben Reservoir & Pipe	-	-	-	-	-	-	6	6
	10349 Cunningham Reservoir	-	-	-	-	-	-	1,099	1,099
	10350 Grove Canal	-	-	-	-	-	-	498	498
	11400 Loma	2,581	2,076	-	4,657	4,794	3,855	-	8,649
	11603 Maben Canal	-	-	1,004	1,004	58,689	47,188	8,573	114,451
	Other	24,576	19,760	-	44,336	312,006	250,863	-	562,869
	Subtotal	27,157	21,835	37,095	86,087	375,490	301,906	104,686	782,082
Combie Ophir	10424 Combie Ophir I	-	-	1	1	-	-	97	97
	10425 Lone Star Canal	-	-	-	-	-	-	26,662	26,662
	10426 Ruud Canal	-	-	-	-	-	-	57	57
	10427 Rainey Canal	-	-	-	-	-	-	32	32
	10428 Oest Canal	-	-	-	-	-	-	754	754
	10429 Willits Canal	-	-	-	-	-	-	1,386	1,386
	10431 Orr Creek Reservoir	-	-	-	-	-	-	36	36
	10432 Gold Hill I	-	-	-	-	-	-	7,629	7,629
	10433 Camp Far West Canal	-	-	-	-	-	-	27,478	27,478
	10434 Lateral 5 Canal (Cfw)	-	-	-	-	-	-	493	493
	10435 Lateral 4 Canal (Cfw)	-	-	-	-	-	-	1,070	1,070
	10436 Lateral 2 Canal (Cfw)	-	-	-	-	-	-	591	591
	10437 Lateral 1 Canal (Cfw)	-	-	-	-	-	-	2,732	2,732
	10438 Wiswell Gladding Canal	-	-	-	-	-	-	948	948
	10439 Church Canal	-	-	-	-	-	-	1,289	1,289
	10440 Forbes Canal	-	-	-	-	-	-	719	719
	10441 Renken Canal	-	-	-	-	-	-	868	868
	10442 Bogdanoff Canal	-	-	-	-	-	-	2,615	2,615
	10443 Camp Far West Canal Ext	-	-	-	-	-	-	3,632	3,632
	10444 Combie Ophir II	-	-	50	50	-	-	4,940	4,940
	10445 Pickett Canal	-	-	-	-	-	-	1,055	1,055
	10447 Pickett Reservoir	-	-	-	-	-	-	19	19
	10448 Pickett North Canal	-	-	-	-	-	-	1,066	1,066
	10449 Pickett South Canal	-	-	-	-	-	-	19	19
	10450 Rock Creek/Gold Hill	-	-	36	36	-	-	36	36
	10451 Combie Ophir III	-	-	3	3	-	-	279	279
	10452 Columbia East	-	-	-	-	-	-	157	157
	10453 Columbia West	-	-	-	-	-	-	104	104
	10454 Combie Ophir IV	-	-	121	121	-	-	11,967	11,967
	10455 Vernon Canal	-	-	-	-	-	-	5,737	5,737
	10456 Rohr Shanley Pipe	-	-	-	-	-	-	564	564
	10458 Dudley Canal	-	-	-	-	-	-	2,258	2,258
	10459 Gold Blosson Canal	-	-	-	-	32,470	26,107	4,240	62,817

Table 10
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2019

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10460 St Patricks Canal	-	-	-	-	6,107	4,910	1,358	12,375
	10461 Little Ophir Canal	-	-	-	-	7,739	6,223	449	14,411
	10462 Hymas Canal	-	-	-	-	563	452	45	1,060
	10463 Gold Hill II	-	-	-	-	24,683	19,846	5,668	50,198
	10465 Whiskey Diggins Canal	-	-	-	-	5,397	4,339	1,722	11,458
	10466 Old Whiskey Diggins Canal	-	-	-	-	2,530	2,034	322	4,886
	10467 Valley View Canal	-	-	-	-	49,479	39,783	6,867	96,129
	10468 Files Canal	-	-	-	-	776	624	45	1,444
	10469 Valley View Reservoir	-	-	-	-	940	756	-	1,696
	10470 Kilaga Springs Canal	-	-	-	-	2,924	2,351	365	5,639
	10471 Nicklas Canal	-	-	-	-	967	777	45	1,789
	10472 Livingston Canal	-	-	-	-	7,522	6,048	213	13,782
	10473 Rielli Canal	-	-	-	-	1,201	965	285	2,451
	10474 Iron Canyon Canal	-	-	-	-	29,162	23,447	5,183	57,792
	10475 Thomas Canal	-	-	-	-	2,721	2,188	431	5,340
	10476 Stringham Canal	-	-	-	-	2,110	1,697	95	3,902
	22304 Oest Canal	-	-	-	-	-	-	-	-
	22401 Orr Creek Reservoir	-	-	-	-	13,597	10,933	-	24,530
	22906 Valley View R	-	-	-	-	4,772	3,837	-	8,608
	Raw Asset	823	661	12	1,496	823	661	12	1,496
	Other	1,918	1,542	-	3,460	352,031	283,044	(0)	635,075
	Subtotal	2,741	2,204	222	5,166	548,514	441,022	134,630	1,124,166
Combie Phase	10411 Combie Phase I	-	-	15	15	-	-	1,479	1,479
	10412 Magnolia III Pumps	-	-	2,600	2,600	-	-	3,900	3,900
	10414 Magnolia III Canal	-	-	35,820	35,820	-	-	53,730	53,730
	10415 Magnolia III Canal Ext	-	-	935	935	-	-	1,402	1,402
	10416 Combie Phase II & III	-	-	-	-	-	-	14,648	14,648
	10417 Magnolia I Canal	-	-	-	-	-	-	224	224
	10418 Weeks Canal	-	-	-	-	-	-	80	80
	10419 Magnolia II South Canal	-	-	-	-	-	-	262	262
	10420 Magnolia II North Canal	-	-	-	-	-	-	810	810
	10421 Markwell Canal	-	-	-	-	-	-	9,509	9,509
	10422 Wolf Hannaman Canal I&II	-	-	-	-	-	-	5,411	5,411
	10423 Sanford Struckman Canal	-	-	-	-	-	-	3,126	3,126
	22000 Combie Phase	58,095	46,710	40	104,846	1,300	1,045	6,980	9,326
	Other	8,201	6,594	-	14,796	109,601	88,122	-	197,723
	Subtotal	66,297	53,305	39,410	159,011	110,901	89,168	101,563	301,631
Combie Phase & Ophir	10410 Combie Reservoir	-	-	338	338	-	-	338	338
	Other	555	446	-	1,001	555	446	-	1,001
	Subtotal	555	446	338	1,338	555	446	338	1,338

Table 10
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2019

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Deer Creek North	10397 Meade Canal	1,119	900	301	2,320	36,179	29,089	9,742	75,011
	11603 Maben Canal	-	-	-	-	-	-	-	-
	15000 Deer Creek	1,429	1,149	9,794	12,372	1,429	1,149	9,794	12,372
	15100 Newtown Canal	2,316	1,862	-	4,178	9,264	7,449	-	16,713
	15101 Newtown Reservoir	3,397	2,732	-	6,129	13,589	10,926	-	24,515
	15201 Riffle	-	-	-	-	3,232	2,599	-	5,831
	Other	15,513	12,473	-	27,986	204,910	164,754	-	369,665
	Subtotal	23,775	19,116	10,095	52,985	268,604	215,966	19,536	504,106
Deer Creek South	10353 Lower Scotts Flat Res	-	-	770	770	-	-	24,881	24,881
	10354 D/S (Deer Creek So Canal)	-	-	-	-	-	-	26,973	26,973
	10357 Alta Hill Reservoir	-	-	-	-	-	-	634	634
	10358 Allison Ranch Canal	-	-	-	-	-	-	1,976	1,976
	10359 Corey Canal	-	-	-	-	-	-	332	332
	10361 Rough & Ready Canal	-	-	-	-	-	-	328	328
	10363 Rough & Ready Reservoir	-	-	-	-	-	-	130	130
	10365 Tarr Canal	-	-	-	-	-	-	39,911	39,911
	10366 Breckenridge Canal	-	-	-	-	-	-	36	36
	10367 Clear Creek Canal	-	-	-	-	-	-	4,189	4,189
	10368 Beyers Canal	-	-	-	-	-	-	759	759
	10369 Smith Gordon Canal	-	-	-	-	-	-	13,925	13,925
	10370 Casey Loney Canal	-	-	-	-	-	-	4,134	4,134
	10371 Stinson Pipe	-	-	40	40	-	-	-	-
	10372 Pet Hill Canal	-	-	-	-	-	-	1,242	1,242
	10373 Pet Hill Canal Extension	-	-	-	-	-	-	31	31
	10374 Bald Hill Canal	-	-	-	-	-	-	983	983
	10375 B Canal	-	-	-	-	-	-	7,894	7,894
	10376 Cole Viet Canal	-	-	-	-	-	-	1,029	1,029
	10377 Miller Canal	-	-	-	-	-	-	457	457
	10378 Wolf Canal	-	-	-	-	-	-	3,671	3,671
	10379 Pearl Barnes Canal	-	-	-	-	-	-	389	389
	10380 Carpenter Canal	-	-	-	-	-	-	628	628
	10381 Cole Canal	-	-	-	-	-	-	2,848	2,848
	10383 Newtown Canal	-	-	1,742	1,742	-	-	6,968	6,968
	10385 Lester Canal	-	-	-	-	-	-	349	349
	10386 Tunnel Canal	-	-	-	-	-	-	3,451	3,451
	10387 Riffle Box Canal	-	-	-	-	-	-	1,256	1,256
	10388 Tunnel Canal Extension	-	-	-	-	-	-	2,170	2,170
	10389 Rex Canal	-	-	-	-	-	-	2,344	2,344
	10390 Portuguese Canal	-	-	-	-	-	-	7	7
	10392 Quincy Canal	-	-	-	-	-	-	163	163

Table 10
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2019

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10395 China/Union Canal	-	-	88	88	-	-	8,730	8,730
	10396 Spenceville Canal	-	-	-	-	-	-	1,799	1,799
	10397 Meade Canal	-	-	21	21	-	-	667	667
	10399 Ousley Bar Canal	-	-	-	-	-	-	763	763
	10400 Town Canal	-	-	6	6	-	-	578	578
	10401 Farm Canal	-	-	-	-	-	-	3,260	3,260
	10402 Smartville Irrigatio	-	-	-	-	-	-	570	570
	10403 Keystone Canal	-	-	-	-	-	-	703	703
	14605 Casey Loney Canal	9,068	7,291	6,128	22,488	9,068	7,291	6,128	22,488
	Other	24,432	19,644	327	44,403	344,422	276,926	327	621,675
	Subtotal	33,500	26,935	9,122	69,557	353,490	284,217	177,615	815,323
Fiddler Green	10482 Ophir Canal	-	-	-	-	1,613	1,297	48	2,957
	10483 Kemper Canal	-	-	-	-	1,231	990	222	2,442
	10484 Kemper East Canal	-	-	-	-	267	214	76	557
	10485 Kemper West Canal	-	-	-	-	263	211	24	498
	10486 Bean Cullers Canal	-	-	-	-	352	283	24	659
	10488 Edgewood Reservoir	-	-	-	-	731	588	45	1,364
	10489 Edgewood Canal	-	-	-	-	1,041	837	3,299	5,176
	22700 Combie Ophir	34	27	-	61	3,374	2,713	-	6,086
	Other	149	119	-	268	2,618	2,105	-	4,723
	Subtotal	183	147	-	329	11,489	9,237	3,738	24,464
Support Systems	10232 Placer Yard	16,415	13,198	17,612	47,225	16,415	13,198	17,612	47,225
	10233 Property Mgmt-General	-	-	84	84	-	-	84	84
	14000 Deer Creek South	-	-	172	172	-	-	172	172
	21000 Combie Reservoir	5,449	4,381	4	9,833	27,838	22,383	348	50,570
	Raw Asset	227	182	8,330	8,740	17,510	14,079	13,148	44,736
	Other	2,147	1,726	-	3,873	41,312	33,216	-	74,528
	Subtotal	24,238	19,488	26,201	69,927	103,076	82,876	31,364	217,315
System Total >>>		181,748	146,131	133,488	461,367	2,061,270	1,657,326	674,269	4,392,865

Table 10
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

2019

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Campground Water System									
Jackson Mead. Aspen	10707 JM Aspen Water System	191	154	2,593	2,938	-	-	-	-
	Other	5,854	4,707	-	10,561	-	-	-	-
	Subtotal	6,045	4,861	2,593	13,499	-	-	-	-
Jackson Mead. Woodcamp	10708 JM Woodcamp Water System	241	194	365	800	-	-	-	-
	Other	2,020	1,624	-	3,643	-	-	-	-
	Subtotal	2,261	1,818	365	4,443	-	-	-	-
Long Ravine	10705 Long Ravine Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Peninsula	10706 Peninsula Water System	62	50	-	111	-	-	-	-
	Peninsula Water System	-	-	-	-	-	-	-	-
	Other	2,434	1,957	-	4,391	-	-	-	-
	Subtotal	2,496	2,007	-	4,502	-	-	-	-
Recreation	Orchard Springs Water System	-	-	-	-	-	-	-	-
	Recreation Asset	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Scotts Flat I	10702 Sf Gate 1 Water System	647	520	126	1,293	-	-	-	-
	Other	6,092	4,898	-	10,990	-	-	-	-
	Subtotal	6,739	5,418	126	12,282	-	-	-	-
Scotts Flat II	10703 Sf Gate 2 Water System	2,260	1,817	6,542	10,619	-	-	-	-
	Other	6,214	4,997	-	11,211	-	-	-	-
	Subtotal	8,475	6,814	6,542	21,831	-	-	-	-
Support Systems	10254 Upper Division - Rec	-	-	348	348	-	-	348	348
	10257 Peninsula - Rec	-	-	257	257	-	-	257	257
	Recreation Asset	6,584	5,294	2,098	13,976	6,584	5,294	2,098	13,976
	Scotts Flat Water System	45,389	36,494	-	81,882	-	-	-	-
	Other	(36)	(29)	-	(66)	(36)	(29)	-	(66)
	Subtotal	51,936	41,758	2,703	96,398	6,548	5,264	2,703	14,515
System Total >>>		77,951	62,675	12,329	152,955	6,548	5,264	2,703	14,515
Unassigned									
System Total >>>		2,756,934	2,216,661	1,854,644	6,828,240	2,060,174	1,656,444	1,615,433	5,332,050
Grand Total		5,332,635	4,287,605	4,483,665	14,103,905	5,103,627	4,103,475	3,180,693	12,387,795

Note: 2019 numbers reflect partial year data from January - October.

53.2%

46.8%

Table 11
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2018

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated Water System									
E. George	10303 E. George Trmt Plt	204,056	157,909	350,647	712,613	-	-	-	-
	10311 Cascade Shores System	5,870	4,542	14,232	24,644	-	-	-	-
	10313 E George System	414,151	320,491	441,927	1,176,568	-	-	-	-
	Treated Asset	1,396	1,081	92,096	94,573	1,396	1,081	-	-
	Other	25,115	19,435	199,195	243,745	1,848	1,430	-	3,278
	Subtotal	650,588	503,458	1,098,097	2,252,144	3,244	2,511	-	3,278
Lake of the Pines	10307 Lake Of The Pines Trmt Pl	92,375	71,485	249,091	412,951	-	-	-	-
	10317 Lake Of The Pines System	185,856	143,825	165,941	495,623	8,937	6,916	-	15,852
	Other	52,708	40,788	(6,318)	87,178	503	389	82	975
	Subtotal	330,940	256,098	408,715	995,752	9,440	7,305	82	16,827
Lake Wildwood	10305 Lake Wildwood Trmt Plt	136,586	105,697	185,439	427,722	-	-	-	-
	10315 Lake Wildwood System	287,631	222,583	254,635	764,849	-	-	-	-
	Other	5,116	3,959	219	9,293	88	68	190	346
	Subtotal	429,332	332,239	440,293	1,201,864	88	68	190	346
Loma Rica	10304 Loma Rica Trmt Plt	116,909	90,470	155,248	362,628	-	-	-	-
	10314 Loma Rica System	361,333	279,618	401,048	1,041,999	-	-	-	-
	Other	31,807	24,614	17,500	73,921	6,868	5,315	-	12,182
	Subtotal	510,050	394,702	573,796	1,478,548	6,868	5,315	-	12,182
North Auburn	10308 North Auburn Trmt Plt	133,052	102,962	376,944	612,958	-	-	-	-
	10318 North Auburn System	193,557	149,784	374,131	717,472	-	-	-	-
	Treated Asset	-	-	-	-	-	-	-	-
	Other	10,297	7,968	-	18,264	1,280	990	-	2,270
	Subtotal	336,906	260,715	751,075	1,348,695	1,280	990	-	2,270
Smartsville	10306 Smartville Trmt Plt	59,372	45,945	31,890	137,206	-	-	-	-
	10316 Smartville System	5,461	4,226	8,576	18,263	-	-	-	-
	Treated Asset	227	176	-	403	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	65,059	50,346	40,466	155,871	-	-	-	-
Support Systems	Treated Asset	-	-	7,552	7,552	-	-	-	-
	Other	384	297	30	712	384	297	30	712
	Subtotal	384	297	7,582	8,264	384	297	30	712
System Total >>>		2,323,259	1,797,855	3,320,024	7,441,138	21,304	16,486	303	35,616

Table 11
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

2018

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated & Raw System									
Cascade	Treated & Raw Asset	153	118	-	271	153	118	-	271
	Other	32,790	25,374	19,236	77,400	453,379	350,848	89,478	893,705
	Subtotal	32,942	25,493	19,236	77,671	453,532	350,966	89,478	893,977
Deer Creek South	Treated & Raw Asset	-	-	-	-	-	-	-	-
	Other	2,044	1,582	214	3,839	404,175	312,771	145,875	862,820
	Subtotal	2,044	1,582	214	3,839	404,175	312,771	145,875	862,820
Support Systems	10230 Main Office	-	-	128,633	128,633	-	-	129,217	129,217
	10231 Placer Office	-	-	1,635	1,635	-	-	1,635	1,635
	10319 Nid Water Laboratory	-	-	14,211	14,211	-	-	-	-
	Multiple Facilities	-	-	-	-	-	-	-	-
	Treated & Raw Asset	-	-	176,875	176,875	-	-	222,071	222,071
	Watershed Asset	-	-	219,281	219,281	-	-	219,281	219,281
	Other	208,780	161,564	-	370,344	178,095	137,819	-	315,914
	Subtotal	208,780	161,564	540,634	910,979	178,095	137,819	572,204	888,118
System Total >>>		243,766	188,639	560,084	992,489	1,035,802	801,556	807,557	2,644,915

Table 11
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2018

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Raw Water System									
Auburn Ravine	10490 Auburn Ravine Natural	-	-	-	-	3,221	2,493	332	6,046
	10491 Auburn Ravine Canal I	-	-	-	-	36,649	28,361	11,769	76,779
	10492 Chevallier Pipe	-	-	-	-	3,043	2,355	893	6,291
	10493 Auburn Ravine Canal II	-	-	-	-	90,297	69,877	74,780	234,954
	10494 Lincoln Canal	-	-	-	-	7,917	6,127	3,834	17,878
	10495 Musser Canal	-	-	-	-	6,194	4,794	2,172	13,160
	10496 Markell Canal	-	-	-	-	2,314	1,791	1,670	5,775
	10497 Fruitvale Canal	-	-	-	-	2,002	1,549	1,119	4,670
	10498 Sohier Ahart Canal	-	-	-	-	2,998	2,320	942	6,260
	10499 Hayt Canal Extension	-	-	-	-	6,135	4,748	2,345	13,228
	10502 Doty So Canal	-	-	-	-	16,480	12,753	6,654	35,887
	10503 Doty North Canal	-	-	-	-	36,726	28,420	15,020	80,166
	10504 Comstock Gladding Canal	-	-	-	-	3,540	2,740	2,182	8,462
	10505 Clark Jorstad Canal	-	-	-	-	5,616	4,346	2,583	12,544
	10506 Hemphill Canal	-	-	-	-	3,383	2,618	4,560	10,561
	24100 Auburn Ravine	-	-	-	-	-	-	-	-
	24200 Hemphill Canal	-	-	-	-	7,431	5,751	76	13,258
	Other	3,471	2,686	93	6,250	5,439	4,209	15,197	24,844
	Subtotal	3,471	2,686	93	6,250	239,384	185,248	146,129	570,761
Cascade	10320 Cascade Canal	25,875	20,023	14,933	60,831	48,053	37,186	27,733	112,972
	10323 Cement Hill Canal	-	-	-	-	10,922	8,452	1,073	20,446
	10324 Lake Vera Pipe	-	-	-	-	6,612	5,117	2,481	14,210
	10325 Sugar Loaf Reservoir/Pipe	-	-	-	-	1,606	1,243	35	2,884
	10326 Red Hill Canal	-	-	-	-	15,941	12,336	7,176	35,454
	10329 Upper Grass Valley Canal	1,277	988	-	2,265	1,277	988	-	2,265
	10330 Loma Rica Reservoir	2,889	2,236	3,694	8,818	5,365	4,152	6,860	16,377
	10331 Chicago Park Canal	-	-	-	-	111,868	86,569	6,371	204,808
	10333 Sontag Canal	-	-	-	-	5,845	4,523	77	10,445
	10336 Chicago Park East Canal	-	-	-	-	5,745	4,446	1,997	12,188
	10337 Chicago Park Pipe	287	222	-	508	-	-	-	-
	10338 Chicago Park West Canal	-	-	-	-	4,546	3,518	408	8,472
	10340 Blum Pipe	1,268	981	-	2,249	-	-	-	-
	10341 Smith Moulton Res & Pipe	-	-	-	-	395	306	9	710
	10342 John Henry Meyers	1,072	830	409	2,311	1,072	830	409	2,311
	10343 Rattlesnake Canal	-	-	-	-	83,274	64,441	4,069	151,784
	10344 Woodpecker Canal	-	-	-	-	6,925	5,359	3,891	16,176
	10345 Forest Springs Canal	-	-	-	-	38,653	29,912	10,642	79,207
	10346 Maben Canal	-	-	-	-	13,464	10,419	2,787	26,670
	10347 Kyler Canal	-	-	-	-	5,889	4,558	3,957	14,404

Table 11
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2018

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10348 Maben Reservoir & Pipe	-	-	-	-	178	138	-	316
	10349 Cunningham Reservoir	-	-	-	-	566	438	-	1,003
	10350 Grove Canal	-	-	-	-	5,845	4,523	740	11,108
	11400 Loma	-	-	-	-	8,553	6,619	-	15,173
	11603 Maben Canal	-	-	-	-	28,366	21,951	-	50,317
	Other	275	213	200	689	42,570	32,943	8,763	84,275
	Subtotal	32,942	25,493	19,236	77,671	453,532	350,966	89,478	893,977
Combie Ophir	10424 Combie Ophir I	153	118	34	306	15,142	11,717	3,396	30,255
	10425 Lone Star Canal	-	-	-	-	45,988	35,587	19,323	100,898
	10426 Ruud Canal	-	-	-	-	258	200	64	522
	10427 Rainey Canal	-	-	-	-	536	414	64	1,014
	10428 Oest Canal	-	-	-	-	8,753	6,774	4,171	19,697
	10429 Willits Canal	-	-	-	-	7,852	6,076	903	14,832
	10431 Orr Creek Reservoir	-	-	-	-	1,660	1,285	907	3,852
	10432 Gold Hill I	-	-	-	-	64,034	49,553	16,185	129,772
	10433 Camp Far West Canal	-	-	-	-	49,517	38,318	26,316	114,150
	10434 Lateral 5 Canal (Cfw)	-	-	-	-	1,516	1,173	452	3,141
	10435 Lateral 4 Canal (Cfw)	-	-	-	-	3,325	2,573	1,350	7,247
	10436 Lateral 2 Canal (Cfw)	-	-	-	-	1,382	1,069	317	2,768
	10437 Lateral 1 Canal (Cfw)	-	-	-	-	2,704	2,092	2,675	7,471
	10438 Wiswell Gladding Canal	-	-	-	-	721	558	1,923	3,202
	10439 Church Canal	-	-	-	-	1,196	926	2,057	4,178
	10440 Forbes Canal	-	-	-	-	1,613	1,248	1,061	3,922
	10441 Renken Canal	-	-	-	-	2,505	1,938	1,208	5,651
	10442 Bogdanoff Canal	-	-	-	-	2,433	1,883	2,782	7,098
	10443 Camp Far West Canal Ext	-	-	-	-	24,880	19,253	4,817	48,950
	10444 Combie Ophir II	423	327	73	823	41,852	32,387	7,239	81,478
	10445 Pickett Canal	-	-	-	-	9,656	7,472	1,197	18,325
	10447 Pickett Reservoir	-	-	-	-	500	387	18	906
	10448 Pickett North Canal	-	-	-	-	2,811	2,175	541	5,527
	10449 Pickett South Canal	-	-	-	-	480	372	261	1,113
	10450 Rock Creek/Gold Hill	208	161	14	383	208	161	14	383
	10451 Combie Ophir III	85	66	3	153	8,391	6,493	291	15,175
	10452 Columbia East	-	-	-	-	3,098	2,397	434	5,928
	10453 Columbia West	-	-	-	-	1,829	1,416	273	3,518
	10454 Combie Ophir IV	-	-	-	-	85,265	65,982	13,884	165,131
	10455 Vernon Canal	-	-	-	-	5,585	4,322	94	10,001
	10456 Rohr Shanley Pipe	-	-	-	-	2,850	2,206	-	5,056
	10458 Dudley Canal	-	-	-	-	42,306	32,739	20,006	95,051
	10459 Gold Blosson Canal	-	-	-	-	24,687	19,104	1,225	45,017

Table 11
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2018

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10395 China/Union Canal	-	-	-	-	-	-	-	-
	10396 Spenceville Canal	-	-	-	-	-	-	-	-
	10397 Meade Canal	-	-	-	-	-	-	-	-
	10399 Ousley Bar Canal	-	-	-	-	-	-	-	-
	10400 Town Canal	-	-	-	-	-	-	-	-
	10401 Farm Canal	-	-	-	-	-	-	-	-
	10402 Smartville Irrigatio	-	-	-	-	-	-	-	-
	10403 Keystone Canal	-	-	-	-	-	-	-	-
	14605 Casey Loney Canal	-	-	-	-	-	-	-	-
	Other	1,493	1,155	-	2,648	13,191	10,208	3,944	27,342
	Subtotal	2,044	1,582	214	3,839	404,175	312,771	145,875	862,820
Fiddler Green	10482 Ophir Canal	-	-	-	-	465	360	65	890
	10483 Kemper Canal	-	-	-	-	480	371	453	1,304
	10484 Kemper East Canal	-	-	-	-	500	387	36	923
	10485 Kemper West Canal	-	-	-	-	718	555	54	1,327
	10486 Bean Cullers Canal	-	-	-	-	1,590	1,230	121	2,941
	10488 Edgewood Reservoir	-	-	-	-	234	181	36	451
	10489 Edgewood Canal	-	-	-	-	4,886	3,781	4,932	13,598
	22700 Combie Ophir	-	-	-	-	-	-	-	-
	Other	286	221	-	506	57	44	-	101
	Subtotal	286	221	-	506	8,928	6,909	5,697	21,535
Support Systems	10232 Placer Yard	28,460	22,024	40,771	91,255	28,460	22,024	40,771	91,255
	10233 Property Mgmt-General	129	100	-	228	129	100	-	228
	14000 Deer Creek South	-	-	-	-	-	-	-	-
	21000 Combie Reservoir	2,519	1,949	1,439	5,907	43,732	33,842	131,441	209,014
	Raw Asset	1,072	830	10,632	12,533	59,004	45,661	105,511	210,176
	Other	4,452	3,445	8	7,905	58,652	45,388	743	104,782
	Subtotal	36,631	28,347	52,850	117,828	189,977	147,013	278,466	615,456
System Total >>>		186,571	144,378	161,140	492,090	2,434,722	1,884,110	1,077,930	5,396,762

Table 11
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

2018

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Campground Water System									
Jackson Mead. Aspen	10707 JM Aspen Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Jackson Mead. Woodcamp	10708 JM Woodcamp Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Long Ravine	10705 Long Ravine Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Peninsula	10706 Peninsula Water System	-	-	-	-	-	-	-	-
	Peninsula Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Recreation	Orchard Springs Water System	-	-	-	-	-	-	-	-
	Recreation Asset	-	-	-	-	-	-	-	-
	Other	-	-	120	120	-	-	-	-
	Subtotal	-	-	120	120	-	-	-	-
Scotts Flat I	10702 Sf Gate 1 Water System	-	-	-	-	-	-	-	-
	Other	26,832	20,764	-	47,596	-	-	-	-
	Subtotal	26,832	20,764	-	47,596	-	-	-	-
Scotts Flat II	10703 Sf Gate 2 Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Support Systems	10254 Upper Division - Rec	-	-	-	-	-	-	-	-
	10257 Peninsula - Rec	-	-	-	-	-	-	-	-
	Recreation Asset	54,489	42,166	13,564	110,219	12,629	9,773	-	22,402
	Scotts Flat Water System	-	-	-	-	-	-	-	-
	Other	(54,489)	(42,166)	(12,758)	(109,413)	(12,629)	(9,773)	-	(22,402)
Subtotal	-	-	806	806	-	-	-	-	
System Total >>>		26,832	20,764	926	48,522	-	-	-	-
Unassigned									
System Total >>>		3,418,687	2,645,552	1,998,196	8,062,435	2,593,534	2,007,007	1,649,550	6,250,091
Grand Total		6,199,116	4,797,188	6,040,370	17,036,674	6,085,362	4,709,159	3,535,340	14,327,384

54.3%

45.7%

Table 12
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated Water System									
E. George	10303 E. George Trmt Plt	162,384	175,209	383,290	720,883	-	-	-	-
	10311 Cascade Shores System	20,697	22,331	24,354	67,382	-	-	-	-
	10313 E George System	289,912	312,809	399,851	1,002,573	-	-	-	-
	Treated Asset	1,664	1,795	7,444	10,903	-	-	-	-
	Other	73,634	79,449	51,450	204,534	726	784	-	1,510
	Subtotal	548,291	591,594	866,389	2,006,274	726	784	-	1,510
Lake of the Pines	10307 Lake Of The Pines Trmt Pl	87,099	93,978	269,067	450,144	-	-	-	-
	10317 Lake Of The Pines System	152,555	164,603	132,096	449,254	962	1,038	-	2,000
	Other	40,298	43,481	6,400	90,179	-	-	-	-
	Subtotal	279,952	302,062	407,563	989,577	962	1,038	-	2,000
Lake Wildwood	10305 Lake Wildwood Trmt Plt	130,221	140,506	356,922	627,650	-	-	-	-
	10315 Lake Wildwood System	190,109	205,124	289,456	684,689	-	-	-	-
	Other	6,589	7,109	8,458	22,157	-	-	-	-
	Subtotal	326,920	352,739	654,837	1,334,495	-	-	-	-
Loma Rica	10304 Loma Rica Trmt Plt	97,805	105,530	-	203,335	-	-	-	-
	10314 Loma Rica System	306,847	331,081	-	637,929	-	-	-	-
	Other	105,827	114,185	-	220,012	98	106	-	204
	Subtotal	510,480	550,796	-	1,061,275	98	106	-	204
North Auburn	10308 North Auburn Trmt Plt	113,731	122,713	352,654	589,098	-	-	-	-
	10318 North Auburn System	167,823	181,077	137,454	486,354	-	-	-	-
	Treated Asset	-	-	2,400	2,400	-	-	-	-
	Other	20,644	22,274	-	42,918	322	347	-	669
	Subtotal	302,198	326,065	492,508	1,120,771	322	347	-	669
Smartsville	10306 Smartville Trmt Plt	53,532	57,760	33,638	144,930	-	-	-	-
	10316 Smartville System	4,141	4,468	2,523	11,132	-	-	-	-
	Treated Asset	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	57,673	62,228	36,161	156,062	-	-	-	-
Support Systems	Treated Asset	651	702	1,885	3,238	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	651	702	1,885	3,238	-	-	-	-
System Total >>>		2,026,165	2,186,185	2,459,341	6,671,692	2,108	2,275	-	4,383

Table 12
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

2017

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Treated & Raw System									
Cascade	Treated & Raw Asset	316	341	-	658	588	634	-	1,222
	Other	37,518	40,481	69,529	147,527	325,626	351,342	181,490	858,458
	Subtotal	37,834	40,822	69,529	148,185	326,213	351,976	181,490	859,680
Deer Creek South	Treated & Raw Asset	-	-	-	-	-	-	-	-
	Other	274,594	296,280	31	570,905	391,786	422,729	195,931	1,010,446
	Subtotal	274,594	296,280	31	570,905	391,786	422,729	195,931	1,010,446
Support Systems	10230 Main Office	-	-	139,311	139,311	-	-	139,311	139,311
	10231 Placer Office	-	-	2,383	2,383	-	-	2,383	2,383
	10319 Nid Water Laboratory	-	-	16,280	16,280	-	-	-	-
	Multiple Facilities	-	-	-	-	-	-	-	-
	Treated & Raw Asset	-	-	143,327	143,327	-	-	143,327	143,327
	Watershed Asset	-	-	87,868	87,868	-	-	87,868	87,868
	Other	101,088	109,072	-	210,161	81,090	87,494	-	168,584
	Subtotal	101,088	109,072	389,170	599,330	81,090	87,494	372,890	541,473
System Total >>>		413,516	446,175	458,729	1,318,420	799,089	862,199	750,310	2,411,599

Table 12
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2017

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Raw Water System									
Auburn Ravine	10490 Auburn Ravine Natural	-	-	-	-	10,123	10,922	619	21,664
	10491 Auburn Ravine Canal I	-	-	-	-	38,756	41,817	13,651	94,224
	10492 Chevallier Pipe	-	-	-	-	5,389	5,814	1,011	12,214
	10493 Auburn Ravine Canal II	-	-	-	-	59,941	64,675	17,791	142,408
	10494 Lincoln Canal	-	-	-	-	7,796	8,412	4,790	20,998
	10495 Musser Canal	-	-	-	-	4,051	4,370	3,733	12,154
	10496 Markell Canal	-	-	-	-	1,915	2,067	1,300	5,282
	10497 Fruitvale Canal	-	-	-	-	3,220	3,475	1,205	7,900
	10498 Sohier Ahart Canal	-	-	-	-	1,413	1,525	989	3,926
	10499 Hayt Canal Extension	-	-	-	-	3,997	4,312	3,207	11,516
	10502 Doty So Canal	-	-	-	-	12,861	13,876	9,028	35,765
	10503 Doty North Canal	-	-	-	-	43,247	46,662	23,589	113,498
	10504 Comstock Gladding Canal	-	-	-	-	2,656	2,866	1,883	7,406
	10505 Clark Jorstad Canal	-	-	-	-	5,516	5,951	3,286	14,752
	10506 Hemphill Canal	-	-	-	-	4,836	5,218	6,738	16,792
	24100 Auburn Ravine	-	-	-	-	-	-	-	-
	24200 Hemphill Canal	-	-	-	-	12,574	13,567	-	26,141
	Other	(154)	(166)	-	(320)	4,679	5,048	16,450	26,176
	Subtotal	(154)	(166)	-	(320)	222,969	240,579	109,268	572,816
Cascade	10320 Cascade Canal	31,828	34,341	69,529	135,698	59,109	63,777	129,125	252,010
	10323 Cement Hill Canal	-	-	-	-	4,992	5,387	45	10,424
	10324 Lake Vera Pipe	-	-	-	-	237	255	98	590
	10325 Sugar Loaf Reservoir/Pipe	-	-	-	-	539	582	3,203	4,324
	10326 Red Hill Canal	-	-	-	-	12,676	13,677	9,914	36,266
	10329 Upper Grass Valley Canal	330	356	-	686	330	356	-	686
	10330 Loma Rica Reservoir	3,127	3,374	-	6,501	5,807	6,266	-	12,073
	10331 Chicago Park Canal	-	-	-	-	55,362	59,734	4,766	119,862
	10333 Sontag Canal	-	-	-	-	5,564	6,003	434	12,001
	10336 Chicago Park East Canal	-	-	-	-	2,687	2,900	79	5,666
	10337 Chicago Park Pipe	234	252	-	485	-	-	-	-
	10338 Chicago Park West Canal	-	-	-	-	3,243	3,499	104	6,847
	10340 Blum Pipe	-	-	-	-	225	243	47	515
	10341 Smith Moulton Res & Pipe	-	-	-	-	1,004	1,083	145	2,232
	10342 John Henry Meyers	-	-	-	-	589	636	-	1,226
	10343 Rattlesnake Canal	-	-	-	-	72,171	77,870	2,453	152,494
	10344 Woodpecker Canal	-	-	-	-	1,924	2,076	-	4,001
	10345 Forest Springs Canal	-	-	-	-	6,037	6,514	1,647	14,198
	10346 Maben Canal	-	-	-	-	15,971	17,232	1,734	34,937
	10347 Kyler Canal	-	-	-	-	3,809	4,110	852	8,771

Table 12
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2017

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10348 Maben Reservoir & Pipe	-	-	-	-	202	217	9	428
	10349 Cunningham Reservoir	-	-	-	-	1,202	1,297	1,284	3,782
	10350 Grove Canal	-	-	-	-	3,637	3,924	289	7,849
	11400 Loma	402	433	-	835	746	805	-	1,550
	11603 Maben Canal	-	-	-	-	23,614	25,479	-	49,094
	Other	1,915	2,066	-	3,980	44,537	48,054	25,263	117,854
	Subtotal	37,834	40,822	69,529	148,185	326,213	351,976	181,490	859,680
Combie Ophir	10424 Combie Ophir I	108	116	35	259	10,674	11,517	3,433	25,624
	10425 Lone Star Canal	-	-	-	-	33,784	36,453	4,647	74,884
	10426 Ruud Canal	-	-	-	-	587	633	87	1,306
	10427 Rainey Canal	-	-	-	-	212	229	15	456
	10428 Oest Canal	-	-	-	-	2,627	2,834	929	6,390
	10429 Willits Canal	-	-	-	-	3,430	3,700	1,084	8,214
	10431 Orr Creek Reservoir	4	4	-	8	369	398	-	767
	10432 Gold Hill I	-	-	-	-	31,201	33,666	8,607	73,474
	10433 Camp Far West Canal	-	-	-	-	61,742	66,619	32,465	160,826
	10434 Lateral 5 Canal (Cfw)	-	-	-	-	1,216	1,312	939	3,467
	10435 Lateral 4 Canal (Cfw)	-	-	-	-	2,112	2,279	1,605	5,996
	10436 Lateral 2 Canal (Cfw)	-	-	-	-	1,543	1,665	672	3,880
	10437 Lateral 1 Canal (Cfw)	-	-	-	-	6,032	6,508	8,998	21,537
	10438 Wiswell Gladding Canal	-	-	-	-	678	731	1,913	3,322
	10439 Church Canal	-	-	-	-	935	1,009	1,817	3,761
	10440 Forbes Canal	-	-	-	-	857	925	1,182	2,964
	10441 Renken Canal	-	-	-	-	2,277	2,457	1,430	6,164
	10442 Bogdanoff Canal	-	-	-	-	2,007	2,166	3,388	7,561
	10443 Camp Far West Canal Ext	-	-	-	-	11,097	11,974	3,453	26,524
	10444 Combie Ophir II	339	366	53	757	33,560	36,211	5,207	74,977
	10445 Pickett Canal	-	-	-	-	18,035	19,459	1,211	38,706
	10447 Pickett Reservoir	-	-	-	-	1,658	1,789	137	3,583
	10448 Pickett North Canal	-	-	-	-	2,149	2,318	495	4,962
	10449 Pickett South Canal	-	-	-	-	3,851	4,155	2,180	10,186
	10450 Rock Creek/Gold Hill	276	298	-	574	276	298	-	574
	10451 Combie Ophir III	17	18	7	43	1,687	1,820	723	4,230
	10452 Columbia East	-	-	-	-	1,370	1,478	671	3,520
	10453 Columbia West	-	-	-	-	2,042	2,204	371	4,617
	10454 Combie Ophir IV	833	899	207	1,939	82,474	88,987	20,484	191,945
	10455 Vernon Canal	-	-	-	-	5,314	5,734	1,113	12,162
	10456 Rohr Shanley Pipe	-	-	-	-	16,330	17,619	1,919	35,868
	10458 Dudley Canal	-	-	-	-	26,027	28,083	11,519	65,629
	10459 Gold Blosson Canal	-	-	-	-	12,701	13,704	2,167	28,572

Table 12
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2017

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10460 St Patricks Canal	-	-	-	-	3,091	3,336	879	7,306
	10461 Little Ophir Canal	-	-	-	-	4,771	5,147	1,052	10,970
	10462 Hymas Canal	-	-	-	-	1,648	1,779	173	3,600
	10463 Gold Hill II	920	992	-	1,912	13,309	14,360	5,434	33,103
	10465 Whiskey Diggins Canal	-	-	-	-	4,584	4,947	3,032	12,563
	10466 Old Whiskey Diggins Canal	-	-	-	-	1,239	1,336	1,683	4,258
	10467 Valley View Canal	-	-	-	-	55,841	60,251	10,129	126,221
	10468 Files Canal	-	-	-	-	452	488	101	1,041
	10469 Valley View Reservoir	-	-	-	-	5,933	6,401	950	13,284
	10470 Kilaga Springs Canal	-	-	-	-	8,636	9,318	764	18,717
	10471 Nicklas Canal	-	-	-	-	947	1,022	80	2,049
	10472 Livingston Canal	-	-	-	-	2,161	2,331	541	5,033
	10473 Rielli Canal	-	-	-	-	2,449	2,642	555	5,647
	10474 Iron Canyon Canal	-	-	-	-	1,131	1,220	166	2,517
	10475 Thomas Canal	-	-	-	-	1,580	1,705	435	3,719
	10476 Stringham Canal	-	-	-	-	2,392	2,581	380	5,353
	22304 Oest Canal	-	-	-	-	-	-	-	-
	22401 Orr Creek Reservoir	-	-	-	-	1,072	1,157	19,805	22,034
	22906 Valley View R	-	-	-	-	-	-	-	-
	Raw Asset	-	-	-	-	-	-	-	-
	Other	422	455	(44)	833	110,483	119,208	23,171	252,861
	Subtotal	2,918	3,149	258	6,325	602,573	650,162	194,191	1,446,925
Combie Phase	10411 Combie Phase I	89	96	6	192	8,848	9,547	574	18,969
	10412 Magnolia III Pumps	733	791	167	1,690	1,099	1,186	251	2,535
	10414 Magnolia III Canal	16,320	17,609	44,423	78,353	24,480	26,414	66,635	117,529
	10415 Magnolia III Canal Ext	944	1,019	35	1,999	1,417	1,529	53	2,998
	10416 Combie Phase II & III	-	-	-	-	41,191	44,444	13,121	98,756
	10417 Magnolia I Canal	-	-	-	-	2,332	2,516	471	5,320
	10418 Weeks Canal	-	-	-	-	1,936	2,089	83	4,108
	10419 Magnolia II South Canal	-	-	-	-	2,632	2,840	328	5,800
	10420 Magnolia II North Canal	-	-	-	-	5,930	6,399	1,638	13,966
	10421 Markwell Canal	-	-	-	-	3,622	3,908	3,027	10,557
	10422 Wolf Hannaman Canal I&II	-	-	-	-	7,968	8,597	7,237	23,803
	10423 Sanford Struckman Canal	-	-	-	-	5,871	6,335	2,672	14,878
	22000 Combie Phase	64,781	69,897	65	134,742	-	-	-	-
	Other	10,255	11,065	-	21,320	492	531	2,480	3,503
	Subtotal	93,122	100,477	44,696	238,296	107,820	116,335	98,567	322,722
Combie Phase & Ophir	10410 Combie Reservoir	15	16	-	32	1,501	1,619	-	3,120
	Other	190	205	-	396	190	205	-	396
	Subtotal	205	222	-	427	1,691	1,824	-	3,515

Table 12
Nevada Irrigation District
Cost of Service Study
Cost Mapping to System & Asset

2017

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
	10395 China/Union Canal	-	-	-	-	-	-	-	-
	10396 Spenceville Canal	-	-	-	-	-	-	-	-
	10397 Meade Canal	-	-	-	-	-	-	-	-
	10399 Ousley Bar Canal	-	-	-	-	-	-	-	-
	10400 Town Canal	-	-	-	-	-	-	-	-
	10401 Farm Canal	-	-	-	-	-	-	-	-
	10402 Smartville Irrigatio	-	-	-	-	-	-	-	-
	10403 Keystone Canal	-	-	-	-	-	-	-	-
	14605 Casey Loney Canal	-	-	-	-	-	-	-	-
	Other	274,327	295,993	-	570,320	58,526	63,148	62,206	183,880
	Subtotal	274,594	296,280	31	570,905	391,786	422,729	195,931	1,010,446
Fiddler Green	10482 Ophir Canal	-	-	-	-	81	87	34	202
	10483 Kemper Canal	-	-	-	-	531	572	526	1,629
	10484 Kemper East Canal	-	-	-	-	1,071	1,155	12	2,238
	10485 Kemper West Canal	-	-	-	-	450	485	297	1,232
	10486 Bean Cullers Canal	-	-	-	-	291	314	-	604
	10488 Edgewood Reservoir	-	-	-	-	-	-	-	-
	10489 Edgewood Canal	-	-	-	-	14,081	15,193	4,805	34,079
	22700 Combie Ophir	-	-	-	-	-	-	-	-
	Other	0	0	-	1	502	542	57	1,101
	Subtotal	0	0	-	1	17,005	18,348	5,730	41,084
Support Systems	10232 Placer Yard	10,687	11,531	16,708	38,926	10,687	11,531	16,708	38,926
	10233 Property Mgmt-General	52	56	-	107	52	56	-	107
	14000 Deer Creek South	-	-	-	-	-	-	-	-
	21000 Combie Reservoir	176	190	1,345	1,711	17,449	18,827	133,150	169,426
	Raw Asset	548	591	1,251	2,390	57,756	62,318	125,981	246,056
	Other	11,718	12,643	25	24,386	57,042	61,547	809	119,398
	Subtotal	23,181	25,012	19,329	67,521	142,986	154,279	276,648	573,913
System Total >>>		474,800	512,299	167,769	1,154,868	2,241,662	2,418,701	1,258,252	5,918,614

Table 12
 Nevada Irrigation District
 Cost of Service Study
 Cost Mapping to System & Asset

2017

System & Zone	Asset	Treated Water				Raw Water			
		Salaries	Benefits	Other O&M	Total	Salaries	Benefits	Other O&M	Total
Campground Water System									
Jackson Mead. Aspen	10707 JM Aspen Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Jackson Mead. Woodcamp	10708 JM Woodcamp Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Long Ravine	10705 Long Ravine Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Peninsula	10706 Peninsula Water System	-	-	-	-	-	-	-	-
	Peninsula Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Recreation	Orchard Springs Water System	-	-	-	-	-	-	-	-
	Recreation Asset	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Scotts Flat I	10702 Sf Gate 1 Water System	-	-	-	-	-	-	-	-
	Other	-	-	2,581	2,581	-	-	-	-
	Subtotal	-	-	2,581	2,581	-	-	-	-
Scotts Flat II	10703 Sf Gate 2 Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
	Subtotal	-	-	-	-	-	-	-	-
Support Systems	10254 Upper Division - Rec	-	-	-	-	-	-	-	-
	10257 Peninsula - Rec	-	-	-	-	-	-	-	-
	Recreation Asset	-	-	-	-	-	-	-	-
	Scotts Flat Water System	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	
System Total >>>		-	-	2,581	2,581	-	-	-	-
Unassigned									
System Total >>>		2,950,397	3,183,410	2,273,480	8,407,287	2,559,554	2,761,700	1,542,293	6,863,548
Grand Total		5,864,878	6,328,069	5,361,902	17,554,849	5,602,414	6,044,875	3,550,855	15,198,144

53.6%

46.4%

Table 13
 Nevada Irrigation District
 Cost of Service Study
 Staff Timetracking Results

	Timetracking 2019 (hours)				
	Treated	Raw	Hydroelectric	Recreation	Subtotal
Mon	2,892	2,825	1,547	826	8,091
Tue	3,631	3,427	1,752	981	9,791
Wed	3,481	3,371	1,704	904	9,460
Thr	3,312	3,199	1,645	840	8,995
Fri	2,299	2,277	1,112	737	6,424
Sat	61	61	14	7	143
Sun	114	117	17	13	260
Total	15,789	15,275	7,790	4,309	43,164
%	36.6%	35.4%	18.0%	10.0%	100.0%
Share of Combined Treated + Raw Only					
%	50.8%	49.2%			

Timetracking from 63 employees from Jan - Dec 6, 2019 with bulk of data from Jun - Nov 2019.

ALEX T. HANDLERS, MPA, CIPMA

Principal Consultant

Alex Handlers is a principal and vice president of Bartle Wells Associates with expertise in the areas of utility rates and finance. He has extensive experience developing long-term financial plans, utility rates, and development impact fees for utility enterprises. Alex has helped agencies implement a wide variety of water and sewer rate and fee structures and is knowledgeable about the legal requirements of rates and fees. He has managed projects for over 150 cities, counties, and special districts.

Alex is also an independent financial advisor who helps public agencies secure low-cost financing for capital projects. He is an MSRB-Registered Municipal Advisor, a Certified Independent Professional Municipal Advisor, and a current Board Member of the National Association of Municipal Advisors. He has expertise helping public agencies evaluate financing alternatives for capital improvement programs and obtain over \$2 billion in financing via bonds, COPs, bank loans/private placements, lines of credit, and various state and federal funding programs.

Education

M.P.A. - University of Washington
B.A. - Lehigh University

Certifications

Board Member – National Association of
Municipal Advisors
CIPMA – Certified Independent Professional
Municipal Advisor
MSRB-Registered Municipal Advisor

Representative Projects

- **City of San Mateo:** Developed a sewer enterprise financial plan and rate recommendations supporting funding for a roughly \$900 million wastewater capital improvement program needed to improve wet weather capacity and rebuild the City's aging wastewater treatment plant.
- **City of Petaluma:** Developed water and sewer financial plans and rate studies designed to support each utility's long-term capital improvement program. Recommendation included a gradual phase-in of rate increases along with automatic inflationary rate adjustments designed to keep rates aligned with the cost of providing service. Currently assisting the City with an update to the City's water and sewer development impact fees.
- **City of Redwood City:** Developed water and sewer financial plans and utility rate studies designed to support long-term operating and capital needs while providing a defensible cost-justification for the City's water and sewer rates. Rates have been designed to fund a \$72 million recycled water project, the City's roughly \$400 million share of improvements to the regional wastewater treatment plant and influent force main, and ongoing replacement of the City's aging water and sewer systems.
- **City of Morro Bay:** Developed 10-year water and wastewater financial plans and rate studies. Evaluated water and sewer rate structures and recommended modifications based on a cost of service analysis. Developed emergency water shortage rates. Updated the City's water and wastewater connection fees. Developed financial plan for a new wastewater treatment plant.
- **City of Fresno:** Developed wastewater enterprise financial plan and Excel-based financial model used by City staff to update financial and rate projections. Developed new water connection fees designed to recover costs of existing facilities and future supplemental water supply projects benefiting new development.

Alex T. Handlers, continued

- **Nevada Irrigation District:** Developed a 10-Year Financial Plan, Cost of Service Analysis & Water Rate Study, and Capacity Charge Update. These studies formed the foundation for the District's current water rates and capacity fees.
- **Monterey One Water** (formerly Monterey Regional Water Pollution Control Agency): Developed a long-term financial plan, sewer rate study, capacity charge study, and update of a range of miscellaneous fees and charges.
- **Alameda County Water District:** Comprehensive development fee study; recommended a series of modifications to existing charges to improve revenue recovery, equity and fee administration
- **City of San Carlos:** Developed sewer enterprise financial plan and rate study designed to support legally-required sewer collection system capacity improvements, long-term pipeline replacements, and over \$120 million for the City's share of costs for rebuilding the regional wastewater treatment plant. Evaluated residential rate alternatives and recommended modifications to the City's sewer rate structure designed to improve rate equity and align rates with the cost of service.
- **San Francisco Public Utilities Commission:** Developed financial projections supporting over \$2 billion of bonds issued to help fund a \$4.3 billion upgrade to the Hetch-Hetchy regional water system and improvements to the City's wastewater system.
- **Silicon Valley Clean Water:** Developed 10-year financial plan supporting over \$750 million of capital improvements to a regional JPA that provides sewer treatment to Belmont, Redwood City, San Carlos, and the West Bay Sanitary District. Served as financial advisor on issuance of \$200 million of financing via bonds, State Revolving Fund (SRF) loans, and a line of credit.
- **Cambria Community Services District:** Developed water and sewer rates and capacity charges as well as supplemental water rates to support an emergency desalinated water facility, and updated the District's miscellaneous fees and charges.
- **Mid-Peninsula Water District:** Developed 10-year financial plan and water rate study with a gradual phase in of rate increases and modifications to rate structure to improve equity and conservation incentive. Developed water system capacity charges levied on new development and a new water demand offset fee to recover costs for generating water supply to serve growth.
- **City of San Bruno:** Developed 10-year water and wastewater financial plans and rate studies. Recommended a series of gradual annual rate increases to fund operating and capital needs and increase funding for repair and replacement of the City's aging water and sewer infrastructure. Evaluated water and sewer rate structures and recommended modifications to improve rate equity and increase conservation incentive.
- **City of Sunnyvale:** Developed sewer enterprise financial projections and rate recommendations. Updated the City's water and sewer capacity charges levied on new development.
- **Joshua Basin Water District:** Long-term financial plan and water rate study recommending a gradual increase in water rates coupled with rate structure modifications to provide additional conservation incentive. Updated District's connection fees. Worked closely with a community advisory committee to evaluate rate options and develop final recommendations.
- **Ironhouse Sanitary District:** Developed financial plan supporting financing of a new wastewater treatment plant. Assisted District in obtaining a \$50 million SRF loan. Updated the District's capacity fees and charges.
- **City of Mountain View:** Developed 10-year water and wastewater financial plans and rate studies. Evaluated water and sewer rate structures and recommended modifications to improve rate equity and compliance with Prop. 218. Updated the City's water and wastewater connection fees..

ERIK W. HELGESON

Project Consultant

Erik Helgeson is an Assistant Vice President of Bartle Wells and Associates. His areas of expertise include the development of financial plans, ratemaking, and policy solutions for water, stormwater and wastewater utilities. He has eight years of utility finance experience- as a finance analyst at Denver Water and now as a utility rate consultant. Erik has extensive expertise in working with executive level staff and assisting in strategic decisions. He serves on the American Water Works Association (AWWA) Rates and Charges Committee and has presented at the Utility Management Conference.

Education

M.B.A., Entrepreneurship – University of Colorado, Denver

B.A., Business Administration – Gonzaga University

Representative Projects

- **San Miguel Community Services District, CA:** Lead consultant providing water and wastewater financial plans and rate studies. The District was nearing insolvency and large rate increases were needed to save the District.
- **City of Hemet, CA:** Water budget rate design and cost of service study (in progress)
- **City of Imperial, CA:** Lead consultant providing water and wastewater financial plans and rate studies
- **Modesto Irrigation District:** Designed an allocation methodology between the district’s domestic water, irrigation and electric enterprises.
- **Madera County, CA:** Lead consultant providing rate studies for twenty-three of the county’s water and sewer special service districts
- **Castle Pines North Metropolitan District, CO:** Lead consultant providing annual water and wastewater financial plans and rate study updates
- **City of Placerville, CA:** Analytical support for water financial plans and rate studies.
- **City of Modesto, CA:** Analytical support for water and wastewater financial plans and rate studies
- **Las Gallinas Valley Sanitary District, CA:** Support for annual budget process
- **City of Willits, CA:** Lead consultant providing water and wastewater financial plans and rate studies
- **The Cities of Pinole and Hercules, CA:** Assisted the cities with the co-financing of a wastewater project with SRF loans. This included the design of the payment and reimbursement process, the administration of the process, and navigating the State requirements.
- **Humboldt Bay Municipal Water District, CA:** Lead consultant providing 10-year financial plan update
- **Carlsbad, CA:** Played a key role in completing the 2016 water cost of service study. Created a supply-based cost allocation and supply layered, tiered, water rate design
- **Sacramento County Water Authority, Sacramento, CA:** Lead analyst supporting water financial plan and rate study
- **Marin Municipal Water District, Marin, CA:** Lead Analyst supporting development of a comprehensive water financial plan and rate study.

Public Utility Experience

Denver Water, Denver, CO:

Senior Finance Analyst- Assisted with the annual cost of service study and financial plan, provided regular revenue reports, and oversaw the gathering and reporting of metrics to support Denver Water's organizational improvement initiatives. As the lead analyst on the initiative to change the rate design he facilitated research (customer survey and affordability study), performed rate design analysis, and assisted with stakeholder outreach (municipalities, customers, business representatives, non-profits, and Denver Water executives and Board) which led to the adoption of new rate structures. He coordinated the implementation efforts between various business units to ensure a successful rollout of the new rates and rate structures.

Professional Memberships

American Water Works Association – Member of Rates and Charges Committee

Certifications

MSRB-Registered Municipal Advisor (Series 50)