

Staff Report

for the Regular Meeting of the Board of Directors April 24, 2019

TO: Board of Directors

FROM: Marvin Davis, MBA, CPA, Finance Manager/Treasurer
Greg Jones, MBA, Assistant General Manager
Greg Clumpner, MS, NBS Director Utility Rate Group

DATE: April 17, 2019

SUBJECT: Water Cost of Service (COS) Study – Public Rate Hearing

FINANCE

RECOMMENDATION:

Conduct public hearing, protest count, and in the event of no majority protest, consider adopting Resolution 2019-06 (Authorizing Increases in Rates and Charges for Treated and Raw Water, Drought Rates, and Private Hydroelectric Water Rates).

BACKGROUND:

During much of 2018, District staff, NBS (the District's financial consultant), and the District's Rates Committee analyzed the District's existing rates, revenue requirements, and other information. This process ultimately led to a recommendation from the Rate Committee for changes in the District's rates as detailed in the District's Cost of Service Study.

On February 13, 2019, this proposed rate change was brought before the Board of Directors, along with a detailed historical analysis of adopted rates, adopted budgets, cash reserve, and capital project spending. The analysis reviewed over 15 years of operational activity for the Water Fund.

The Cost of Service study sets forth, in detail, information concerning District operations, revenue and expense assumptions, a 10-Year Financial Plan, reserve policy, and a cost of service analysis. Additionally, staff analyzed the proposed rate increases with the Median Household Income (MHI) for treated water

customers for their respective counties. The results indicated the proposed 2019 cost of treated water increase for all levels of use remains under 2 percent.

On February 27, 2019, the Board of Directors authorized staff to begin the Proposition 218 process by adopting the Cost of Service Study and authorizing mailing the notice of proposed water rate increases to customers and landowners within the District. The law requires a minimum 45-day waiting period to prior to conducting a public hearing. During this interim period, staff and Board members conducted four public outreach meetings further educating the public on the basis for and necessity of the proposed rate increases.

Process to Select NBS

Staff commenced updating the Districts' cost to provide water by securing an outside consultant with many years of experience in Proposition 218 and the rate setting process. The District selected NBS through its Request for Proposal (RFP) process and contracted to provide the attached Water Rate Cost of Service (COS) study. Staff issued the RFP to eleven firms and received a response from four firms. In addition, NBS performed the Districts' 10-Year financial projection and Water Capacity Fee Study.

Water Rates Committee:

A Water Rates Committee was convened on May 29, 2018 to review the Districts financials and establish a recommend water rate. The Committee was made up of 10 members of the public and 2 Board members. Staff along with input from NBS consultants developed the District's 5-Year summary financial model. The model allowed the Water Rates Committee (WRC) and the public to engage in various scenarios over 6 months by manipulating input variables to determine reserve impacts. The committee, members of public and staff analyzed the summary model during the below dates and reached a recommendation regarding revenue and expense assumptions. Details explaining the development of the assumptions are located under the Assumptions section in the COS Study on page 12. Based on the results of the WRC's model and the recommendations and input from the Rates Committee, NBS completed the COS Study and calculated proposed rates through a cost of service methodology. The Committee met in public on these dates:

- May 29th
- July 10th
- August 14th
- September 10th
- October 10th
- October 18th

Committee Findings & Key Recommendations:

- The District's new COS Study is using transfers from Hydroelectric Division revenues (\$34 million) and non-operating funds (\$6.9 million) to reduce water rates paid by customers.
- Water rates are supporting about 68 percent of the \$40.8 million actual cost of water service in 2019. The Cost of Service will gradually increase to 77 percent of the actual costs over a 5-year period.
- The District is using \$8.2 million in interest earnings to reduce water rates. The prior COS Study excluded a portion of these receipts.
- Throughout the prior five years, the District experienced approximately \$8 million in loss of revenue due to drought. The WRC adjusted the base rate in order to collect 50 percent of fixed costs improving revenue stability and the overall financial health of the District going forward.
- As an additional measure related to the drought, the District is implementing a drought/conservation rate schedule intended to offset revenue losses during mandated, emergency conservation measures.
- The District is implementing revised fees for small hydroelectric generators to cover the District's costs of providing benefits to these customers.
- The Water Fund's 5-Year COS study projects an operating cash reserve of four months, thus short of the Board's six-month policy. However, given reasonable assumptions as discussed in the report, the Fund's 10-Year financial plan reaches a six-month operating reserve level while funding other reserve types.

Public Outreach Meetings

In a further effort to educate the public, staff and Directors conducted four additional public meetings in a question and answer (Q&A) forum to understand the public's concerns and to answer questions. The meetings occurred on the below dates:

- March 19, 2019, at Nevada Irrigation District
- March 21, 2019, at Auburn Holiday Inn
- April 3, 2019, at Nevada County, Eric Rood Administrative Center
- April 8, 2019, at Placer County Agricultural Commission

This item addresses Goal No. 1 of the District's Strategic Plan to maintain proactive, prudent and forward thinking management to ensure resilient and sustainable operation of our systems for the benefit of our customers, our community and the environment.

Assumptions

The Board must waive policy 3040.4.1 Reserves which requires six months of reserves for all 3 funds to accommodate the Cost of Service proposed rate structure.

BUDGETARY IMPACT: To be discussed.

Attachments:

- Resolution 2019-06 (Authorizing Increases in Rates and Charges for Treated and Raw Water, Drought Rates, and Private Hydroelectric Water Rates)
- PowerPoint Presentation
- Water COS Study and Proposed Rates



RESOLUTION No. 2019-06

OF THE BOARD OF DIRECTORS OF THE NEVADA IRRIGATION DISTRICT

**(FOLLOWING NOTICE AND HEARING AUTHORIZING INCREASES
IN RATES AND CHARGES FOR TREATED AND RAW WATER, DROUGHT RATES,
AND PRIVATE HYDROELECTRIC WATER RATES)**

WHEREAS, Nevada Irrigation District (NID) is an irrigation district formed and existing under the provisions of Division 11 of the Water Code of the State of California; and,

WHEREAS, NID owns and maintains a system of reservoirs, canals, pipelines, treatment facilities, storage tanks, and related facilities to deliver treated and untreated (raw) water to NID customers in Nevada, Placer and Yuba Counties; and,

WHEREAS, NID established a 2018 Rates Committee made up of ten members of the public and two Board members; and,

WHEREAS, the 2018 Rates Committee was tasked with analyzing and providing recommendations regarding NID's revenue requirements of operating, maintaining, repairing and improving NID's facilities to provide a continuous safe and reliable water supply to NID's customers for the next five years; and,

WHEREAS, NID and its 2018 Rates Committee held six public meetings over six months to review NID's financial information, including prior budgets, the 2013 Cost of Service Study, and the 10-Year Financial Plan; and,

WHEREAS, NID retained an expert financial consultant, NBS, to conduct a review of its current level of rates and its rate structures for treated and raw water, and to receive input and direction from NID and the 2018 Rates Committee; and,

WHEREAS, NID, with input from the 2018 Rates Committee and NBS, caused to be prepared a Cost of Service Study that determined that an increase in water rates and charges was necessary to satisfy NID's revenue requirements over the studied period, and articulated proposed rates for NID customers; and,

WHEREAS, on December 12, 2018, the Board of Directors did adopt and approve the proposed operating and non-operating budget for the year 2019; and,

WHEREAS, the Cost of Service Study containing the 2018 Rates Committee's and NBS' recommendations were presented to the NID Board of Directors and the Board on February 27, 2019 did accept the Cost of Service Study and authorized the proposed rate change process to begin; and,

WHEREAS, the Board of Directors proposed for adoption, subject to notice and hearing as required by the California Constitution Article XIII D, Section 6 (Proposition 218), each adopted rate and the schedule of increases thereto for the 2019 through 2023 rate years as set forth in the Cost of Service Study; and,

WHEREAS, notices of the proposed rate changes were mailed to all NID customers and landowners in accordance with Proposition 218 (Notices) and the Notices included the requisite information required by Proposition 218 including, without limitation, a schedule of proposed rates and charges, the date, time and location of the public hearing, and instructions on how to file written protests to the proposed rate change; and,

WHEREAS, the Board of Directors convened a duly noticed public meeting and hearing on April 24, 2019, for the purpose of receiving and considering all qualifying and timely submitted oral and written protests concerning the proposed increased fees and charges; and,

WHEREAS, NID's adopted 2019 budget, Water Rate Study, Cost of Service Analysis, 10-Year Financial Plan and related financial supporting information has been made available for public review for a period substantially in excess of fourteen (14) days prior to its April 24, 2019 regular meeting; and,

WHEREAS, in accordance with the requirements of Proposition 218 and Government Code section 53755(a)(1) and (a)(2), NID's April 24, 2019 hearing on the proposed increases in its water rates and charges was held not less than 45 days after it provided the Notices by mail to the record owners of each affected parcel upon which the respective increased fees and charges are proposed for imposition; and,

WHEREAS, at the conclusion of the hearing, the Board of Directors caused to be counted all qualifying and timely submitted written protests to the proposed increased fees and charges and it was determined that the written protests received and not withdrawn represent less than 50% of the affected parcels within NID that are subject to the proposed increased fees and charges; and,

WHEREAS, the Board of Directors finds that, based on the adopted budget, the NBS Cost of Service Study, and the evidence received in connection with NID's

expenses and projected revenues, the proposed increases in rates and charges as set forth in Exhibit "A" are necessary in order to provide revenues adequate to fund the continued operation and maintenance of NID's treated and raw water systems, including reasonable allowances for contingencies and depreciation; and,

WHEREAS, the Board of Directors finds that NID has complied with all requirements of law, including those set forth in Proposition 218, in analyzing, noticing, considering and in now adopting the proposed changes in fees and charges, and that adopting the proposed fees and charges set forth in Exhibit "A" are in the best interest of Nevada Irrigation District and its customers; and,

WHEREAS, in accordance with Public Resources Code section 21080, subdivision (b)(8) and Title 14 of the California Code of Regulations section 15273, subdivision (a), the Board of Directors finds that the change in NID's rates and charges are for the purpose of meeting NID operating expenses, purchasing supplies, equipment and materials, meeting financial reserve requirements, and funding capital projects necessary to maintain service within NID's existing service area, and the Board's approval of rates is therefore not subject to or is exempt from the California Environmental Quality Act (CEQA).

WHEREAS, the Board further finds that in order to mitigate the impact of rate increases to customers, the District must waive Policy 3040 - Reserves, establishing operating reserves at six months of operations.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Nevada Irrigation District as follows:

1. The Recitals set forth in this Resolution are true and correct statements and are incorporated as an operative part of this Resolution and made findings and determinations of the Board of Directors. NID's Cost of Service study is incorporated herein by this reference as additional findings and determinations of the Board of Directors.
2. Revenues derived from the water rates approved by this Resolution do not exceed the funds required to provide water service.
3. Revenues derived from the water rates approved by this Resolution will not be used for any other purpose other than providing water service.
4. The amount of water rates imposed upon any parcel or person as an incident of property ownership within NID's service area will not exceed the proportional cost of the water service attributable to the parcel.

5. NID does hereby accept and approve the proposed schedule of rates and charges for its treated and raw water customers for the years 2019 through 2023 and adopts the drought and hydroelectric rates, all of which are more fully detailed in Exhibit "A".
6. The increases in fees and charges set forth in Exhibit "A" shall be made effective on May 1, 2019, with the succeeding annual increases effective on the 1st day of January in years 2020, 2021, 2022 and 2023 as set forth in Exhibit "A".
7. NID will transfer \$34 million from hydroelectric reserves to the water fund to cover costs over the 5-year period.
8. NID will transfer \$8.2 million from investment earnings to the water fund to cover costs over the 5-year period.
9. NID will transfer \$6.9 million from non-operating revenue to the water fund to cover costs over the 5-year period.
10. If any section, subsection, sentence, clause, or action in this Resolution or any part thereof, is for any reason held to be unconstitutional, invalid, or ineffective by any court of competent jurisdiction, such decision shall not affect the validity or effectiveness of the remaining portions of this Resolution or any part thereof. The Board of Directors hereby declares that it would have adopted each section irrespective of the fact that any one or more of the sections, subsections, sentences, clauses, or actions be declared unconstitutional, invalid, or ineffective.
11. This Resolution shall take immediate effect upon its adoption.
12. Waive District Policy for Unrestricted Designated Reserves – Operating Reserve 3040.4.1 which establishes that the fund must strive to maintain a minimum reserve level of six months of annual budgeted operating costs using a three-year running average, approximately 180 days of operating cash for an individual Division (Water, Hydroelectric, Recreation).

* * * *

PASSED AND ADOPTED by the Board of Directors of Nevada Irrigation District
at a regular meeting duly called and held within the District on the 24th day of April 2019
by the following roll call vote:

AYES: Directors:
NOES: Directors:
ABSENT: Directors:
ABSTAINS: Directors:

President of the Board of Directors

Attest:

Secretary to the Board of Directors

Exhibit "A"

Proposed Treated Water Rate Schedule							
Water Rate Schedule	Current Rates - Bi-Monthly	Current Rates - Monthly	Proposed Monthly Treated Water Rates				
			2019	2020	2021	2022	2023
Fixed Service Charge							
<i>Monthly Fixed Service Charge Inside District, Treated Water Customers Standard Meters:</i>							
5/8 inch	\$49.65	\$24.83	\$36.00	\$41.40	\$43.47	\$45.21	\$46.34
3/4 inch	\$74.49	\$37.25	\$54.00	\$62.10	\$65.20	\$67.81	\$69.50
1 inch	\$124.13	\$62.07	\$89.99	\$103.49	\$108.67	\$113.01	\$115.84
1.5 inch	\$248.29	\$124.15	\$179.99	\$206.99	\$217.34	\$226.03	\$231.68
2 inch	\$397.27	\$198.64	\$287.98	\$331.18	\$347.74	\$361.65	\$370.69
3 inch	\$744.86	\$372.43	\$575.96	\$662.36	\$695.47	\$723.29	\$741.38
4 inch	\$1,241.45	\$620.73	\$899.94	\$1,034.93	\$1,086.68	\$1,130.15	\$1,158.40
6 inch	\$2,482.89	\$1,241.45	\$1,799.88	\$2,069.86	\$2,173.36	\$2,260.29	\$2,316.80
8 inch	\$3,972.63	\$1,986.32	\$2,879.81	\$3,311.78	\$3,477.37	\$3,616.46	\$3,706.88
<i>Monthly Fixed Service Charge Outside District, Treated Water Customers Standard Meters:</i>							
5/8 inch	\$62.06	\$31.03	\$45.00	\$51.75	\$54.33	\$56.51	\$57.92
3/4 inch	\$93.11	\$46.56	\$67.50	\$77.62	\$81.50	\$84.76	\$86.88
1 inch	\$155.16	\$77.58	\$112.49	\$129.37	\$135.83	\$141.27	\$144.80
1.5 inch	\$310.36	\$155.18	\$224.99	\$258.73	\$271.67	\$282.54	\$289.60
2 inch	\$496.59	\$248.29	\$359.98	\$413.97	\$434.67	\$452.06	\$463.36
3 inch	\$931.08	\$465.54	\$719.95	\$827.95	\$869.34	\$904.12	\$926.72
4 inch	\$1,551.81	\$775.91	\$1,124.93	\$1,293.66	\$1,358.35	\$1,412.68	\$1,448.00
6 inch	\$3,103.61	\$1,551.81	\$2,249.85	\$2,587.33	\$2,716.70	\$2,825.36	\$2,896.00
8 inch	\$4,965.79	\$2,482.89	\$3,599.76	\$4,139.73	\$4,346.71	\$4,520.58	\$4,633.60
<i>Additional Monthly Regulatory Fee</i>							
All Treated Customers			\$1.90	\$1.90	\$1.90	\$1.90	\$1.90
Volumetric Service Charge							
<i>Tiered Rate Charge Inside District, Treated Water Customers Standard Meters:</i>							
Tier One	<i>(same as current monthly)</i>	\$2.05	\$2.17	\$2.29	\$2.42	\$2.56	\$2.71
Tier Two		\$2.65	\$2.80	\$2.96	\$3.13	\$3.31	\$3.50
<i>Tiered Rate Charge Outside District, Treated Water Customers Standard Meters:</i>							
Tier One	<i>(same as current monthly)</i>	\$2.56	\$2.71	\$2.86	\$3.03	\$3.20	\$3.38
Tier Two		\$3.31	\$3.50	\$3.70	\$3.91	\$4.14	\$4.37

Proposed Seasonal Raw Rate Schedule						
Water Rate Schedule	Current Rates	Proposed Raw Rates				
		2019	2020	2021	2022	2023
Fixed Service Charge						
Inside	\$483.23	\$510.87	\$540.09	\$570.99	\$603.65	\$638.17
Outside ¹	\$604.04	\$638.59	\$675.12	\$713.73	\$754.56	\$797.72
Volumetric Service Charge						
<i>Variable Service Charge, Inside District Raw Customers:</i>						
Per MI	\$284.77	\$301.06	\$318.28	\$336.49	\$355.73	\$376.08
<i>Variable Service Charge, Outside District Raw Customers:</i>						
Per MI	\$355.96	\$376.33	\$397.85	\$420.61	\$444.67	\$470.10

Nevada Irrigation District

Water Rates Hearing

April 24, 2019

9:00 am

Location: Nevada Irrigation District Headquarters

Greg Jones, MBA, Assistant General Manager NID

Marvin Davis, MBA, CPA Finance Manager NID

Greg Clumpner, MS, NBS Director Utility Rate Group



WHY the Rate Increase?

➤ Fiscal Responsibility

- Recover the **Cost to Provide Water Service**
 - Current Rates Only Recover **68%** of Cost of Service
- Build Operating **Reserves for Emergencies**

➤ Reliability, Health & Safety of Customers

- Proactive **Maintenance of Water Infrastructure**



Aerial View of Jackson Meadows, 1980's



NID MAINTENANCE DEPARTMENT

NEVADA COUNTY - TARR CANAL

BOX FLUME INSTALLATION

Water Rates Committee – Rate Recommendations

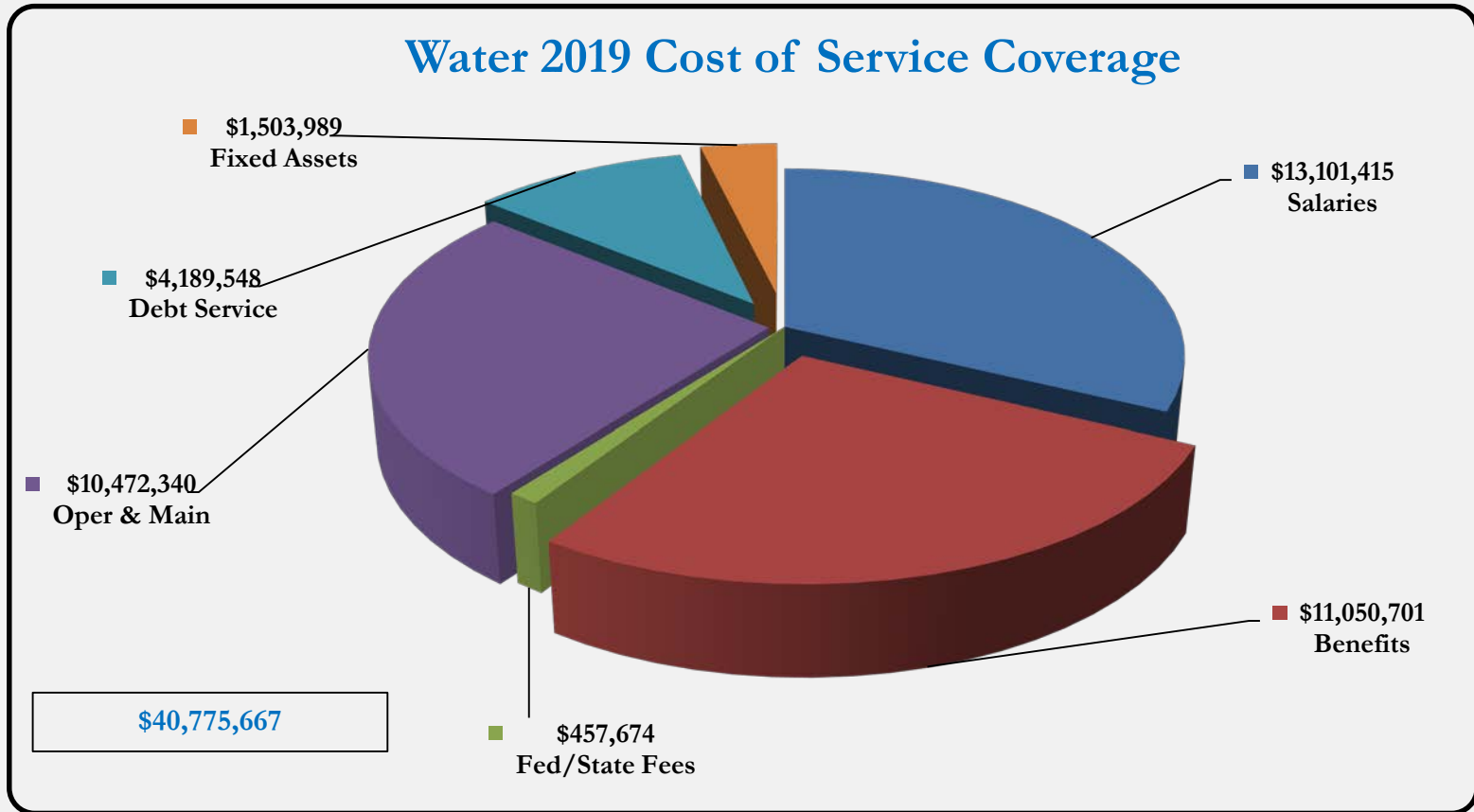
- A **community-based** stakeholder group with a goal to **recommend** the necessary **rate adjustments** to ensure the financial viability of NID's Water System in an effort **to meet adequate revenue** requirements and to **secure healthy financial reserves**.
 - **10 NID Customers**
 - **5 treated water customers (one from each division)**
 - **5 raw water customers (one from each division)**
 - **2 NID Directors**
 - **6 meetings in 6 months, open to the public**

Water Rates Committee: Key Findings

- Current Water rates cover **68%** of **\$40.8M** cost
- District to Subsidize **\$49M** in 5 years:
 - **\$34M** from Hydroelectric Revenues
 - **\$8.2M** of Long-Term Interest Earnings
 - **\$6.9M** from Non-Rate Revenue
- Approximately **\$8M** loss of projected revenue five-year drought period
- District to implement water rates for small hydroelectric generators
- Operating reserves restored to Board-Directed 6-month in 10-yrs

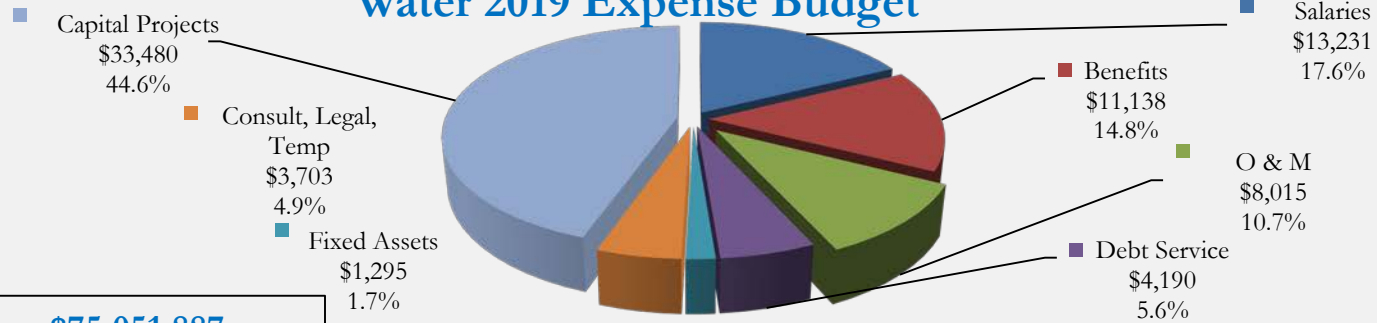
Q: What Do Rates Pay For?

68% of \$40.7 M Cost to Provide Service



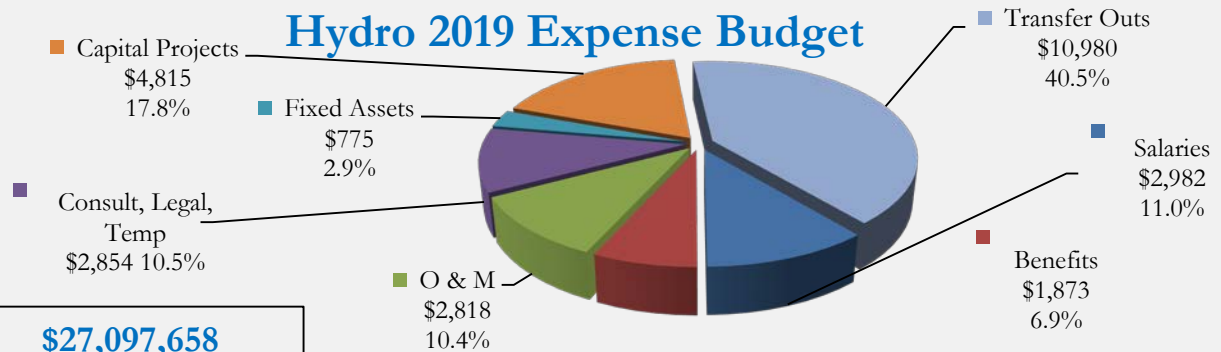
Nevada Irrigation District – 2019 Budget

Water 2019 Expense Budget



\$75,051,887

Hydro 2019 Expense Budget



\$27,097,658

Recreation 2019 Expense Budget



\$2,742,160

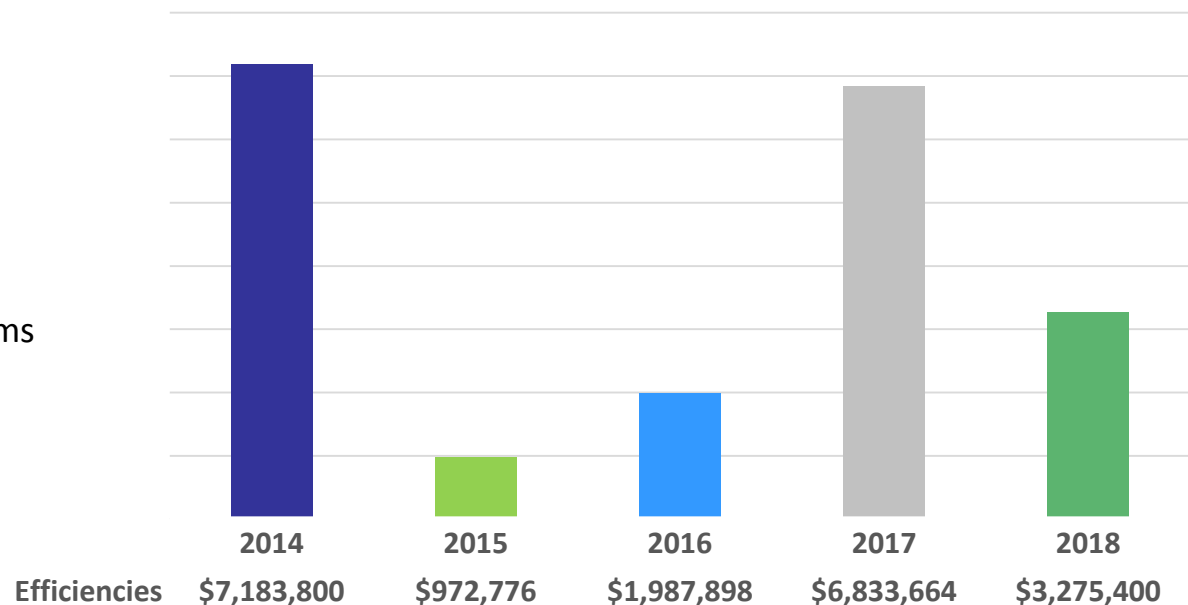
Financial Efficiency Efforts

\$20,253,538 in Efficiencies Since 2014

5-Year Financial Efficiency Results (FY 2014-2018)

Savings achieved across all Departments (Finance, HR, Admin, Engineering, Operations, Maintenance), including:

- ✓ Staff vs. contractor labor
- ✓ Purchasing audits
- ✓ IT software
- ✓ Reduced insurance fees
- ✓ Equipment trade-in programs
- ✓ Staffing reorganization
- ✓ Innovative solutions



Rate Study Methodology – 3 Main Components:

1 FINANCIAL PLAN

- Identifies revenue needed from rates
- Determines rate increases needed.

2 COST-OF-SERVICE ANALYSIS

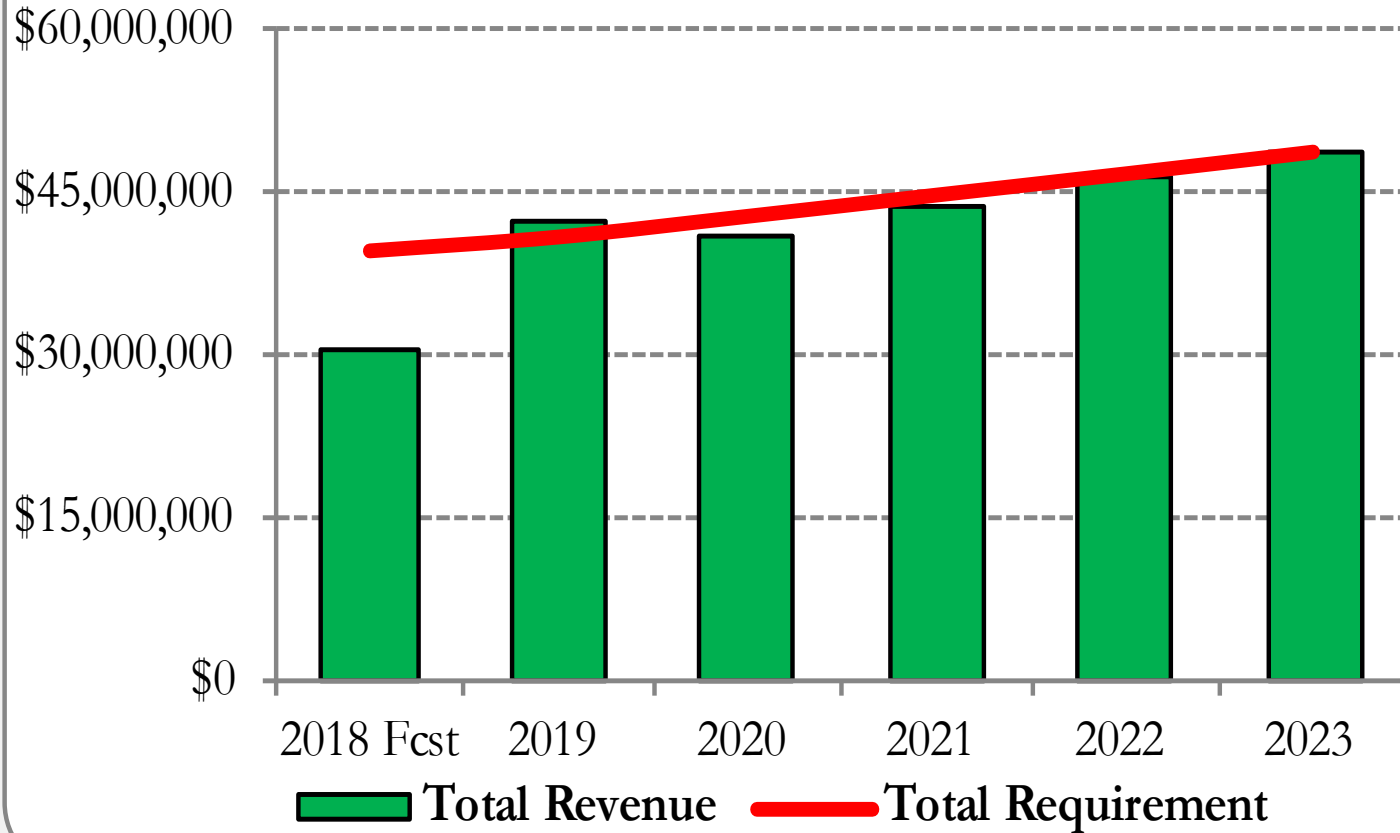
- Allocates costs to customer classes based on “cost to serve”
- Considers allocation basis given reporting structure

3 RATE DESIGN

- Decides how costs are collected from customers
- Such as the \$ from fixed vs. volumetric charges

1. Financial Plan – Projected Revenue Required

Figure 2 - Water Rate Revenue Requirement



1. Financial Plan – Operating Revenue & Expenses

Rate Revenue is **68%** of Operating Expenses in 2019

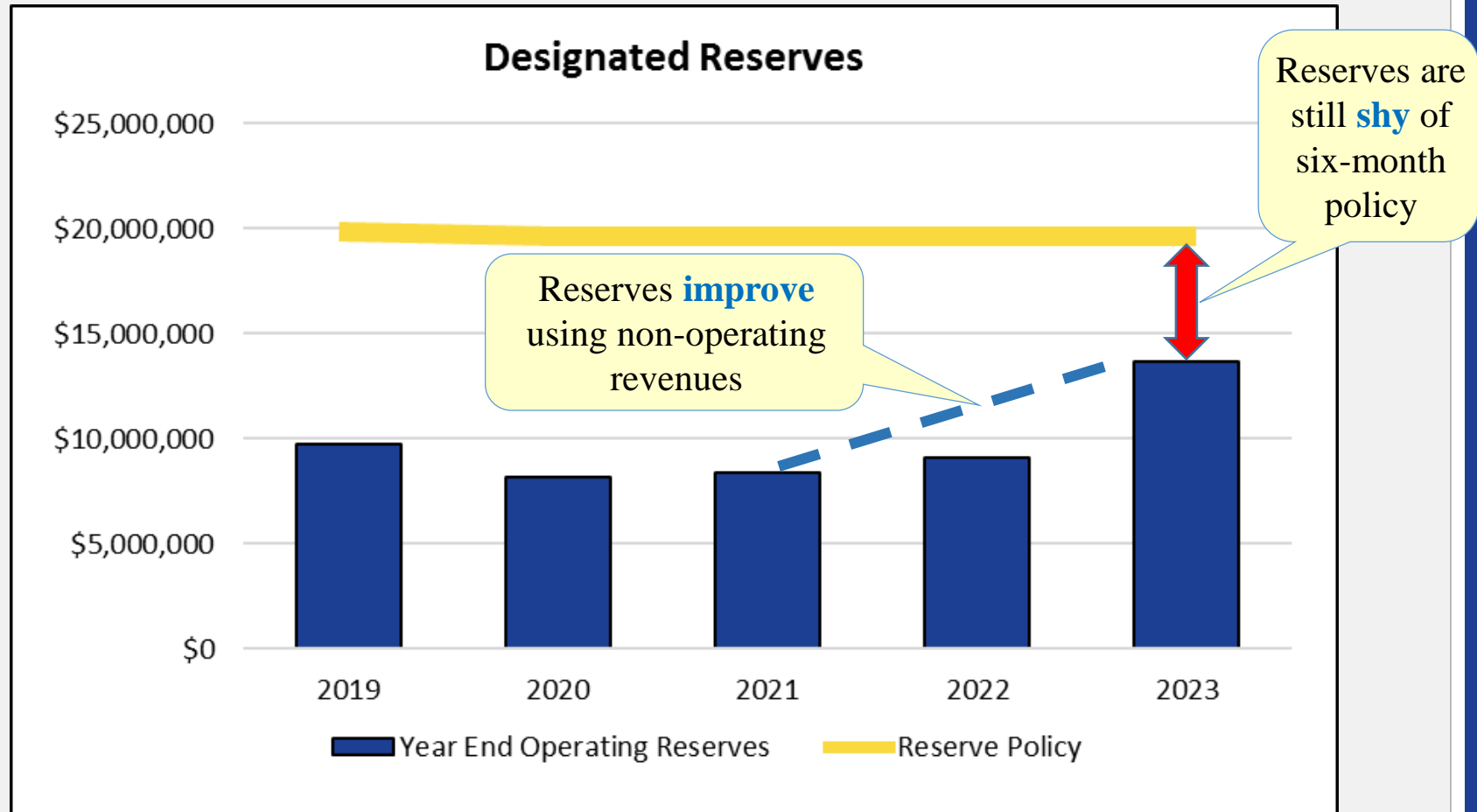
Rate Revenue increases to **77%** of Operating Expenses in 2023

Operating Sources And Uses Of Funds	Budget				
	2019	2020	2021	2022	2023
Operating revenue					
Water Sales	\$ 27,724,879	\$ 30,835,168	\$33,137,611	\$35,483,813	\$37,793,008
New Connect/Install	297,532	309,433	321,810	334,682	348,070
Reimburse/Fees/Other	1,469,666	1,528,452	1,589,590	1,653,174	1,719,301
Standby	108,184	114,372	120,915	127,831	135,143
Rents & Leases	291,214	302,862	314,977	327,576	340,679
Interest Earnings	1,350,000	1,500,000	1,650,000	1,800,000	1,950,000
Grants - Operating	685,825	-	-	-	-
Transfer Ins (AD, DS, Fees)	572,518	572,518	572,518	572,518	572,518
Transfer Ins (Hydro)	10,000,000	6,000,000	6,000,000	6,000,000	6,000,000
Total Source of Funds	\$ 42,499,817	\$ 41,162,806	\$43,707,420	\$46,299,594	\$48,858,719
Operating expense					
Salaries	\$ 13,101,415	\$ 13,821,993	\$14,582,203	\$15,384,224	\$16,230,356
Benefits - Non PERS	6,423,434	6,744,605	7,081,836	7,435,928	7,807,724
Benefits - PERS	4,192,453	4,892,986	5,570,401	6,230,611	6,849,210
Benefits - OPEB Funding	434,814	429,658	437,392	406,457	407,316
Other O&M	10,472,340	10,681,787	10,895,423	11,113,331	11,335,598
Fed/State Fees	457,674	466,827	476,164	485,687	495,401
Debt Service	4,189,548	4,188,673	4,192,799	4,191,673	4,192,704
Fixed Assets	1,503,989	1,503,989	1,503,989	1,503,989	1,503,989
Total Use of Funds	\$ 40,775,667	\$ 42,730,518	\$44,740,206	\$46,751,898	\$48,822,297
Net Impact On Reserves	\$ 1,724,151	\$ (1,567,713)	\$ (1,032,786)	\$ (452,305)	\$ 36,421

15% Increase over 5 Years

20% Increase Total Operating Expenses over 5 Years

1. Financial Plan – Reserves & Working Capital



2. Cost-of-Service Analysis

Rate Revenue Costs – Fixed & Volumetric

Rate Revenue Classification	Rate Revenue Target 2019	
	COSA Results	
	%	\$
Fixed Revenue	80%	\$22,141,490
Volumetric Revenue	20%	5,583,389
Total	100.0%	\$27,724,879

Most Costs are
Fixed,
Not Volumetric

2. Cost-of-Service Analysis

Cost Allocation Basis – Raw & Treated

Cost Allocation Basis	Accounts	
	Number	%
Raw Customers	6,171	24%
Treated Customers	19,165	76%
Total	25,336	100%

Treated customers bear a heavier cost burden.

3. Rate Design

Recommendations:

- **Change from Bi-Monthly to Monthly Billing**
- **Increase Treated Base Rate to cover 50% of Fixed Costs. Currently covers 37%**
- **Add Small Hydroelectric Generator Water Rate**
- **Add Drought Rates**
- **Maintain 2-Tier Rate Structure**

3. Rate Design

Adjusted Fixed & Volumetric Costs:

Change Fixed/Volumetric COS Allocations from 80/20 to 50/50 Based on Rate Committee Recommendation

Rate Revenue Classification	Rate Revenue Target 2019					
	COSA Results		Adjustments		Adjusted for Rate Design	
	%	\$	%	\$	%	\$
Fixed Revenue	80%	\$22,141,490	-29.9%	\$(8,287,531)	50.0%	\$ 13,853,959
Volumetric Revenue	20%	5,583,389	29.9%	8,287,531	50.0%	13,870,920
Total	100.0%	\$ 27,724,879	--	--	100.0%	\$ 27,724,879

Costs were Adjusted to **50/50**
To Achieve the District's Rate
Design Objectives,

3. Rate Design – Summary of Rate Revenue

Rate Revenue from Fixed & Volumetric Cost assigned to Raw & Treated Customers:

Allocation of Costs:

- Treated customers continue bearing a higher cost
- Collects **50%** of rate revenue from fixed charges
- Is consistent with account allocation basis

Rate Revenue Classification	Allocation %'s		Rate Revenue Target 2019			Total %'s
	Fixed %	Volumetric %	Fixed \$	Volumetric \$	\$	%
Raw Customers	12%	14%	\$ 3,279,886	\$ 3,863,145	\$ 7,143,032	26%
Treated Customers	38%	36%	10,574,073	10,007,775	20,581,848	74%
Total	50%	50%	\$13,853,959	\$13,870,920	\$27,724,879	100%

Based on Rate Design.

Based on % of Accounts.

Proposed Rates – Treated Water Customers

Proposed Treated Water Rate Schedule							
Water Rate Schedule	Current Rates - Bi-Monthly	Current Rates - Monthly	Proposed Monthly Treated Water Rates				
			2019	2020	2021	2022	2023
Fixed Service Charge							
<i>Monthly Fixed Service Charge Inside District, Treated Water Customers Standard Meters:</i>							
5/8 inch	\$49.65	\$24.83	\$36.00	\$41.40	\$43.47	\$45.21	\$46.34
3/4 inch	\$74.49	\$37.25	\$54.00	\$62.10	\$65.20	\$67.81	\$69.50
1 inch	\$124.13	\$62.07	\$89.99	\$103.49	\$108.67	\$113.01	\$115.84
1.5 inch	\$248.29	\$124.15	\$179.99	\$206.99	\$217.34	\$226.03	\$231.68
2 inch	\$397.27	\$198.64	\$287.98	\$331.18	\$347.74	\$361.65	\$370.69
3 inch	\$744.86	\$372.43	\$575.96	\$662.36	\$695.47	\$723.29	\$741.38
4 inch	\$1,241.45	\$620.73	\$899.94	\$1,034.93	\$1,086.68	\$1,130.15	\$1,158.40
6 inch	\$2,482.89	\$1,241.45	\$1,799.88	\$2,069.86	\$2,173.36	\$2,260.29	\$2,316.80
8 inch	\$3,972.63	\$1,986.32	\$2,879.81	\$3,311.78	\$3,477.37	\$3,616.46	\$3,706.88
<i>Monthly Fixed Service Charge Outside District, Treated Water Customers Standard Meters:</i>							
5/8 inch	\$62.06	\$31.03	\$45.00	\$51.75	\$54.33	\$56.51	\$57.92
3/4 inch	\$93.11	\$46.56	\$67.50	\$77.62	\$81.50	\$84.76	\$86.88
1 inch	\$155.16	\$77.58	\$112.49	\$129.37	\$135.83	\$141.27	\$144.80
1.5 inch	\$310.36	\$155.18	\$224.99	\$258.73	\$271.67	\$282.54	\$289.60
2 inch	\$496.59	\$248.29	\$359.98	\$413.97	\$434.67	\$452.06	\$463.36
3 inch	\$931.08	\$465.54	\$719.95	\$827.95	\$869.34	\$904.12	\$926.72
4 inch	\$1,551.81	\$775.91	\$1,124.93	\$1,293.66	\$1,358.35	\$1,412.68	\$1,448.00
6 inch	\$3,103.61	\$1,551.81	\$2,249.85	\$2,587.33	\$2,716.70	\$2,825.36	\$2,896.00
8 inch	\$4,965.79	\$2,482.89	\$3,599.76	\$4,139.73	\$4,346.71	\$4,520.58	\$4,633.60
<i>Additional Monthly Regulatory Fee</i>							
All Treated Customers			\$1.90	\$1.90	\$1.90	\$1.90	\$1.90
Variable Service Charge							
<i>Tiered Rate Charge Inside District, Treated Water Customers Standard Meters:</i>							
Tier One	(same as current monthly)	\$2.05	\$2.17	\$2.29	\$2.42	\$2.56	\$2.71
Tier Two		\$2.65	\$2.80	\$2.96	\$3.13	\$3.31	\$3.50
<i>Tiered Rate Charge Outside District, Treated Water Customers Standard Meters:</i>							
Tier One	(same as current monthly)	\$2.56	\$2.71	\$2.86	\$3.03	\$3.20	\$3.38
Tier Two		\$3.31	\$3.50	\$3.70	\$3.91	\$4.14	\$4.37

Comparison of Other Treated Water Agencies

January 08, 2019 Treated Water Rate Survey

Agency	Year	Monthly Base	Monthly Total		Monthly Total		Monthly Total	
		5/8" Meter ¹	4 HCF ²	4 HCF	10 HCF ²	10 HCF	21 HCF ²	21 HCF
City of Nevada City	FY 17/18 Rate	23.50	7.05	30.55	21.56	45.06	45.88	69.38
	FY 18/19 Rate	24.00	9.12	33.12	21.96	45.96	46.76	70.76
PCWA	FY 2018 Rate	35.66	6.08	41.74	15.40	51.06	34.32	69.98
	FY 2019 Rate	36.91	2.63	39.54	15.40	52.31	34.32	71.23
San Juan Water	FY 2018 Rate	49.58	3.68	53.26	9.20	58.78	19.32	68.90
	FY 2019 Rate	55.66	3.68	59.34	9.20	64.86	19.32	74.98
Truckee Donner PUD ^{5/6}	FY 2018 Rate	65.67	2.92	68.59	5.84	71.51	13.20	78.87
	FY 2019 Rate	67.64	3.76	71.40	6.08	73.72	13.60	81.24
City of Lincoln ⁵	FY 17/18 Rate	38.13	5.34	43.47	17.60	55.73	44.68	82.81
	FY 18/19 Rate	32.89	7.11	40.00	18.96	51.85	49.77	82.66
City of Grass Valley ⁴	FY 2018 Rate	26.00	11.25	37.25	30.00	56.00	60.00	86.00
	FY 2019 Rate	26.00	11.25	37.25	30.00	56.00	60.00	86.00
NID	FY 2018 Rate	24.83	8.20	33.03	20.50	45.33	49.65	74.48
	Proposed 2019 Rate³	37.90	8.68	46.58	21.70	59.60	52.50	90.40
El Dorado Irrig District ⁴	FY 2018 Rate	59.88	5.82	65.70	14.54	74.42	31.44	91.32
	FY 2019 Rate	61.68	5.99	67.67	14.98	76.66	32.39	94.07
City of Davis ⁴	FY 2018 Rate	12.20	18.44	30.64	46.10	58.30	96.81	109.01
	FY 2019 Rate	13.07	20.04	33.11	50.10	63.17	105.21	118.28
City of Woodland	FY 2018 Rate	47.30	13.52	60.82	33.80	81.10	77.19	124.49
	FY 2019 Rate	49.95	14.28	64.23	35.70	85.65	81.54	131.49

District's Rates
5.4% below other
 Agencies for low
 & average users
 and **0.3%** for
 higher users.

Proposed Rates – Raw Customers

Proposed Seasonal Raw Rate Schedule						
Water Rate Schedule	Current Rates	Proposed Raw Rates				
		2019	2020	2021	2022	2023
Fixed Service Charge						
Inside	\$483.23	\$510.87	\$540.09	\$570.99	\$603.65	\$638.17
Outside ¹	\$604.04	\$638.59	\$675.12	\$713.73	\$754.56	\$797.72
Volumetric Service Charge						
<i>Variable Service Charge, Inside District Raw Customers:</i>						
Per MI	\$284.77	\$301.06	\$318.28	\$336.49	\$355.73	\$376.08
<i>Variable Service Charge, Outside District Raw Customers:</i>						
Per MI	\$355.96	\$376.33	\$397.85	\$420.61	\$444.67	\$470.10

1. Winter Seasonal Raw Rates = 125% of Summer Raw Rates,
and outside winter users = 1.56% of Inside Summer Raw Rates (i.e., 1.25 x 1.25).

Proposed Drought Rates – Treated & Raw

Treated Drought Rates

Fiscal Year	Stage 2		Stage 3		Stage 4	
	T1 Rate	T2 Rate	T1 Rate	T2 Rate	T1 Rate	T2 Rate
FY 2019	\$2.71	\$3.50	\$3.37	\$4.36	\$4.33	\$5.60
FY 2020	\$2.85	\$3.68	\$3.54	\$4.57	\$4.54	\$5.87
FY 2021	\$2.99	\$3.87	\$3.71	\$4.80	\$4.75	\$6.15
FY 2022	\$3.15	\$4.07	\$3.89	\$5.03	\$4.98	\$6.44
FY 2023	\$3.31	\$4.28	\$4.09	\$5.29	\$5.23	\$6.76

Raw Drought Rates

Fiscal Year	Stage 2		Stage 3		Stage 4	
	Summer Rate	Winter Rate	Summer Rate	Winter Rate	Summer Rate	Winter Rate
FY 2019	\$360.66	\$450.83	\$444.44	\$555.55	\$565.04	\$706.30
FY 2020	\$379.63	\$474.54	\$466.97	\$583.72	\$593.02	\$741.28
FY 2021	\$399.38	\$499.22	\$490.44	\$613.05	\$622.18	\$777.72
FY 2022	\$420.29	\$525.36	\$515.32	\$644.15	\$653.09	\$816.37
FY 2023	\$442.44	\$553.05	\$541.68	\$677.10	\$685.87	\$857.34

Proposition 2018 Protest Process

- Process allows for public input, including through a protest submission up to and **until the close** of the Public Hearing on April 24, 2019
- One protest **per parcel**
- In the event of a majority protest (**12,530 protest votes**) the proposed rate change may not be implemented

Written Protest Requirements

- **Identify** as rate protest
- Description of Property – **Address** or **APN**
- **Signature** of property owner / tenant
- Received by District at 1036 West Main Street, Grass Valley CA 95945
(or in Ballot Drop Box) **at or before** the **conclusion** of the Public Hearing

Public Hearing Process

Public Hearing

- **Open public hearing and receive public input**
 - **Continue to collect protest ballots**
- **Close public hearing**
 - **Close protest ballot collection**

Written Protest Count

- **Perform a preliminary protest ballot count**
 - **Report preliminary count to the Board**
- **Continue ballot validation verification for final count**

Public Hearing Process

Open Public Hearing



A high-speed photograph of water being poured, creating a dynamic splash with many bubbles. The water is clear and bright blue, set against a white background. The splash is centered and extends across the width of the page.

Water Rate Cost of Service Study

for the
**Nevada Irrigation
District**

February 2019

*San Francisco - Regional Office
870 Market Street, Suite 1223
San Francisco, CA 94102*

*Davis - Regional Office
Davis, CA 95616*

*Temecula - Corporate Headquarters
32605 Temecula Parkway, Suite 100
Temecula, CA 92592*

Toll free: 800.676.7516

nbsgov.com



870 Market Street, Suite 1223
San Francisco, CA 94102
Toll free: 800.676.7516

www.nbsgov.com

February 2019

Mr. Remleh Scherzinger, MBA, P.E.,
General Manager
Nevada Irrigation District
1036 W. Main Street
Grass Valley, CA 95945

RE: Nevada Irrigation District (NID) Final Water Rate Study Report

Dear Mr. Scherzinger:

Thank you for the opportunity to work with you, District staff, the Water Rates Committee, and the District Board of Directors on this rate study.

The attached report is the result of hard work by all parties. Over the last nine months, we have worked together with the District's team to complete a thorough review of the District's water rates. The study results reflect the Committee's carefully considered decisions and final financial plan developed by the Committee and with recommendation to the Board. An important overarching objective of this study is to document the basis of the recommended rates in compliance with Proposition 218.

Some of the key findings and recommendations of this study include:

- The District's new financial plan uses transfers from Hydroelectric Division revenues (\$34 million) and non-operating (\$6.9 million) to reduce water rates paid by customers. For additional details see the section Meeting Net Revenue Requirements on page 15.
- Water rates account for about 68 percent of the \$40.8 million projected cost of water service in 2019. This 68 percent gradually increases to 77 percent of the actual costs over a five-year period.
- Throughout the prior five years, the District experienced approximately \$8 million in loss of revenue due to drought. Because of this, the Water Rates Committee adjusted the base rate in order to collect 50 percent of fixed costs, thereby improving revenue stability and the overall financial health of the District going forward.
- As an additional measure related to the drought, the District is implementing a drought/conservation rate schedule intended to offset revenue losses during periods of mandated, emergency conservation measures.
- The District should implement new water rates for small hydroelectric generators to cover the District's costs of providing benefits to these customers.

- The Water Fund's five-year financial plan projects an operating cash reserve of four months, thus short of the Board's six-month policy. However, given reasonable assumptions as discussed in the report, the 10-Year financial plan reaches a six-month operating reserve level while also funding other reserves.

The proposed water rates developed in this study are based on generally accepted water industry rate-setting practices, reasonable assumptions and other fundamental considerations outlined in the methodology section of this report. Since the projections of future costs and customer consumption used in developing the proposed rates could vary from those assumed, the District should monitor rate revenues, costs and make changes as needed in the future.

We look forward to working with you to finalize these rates, complete the Proposition 218 process, and to final Board adoption and implementation of these rates. Should you have any questions about this study or report, please call me at (530) 297-5856 or email at gclumpner@nbsgov.com.

Sincerely,



Greg Clumpner
NBS Project Manager

Table of Contents

- 1. Executive Summary 6**
 - Background and District History 6
 - Water Rates Committee 6
 - Prior Rate Study vs Actual Results 7
 - Cost of Service Review 7
 - Frequently Asked Questions about the Rate Study 8
- 2. Overview 9**
 - Approach 9
 - Study Objectives 9
 - Water Rate Study: 9
 - 10-Year Financial Plan: 10
 - Reserve Policy & District Operations 10
 - Policy Definitions: 10
 - Budgets & Accounting: 10
 - Cash Management: 11
 - Capital Improvement Program (CIP): 11
 - Assumptions 12
 - Revenue Assumptions: 12
 - Expense Assumptions: 12
 - 10-Year Financial Plans: 13
- 3. Rate Study Methodology 14**
 - Components of the Rate Study Methodology 14
 - Financial Plan Analysis: 14
 - Cost of Service Analysis: 14
 - Rate Design Analysis: 15
 - District Revenue Requirements 15
 - Meeting Net Revenue Requirements: 15
 - Building and Maintaining Designated Reserve Funds: 17
 - Cash Reserve Impacts: 17
 - Cost of Service Analysis 18
 - Customer Classes and Their Characteristics: 18
 - Functionalization, Classification and Allocations: 20
 - Allocating Costs to Treated and Raw Water Customers: 21
 - Rate Design Analysis 22
 - Comparison of treated water rates 25
 - Drought and Small Hydroelectric Rates 26
 - Drought rates: 26
 - Hydroelectric Generator Rates: 27
- 4. Study Recommendations 28**
 - NBS’ Principal Assumptions and Considerations 29
- Technical Appendices 30**

Table of Figures

Figure 1. Primary Components of a Rate Study _____ 14

Figure 2. Net Revenue Requirement _____ 16

Figure 3. Operating Sources and Uses of Funds _____ 16

Figure 4. Capital Expenditure Summary _____ 17

Figure 5. Designated Reserves and Working Capital _____ 18

Figure 6. Treated Water Customers _____ 19

Figure 7. Treated Water Consumption _____ 19

Figure 8. Raw Water Customers _____ 20

Figure 9. Raw Water Consumption _____ 20

Figure 10. Classification of Net Revenue Requirements _____ 21

Figure 11. Cost Allocation Basis between Treated and Raw _____ 21

Figure 12. Adjusted Net Revenue Requirements _____ 22

Figure 13. Final Allocation of Net Revenue Requirements _____ 22

Figure 14. Proposed Treated Water Rate Schedule _____ 23

Figure 15. Proposed Raw Water Rate Schedule _____ 24

Figure 16. Comparison of Treated Water Rates of Other Agencies _____ 25

Figure 17. Drought Rate Development _____ 26

Figure 18. Treated Water Drought Rates _____ 26

Figure 19. Raw Water Drought Rates _____ 27

1. EXECUTIVE SUMMARY

BACKGROUND AND DISTRICT HISTORY

Formed in 1921, the Nevada Irrigation District (NID) headquarters in Grass Valley, California, a picturesque and historic California Gold Rush town in the foothills of the Sierra Nevada, 60 miles northeast of Sacramento. NID is a special district operating under the California Water Code and is located at 1036 W. Main Street, Grass Valley, CA, 95945.

NID collects water on over 70,000 acres of high mountain watershed and owns and operates an extensive reservoir and canal system and network of water treatment plants. NID's water storage extends from the crest of the Sierra Nevada mountain range to the Central Valley and consists of a network of 10 major and 17 minor reservoirs, more than 475 miles of canal, and more than 400 treated water miles of pipeline. NID also owns and operates a number of outdoor public recreation facilities located adjacent to some of its reservoirs. The Yuba River, Canyon Creek, Bear River, and Deer Creek watersheds provide NID's primary water supplies. NID's water supply comes from a single source: natural runoff from these contributing watershed areas.

Governed by an elected Board of Directors representing five divisions, The District covers approximately 287,000 acres. The District provides treated water to approximately 19,000 customers and raw water to approximately 6,000 customers in Nevada, Placer and Yuba Counties. NID owns and operates seven hydroelectric power plants with all power produced sold to Pacific Gas & Electric. The District and United States Forest Services operate Recreation facilities at four of the District's ten storage reservoirs. The District's 2018 annual operating and capital budgets is approximately \$90 million. The Board of Directors appoints the General Manager who reports directly to them. For additional information see the NID web page www.nidwater.com. Previous years audited financial statements are under About NID – Financial & District Documents.

The District maintains five separate funds: water, hydroelectric, recreation, community facility and assessment district funds. The three major sources of revenue are water sales, property taxes and electric power revenue. As a local government agency, NID operates under rules and regulations adopted under authority conferred by the California Water Code. NID board conducts public meetings and records are open to public inspection during normal business hours.

NID headquarters are at an 18-acre site located on 1036 West Main Street in Grass Valley. The District also operates a maintenance yard on Gold Hill Road near Lincoln and a Hydroelectric Department office off Interstate 80 near Colfax.

WATER RATES COMMITTEE

The District's Board formed a Water Rates Committee (WRC) consisting of 10 members of the treated and raw water community, including participation from two current board members. The WRC's goal is to recommend the necessary rate adjustments to ensure the financial viability of the Water System. With direction from the WRC, staff, along with input from NBS consultants, developed the District's five-year summary rate model. The model enabled the WRC and public to engage in various scenarios by manipulating input variables while determining reserve impacts. The committee, members of public and staff analyzed the summary model during the below dates and reached a consensus regarding revenue and expense assumptions.

- May 29th
- July 10th
- August 14th

- September 10th
- October 10th
- October 18th

These revenue and expense assumptions are summarized in Section 2 – Financial Plans. Based on the results of the WRC’s model, NBS completed the rate study and calculated proposed rates, thus allocating costs by meter size and customer class, resulting in the attached rate schedules.

PRIOR RATE STUDY VS ACTUAL RESULTS

The District’s prior rate study covering FY 2014 – FY 2018 recommended a 6% annual increase to both treated and raw water customers. While the Board adopted these percentage increases, the additional water rate revenue received over the five-year period was only 4.2%, resulting in approximately \$8 million less revenue. The lost revenue was primarily due to conservation. In addition, the District’s current rate structure only collects approximately 37% of its revenue from the fixed service charge while fixed costs are roughly 80% (see Appendix B) of the overall cost of service. Also, the prior rate structure did not contain drought contingency rates in anticipation of lower consumption due to drought-related reductions and mandated conservation, both which increase revenue volatility.

In addition to the loss in rate revenue over the last several years, the District spent down the Fund’s unrestricted cash reserves (see definition below) from \$60.4 million to approximately \$8 million, adding approximately 37,000 feet of additional pipe to the system over the previous five years. Under the District Financed Water Line Extension (DFWLE) and Backbone Extension Programs (BEP), the District completed such projects as Table Meadows, Caroline/Winter, E. Hacienda and Rattlesnake.

The Board’s decision to reduce reserves was in response to direction by the grand jury based on their review of District financial management. An analysis of the Fund’s reserves was provided on February 28, 2018 to the Board through a fiscal management and reserve workshop. The District’s complete 2014 Water Rate Study, which also provides financial information, is located on the District’s website.

COST OF SERVICE REVIEW

Cost of service refers to the amount of the Water Fund’s fixed costs (labor, debt service, fixed assets) that should be collected through the fixed service charges (i.e., the base rate) and how much of the volumetric costs (operating & maintenance) should be recovered through volumetric service charges (i.e., usage tiers). Ideally, the District should recover most of its fixed costs from the base rate and most of its volumetric costs through usage tiers, which would result in maintaining water sales during periods of lower volumetric revenues. However, because conservation and drought measures have impacted water sales, the WRC determined the proposed rate structure should increase the percentage of revenue collected from the base charge to improve revenue stability. In addition, in light of expanding regulatory pressure and climate change, it is prudent to develop drought contingency rates.

Determining how to allocate the cost of providing water to the District’s treated and raw water customers was also reviewed. Although all water costs are captured within the Water Fund (Fund 10), the District’s accounting structure does not provide a detailed allocation of cost between the treated and raw water customers. Therefore, the total number of treated and raw water accounts was used to allocate the total cost of service between treated vs. raw water customers. This equates

to approximately 75% of the water funds cost allocated to the 19,165 treated water customers (see Figure 6 on page 10) and the remaining 25% allocated to the 6,171 raw water customers (see Figure 11 on page 21).

Finally, the District has a small number of property owners generating hydroelectric power from its raw water canals that increase the District's operating costs and should be allocated their proportional share of those costs. Because of this, the District has revised its hydroelectric generator rates for these individuals.

FREQUENTLY ASKED QUESTIONS ABOUT THE RATE STUDY

What is a Cost-of-Service (COS) rate study and why was it done? A COS study is a comprehensive analysis of the District's water rates that addresses a number of key factors such as fairness and equity in rates, revenue sufficiency, and adequate funding of reserves. The District last prepared a rate study in 2014, and since then many changes such as conservation due to the drought have made it necessary to update that rate study.

How was the study conducted and who was involved? Staff issued a Request for Proposal (RFP) to nine firms and received four responses. After careful consideration, NBS was selected as the firm to complete the Water Rate Study. The District Board also organized a Water Rates Committee consisting of two Board members joined by members of the treated and raw water community along with key staff. The Committee, NBS, and staff developed summary financial plans based on a reasonable set of assumptions. Then, based on standard industry practices, NBS worked with District staff to develop rates that are fair and equitable and comply with the legal requirements of Proposition 218.

What are the benefits of conducting such a study? First and foremost, it evaluates the fairness and equity of rates among customer classes. It is also necessary in order for the District to ensure that it is collecting appropriate levels of revenue to cover operational costs. A water rate model that incorporated the WRC final financial plan was developed as a part of the study; using and adjusting this model in the future will enable the District to maintain rates that are properly aligned to the COS methodology.

What were the results of the rate study? The study shows that raw and treated water commodity rates were increased by 5.72 percent annually. Additionally, the fixed portion (base rate) for treated customers was adjusted in order to ultimately collect 50 percent of fixed costs from the base rate with the remaining fixed costs recovered from volumetric rates. In addition to rate increases, the District is temporarily increasing transfers from the Hydroelectric Division to support rates. The District is choosing to use these transfers, along with property tax revenues, to reduce the cost-of-service rates paid by customers. Consequently, water rates will account for about 68 percent of the actual cost of water service in 2019 increasing to approximately 77 percent over the next five years.

Were any new rates or charges developed as a result of the COS study? Yes. There is a drought rate schedule scheduled for implementation only during times of mandated conservation, explained in the Drought Contingency (DC) Plan. These rates are developed from various drought stages. Also, new water rates for water customers who generate electricity by means of small hydroelectric generators are now assessed a rate to cover the District's costs to monitor and maintain related infrastructure for the benefit provided to these customers. Additional information regarding development of these rates is found under the Drought and Small Hydroelectric Rates section on page 25.

How and when will the recommended rate changes be implemented? In order to implement the new rates, the District will need to issue written notices of the proposed rate adjustments to customers, as mandated by Proposition 218, and then hold a public hearing to adopt and implement the new water, rates. Assuming there is no successful challenge of rates under Proposition 218, new rates should be effective May 1, 2019.

How can someone learn more about the COS study and the Committee's recommendations? The District's Cost-of-Services is located on the District's website (www.nidwater.com) as well as WRC agenda items and minutes providing useful history on development of the study.

2. OVERVIEW

APPROACH

The Nevada Irrigation District (District) retained NBS in April of 2018 to conduct a water rate study to ensure the District address revenue requirements, provide adequate funding for capital improvements and maintain appropriate reserves. This report summarizes the results of that study, which was jointly prepared by District staff and NBS under the direction of the District's Water Rates Committee, and is intended to comply with Proposition 218 requirements.

District staff, working with the WRC, developed a final financial plan that projected the net revenue requirements to be collected from water rates, and determined other assumptions and inputs that ultimately shaped the fixed and volumetric components of the rate structure. Based on this input, most rates were increased at 5.72 percent annually. Additionally, the fixed portion (base rate) for treated customers was adjusted to ultimately collect 50 percent of fixed costs from the base rate and 50 percent from volumetric rates. To achieve this goal, the average annual increase for the treated water customers base rate is over 5.72 percent. Other assumptions, the overall study methodology, and the proposed rates are summarized below.

STUDY OBJECTIVES

NBS assisted the District in developing proposed new water rate schedules, reviewing forecasted revenues and expenditures, public outreach, assisting with the Proposition 218 ballot measure in accordance with applicable law, and presenting findings to the District's Board of Directors. The objectives for the Water Rate Study and 10-Year Financial Forecast are as follows:

Water Rate Study:

1. Develop an understanding of the District's Operating and Capital Budgets, Five-Year Forecast, Bond Official Statements, Raw/Ag Water Master Plan, Urban Water Management Plan, Capital Improvement Plan (CIP) and the impacts of those plans on future rates
2. Develop an understanding of District's current rate structure/tiers/study (based on precedents previously established in the District's 2014 and 2009 rate studies) and recommend changes while considering the following:
 - a. Align fixed costs to base rates and volumetric costs to commodity rates to the extent possible based on direction from the WRC
 - b. Analyze 3-5 years of historical data to understand demand, costs, revenue, etc.
 - c. Consider future demand in customer class, emerging laws, population growth, etc.
 - d. Consider State water rate design guidelines and related revenue impacts
 - e. Consider State mandatory fees, conservation and consumption regulations

3. Develop an understanding of an allocation methodology to assign indirect/overhead costs among the District's Water (Treated and Raw), Hydroelectric and Recreation operations considering customer classifications
4. Develop an understanding of an allocation methodology to assign Water Fund costs between treated and raw water customer classifications
5. Develop a methodology to create rates for the District's Drought Contingency Plan (DCP)
6. Assist the District in developing small hydroelectric rates for customers generating electricity from NID Water
7. Assist with notice, protest and hearing procedural requirements
8. Meet and confer with District staff to provide drafts and final report, including executive summary, table of contents and sections in sufficient detail with accompanying PowerPoint presentation
9. Meetings as required with District staff, public workshops, and Board presentation

10-Year Financial Plan:

1. Review and understand District's Water operations
2. Review and develop an understanding of District's cash reserve policies
3. Develop a 10-Year forecast for District's water operations segregating Water Fund by operating and non-operating/capital net income integrating reserve policies
4. The 10-Year forecast should present water (treated and raw) rates and associated revenues, property tax and capacity fee revenues, anticipated operational changes, long-term capital expenditures, possible debt financings, PERS, OPEB, MOUs, etc.
5. Forecast documentation with sufficient detail to support financial figures

RESERVE POLICY & DISTRICT OPERATIONS

Policy Definitions: The District governs cash in accordance with Reserve Policy 3040 with the purpose of ensuring sufficient funding is available to meet operating, capital and debt service obligations. Adequate reserves and sound financial policies promote the District's bond rating in capital markets, provide financing flexibility, and avoid potential restrictive debt covenants while stabilizing rates. On a quarterly basis, reserves are reported along with actual vs. budget reports, portfolio investments and short-term forecasting schedules. Reserve balances are considered in each update to the fiscal plan, Capital Improvement Program and Long-Term Financial Forecast (Rate Studies).

There are three major types of reserves:

- Legally Restricted Reserves that have restrictions imposed by law, bond covenants, or other contractual obligations
- Unrestricted Designated Reserves that are set aside for a specific purpose as determined by the Board of Directors
- Unrestricted Undesignated Reserves which is the remaining cash balances are referred to as operating/working capital cash

An analysis of cash reserves is provided under the five-year financial plan as well as 10-Year projection later in the report.

Budgets & Accounting: NBS developed an understanding of how the District's budgets, reports and manages its' cash. The District's budgeting cycle spans from June to December culminating

in adoption of the budget. Staff performs a rigorous revenue projection, detailed labor and non-labor department estimate, summary creation and review, short and long-term cash forecast in as many iterations necessary for APC and Board analysis. The adopted budget is consistent with the Board adopted rate study and upon approval, the Board adopts projected revenues, expenditures and cash reserve impacts. Staff estimates cash reserve balances in the budget document, considering prior year budget amendments, proposed spending of reserves, all consistent with Reserve Policy 3040. Oversight of the adopted budget and subsequent amendment procurements occur through policy 3080.6 at various expenditure levels requiring more scrutiny at higher dollar purchases

The District segregates transactions by accounting entities (Water Fund 10, Recreation Fund 30, Hydroelectric Fund 50 and Fiduciary Funds 11, 20, 21, 22, 80) with the Water Fund further segregating operating and non-operating transactions. Operating revenues cover most operating costs whereas non-operating revenues primarily cover capital expenditures, but are also used to reduce customer water rates. The accounting structure controls expenditures at the department and object code levels while sharing a Uniform Chart of Accounts (UCOA) and project list. Internal controls and reporting exist at the Fund, Department, Object and Project level. The District received the Distinguished Certificate of Achievement for Excellence in Financial Reporting for the second consecutive year from the Government Finance Officers Association (GFOA) and is positioned to receive the award for FY 2017.

Cash Management: Driven by statute, policy and detailed cash forecasting models, staff reports investment activity to the Board on a quarterly basis. Staff manages cash between short and long-term investments in accordance with the prudent investment rule of safety, liquidity and yield priorities. Staff reviews investment reports in conjunction with budget vs actual control reporting to determine if short and long-term holdings require adjustment. The quarterly executive summary informs the Board on how operations are tracking against the adopted budget.

The District holds cash and investments in Wells Fargo, Local Agency Investment Fund (LAIF), Certificates of Deposits and Government Agencies while segregating it among Unrestricted (Working Capital and Designated) and Restricted Reserves pursuant to Policy 3040. Movement among the Reserve Funds does not necessarily require movement among the portfolio holdings as those monies are pooled.

Capital Improvement Program (CIP): The District's infrastructure improvements and additions are funded by taxes, capacity fees, grants and bonds (restricted to specific projects according to covenants). The CIP is segregated into specific continuous programs governing finite projects. All programs maintain a rolling budget except the Non-Programmatic program driven by projects not applicable to a specific program. Projects span from a small period of time to several years. The following is a description of programs driving the CIP:

- Pipeline Replacement Program benefits treated water customers at about \$1.1 million
- Pressure Reducing Value Program benefits treated water customers at about \$160,000
- Raw Water Replacement Program benefits raw water customers at about \$1.2 million
- Backbone Extension Program benefits treated water customers at about \$1.2 million
- Community Investment Program benefits treated water customers at about \$800,000
- Sediment Removal Program (newly added) benefits all customers at about \$1 million
- Extended CEQA Program benefits all customers through compliance at about \$200,000
- Non-Programmatic Programs benefit all customers and budget can vary

Excess non-operating revenues (taxes, capacity fee, grants, bonds) other than bonds remain as capital and capacity fee reserves. As the five-year financial plan depicts, the net non-operating reserves are not used to replenish the capital reserves and therefore contribute to operating reserves benefiting rate payers.

ASSUMPTIONS

Revenue Assumptions: The five-year financial model contains the following revenue assumptions:

- Growth/Demand refer to increases in connections to the system as well as existing customers demanding more resources. These increases are driven by commercial development, city and county general plans, DFWLE, climate change and statutory requirement. Over the prior five years, NID experienced approximately 1.2% growth in treated and raw water connections by completing such projects as Table Meadows, Caroline/Wintermoon, E. Hacienda and Rattlesnake. Given prior growth and anticipated future considerations, the model employs a 2% factor which appears reasonable.
- Regarding demand in water resources, climate change has caused variability when observing the amount of water consumed among comparable periods (Jan – May 2017 vs 2018), therefore NBS used Jan – April 2017 percent of total to arrive at forecasted 2018 levels. In addition, the District provided three years of historical detailed billing and consumption data for analysis purposes. Considering these factors, the model assumes a 5.72% increase in consumption rates for all customers. In addition, this increase is applied to the base/fixed portion of raw water rates. The base rate for treated customer increases are sufficient to ensure 50 percent of fixed costs are covered by fiscal year 2023.
- Other revenues such as new connection/installs, reimbursements from projects using District labor, rents and leases, etc. are using 4% annual increase. Upon analyzing five-year levels, NBS believes this is somewhat aggressive in an effort to minimize rate impacts but remain consistent with recent revenues.
- Interest Earnings tripled from FY 2016 over 2015 due to shifting reserves from short-term investments into long-term ones. However, the portfolio appears to have settled at approximately 52% remaining long-term, around \$58 million and the \$150,000 annual increases in these earnings appear reasonable. The five-year model anticipates \$8.2 million in revenues from this source to help reduce operating rates.
- The District is transferring \$34 million from its' Hydroelectric reserves into the Water Fund's operating cash to minimize the base rate adjustment. Since the greatest impact to our treated water customers is the first year, the transfer in is \$10 million followed by \$6 million annual transfers. The additional transfers of \$2.8 million over the five-year period are coming from the Assessment Districts (Cement Hill and Rodeo Flat) along with capacity fees to service debt.
- Property taxes have grown 2.9% over the prior five years and a 3% growth rate appears reasonable. If actual property taxes came in at 2% growth over the financial plan period, a reduction of \$1.9M in these receipts would occur. The District is using \$6.9 million of these receipts to arrive at an operating reserve level of four months.

Expense Assumptions: The five-year financial model contains expense assumptions developed as follows:

- Driven by additional demand to deliver water services, the Water Fund's authorized staffing increased by 5 Full Time Employees (FTEs). The District recognizes three bargaining units (MOUs) and is committed to maintaining and attracting quality staffing, therefore, wages must remain competitive. The financial plan assumes annual Cost of Living Adjustments (COLA) of 3%. Over the prior three years, the Water Fund has experienced approximately 2.5% increases from merits as employees step through salary schedules thus these assumptions are reasonable.
- The Non-CALPERS benefits (health, dental, vision, etc.) have experienced 7.1% growth over the prior five years. The financial model assumes a conservative 5% assumption reducing the impact to rate payers.
- The increase in CALPERS dollars over the five-year period (\$1.6 million to \$3.6 million) represent a geometric average of 16.4% being driven by the increase in FTEs as well as CALPERS required contributions. The financial plan uses the percentages provided from the most recent CALPERS actuarial report for fiscal year 2018 ranging from 32% to 42.2% of salary over the plan. The CALPERS report uses a myriad of assumptions, of which the greatest impact is the discount or investment earnings rate. Given the changes assumed in this rate, the District's Net Pension Liability (NPL) as presented in its' 2017 CAFR went from \$43.5 million to \$48.8 million in one year.
- The District uses the most recent Other Post Employee Benefits (OPEB) actuarial report produced June 30, 2017 for this assumption. The District is funding its' OPEB trust in the amount of \$2.4 million over the plan.
- The 2018 Consumer Price Index for increase in costs associated with materials, chemicals, office products, etc. for this region is approximately 4%, therefore the financial plan's assumption of 2% is definitely conservative for the rate payers. If the financial plan assumed a higher inflation rate then higher operating expenses will result thus requiring higher water rates.
- The District will service \$20.9 million of its' 2011, 2016 and State Loan debt based on amortization schedules.

10-Year Financial Plans:

In addition to developing the five-year financial plan, NBS was contracted to look an additional five years into the future. As it is extremely difficult to look beyond the five-year window as long-term expenses such as CALPERS pensions and unanticipated capital outlays are quite uncertain, NBS and staff developed the 10-Year financial forecast.

The forecast is based upon the five-year rate study and ultimate cash reserves. Beyond 2023 the model applies the commodity and base rate assumptions to both customer types to maintain 50% fixed cost coverage. Assuming a 3% increase in commodity rates, 3.5% increase in bases rates and capital project spending levels off at \$10 million annually, the Water Fund's operating reserve level is slightly over six months leaving healthy balances in other categories (see Appendix C). However, the 10-year horizon faces many uncertainties including climate change, mandated conservation, development and board direction. Finally, this five-year financial plan will require an update by 2024.

3. RATE STUDY METHODOLOGY

COMPONENTS OF THE RATE STUDY METHODOLOGY

A comprehensive utility rate study typically has three major components: (1) the utility’s overall revenue requirements and financial plan, (2) the cost-of-service for each customer class, and (3) rate structure design, as shown in Figure 1. These components reflect industry standards, primarily from the American Water Works Association (AWWA)¹, and address the general requirements for equity and fairness.

Figure 1. Primary Components of a Rate Study



The following sections in this report present an overview of the methodology, assumptions, and data used along with the financial plans and proposed rates developed as part of this study.

Financial Plan Analysis: Based on the District’s budgets and the WRC’s financial planning model, the rate study financial plan summarized the District’s projected source and uses of revenues with the objective of determining the net revenue requirements that should be collected from water rates over the next five years. Other objectives included achieving healthy reserves, meeting debt and bond coverage requirements, and adequately funding planned capital improvements and infrastructure replacements and rehabilitations.

The WRC’s financial plan also attempted to ensure revenue requirements provide consistent and smooth annual rate increases rather than severe swings in annual rate revenue. Additionally, significant transfers from the hydroelectric division and property tax revenues play a significant role in determining the projected annual revenue collected from treated and raw water rates. Under Proposition 218 guidelines, these transfers also provide the District with flexibility to apply these revenues in a manner that reduces any particular customer class’ water rates to less than the actual cost-of-service.

Cost of Service Analysis: This task is the primary means of evaluating how costs should be allocated to, and collected from several categories of services and customers:

- Water supply, transmission, treatment, and distribution systems that are ultimately allocated to treated and raw water customers.
- Fixed vs. variable (volumetric) charges.
- Other rates and fees, including the District’s plan to adopt new rates (service charges) for water customers who divert flows to generate electricity via small hydroelectric systems.

¹ *Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, M1, AWWA, seventh edition, 2017.*

In addition to the cost-of-service allocations, the rate design priorities, including collecting more revenue from fixed charges, and the fact that the District uses significant unrestricted revenues (i.e., transfers in from hydroelectric and property tax revenue) to decrease the revenue collected from water customers are key factors used in determining the proposed water rates recommended in this rate study report.

Rate Design Analysis: Several general criteria are typically considered in setting rates and developing sound rate structures. The fundamentals of this process have been documented in several rate-setting manuals, such as the *Principles of Public Utility Rates*², and the industry standards embodied in the AWWA Manual M1. The following is a simplified list of the attributes of a sound rate structure:

- Rates should be easy to understand from the customer’s perspective.
- Rates should be easy to administer from the utility’s perspective.
- Rates should promote the efficient allocation of the resource.
- Rates should be equitable and non-discriminating (e.g., cost based).
- There should be continuity in the rate making philosophy over time.
- Other utility policies should be considered (e.g., encouraging conservation and economic development).
- Rates should consider the customer’s ability to pay.
- Rates should provide month-to-month and year-to-year revenue stability.

As noted above, the District’s unrestricted revenues that are used to reduce water rates also play a significant role in rate design. The amount of revenue collected from fixed and volumetric charges is also influenced by other criteria such as conservation objectives, revenue stability, development, and climate change.

To date, Prop 218 challenges, primarily through numerous court decisions, have also provided guidance on rate design. However, these decisions have yet to require municipal water agencies adhere strictly to how rate revenue is collected from customers, such as collecting fixed costs from fixed charges and volumetric costs from volumetric charges. In fact, State guidelines have emphasized the need to orient rates towards conservation objectives and higher volumetric vs. fixed charges. In short, the District has a degree of latitude in how it designs its rate structure and collects rate revenue from its customers.

DISTRICT REVENUE REQUIREMENTS

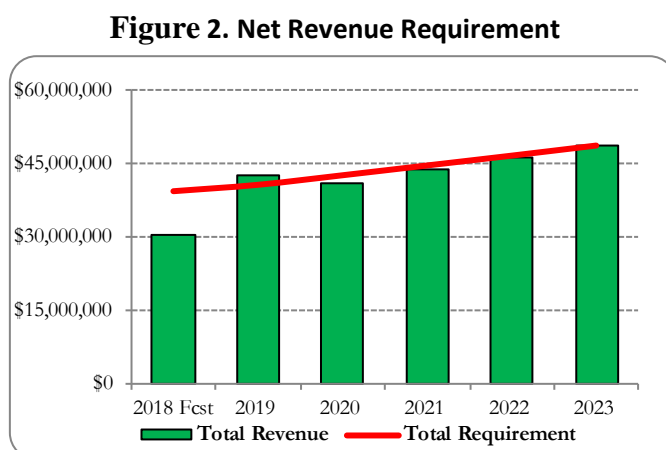
Rate increases are governed by the need to meet operating and capital costs, and maintain sufficient reserve funds. It is also important for municipal utilities to maintain reasonable reserves in order to handle emergencies, fund working capital, maintain a good credit rating, and generally follow sound financial management practices. The current condition of the District, with regard to these objectives, is as follows:

Meeting Net Revenue Requirements: The District is somewhat unique due to amount of non-rate revenue which supports the District, including property tax and hydroelectric division revenues. Rate revenue is projected to represent between 50 percent and 62 percent of all non-grant revenue over the next five years. As the District has chosen to transfer from the Hydroelectric

² James C. Bonbright; Albert L. Danielsen and David R. Kamerschen, *Principles of Public Utility Rates*, (Arlington, VA: Public Utilities Report, Inc., Second Edition, 1988), p. 383-384.

Utility into the Water Utility and use non-operating revenue to operate the water system, the net revenue requirement is by definition less than the actual cost of service.

Figure 2 shows the forecasted revenue requirements and rate revenue. **Figure 3** summarizes the sources and uses of operating funds through FY 2023 and indicates that water sales, or rate revenue, only accounts for about 68 percent of the annual use of funds, or cost-of-service, in 2019. This illustrates the significant amount of non-rate revenue supporting water rates. In other words, they are significantly below the \$40.77 million actual cost of service.



It is also important to note that increases in rate revenue will be needed to adequately support annual operating expenses by the end of the five-year rate period.

Total operating revenue includes the annual transfers from the Hydro Utility, which are assumed to be \$10 million in 2019 and \$6 million/year in 2020-2023. Included in the \$10 million transfers to Water is \$500,000 to assist disadvantaged customers. Hydro Utility transfers for the prior three years are approximately \$4.5 million annually, so this represents an increase in these transfers.

Figure 3. Operating Sources and Uses of Funds

Operating Sources And Uses Of Funds	Budget				
	2019	2020	2021	2022	2023
Operating revenue					
Water Sales	\$ 27,724,879	\$ 30,835,168	\$ 33,137,611	\$ 35,483,813	\$ 37,793,008
New Connect/Install	297,532	309,433	321,810	334,682	348,070
Reimburse/Fees/Other	1,469,666	1,528,452	1,589,590	1,653,174	1,719,301
Standby	108,184	114,372	120,915	127,831	135,143
Rents & Leases	291,214	302,862	314,977	327,576	340,679
Interest Earnings	1,350,000	1,500,000	1,650,000	1,800,000	1,950,000
Grants - Operating	685,825	-	-	-	-
Transfer Ins (AD, DS, Fees)	572,518	572,518	572,518	572,518	572,518
Transfer Ins (Hydro)	10,000,000	6,000,000	6,000,000	6,000,000	6,000,000
Total Source of Funds	\$42,499,817	\$41,162,806	\$43,707,420	\$46,299,594	\$48,858,719
Operating expense					
Salaries	\$ 13,101,415	\$ 13,821,993	\$ 14,582,203	\$ 15,384,224	\$ 16,230,356
Benefits - Non PERS	6,423,434	6,744,605	7,081,836	7,435,928	7,807,724
Benefits - PERS	4,192,453	4,892,986	5,570,401	6,230,611	6,849,210
Benefits - OPEB Funding	434,814	429,658	437,392	406,457	407,316
Materials/Chemicals/Consultants	10,472,340	10,681,787	10,895,423	11,113,331	11,335,598
Fed/State Fees	457,674	466,827	476,164	485,687	495,401
Debt Service	4,189,548	4,188,673	4,192,799	4,191,673	4,192,704
Fixed Assets	1,503,989	1,503,989	1,503,989	1,503,989	1,503,989
Total Use of Funds	\$40,775,667	\$42,730,518	\$44,740,206	\$46,751,898	\$48,822,297
Net Impact On Reserves	\$ 1,724,151	\$ (1,567,713)	\$ (1,032,786)	\$ (452,305)	\$ 36,421

Figure 4 summarizes the District’s non-operating sources and uses of funds. The revenue exceeding expenses is used to fund the District’s goal of reaching a four-month reserve of operating expenses. **Figure 5** shows the designated reserves and working capital for unaudited 2018 and the five year rate period under the proposed rate revenue increases.

Figure 4. Capital Expenditure Summary

Non Operating Sources And Uses Of Funds	Budget				
	2019	2020	2021	2022	2023
Non operating revenue					
Property Taxes	\$ 12,449,953	\$ 12,823,452	\$ 13,208,155	\$ 13,604,400	\$ 14,012,532
Bond Proceeds - Transfer In	7,295,080	-	-	-	-
Grants - Capital	300,000	-	-	-	-
Transfer In - CapFee, Hydro	1,775,000	400,000	400,000	400,000	400,000
Total Source of Funds	\$21,820,033	\$13,223,452	\$13,608,155	\$14,004,400	\$14,412,532
Non Operating Expenses					
Capital Projects - Other	\$ 21,420,033	\$ 12,823,452	\$ 12,020,000	\$ 12,405,000	\$ 10,000,000
Capital Projects - Capacity Fees	400,000	400,000	400,000	400,000	400,000
Total Use of Funds	\$21,820,033	\$13,223,452	\$12,420,000	\$12,805,000	\$10,400,000
Net Impact On Reserves	\$ -	\$ -	\$ 1,188,155	\$ 1,199,400	\$ 4,012,532

Building and Maintaining Designated Reserve Funds: The District should maintain sufficient reserves. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures, such as those caused by the natural inflow and outflow of cash during billing cycles, and—particularly in periods of economic distress—changes or trends in age of receivables.

The Government Finance Officers Association (GFOA) recommends that reserve funds begin with an operating reserve target of 25 percent (or 3 months) of expenses, with adjustments based upon “the particular characteristics”³ of that fund. Given that much of the Districts revenue comes in during warmer months, a larger reserve is needed to ensure there is sufficient cash to pay expenses. Therefore, the Operating Reserve Policy requires 50 percent (or 6 months) of annual operating costs for each Fund, thus the Water Fund is short of this target.

Cash Reserve Impacts: The District’s Cash Reserve Policy 3040 and Investments Policy 3035 outlines the use and management of its’ cash reserves and available on its’ website. The Water Funds’ cash reserves are segregated into restricted and unrestricted (designated, working capital) accounts governed by target balances of the reserve policy. Given the previous assumptions and outcome of sources and uses, the five-year financial plan’s cash impacts are the following:

- The Water Fund’s restricted reserves will maintain a balance of approximately \$5.3 million compared to a board policy level of \$2 million over the plan. These reserves cannot be legally used to operate the system but contribute to capital projects expanding the system and servicing debt associated with expansion of the system. The separate fund the District maintains from capacity fees revenue is pursuant to California Government Code §66013(6)(c), which states:

A local agency receiving payment of a charge as specified in paragraph (3) of subdivision (b) [the connection fee] shall deposit it in a separate capital facilities fund with other charges received, and account for the charges in a manner to avoid

³ Determining the Appropriate Levels of Working Capital in Enterprise Funds, <http://www.gfoa.org/determining-appropriate-levels-working-capital-enterprise-funds>.

any commingling with other moneys of the local agency, except for investments, and shall expend those charges solely for the purposes for which the charges were collected. Any interest income earned from the investment of moneys in the capital facilities fund shall be deposited in that fund.

- The Water’s Fund’s designated reserves in **Figure 5** are segregated into seven categories ranging from operating reserve to accrued leave. After receiving transfers of \$34 million from Hydroelectric and \$6.8 million support from non-operating revenues, the plan anticipates operating reserve at \$11.3 million or 4 months compared to a policy level of 6 months. As the structure of the base rate is increasing to 50% coverage of fixed cost, the Board decided to use a greater amount of Hydroelectric reserves while not funding other reserves during the plan, cognizant of the financial impact to rate payers.
- The District also maintains the Watershed Steward and the Accrued Leave Designated reserves with anticipated funding of \$500,000 and \$545,580 respectively.
- The Water Fund’s working capital or operating cash will maintain a balance of \$750,000 and is simply the remaining cash balance after restricted and other designated balances are calculated in accordance with policy.
- Total cash balances for the Water Fund by 2023 totals \$18.5 million (see Appendix C) with \$5.3 million restricted and \$13.2 million unrestricted. It is important to keep healthy levels of unrestricted cash which positively impact future bonding costs.

Figure 5. Designated Reserves and Working Capital

Designated Reserves	2018	2019	2020	2021	2022	2023
Operating	\$ 2,458,644	\$ 7,723,623	\$ 6,405,910	\$ 6,561,279	\$ 7,308,374	\$ 11,357,327
Community Investment Stabilization	1,500,000	-	-	-	-	-
Watershed Stewardship	1,995,249	500,000	500,000	500,000	500,000	500,000
Accrued Leave	1,091,159	545,580	545,580	545,580	545,580	545,580
Designated Total	\$ 7,045,052	\$ 8,769,202	\$ 7,451,489	\$ 7,606,859	\$ 8,353,954	\$12,402,907
Working Capital	1,000,000	1,000,000	750,000	750,000	750,000	750,000

The District’s bond covenants require a debt serve coverage ratio of 1.25 times. The ratio indicates how many times the forecasted period can cover total District debt apart from reserves. Since capital projects are not necessary to operating the system, they are excluded from the expense component of the calculation. The District’s ratios are healthy ranging from 4.79 to 6.11 (see Appendix C) as property taxes are included within the ratio.

COST OF SERVICE ANALYSIS

Based on the revenue requirements discussed above and the customer characteristics discussed below, the cost of service analysis distributes the revenue requirements to each of the customer classes.

Customer Classes and Their Characteristics: Key components in the cost of service analysis include customer classes and their water use characteristics, such as the number of meters by size and annual and peak consumption rates. The District’s customer base characteristics, including the number of treated water customers inside and outside the District, are summarized below in **Figure 6**. In light of the District’s policy of charging a 25-percent surcharge on outside customers, this additional weight was applied to the outside customers as shown in this figure.

Figure 6. Treated Water Customers

Meter Count - FY 2018										
Meter Size	5/8-inch	3/4-inch	1-inch	1.5-inch	2-inch	3-inch	4-inch	6-inch	8-inch	Total
Meter Count¹										
Inside	14,379	4,192	201	117	45	23	7	9	1	18,974
Outside	151	37	0	2	1	0	0	0	0	191
Total	14,530	4,229	201	119	46	23	7	9	1	19,165
Weight²										
Inside	1.00	1.50	2.50	5.00	8.00	16.00	25.00	50.00	80.00	
Outside	1.25	1.88	3.13	6.25	10.00	20.00	31.25	62.50	100.00	
Weighted Count										
Inside	14,379	6,288	503	585	360	368	175	450	80	23,188
Outside	189	69	0	13	10	0	0	0	0	281
Total	14,568	6,357	503	598	370	368	175	450	80	23,468

1. From District billing records.

2. Meter weights set by relative hydraulic capacity (based on AWWA M-1, Table B-1).

Outside customers are increased by 25%. Source of meter count: provided by staff via email 10-25-18.

Figure 7 shows projected consumption for treated water customers in FY 2019 through FY 2023. Again, District staff observed an increase in customer consumption and felt that simply using May – December 2017 consumption would understate expected consumption in those months for 2018. Therefore, Jan – April 2017 consumption ratio was used to estimate 2018 consumption.

Figure 7. Treated Water Consumption

Adjusted Treated Consumption					
Fiscal Year	Adjusted Consumption Total	Adjusted Consumption T1 - Inside	Adjusted Consumption T2 - Inside	Adjusted Consumption T1 - Outside	Adjusted Consumption T2 - Outside
FY 2019	3,767,447	931,212	2,740,189	29,781	66,265
FY 2020	3,842,796	949,836	2,794,993	30,377	67,590
FY 2021	3,919,652	968,833	2,850,893	30,984	68,942
FY 2022	3,998,045	988,210	2,907,910	31,604	70,321
FY 2023	4,078,006	1,007,974	2,966,069	32,236	71,727

Figure 8 summarizes the number of raw water customers by location and seasonal use. Following the District’s policy of adding a 25-percent surcharge for outside users, and a 25-percent surcharge for winter use, these numbers were adjusted accordingly. That is, outside winter users have a 1.56 adjustment (i.e., 1.25 x 1.25), as shown in Figure 8. **Figure 9** represents expected consumption in miners inches (MI) based on billed consumption from May 2017 through April 2018.

Figure 8. Raw Water Customers

Raw Customer Count			
Customers	Summer	Winter	Total
Number of Connections¹			
Inside	5,188	844	6,032
Outside	128	11	139
Total	5,316	855	6,171
Weight²			
Inside	1.00	1.25	
Outside	1.25	1.56	
Weighted Count			
Inside	5,188	1,055	6,243
Outside	160	17	177
Total	5,348	1,072	6,420

1. From District billing records.

2. Meter weights set by relative hydraulic capacity (based on AWWA M-1, Table B-1).

Outside customers have an additional adjustment of 25%.

Source of meter count: provided by staff via email 10-25-18.

Figure 9. Raw Water Consumption

Projected Raw Consumption					
Fiscal Year	Raw - Miner's Inches (MI)				
	Consumption Total	Summer Inside	Summer Outside	Winter Inside	Winter Outside
FY 2019	12,460	10,999	267	1,171	23
FY 2020	12,709	11,219	272	1,194	23
FY 2021	12,963	11,443	278	1,218	24
FY 2022	13,222	11,672	283	1,242	24
FY 2023	13,487	11,906	289	1,267	25

The sequential steps in the cost of service analysis consists of the functionalization and classification of expenses and then allocation of costs to individual customer classes. Ultimately, this results in fixed and volumetric costs that provide the basis for the new fixed and volumetric charges. This process is described as follows:

Functionalization, Classification and Allocations: Based on the WRC’s financial plan results, NBS and District staff worked together to prepare a cost of service analysis, including adjustments to the cost allocations reflecting the WRC’s recommended rate design. This initial allocation divided costs into fixed and volumetric costs:

Fixed costs generally consist of capacity and customer costs that a utility incurs to serve customers irrespective of the amount of water they use. These include (1) the infrastructure (capacity-related facilities) required to provide service to customers; (2) costs associated with the peaking requirements, or maximum demand which affects the maximum size of the water supply system, treatment and delivery system, operations and maintenance costs; (3) debt service on outstanding debt; and (4) administrative and billing costs associated with meter reading, postage and billing.

Volumetric costs are commodity costs that change as the volume of water produced and delivered changes. These commonly include the costs of energy related to pumping for transmission and distribution, chemicals used in the treatment process, and source of supply.

Although utilities should ideally recover all of their fixed costs from fixed charges and all of their volumetric costs from volumetric charges, this can result in significantly higher fixed charges and conflict with conservation goals reducing the incentives to use water judiciously. In addition, rate design is cognizant of other factors such as water conservation, ease of understanding, and administration when designing fixed and volumetric rates.

Figure 10 summarizes the classification from each cost component indicating 80% of costs are fixed. The detail of how budgeted categories were allocated to cost centers can be found in Technical Appendix A. However, based on the District’s target rate design, these allocations were adjusted, as discussed in the Rate Design section below.

Figure 10. Classification of Net Revenue Requirements

Rate Revenue Classification	Rate Revenue Target 2019	
	COSA	
	%	\$
Fixed Revenue	80%	\$ 22,141,490
Volumetric Revenue	20%	5,583,389
Total	100.0%	\$27,724,879

Allocating Costs to Treated and Raw Water Customers: All water costs are captured within the Water Fund (Fund 10), but the District’s accounting structure does not provide a detailed accounting of whether costs are related to treated or raw water functions. These functions have significantly different cost characteristics. Treated water customers require treatment and distribution infrastructure that are not necessary to serve raw water customers. Many other dissimilarities make allocating water system costs to treated vs. raw water classes challenging. Therefore, the study uses a reasonable allocation basis such as the total number of treated and raw water accounts for allocating water fund costs between treated and raw water customers. Based on the 19,165 treated water and 6,171 raw water customers shown below, this equates to approximately 76% of the costs allocated to treated customers and the remaining 24% to raw water customers.

Figure 11. Cost Allocation Basis between Treated and Raw

Cost Allocation Basis	Accounts	
	Number	%
Raw Customers	6,171	24%
Treated Customers	19,165	76%
Total	25,336	100%

RATE DESIGN ANALYSIS

The District's current rate structure (rate design) is understood by customers and broadly accepted and considered fair and equitable. Because of this, the District did not want significant changes in the rate design although, as noted above, the WRC and staff determined that half of net operating expenses should be funded from fixed revenue.

Based on the rate design target of collecting 50 percent of rate revenue from fixed and 50 percent from volumetric rates, the cost allocations previously shown in Figure 10 were adjusted as shown in **Figure 12**.

Figure 12. Adjusted Net Revenue Requirements

Rate Revenue Classification	Rate Revenue Target 2019					
	COSA		Adjustments		Adjusted for Rate Design	
	%	\$	%	\$	%	\$
Fixed Revenue	80%	\$ 22,141,490	-29.9%	\$ (8,287,531)	50.0%	\$ 13,853,959
Volumetric Revenue	20%	5,583,389	29.9%	8,287,531	50.0%	13,870,920
Total	100.0%	\$27,724,879	--	--	100.0%	\$ 27,724,879

The final allocations of net revenue requirements (rate revenue) to treated vs. raw water customers are based on the prior mentioned District's rate design. Ultimately, treated water customers will cover approximately 74% of cost consistent with these customers accounting for 76% of total District accounts. As noted earlier, the significant amount of non-rate revenue, specifically revenue from the hydroelectric division and property taxes, allow the District to subsidize water rates and reduce the actual cost of service to both treated and raw water customers. The fixed and volumetric revenue requirement allocated to treated and raw water rates is shown in **Figure 13**.

Figure 13. Final Allocation of Net Revenue Requirements

Rate Revenue Classification	Rate Revenue Target 2019					
	Fixed %	Volumetric %	Fixed \$	Volumetric \$	\$	%
Raw Customers	12%	14%	\$ 3,279,886	\$ 3,863,145	\$ 7,143,032	26%
Treated Customers	38%	36%	10,574,073	10,007,775	20,581,848	74%
Total	50%	50%	\$ 13,853,959	\$ 13,870,920	\$ 27,724,879	100%

Meter size is also an important factor in calculating treated water rates because how the District designs the treated water system is largely determined by the potential demand. Larger meters that place a greater demand on system capacity should therefore pay a greater portion of fixed costs, particular those related to infrastructure capacity. Meter sizes are therefore weighted based upon their relative hydraulic capacity, as estimated by the American Water Works Association (AWWA, Manual M1). Additionally, per District policy meter sizes for outside customers and winter-use raw water customers are adjusted to account for the 25 percent surcharges.

Fixed, capacity-related costs are collected based on the meter sizes previously shown in Figure 6. Customer-related costs are distributed to each customer class based on the number of customers in each class, including the 19,165 meters shown in Figure 6 and the 6,171 raw water accounts previously shown in Figure 8. The following rates are proposed for treated and raw water customers and projected to meet the targeted rate revenue, reflect the customer data outlined above, and continue the District's current (historical) rate design.

Figure 14 is the proposed rate schedule for treated water customers. While not affecting the revenue collected from individual customers, rates shown in this table shift billing from a bi-

monthly to a monthly billing basis, as directed by the WRC. It should be noted that an additional charge of \$1.90 applies to each treated water customer to pay for regulatory fees.

Figure 14. Proposed Treated Water Rate Schedule

Proposed Treated Water Rate Schedule							
Water Rate Schedule	Current Rates - Bi-Monthly	Current Rates - Monthly	Proposed Monthly Treated Water Rates				
			2019	2020	2021	2022	2023
Fixed Service Charge							
<i>Monthly Fixed Service Charge Inside District, Treated Water Customers Standard Meters:</i>							
5/8 inch	\$49.65	\$24.83	\$36.00	\$41.40	\$43.47	\$45.21	\$46.34
3/4 inch	\$74.49	\$37.25	\$54.00	\$62.10	\$65.20	\$67.81	\$69.50
1 inch	\$124.13	\$62.07	\$89.99	\$103.49	\$108.67	\$113.01	\$115.84
1.5 inch	\$248.29	\$124.15	\$179.99	\$206.99	\$217.34	\$226.03	\$231.68
2 inch	\$397.27	\$198.64	\$287.98	\$331.18	\$347.74	\$361.65	\$370.69
3 inch	\$744.86	\$372.43	\$575.96	\$662.36	\$695.47	\$723.29	\$741.38
4 inch	\$1,241.45	\$620.73	\$899.94	\$1,034.93	\$1,086.68	\$1,130.15	\$1,158.40
6 inch	\$2,482.89	\$1,241.45	\$1,799.88	\$2,069.86	\$2,173.36	\$2,260.29	\$2,316.80
8 inch	\$3,972.63	\$1,986.32	\$2,879.81	\$3,311.78	\$3,477.37	\$3,616.46	\$3,706.88
<i>Monthly Fixed Service Charge Outside District, Treated Water Customers Standard Meters:</i>							
5/8 inch	\$62.06	\$31.03	\$45.00	\$51.75	\$54.33	\$56.51	\$57.92
3/4 inch	\$93.11	\$46.56	\$67.50	\$77.62	\$81.50	\$84.76	\$86.88
1 inch	\$155.16	\$77.58	\$112.49	\$129.37	\$135.83	\$141.27	\$144.80
1.5 inch	\$310.36	\$155.18	\$224.99	\$258.73	\$271.67	\$282.54	\$289.60
2 inch	\$496.59	\$248.29	\$359.98	\$413.97	\$434.67	\$452.06	\$463.36
3 inch	\$931.08	\$465.54	\$719.95	\$827.95	\$869.34	\$904.12	\$926.72
4 inch	\$1,551.81	\$775.91	\$1,124.93	\$1,293.66	\$1,358.35	\$1,412.68	\$1,448.00
6 inch	\$3,103.61	\$1,551.81	\$2,249.85	\$2,587.33	\$2,716.70	\$2,825.36	\$2,896.00
8 inch	\$4,965.79	\$2,482.89	\$3,599.76	\$4,139.73	\$4,346.71	\$4,520.58	\$4,633.60
Additional Monthly Regulatory Fee							
All Treated Customers			\$1.90	\$1.90	\$1.90	\$1.90	\$1.90
Volumetric Service Charge							
<i>Tiered Rate Charge Inside District, Treated Water Customers Standard Meters:</i>							
Tier One	(same as current monthly)	\$2.05	\$2.17	\$2.29	\$2.42	\$2.56	\$2.71
Tier Two		\$2.65	\$2.80	\$2.96	\$3.13	\$3.31	\$3.50
<i>Tiered Rate Charge Outside District, Treated Water Customers Standard Meters:</i>							
Tier One	(same as current monthly)	\$2.56	\$2.71	\$2.86	\$3.03	\$3.20	\$3.38
Tier Two		\$3.31	\$3.50	\$3.70	\$3.91	\$4.14	\$4.37

Figure 15 shows the proposed rate schedule for raw water customers, and adds the small hydroelectric generator charges. **Figure 16** then provides a regional comparison of treated water rates for nearby water agencies that are comparable to the District.

Figure 15. Proposed Raw Water Rate Schedule

Proposed Seasonal Raw Rate Schedule						
Water Rate Schedule	Current Rates	Proposed Raw Rates				
		2019	2020	2021	2022	2023
Fixed Service Charge						
Inside	\$483.23	\$510.87	\$540.09	\$570.99	\$603.65	\$638.17
Outside ¹	\$604.04	\$638.59	\$675.12	\$713.73	\$754.56	\$797.72
Volumetric Service Charge						
<i>Volumetric Service Charge, Inside District Raw Customers:</i>						
Per MI	\$284.77	\$301.06	\$318.28	\$336.49	\$355.73	\$376.08
<i>Volumetric Service Charge, Outside District Raw Customers:</i>						
Per MI	\$355.96	\$376.33	\$397.85	\$420.61	\$444.67	\$470.10

1. Winter Seasonal Raw Rates = 125% of Summer Raw Rates,
and outside winter users = 1.56% of Inside Summer Raw Rates (i.e., 1.25 x 1.25).

COMPARISON OF TREATED WATER RATES

There are many variables influencing an Agencies rates such as its current financial position, other revenue sources, strategic board direction, age of infrastructure, geographical service area, rate development methodology (base vs commodity), revenue, expenditure and demand assumptions as well as political environment. The chart compares the District’s proposed rates for low (4 hcf), average (10 hcf) and high (21 hcf) volume users on a monthly basis commencing with the lowest rates. For low and average users, NID’s proposed rates are 5.4 percent below other Agencies while its’ higher users will fall 0.3% higher.

Figure 16. Comparison of Treated Water Rates of Other Agencies

January 08, 2019 Treated Water Rate Survey								
Agency	Year	Monthly Base 5/8" Meter ¹	Monthly Total 4 HCF ²		Monthly Total 10 HCF ²		Monthly Total 21 HCF ²	
			4 HCF	4 HCF	10 HCF	10 HCF	21 HCF	21 HCF
City of Nevada City	FY 17/18 Rate	23.50	7.05	30.55	21.56	45.06	45.88	69.38
	FY 18/19 Rate	24.00	9.12	33.12	21.96	45.96	46.76	70.76
PCWA	FY 2018 Rate	35.66	6.08	41.74	15.40	51.06	34.32	69.98
	FY 2019 Rate	36.91	2.63	39.54	15.40	52.31	34.32	71.23
San Juan Water	FY 2018 Rate	49.58	3.68	53.26	9.20	58.78	19.32	68.90
	FY 2019 Rate	55.66	3.68	59.34	9.20	64.86	19.32	74.98
Truckee Donner PUD ^{5/6}	FY 2018 Rate	65.67	2.92	68.59	5.84	71.51	13.20	78.87
	FY 2019 Rate	67.64	3.76	71.40	6.08	73.72	13.60	81.24
City of Lincoln ⁵	FY 17/18 Rate	38.13	5.34	43.47	17.60	55.73	44.68	82.81
	FY 18/19 Rate	32.89	7.11	40.00	18.96	51.85	49.77	82.66
City of Grass Valley ⁴	FY 2018 Rate	26.00	11.25	37.25	30.00	56.00	60.00	86.00
	FY 2019 Rate	26.00	11.25	37.25	30.00	56.00	60.00	86.00
NID	FY 2018 Rate	24.83	8.20	33.03	20.50	45.33	49.65	74.48
	Proposed 2019 Rate³	37.90	8.68	46.58	21.70	59.60	52.50	90.40
El Dorado Irrig District ⁴	FY 2018 Rate	59.88	5.82	65.70	14.54	74.42	31.44	91.32
	FY 2019 Rate	61.68	5.99	67.67	14.98	76.66	32.39	94.07
City of Davis ⁴	FY 2018 Rate	12.20	18.44	30.64	46.10	58.30	96.81	109.01
	FY 2019 Rate	13.07	20.04	33.11	50.10	63.17	105.21	118.28
City of Woodland	FY 2018 Rate	47.30	13.52	60.82	33.80	81.10	77.19	124.49
	FY 2019 Rate	49.95	14.28	64.23	35.70	85.65	81.54	131.49

¹ San Juan WD has a daily base rate for up to a 1" meter, rate shown =(DBR*365/12)

² City of Lincoln, Truckee Donner PUD, City of Grass Valley and City of Nevada City bill per 1,000 gallons, calculations are for 3,000 gallons (4.01 HCF) 8,000 gallons (10.7 HCF) and 16,000 gallons (21.39 HCF)

³ Assumes 45% increase on fixed fee and 5.72% commodity increase

⁴ Single Family Residential rates shown

⁵ Does not offer a 5/8" meter, rates are for 3/4" meter

⁶ Commodity rates shown are for residential service only

DROUGHT AND SMALL HYDROELECTRIC RATES

District staff determined that drought rates should be developed and small hydroelectric generator rates revised as part of the District’s overall rate structure. The addition of drought rates will improve the financial resiliency of rates during financial stresses, such as periods of mandatory conservation, and small hydroelectric rates will improve the overall fairness and equity of rates.

Drought rates: Drought rates are commonly used throughout the State to offset revenue losses due to planned conservation and mandated reductions in water use. Based on the District’s estimated additional costs at various levels of conservation, volumetric “drought rates” have been developed with the intent that the District will implement these rates when the District Board declares it is in a drought stage.

When the District is subjected to mandated conservation measures, or for other reasons declares it is in a drought stage as defined in the District’s drought contingency plan, the District incurs additional costs. These additional annual costs include conservation programs (education, public outreach, monitoring, etc.), additional distribution system management, and additional water purchases. Also, the District’s proposed rate structure only collects 50 percent of the fixed costs through fixed charges (as previously shown in Figure 10). The additional drought-related costs are summarized in Figure 16.

Figure 17. Drought Rate Development

Drought	Drought Plan Conservation	Conservation Used to Develop Rates	Additional Drought Expenses		
			Water Purchase	Operating Expenses	Total Expenses
Stage 2	10% - 25%	10%	\$ 900,000	\$ 340,000	\$ 1,240,000
Stage 3	25% - 40%	25%	\$ 1,200,000	\$ 500,000	\$ 1,700,000
Stage 4	>40%	40%	\$ 1,500,000	\$ 500,000	\$ 2,000,000

Given that the District’s current Drought Contingency Plan defines Stage 1 as voluntary, the standard rates will still apply. Therefore, drought rates were only developed for Stages 2 – 4. Based on the cost-of-service analysis for the standard rates, additional drought related expenses were allocated between treated water and raw water customers based on number of accounts. The lower end of the Drought Contingency Plan of target conservation has been used for each stage. The treated water drought rates are shown in Figure 17 and the raw water drought rates are shown in Figure 18.

Figure 18. Treated Water Drought Rates

Fiscal Year	Stage 2		Stage 3		Stage 4	
	T1 Rate	T2 Rate	T1 Rate	T2 Rate	T1 Rate	T2 Rate
FY 2019	\$2.71	\$3.50	\$3.37	\$4.36	\$4.33	\$5.60
FY 2020	\$2.85	\$3.68	\$3.54	\$4.57	\$4.54	\$5.87
FY 2021	\$2.99	\$3.87	\$3.71	\$4.80	\$4.75	\$6.15
FY 2022	\$3.15	\$4.07	\$3.89	\$5.03	\$4.98	\$6.44
FY 2023	\$3.31	\$4.28	\$4.09	\$5.29	\$5.23	\$6.76

Figure 19. Raw Water Drought Rates

Fiscal Year	Stage 2		Stage 3		Stage 4	
	Summer Rate	Winter Rate	Summer Rate	Winter Rate	Summer Rate	Winter Rate
FY 2019	\$360.66	\$450.83	\$444.44	\$555.55	\$565.04	\$706.30
FY 2020	\$379.63	\$474.54	\$466.97	\$583.72	\$593.02	\$741.28
FY 2021	\$399.38	\$499.22	\$490.44	\$613.05	\$622.18	\$777.72
FY 2022	\$420.29	\$525.36	\$515.32	\$644.15	\$653.09	\$816.37
FY 2023	\$442.44	\$553.05	\$541.68	\$677.10	\$685.87	\$857.34

Hydroelectric Generator Rates: There are customers served by the District who divert water for the purpose of generating power. The benefit to these customers, regardless of whether or not they consumptively use the diverted water, results in increased operating costs for the District to monitor, patrol, track, and report on these activities.

District staff evaluated these costs and estimates additional staff time and field equipment costs are about \$7,000 per year per hydroelectric generator. Based on the use of the District’s entire raw water delivery system that provide these benefits to small hydroelectric generators, these customers should pay the fixed service charge that all other raw water customers pay. In addition, these customers should also pay 10 percent of the volumetric service charge for raw water customers. This fixed charge and the partial volumetric rate will relieve other consumptive water rate customers from covering the costs the District incurs to provide benefits to hydroelectric customers.

4. STUDY RECOMMENDATIONS

Based on the recommendations of the Water Rates Committee and the joint rate study analysis by District staff and NBS, we recommend the following:

- **Accept this Study Report:** The Board of Directors should approve and adopt this study and its recommendations in order to provide documentation of the rate study analyses, the proposed treated and raw water rates, and provide a basis for potential changes to future rates.
- **Implement the Proposed Rates:** The financial plan presented in this report demonstrates the District's need for rate adjustments commencing fiscal year 2019 to meet annual revenue requirements and maintenance of healthy reserves. Assuming the District successfully completes a Proposition 218 process, NBS recommends the Board of Directors approve the following rate adjustments:
 - ✓ Figure 14. Proposed Treated Water Rate Schedule
 - ✓ Figure 15. Proposed Raw Water Rate Schedule
 - ✓ Figure 18. Treated Water Drought Rates
 - ✓ Figure 19. Raw Water Drought Rates
 - ✓ Approve Hydroelectric Generator Rates discussed in Figure 15
- **Monitor and Adjust Future Rates as Needed:** In light of the recent drought and its impact on District revenues, these uncertainties can and do impact water agencies throughout California. To ensure revenue remains sufficient to maintain the current levels of service, including during periods of reduced consumption, rate revenue should be closely monitored. During the District's annual budget cycle, if less than the proposed rate increases are necessary, the Board can act accordingly. However, if reserves are less than projected in this analysis, the District should act accordingly to maintain adequate funding for annual operations while considering infrastructure.

Note: The attached Technical Appendices provide more detailed information on the analysis of the revenue requirements that have been summarized in this report.

NBS' PRINCIPAL ASSUMPTIONS AND CONSIDERATIONS

In preparing this memorandum and the opinions and recommendations included herein, NBS has relied on a number of principal assumptions and considerations with regard to financial matters that may occur in the future. This information and assumptions, including the District's budgets, capital improvement costs, customer account and consumption records, and related information from District staff were provided by sources we believe to be reliable, although NBS has not independently verified this data.

While we believe NBS' use of such information and assumptions is reasonable for the purpose of this report and its recommendations, some assumptions will invariably not materialize as stated herein and may vary significantly due to unanticipated events and circumstances. Therefore, the actual results are expected to vary from those projected to the extent that actual future conditions differ from those assumed by us or provided to us by others.

TECHNICAL APPENDICES

APPENDIX A (Net Revenue Requirement)

Operating Sources And Uses of Funds	Budget	Allocation \$		Cost Characteristic %	
	2019	Volumetric	Fixed	Volumetric	Fixed
Use of Funds					
Operating expense					
Salaries	\$ 13,101,415	\$ -	\$ 13,101,415	0%	100%
Benefits - Non PERS	6,423,434	-	6,423,434	0%	100%
Benefits - PERS	4,192,453	-	4,192,453	0%	100%
Benefits - OPEB Funding	434,814	-	434,814	0%	100%
Materials/Chemicals/Consultants	10,472,340	5,236,170	5,236,170	50%	50%
Fed/State Fees	457,674	-	457,674	0%	100%
Debt Service	4,189,548	-	4,189,548	0%	100%
Fixed Assets	1,503,989	-	1,503,989	0%	100%
Total Use of Operating Funds	\$40,775,667	\$ 5,236,170	\$35,539,497	13%	87%
Non Operating Expenses					
Capital Projects - Other	\$ 21,420,033	\$ -	\$ 21,420,033	0%	100%
Capital Projects - Capacity Fees	400,000	-	400,000	0%	100%
Total Use of Non Operating Funds	\$21,820,033	\$ -	\$21,820,033	0%	100%
Total Use of Funds	\$62,595,700	\$ 5,236,170	\$57,359,530	8%	92%
Sources of Funds					
Operating revenue					
New Connect/Install	\$ 297,532	\$ -	\$ 297,532	0%	100%
Reimburse/Fees/Other	1,469,666	-	1,469,666	0%	100%
Standby	108,184	-	108,184	0%	100%
Rents & Leases	291,214	-	291,214	0%	100%
Interest Earnings	1,350,000	-	1,350,000	0%	100%
Grants - Operating	685,825	-	685,825	0%	100%
Transfer Ins (AD, DS, Fees)	572,518	-	572,518	0%	100%
Transfer Ins (Hydro)	10,000,000	-	10,000,000	0%	100%
Sub-Total Source of Funds	\$14,774,938	\$ -	\$14,774,938	0%	100%
Non operating revenue					
Property Taxes	\$ 12,449,953	\$ -	\$ 12,449,953	0%	100%
Bond Proceeds - Transfer In	7,295,080	-	7,295,080	0%	100%
Grants - Capital	300,000	-	300,000	0%	100%
Transfer In - CapFee, Hydro	1,775,000	-	1,775,000	0%	100%
Sub-Total Source of Funds	\$21,820,033	\$ -	\$21,820,033	0%	100%
Total Source of Funds	\$36,594,971	\$ -	\$36,594,971	0%	100%
Net Revenue Requirement	\$26,000,729	\$ 5,236,170	\$20,764,559	20%	80%
Net Income	1,724,151	347,219	1,376,932	20%	80%
Adj. Net Revenue Requirement	\$27,724,879	\$ 5,583,389	\$22,141,490	20%	80%

APPENDIX B (5-Year Financials)

	2019	2020	2021	2022	2023
Operating revenue					
Water Sales	\$ 27,724,879	\$ 30,835,168	\$ 33,137,611	\$ 35,483,813	\$ 37,793,008
New Connect/Install	297,532	309,433	321,810	334,682	348,070
Reimburse/Fees/Other	1,469,666	1,528,452	1,589,590	1,653,174	1,719,301
Standby	108,184	114,372	120,915	127,831	135,143
Rents & Leases	291,214	302,862	314,977	327,576	340,679
Interest Earnings	1,350,000	1,500,000	1,650,000	1,800,000	1,950,000
Grants - Operating	685,825	-	-	-	-
Transfer Ins (AD, DS, Fees)	572,518	572,518	572,518	572,518	572,518
Transfer Ins (Hydro)	10,000,000	6,000,000	6,000,000	6,000,000	6,000,000
Total operating revenue	42,499,817	41,162,806	43,707,420	46,299,594	48,858,719
Operating expense					
Salaries	\$ 13,101,415	\$ 13,821,993	\$ 14,582,203	\$ 15,384,224	\$ 16,230,356
Benefits - Non PERS	6,423,434	6,744,605	7,081,836	7,435,928	7,807,724
Benefits - PERS	4,192,453	4,892,986	5,570,401	6,230,611	6,849,210
Benefits - OPEB Funding	434,814	429,658	437,392	406,457	407,316
Materials/Chemicals/Consultants	10,472,340	10,681,787	10,895,423	11,113,331	11,335,598
Fed/State Fees	457,674	466,827	476,164	485,687	495,401
Debt Service	4,189,548	4,188,673	4,192,799	4,191,673	4,192,704
Fixed Assets	1,503,989	1,503,989	1,503,989	1,503,989	1,503,989
Transfer Outs	-	-	-	-	-
Total operating expense	40,775,667	42,730,518	44,740,206	46,751,898	48,822,297
Operating Net Income	1,724,151	(1,567,713)	(1,032,786)	(452,305)	36,421
Non operating revenue					
Property Taxes	12,449,953	12,823,452	13,208,155	13,604,400	14,012,532
Bond Proceeds - Transfer In	7,295,080	-	-	-	-
Grants - Capital	300,000	-	-	-	-
Transfer In - CapFee, Hydro	1,775,000	400,000	400,000	400,000	400,000
Total non operating revenue	21,820,033	13,223,452	13,608,155	14,004,400	14,412,532
Non Operating Expenses					
Capital Projects - Other	21,420,033	12,823,452	12,020,000	12,405,000	10,000,000
Capital Projects - Capacity Fees	400,000	400,000	400,000	400,000	400,000
Total non operating expense	21,820,033	13,223,452	12,420,000	12,805,000	10,400,000
Non Operating Net Income	\$ (0)	\$ (0)	\$ 1,188,155	\$ 1,199,400	\$ 4,012,532
Water Net Income	<u>1,724,151</u>	<u>(1,567,713)</u>	<u>155,370</u>	<u>747,095</u>	<u>4,048,953</u>

APPENDIX B (5-Year Cash Reserves)

	2019	2020	2021	2022	2023
Operating Net Income	1,724,151	(1,567,713)	(1,032,786)	(452,305)	36,421
Non Oper Net Income	(0)	(0)	1,188,155	1,199,400	4,012,532
Capacity Fee Surplus	(618,578)	7,089	7,089	7,089	7,089
	1,105,573	(1,560,624)	162,459	754,184	4,056,042
Total Cash	15,054,571	13,493,947	13,656,406	14,410,590	18,466,632

Cash Breakdown:

Policy	Restricted Reserves						Policy Amounts
3040.3.1	Capacity Fee Balance	4,662,129	4,669,218	4,676,307	4,683,396	4,690,485	\$2M minimum
3040.3.2	Debt Service	623,240	623,240	623,240	623,240	623,240	Covenant Driven
	Restricted Total	5,285,369	5,292,458	5,299,547	5,306,636	5,313,725	
Designated Reserves							
3040.4.1	Operating	7,723,623	6,405,910	6,561,279	7,308,374	11,357,327	Min 6 vs 3.83 mon
3040.4.2	Water Rate Stabilization	-	-	-	-	-	\$0 minimum
3040.4.3	Community Investment Stabilization	-	-	-	-	-	\$1.5M
3040.4.4	Capital Improvement/Replacement	-	-	-	-	-	\$0 minimum
3040.4.5	Insurance and Catastrophic	-	-	-	-	-	\$2.5 - 5M
3040.4.6	Watershed Stewardship	500,000	500,000	500,000	500,000	500,000	\$500K minimum
3040.4.7	Accrued Leave	545,580	545,580	545,580	545,580	545,580	50% liability
	Designated Total	8,769,202	7,451,489	7,606,859	8,353,954	12,402,907	
Working Capital							
3040.5.1	Operating Total	1,000,000	750,000	750,000	750,000	750,000	
	Total Cash	15,054,571	13,493,947	13,656,406	14,410,590	18,466,632	

APPENDIX C (10-Year Summary Financials)

	Years	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
							Rates beyond 2023 apply to Treated & Raw				
Revenues:											
Raw & Treated Rates		5.72%	5.72%	5.72%	5.72%	5.72%	3.00%	3.00%	3.00%	3.00%	3.00%
Treated Base Rates		45.00%	15.00%	5.00%	4.00%	2.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Raw & Treated Demand	2.0%	Based on 2010 - 2017 actuals									
Water Transfers	\$0										
Hydroelectric Revenue	2.4%	The District budgets 85% of actual revenue, however forecast based on expected cash									
Property Taxes	3%	FY 2013 - 2018 growth is 2.9%									
Other Revenue	4%	Includes New Connect/Install, Reimbursement/Fees, Rents & Leases, Standby									
Investment Income		Incremental increases over FY 2018 as overall reserves build up									
Transfer Ins	\$70,411,005	64,000,000	-- Hydro,	5,725,180	-- ADs & Cap Fees,	685,825	Grants - Operating				
2016A Bonds		\$7,295,080									
Capacity Fees		Covers applicable Debt and expansion projects as Transfer In, unable to use to operate system									
Expenditures:											
Salaries	5.5%	3% annual COLA, District averages 2.5% salary increase for Merits									
Benefits - Non PERS	5%	FY 2013 - 2018 growth is 7.1%					PERS % Growth over 2023		2.50%		
Benefits - PERS	4.5%	32%	35.40%	38.20%	40.50%	42.20%	43.26%	44.34%	45.44%	46.58%	47.75%
Benefits - OPEB	\$4,756,177	Based on June 30, 2017 Actuarial Valuation									
Oper & Main	2%	Inflation level growth over 2018 forecast									
Debt Service	\$41,913,961	2016A & 2011A Revenue Bonds, State Loan (Transfer In from CFD & Capacity Fees)									
Fixed Assets		2019 proposed Budget level									
Transfer Out	\$67,150,000	Hydroelectric Fund transfers into Water & Recreation Fund									
Capital Projects	0%	Driven from detailed CIP schedule									
Staffing Levels:											
FTEs	199	Loaded at 2019 budget levels: Water (171), Hydroelectric (28)									

APPENDIX C (10-Year Summary Financials)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Operating revenue										
Water Sales	27,724,879	30,835,168	33,137,611	35,483,813	37,793,008	39,802,398	41,918,870	44,148,143	46,496,242	48,969,516
New Connect/Install	297,532	309,433	321,810	334,682	348,070	361,993	376,472	391,531	407,192	423,480
Reimburse/Fees/Other	1,469,666	1,528,452	1,589,590	1,653,174	1,719,301	1,788,073	1,859,596	1,933,980	2,011,339	2,091,792
Standby	108,184	114,372	120,915	127,831	135,143	139,197	143,373	147,674	152,104	156,668
Rents & Leases	291,214	302,862	314,977	327,576	340,679	354,306	368,478	383,217	398,546	414,488
Interest Earnings	1,350,000	1,500,000	1,650,000	1,800,000	1,950,000	2,100,000	2,250,000	2,400,000	2,550,000	2,700,000
Grants - Operating	685,825	-	-	-	-	-	-	-	-	-
Transfer Ins (AD, DS, Fees)	572,518	572,518	572,518	572,518	572,518	572,518	572,518	572,518	572,518	572,518
Transfer Ins (Hydro)	10,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000
Total operating revenue	42,499,817	41,162,806	43,707,420	46,299,594	48,858,719	51,118,485	53,489,307	55,977,063	58,587,942	61,328,462
Operating expense										
Salaries	13,101,415	13,821,993	14,582,203	15,384,224	16,230,356	17,123,026	18,064,792	19,058,356	20,106,565	21,212,426
Benefits - Non PERS	6,423,434	6,744,605	7,081,836	7,435,928	7,807,724	8,198,110	8,608,016	9,038,416	9,490,337	9,964,854
Benefits - PERS	4,192,453	4,892,986	5,570,401	6,230,611	6,849,210	7,406,565	8,009,274	8,661,029	9,365,820	10,127,963
Benefits - OPEB Funding	434,814	429,658	437,392	406,457	407,316	407,316	407,316	407,316	407,316	407,316
Other O&M	10,472,340	10,681,787	10,895,423	11,113,331	11,335,598	11,562,310	11,793,556	12,029,427	12,270,015	12,515,416
Fed/State Fees	457,674	466,827	476,164	485,687	495,401	505,309	515,415	525,724	536,238	546,963
Debt Service	4,189,548	4,188,673	4,192,799	4,191,673	4,192,704	4,190,742	4,192,483	4,192,473	4,191,005	4,191,861
Fixed Assets	1,503,989	1,503,989	1,503,989	1,503,989	1,503,989	1,503,989	1,503,989	1,503,989	1,503,989	1,503,989
Transfer Outs	-	-	-	-	-	-	-	-	-	-
Total operating expense	40,775,667	42,730,518	44,740,206	46,751,898	48,822,297	50,897,366	53,094,840	55,416,729	57,871,285	60,470,788
Operating Net Income	1,724,151	(1,567,713)	(1,032,786)	(452,305)	36,421	221,119	394,467	560,334	716,656	857,674
Non operating revenue										
Property Taxes	12,449,953	12,823,452	13,208,155	13,604,400	14,012,532	14,432,908	14,865,895	15,311,872	15,771,228	16,244,365
Bond Proceeds - Transfer In	7,295,080	-	-	-	-	-	-	-	-	-
Grants - Capital	300,000	-	-	-	-	-	-	-	-	-
Transfer In - CapFee, Hydro	1,775,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
Total non operating revenue	21,820,033	13,223,452	13,608,155	14,004,400	14,412,532	14,832,908	15,265,895	15,711,872	16,171,228	16,644,365
Non Operating Expenses										
Capital Projects - Other	21,420,033	12,823,452	12,020,000	12,405,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
Capital Projects - Capacity Fees	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
Total non operating expense	21,820,033	13,223,452	12,420,000	12,805,000	10,400,000	10,400,000	10,400,000	10,400,000	10,400,000	10,400,000
Non Operating Net Income	(0)	(0)	1,188,155	1,199,400	4,012,532	4,432,908	4,865,895	5,311,872	5,771,228	6,244,365
Water Net Income	<u>1,724,151</u>	<u>(1,567,713)</u>	<u>155,370</u>	<u>747,095</u>	<u>4,048,953</u>	<u>4,654,027</u>	<u>5,260,362</u>	<u>5,872,206</u>	<u>6,487,884</u>	<u>7,102,039</u>

APPENDIX C (10-Year Summary Financials)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Operating Net Income	1,724,151	(1,567,713)	(1,032,786)	(452,305)	36,421	221,119	394,467	560,334	716,656	857,674
Non Oper Net Income	(0)	(0)	1,188,155	1,199,400	4,012,532	4,432,908	4,865,895	5,311,872	5,771,228	6,244,365
Capacity Fee Surplus	(618,578)	7,089	7,089	7,089	7,089	7,089	7,089	7,089	7,089	7,089
	1,105,573	(1,560,624)	162,459	754,184	4,056,042	4,661,116	5,267,451	5,879,295	6,494,973	7,109,128
Total Cash	15,054,571	13,493,947	13,656,406	14,410,590	18,466,632	23,127,748	28,395,198	34,274,494	40,769,467	47,878,595

Cash Breakdown:

Policy	Restricted Reserves										Policy Amounts	
3040.3.1	Capacity Fee Balance	4,662,129	4,669,218	4,676,307	4,683,396	4,690,485	4,697,574	4,704,663	4,711,752	4,718,841	4,725,930	\$2M minimum
3040.3.2	Debt Service	623,240	623,240	623,240	623,240	623,240	623,240	623,240	623,240	623,240	623,240	Covenant Driven
	Restricted Total	5,285,369	5,292,458	5,299,547	5,306,636	5,313,725	5,320,814	5,327,903	5,334,992	5,342,081	5,349,170	
	Designated Reserves											
3040.4.1	Operating	7,723,623	6,405,910	6,561,279	7,308,374	11,357,327	11,511,354	13,771,716	15,143,922	16,631,806	18,233,845	Min 6 vs 6.14 mon
3040.4.2	Water Rate Stabilization	-	-	-	-	-	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	\$0 minimum
3040.4.3	Community Investment Stabilization	-	-	-	-	-	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	\$1.5M
3040.4.4	Capital Improvement/Replacement	-	-	-	-	-	-	3,000,000	5,000,000	10,000,000	15,500,000	\$0 minimum
3040.4.5	Insurance and Catastrophic	-	-	-	-	-	-	-	2,500,000	2,500,000	2,500,000	\$2.5 - 5M
3040.4.6	Watershed Stewardship	500,000	500,000	500,000	500,000	500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	\$500K minimum
3040.4.7	Accrued Leave	545,580	545,580	545,580	545,580	545,580	545,580	545,580	545,580	545,580	545,580	50% liability
	Designated Total	8,769,202	7,451,489	7,606,859	8,353,954	12,402,907	17,056,934	22,317,295	28,189,502	34,677,386	41,779,425	
	Working Capital											
3040.5.1	Operating Total	1,000,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	
	Total Cash	15,054,571	13,493,947	13,656,406	14,410,590	18,466,632	23,127,748	28,395,198	34,274,494	40,769,467	47,878,595	

APPENDIX C (10-Year Summary Financials)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Revenues										
Water Sales	\$ 27,724,879	\$ 30,835,168	\$ 33,137,611	\$ 35,483,813	\$ 37,793,008	\$ 39,802,398	\$ 41,918,870	\$ 44,148,143	\$ 46,496,242	\$ 48,969,516
Hydro Receipts	24,273,280	24,849,771	25,439,953	26,044,152	26,662,700	27,295,939	27,944,218	28,607,893	29,287,331	29,982,905
Property Taxes	12,449,953	12,823,452	13,208,155	13,604,400	14,012,532	14,432,908	14,865,895	15,311,872	15,771,228	16,244,365
New Connect/Install	297,532	309,433	321,810	334,682	348,070	361,993	376,472	391,531	407,192	423,480
Rents & Leases	291,214	302,862	314,977	327,576	340,679	354,306	368,478	383,217	398,546	414,488
Standby	108,184	114,372	120,915	127,831	135,143	139,197	143,373	147,674	152,104	156,668
Interest Income	1,350,000	1,500,000	1,650,000	1,800,000	1,950,000	2,100,000	2,250,000	2,400,000	2,550,000	2,700,000
Reimburse/Fees/Other	1,469,666	1,528,452	1,589,590	1,653,174	1,719,301	1,788,073	1,859,596	1,933,980	2,011,339	2,091,792
Transfer Ins	10,572,518	6,572,518	6,572,518	6,572,518	6,572,518	6,572,518	6,572,518	6,572,518	6,572,518	6,572,518
Total Revenues	78,537,226	78,836,028	82,355,528	85,948,145	89,533,951	92,847,332	96,299,420	99,896,828	103,646,500	107,555,732
Water OperBudget less DS	36,586,119	38,541,845	40,547,407	42,560,225	44,629,593	46,706,624	48,902,357	51,224,256	53,680,280	56,278,927
Hydroelectric OperBudget	21,889,772	18,251,879	18,610,061	18,958,953	19,305,046	19,641,228	19,988,093	20,346,042	20,715,497	21,096,895
Total O&M Budget	58,475,891	56,793,724	59,157,468	61,519,179	63,934,639	66,347,852	68,890,450	71,570,298	74,395,777	77,375,822
Net Revenues Avail for DS	20,061,335	22,042,304	23,198,060	24,428,966	25,599,311	26,499,480	27,408,970	28,326,530	29,250,723	30,179,909
Debt Service:										
2011, 2016, CDPH Loan	4,189,548	4,188,673	4,192,799	4,191,673	4,192,704	4,190,742	4,192,483	4,192,473	4,191,005	4,191,861
Revenue after Debt Service	<u>\$ 15,871,787</u>	<u>\$ 17,853,631</u>	<u>\$ 19,005,261</u>	<u>\$ 20,237,293</u>	<u>\$ 21,406,607</u>	<u>\$ 22,308,738</u>	<u>\$ 23,216,487</u>	<u>\$ 24,134,057</u>	<u>\$ 25,059,718</u>	<u>\$ 25,988,048</u>
Debt Service Coverage	4.79	5.26	5.53	5.83	6.11	6.32	6.54	6.76	6.98	7.20

Notes: Excludes Recreation Fees, Bond Proceeds, Capacity Fees & includes Transfer Ins from CFD & AD