

Simpson County Water District  
Simpson County, Kentucky

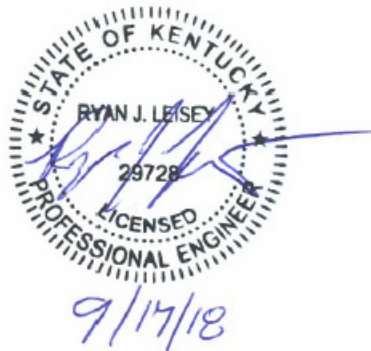
**PRELIMINARY ENGINEERING REPORT**

**FRITZ-WINTER CAPACITY IMPROVEMENTS,  
WATER LINE REPLACEMENT & EXTENSIONS PROJECT**



Simpson County  
Water District

September 17<sup>th</sup>, 2018



Prepared by  
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## **Project Planning**

Simpson County Water District (The District) provides water distribution service to Simpson County, KY outside the service area of The City of Franklin Water Department. As of July 2018, Simpson Water serves approximately 3,430 active customers through nearly 400 miles of water mains.

Simpson County is environmentally diverse with the major surface water resources of the Lick Creek, Sinking Creek, and Drakes Creek. This project consists primarily of the installation of water lines. Best practices will be used for design and construction; there will be no significant environmental impact. The Kentucky Clearinghouse review has been completed and the comments will be incorporated into the final design.

Simpson County has historically experienced approximately 1% population growth annually over the past twenty years. Recent attraction of major industries is predicted to accelerate the rate of population growth.

Simpson County Water District strives to engage with the community on a continuous basis through social media, traditional media, community involvement, and project specific public meetings. This project includes two (2) water line extensions to serve five (5) households who currently have an inadequate source of potable water. The residents are anxious for the opportunity to connect to the public water system.

### **Existing Facilities**

The District's existing distribution system currently includes approximately 400 miles of water lines with mains as large as 16". The District operates 7 storage tanks and 8 pump stations. There are approximately 3,060 residential and 370 commercial water customers. These customers generate an average demand of approximately 1,000,000 gallons per day (gpd). The District purchases water from White House Utility District, headquartered in White House, Tennessee. The White House UD WTP has ample capacity to supply The District's existing customers and projected future growth.

The District is financially sound and well managed. Energy consumption is relatively low due to the higher hydraulic grade of the White House master meter locations and the relatively flat nature of the Simpson County topography. Recent energy saving projects have further increased the efficiency of the system.

This project will be designed and built in compliance with the American Iron and Steel (AIS) provision of the Title VII Consolidated Appropriations Act of 2017. The information provided in this report more fully describes the proposed project, the need for the improvements, and supplies appropriate financial summaries.

### **Need for Project**

Fritz Winter North America has recently constructed a new foundry and production facility to make disc brake rotors within The District's service area. At full production, the new facility is projected to consume approximately 10% of the system's daily water demand. The water requirement for the new

facility is more than The District can comfortably supply with its current infrastructure. The District will construct improvements to meet the demand of the new industry and to gain capacity for future growth.

The north portion of The District is served by a 400 gpm pump station (100W pump station). During peak periods, this station runs approximately 22 hours per day to meet system demand. With the addition of the Fritz Winter facility (additional 100 gpm), this station will not be able to meet the full customer demand during peak periods. Additionally, the suction piping feeding the existing station will not allow for a station capacity upgrade without dropping system pressure too low at certain high points on the suction line.

The majority of the Simpson County Water District was constructed during the late 1960's. Some of this aging infrastructure is experiencing frequent leaks which has led to a system wide water loss percentage that is higher than the historical average. The District staff has analyzed the main line leak history for the last several years and determined the sections of line with the highest leak history per mile. This project will replace the ten (10) worst sections of water line.

The District has been able to provide service to most of the residents in Simpson County. Five (5) households have been identified that do not currently have a safe source of potable water. This project will extend two (2) sections of water line to serve these new customers.

### **Alternatives Considered**

Three (3) primary alternatives were considered for the Fritz-Winter Capacity Improvements portion of the project. The cost impact for all alternatives was relatively similar and the option that offered the most resiliency and other ancillary benefits for the District was selected:

1. The 100W pump station and suction piping upgrade option requires a similar initial capital investment but the required infrastructure does not offer resiliency to the system.
2. Supplementing flow from neighboring Warren County Water District would require a similar initial capital investment to the Warren system instead of the Simpson system and would not open new sections of Simpson County to development.
3. The selected option has a competitive initial cost with the additional benefits of increased system resiliency and opening new sections of Simpson County to development.

The scope for the line replacement portion of the project was determined by analyzing the available leak data to determine which line replacements would have the greatest impact on system water loss. The other alternatives would be to not replace the leaking lines or to replace more sections of leaking lines.

The line extensions portion of the project is consistent with The District's mission of providing safe water to rural residents. Not installing the water line extensions is an alternative.

### **Selection of an Alternative**

The various alternatives for the Fritz-Winter portion of the project were estimated and compared for their ancillary benefits. Environmental impact and inconvenience to the local community were also considered. Weighing all the variables resulted in selection of the proposed project scope. The selected scope solves the technical capacity requirement while increasing system resiliency and opening new sections of Simpson County to development. The selected option is also the most energy efficient alternative.

The scope for the water line replacements will give the greatest impact to system water loss with the available funding.

The water line extensions portion of the project fulfills The District's mission of providing safe water to rural residents.

### **Proposed Project (Recommended Alternative)**

The proposed Fritz-Winter Capacity Improvements portion of the project includes construction of 4,500 feet of 12" PVC water line, 11,000 feet of 8" PVC waterline, boring interstate highway I-65, a new 200 GPM pump station, and two master meters. The proposed project has been determined to be the most economical and robust solution for serving the Fritz-Winter water demand. This hydraulic route will also increase system redundancy to the northern part of the county which will allow water distribution to continue during leak repairs.

The 4,500 feet of 12" PVC water line will be extended from the end of an existing 12" line in the central part of Simpson County, across interstate I-65, and to an

existing 8" line at the intersection of Gold City Road and Chaney Road. This large water main extension will allow the Gold City pump station to run without substantially impacting the operations of the proposed, new pump station.

The 11,000 feet of 8" PVC water line will be constructed along Salmons Blackjack Road from Blackjack Road to Uhls Road. This water main extension will supply the suction side of the new pump station with enough capacity to meet the Fritz-Winter demand and other system needs.

At the intersection of Salmons Blackjack Road and Uhls Road a new 200 gpm pump station will be constructed. This pump station will pump primarily to the 500,000-gallon Salmons tank that serves the Fritz-Winter plant. The pump station will also contain an electric operated control valve which will allow for 80 gpm of energy efficient free-flow during off-peak operation.

The new master meter sites will be located at the intersection of Gold City Road and Chaney Road and at the new pump station. The master meters will maintain water source accountability while allowing for transmission through the Blackjack Source.

The water line replacements are designed as 4" lines with possible upgrades to 6" lines at strategic locations for increased transmission capacity or fire protection. The water line replacements and water line extensions will occur along the following roads for the following distances:



Line		Proposed	
I.D.	Road Name	Size	Length
1	Blackjack Road	4" PVC	1,460
2	Roark Road (South)	4" PVC	1,100
3	Sportsman Lake Road Sect. 2	4" PVC	2,720
4	Rutherford Road	4" PVC	940
5	Lake Springs Road	4" PVC	3,940
6	Blackjack Road (North)	4" PVC	6,200
7	Roundpond- Rapids Road Area	4" PVC	4,160
8	Macedonia Road	4" PVC	1,680
9	Witt Road	4" PVC	900
10	Sportsman Lake Road Sect. 1	4" PVC	7,180
A	Albert Elliot Road (3)	4" PVC	3,200
B	Stevenson Rd ( 2)	4" PVC	4,200
	Total:		37,680

The Project Budget, which includes estimates of various costs and funding sources for the project, is presented on the next page. The Project Budget is followed by a detailed Construction Estimate.

**PROJECT BUDGET  
FRITZ-WINTER CAPACITY IMPROVEMENTS,  
WATER LINE REPLACEMENT & EXTENSIONS PROJECT  
SIMPSON COUNTY WATER DISTRICT**

PROJECT COSTS:

1. Construction		
a. Transmission Lines	\$800,000	
b. Pump Station	250,000	
c. Meter Stations	45,000	
d. Distribution Line Replacements/Extensions	<u>800,000</u>	
		\$1,895,000
2. Engineering		
a. Design & General Engr. During Construction	96,000	
c. Inspection	<u>67,000</u>	
		163,000
3. Administrative Expenses		25,000
4. Easement and Site Acquisition		5,000
5. Legal Costs		6,000
6. Interest During Construction		33,300
7. Contingency		<u>190,000</u>
TOTAL PROJECT COST		<u>\$2,317,300</u>

PROJECT FUNDING:

1. RD Loan	\$1,529,500
2. EDA Grant	665,000
3. District Contribution including Tap Fees	<u>122,800</u>
TOTAL FUNDING	<u>\$2,317,300</u>

**CONSTRUCTION COST ESTIMATE  
FRITZ-WINTER CAPACITY IMPROVEMENTS,  
WATER LINE REPLACEMENT & EXTENSIONS PROJECT  
SIMPSON COUNTY WATER DISTRICT**

ITEM	DESCRIPTION	QTY.	UNITS	UNIT PRICE	TOTAL
<b>FRITZ-WINTER IMPROVEMENTS</b>					
1	12" PVC water line	4,500	LF	\$60	\$270,000
2	8" PVC water line	11,000	LF	\$40	\$440,000
3	18" steel casing w/ 12" DIP carrier	300	LF	\$300	\$90,000
4	Pump station w/ control valve & meter	1	LS	\$250,000	\$250,000
5	Master meter assembly	1	LS	\$45,000	\$45,000
<b>Fritz-Winter Sub-Total</b>					<b><u>\$1,095,000</u></b>
<b>LINE REPLACEMENT &amp; EXTENSIONS</b>					
6	4" PVC - Blackjack Road	1,460	LF	\$21	\$30,996
7	4" PVC - Roark Road (South)	1,100	LF	\$21	\$23,353
8	4" PVC - Sportsman Lake Road Sect. 2	2,720	LF	\$21	\$57,746
9	4" PVC - Rutherford Road	940	LF	\$21	\$19,956
10	4" PVC - Lake Springs Road	3,940	LF	\$21	\$83,646
11	4" PVC - Blackjack Road (North)	6,200	LF	\$21	\$131,626
12	4" PVC - Roundpond- Rapids Road Area	4,160	LF	\$21	\$88,317
13	4" PVC - Macedonia Road	1,680	LF	\$21	\$35,666
14	4" PVC - Witt Road	900	LF	\$21	\$19,107
15	4" PVC - Sportsman Lake Road Sect. 1	7,180	LF	\$21	\$152,431
16	4" PVC - Albert Elliot Road	3,200	LF	\$21	\$67,936
17	4" PVC - Stevenson Rd	4,200	LF	\$21	\$89,166
<b>Line Replacements &amp; Extensions Sub-Total</b>					<b><u>\$800,000</u></b>
<b>TOTAL CONSTRUCTION ESTIMATE</b>					<b><u>\$1,895,000</u></b>

### **Household Income Information**

Qualifications for funding from RD are based in part on the median income level of the households affected by the project. An examination of U.S. Census data indicates that the median household income in Simpson County is \$41,323.

### **Financial Considerations and Proposed Water Rates**

The methodology used in developing The District's existing rate schedule was taken from the American Water Works Association, Manual M-1, Water Rates, Section 5, "Rate Design for Small Utilities", published by the AWWA in 2000. Basic philosophy and methodology presented in other sections of that manual were also incorporated into the rate design.

It was determined that with the additional debt service resulting from the proposed project, a rate increase averaging 9.75 percent is required. This increase will also allow an adequate margin for depreciation funds to be accumulated for system maintenance, minor improvements, short-lived assets, and special programs.

As the District's facilities continue to age and more facilities are added, the need for expenditures on maintenance and upkeep is expected to increase. Examples of major upcoming expenditures from available funds include storage tank maintenance and additional line replacements. These are only a couple examples of the many uses of available funds that are required for system upkeep. Therefore, it is very important for The District to implement water rates that result in sufficient revenue.

The schedule of water rates recommended in conjunction with this project is shown on the following two pages. Following the rate schedule is the Proforma Adjustment which shows the estimated revenues (which include the rate increase) and expenses for the first full year of operation after the completion of The Fritz-Winter Capacity Improvements, Line Replacements, and Extensions project. The Analysis of Actual Water Usage and Forecast of Water Usage Income breaks down the revenue forecast by actual customer usage blocks. A table of Short-Lived Assets has been included to elaborate upon The District's ongoing expenses.

**PROPOSED RATE SCHEDULE**  
**SIMPSON COUNTY WATER DISTRICT**

**A. MONTHLY RATES\***

**1. General Service**

**5/8 X 3/4-Inch Meter**

First	2,000 Gallons	\$ 17.68 Minimum Bill
Next	8,000 Gallons	6.37 per 1,000 Gallons
Next	190,000 Gallons	5.70 per 1,000 Gallons
Next	400,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

**3/4-Inch Meter**

First	3,000 Gallons	\$24.61 Minimum Bill
Next	7,000 Gallons	6.37 per 1,000 Gallons
Next	190,000 Gallons	5.70 per 1,000 Gallons
Next	400,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

**1--Inch Meter**

First	5,000 Gallons	\$37.89 Minimum Bill
Next	5,000 Gallons	6.37 per 1,000 Gallons
Next	190,000 Gallons	5.70 per 1,000 Gallons
Next	400,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

**1-1/2-Inch Meter**

First	10,000 Gallons	\$76.32 Minimum Bill
Next	190,000 Gallons	5.70 per 1,000 Gallons
Next	400,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

**2-Inch Meter**

First	16,000 Gallons	\$112.15 Minimum Bill
Next	184,000 Gallons	5.70 per 1,000 Gallons
Next	400,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

**3-Inch Meter**

First	30,000 Gallons	\$221.59 Minimum Bill
Next	170,000 Gallons	5.70 per 1,000 Gallons
Next	400,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

**4-Inch Meter**

First	50,000 Gallons	\$342.10 Minimum Bill
Next	150,000 Gallons	5.70 per 1,000 Gallons
Next	400,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

**6-Inch Meter**

First	100,000 Gallons	\$642.31 Minimum Bill
Next	100,000 Gallons	5.70 per 1,000 Gallons
Next	400,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

**8-Inch Meter**

First	160,000 Gallons	\$1,006.09 Minimum Bill
Next	40,000 Gallons	5.70 per 1,000 Gallons
Next	400,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

**10-Inch Meter**

First	550,000 Gallons	\$3,114.80 Minimum Bill
Next	50,000 Gallons	5.33 per 1,000 Gallons
Over	600,000 Gallons	3.93 per 1,000 Gallons

\* These rates apply to all customer classifications and are subject to 10 percent late payment charge if paid after the due date.

**2. Private Fire Service Rates\*\***

<u>Service Size</u>	<u>Monthly Customer Charge</u>
1-inch	\$10.37
1.5-inch	\$17.46
2-inch	\$27.03
3-inch	\$67.86
4-inch	\$142.96
6-inch	\$355.58
8-inch	\$713.09
10-inch	\$1,253.36

\*\*Private Fire Service charges shall apply to all connections which provide service only for private fire protection facilities whether supplied through a fully metered service or an unmetered service with a detector check valve and bypass meter. Customer charges are lump sum charges according to the applicable service size with zero water usage. In case of a fire, charges for water usage shall be in accordance with Simpson County Water District Tariff Section II. F. Fire Protection. Charges for all water usage shall be computed in accordance with prevailing Simpson County Water District rates for general service. Where a detector check valve with a bypass meter is used, the water usage shall be based on the combined volume of water used through both the detector check valve (estimated) and the bypass meter. All rates are subject to a 10 percent late payment charge if paid after due date.

# Preliminary Engineering Report

## PROFORMA ADJUSTMENT FRITZ-WINTER CAPACITY IMPROVEMENTS, LINE REPLACEMENTS, AND EXTENSIONS SIMPSON COUNTY WATER DISTRICT

	EXISTING SYSTEM	CHANGES ON EXISTING SYSTEM	CHANGES DUE TO NEW PROJECT CUSTOMERS	TOTAL FUTURE SYSTEM AFTER PROJECT
<b>OPERATING REVENUE:</b>				
<b>METERED &amp; OTHER</b>				
Meter Sales Revenue	\$2,083,705	\$213,714 (1)	\$1,190 (3)	\$2,298,609
Forfeited Discounts	26,694	0	0	26,694
Misc. Service Revenue	23,905	0	0	23,905
Other Water Revenue	2,047	0	0	2,047
Income-Interest	13,701	0	0	13,701
Rental Income/Utility Prop	<u>19,061</u>	<u>0</u>	<u>0</u>	<u>19,061</u>
<b>TOTAL OPERATING REVENUE</b>	<b>\$2,169,113</b>	<b>\$213,714</b>	<b>\$1,190</b>	<b>\$2,384,017</b>
<b>OPERATING EXPENSE:</b>				
<b>SOURCE OF SUPPLY &amp; PUMP. EXP.</b>				
Salaries and Wages	\$200,774	\$0	\$0	\$200,774
Commissioner Fees	10,800	0	0	10,800
Employee Overhead	137,090	0	0	137,090
Purchased Water	1,063,594	0	370	1,063,964
Purchased Power	22,947	0	3,825 (4,5)	26,772
Chemicals	0	0	0	0
Materials & Supplies	28,227	0	666 (5)	28,893
Cont. Services-Engr	0	0	0	0
Cont. Services-Accounting	8,500	0	0	8,500
Cont. Services-Legal	0	0	0	0
Cont. Services-Other	115,363	0	2,721 (5)	118,084
Rental of Building & Utilities	9,912	0	0	9,912
Equipment Expense	24,268	0	572 (5)	24,840
Insurance-Gen'l Liability	13,675	0	323 (5)	13,998
Insurance-Other	804	0	0	804
Regulatory Expense	4,158	0	0	4,158
Bad Debt Expense	2,466	0	0	2,466
Misc. Expense	<u>3,518</u>	<u>0</u>	<u>0</u>	<u>3,518</u>
<b>TOTAL OPERATING EXPENSE</b>	<b>\$1,646,096</b>	<b>\$0</b>	<b>\$8,477</b>	<b>\$1,654,573</b>
<b>OTHER EXPENSES</b>				
Depreciation	\$403,429	\$0	\$46,346 (6)	\$449,775
Misc. Non-Operating Income	0	0	0	0
Misc. Non Operating Expense	0	0	0	0
Unamortized Debt Expense	2,760	0	0	2,760
OPED Expense	<u>4,981</u>	<u>0</u>	<u>0</u>	<u>4,981</u>
<b>TOTAL OTHER EXPENSES</b>	<b>\$411,170</b>	<b>\$0</b>	<b>\$46,346</b>	<b>\$457,516</b>
<b>PRINCIPAL &amp; INTEREST EXPENSE:</b>				
Existing Principal - Other	\$105,000	(10,000) (2)	0	95,000
Existing Interest - Other	48,849	(8,563) (2)	0	40,286
Existing Principal - RDA	26,000	4,000 (2)	0	30,000
Existing Interest - RDA	35,685	(4,095) (2)	0	31,590
New Principal - RDA	0	0	18,089 (7)	18,089
New Interest - RDA	<u>0</u>	<u>0</u>	<u>53,533 (7)</u>	<u>53,533</u>
<b>TOTAL PRINCIPAL &amp; INTEREST</b>	<b>\$215,534</b>	<b>(\$18,658)</b>	<b>\$71,622</b>	<b>\$268,498</b>
<b>TOTAL EXPENSES</b>	<b><u>\$2,272,800</u></b>	<b><u>(\$18,658)</u></b>	<b><u>\$126,445</u></b>	<b><u>\$2,380,587</u></b>
<b>NET UTILITY OPERATING INCOME</b>	<b><u>-\$103,687</u></b>	<b><u>\$232,372</u></b>	<b><u>-\$125,255</u></b>	<b><u>\$3,430</u></b>

**NOTES:**

- (1) PROJECT RATE INCREASE ON EXISTING CUSTOMERS OF 9.75% & FULL YEAR OF FRITZ WINTER REVENUE
- (2) ADJUSTMENT BASED ON LOAN AMORTIZATION SCHEDULES FOR FIRST FULL YEAR OF OPERATION
- (3) REVENUE FROM NEW CUSTOMERS
- (4) INCREASE IN EXPENSE BASED ON NEW PUMP STATION
- (5) INCREASE IN EXPENSE BASED ON IMPROVEMENTS TO SERVE NEW CUSTOMERS
- (6) DEPRECIATION FOR WATER LINE IMPROVEMENTS (50 YR)
- (7) PRINCIPAL & INTEREST PAYMENT FOR PROJECT



**ANALYSIS OF ACTUAL WATER USAGE AND  
FORECAST OF WATER USAGE INCOME**  
(INCLUDES 9.75% RATE INCREASE AS PROPOSED)

5/8" METERS:

USAGE/MON	AVG	AVG			RESIDENTIAL			COMMERCIAL	
		BILL	NO. BILLS		USAGE	INCOME	NO. BILLS	USAGE	INCOME
0 TO	2,000	1,128	17.68	9,535	10,755,480	\$168,579	1,727	1,948,056	\$30,533
2 TO	3,000	2,509	20.92	5,924	14,863,316	123,930	209	524,381	4,372
3 TO	4,000	3,485	27.14	5,491	19,136,135	149,026	94	327,590	2,551
4 TO	5,000	4,478	33.46	4,812	21,548,136	161,010	92	411,976	3,078
5 TO	6,000	5,465	39.75	3,232	17,662,880	128,472	83	453,595	3,299
6 TO	7,000	6,470	46.15	1,995	12,907,650	92,069	64	414,080	2,954
7 TO	8,000	7,472	52.54	1,279	9,556,688	67,199	57	425,904	2,995
8 TO	9,000	8,481	58.96	859	7,285,179	50,647	50	424,050	2,948
9 TO	10,000	9,475	65.30	615	5,827,125	40,160	35	331,625	2,286
10 TO	11,000	10,466	71.30	466	4,877,156	33,226	31	324,446	2,210
11 TO	12,000	11,484	77.10	309	3,548,556	23,824	17	195,228	1,311
12 TO	14,000	12,956	85.49	414	5,363,784	35,393	37	479,372	3,163
14 TO	16,000	14,973	96.99	318	4,761,414	30,843	31	464,163	3,007
16 TO	18,000	16,980	108.43	179	3,039,420	19,409	27	458,460	2,928
18 TO	20,000	18,948	119.64	137	2,595,876	16,391	29	549,492	3,470
20 TO	25,000	22,097	137.59	109	2,408,573	14,997	40	883,880	5,504
25 TO	30,000	27,500	168.39	73	2,007,500	12,292	30	825,000	5,052
30 TO	40,000	34,326	207.30	79	2,711,754	16,377	25	858,150	5,183
40 TO	50,000	44,244	263.83	43	1,902,492	11,345	22	973,368	5,804
50 TO	75,000	59,842	352.74	43	2,573,206	15,168	17	1,017,314	5,997
75 TO	100,000	86,441	504.35	17	1,469,497	8,574	8	691,528	4,035
100 TO	150,000	120,228	696.94	11	1,322,508	7,666	2	240,456	1,394
150 TO	200,000	165,532	955.17	10	1,655,320	9,552	5	827,660	4,776
200 TO	300,000	234,929	1337.81	7	1,644,503	9,365	2	469,858	2,676
300 TO	400,000	323,747	1811.21	2	647,494	3,622	0	0	0
400 TO	500,000	0	0.00	0	0	0	0	0	0
500 TO	ABOVE	1,529,000	6934.61	0	0	0	0	3,058,000	13,869
SUBTOTALS				35,959	162,071,642	\$1,249,136	2,736	17,577,632	\$125,395
AVG. RATE					\$7.65				
AVG. USAGE					4,507			6,425	

1" METERS

USAGE/MON	AVG	AVG			RESIDENTIAL			COMMERCIAL	
		BILL	NO. BILLS		USAGE	INCOME	NO. BILLS	USAGE	INCOME
0 TO	5,000	2,117	37.89	186	393,762	7,048	239	505,963	9,056
5 TO	6,000	5,504	41.10	33	181,632	1,356	19	104,576	781
6 TO	7,000	6,448	47.11	29	186,992	1,366	13	83,824	612
7 TO	8,000	7,502	53.83	32	240,064	1,723	18	135,036	969
8 TO	9,000	8,551	60.51	17	145,367	1,029	17	145,367	1,029
9 TO	10,000	9,559	66.93	17	162,503	1,138	13	124,267	870
10 TO	11,000	10,472	72.43	25	261,800	1,811	13	136,136	942
11 TO	12,000	11,436	77.93	18	205,848	1,403	14	160,104	1,091
12 TO	14,000	12,925	86.41	13	168,025	1,123	23	297,275	1,987
14 TO	16,000	14,848	97.37	8	118,784	779	16	237,568	1,558
16 TO	18,000	17,078	110.08	9	153,702	991	14	239,092	1,541
18 TO	20,000	19,077	121.48	7	133,539	850	10	190,770	1,215
20 TO	25,000	22,443	140.67	20	448,860	2,813	17	381,531	2,391
25 TO	30,000	27,571	169.89	8	220,568	1,359	26	716,846	4,417
30 TO	40,000	35,184	213.29	6	211,104	1,280	59	2,075,856	12,584
40 TO	50,000	44,764	267.89	1	44,764	268	30	1,342,920	8,037
50 TO	75,000	58,836	348.11	1	58,836	348	31	1,823,916	10,791
75 TO	100,000	85,418	499.62	0	0	0	16	1,366,688	7,994
100 TO	150,000	118,362	687.40	0	0	0	7	828,534	4,812
150 TO	200,000	187,337	1080.56	3	562,011	3,242	0	0	0
200 TO	300,000	248,637	1411.98	6	1,491,822	8,472	0	0	0
300 TO	400,000	338,683	1891.92	3	1,016,049	5,676	0	0	0
400 TO	500,000	0	0.00	0	0	0	0	0	0
500 TO	ABOVE	0	0.00	0	0	0	0	0	0
SUBTOTALS				442	6,406,032	\$44,075	595	10,896,269	\$72,677

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## 1 1/2" METERS:

USAGE/MON	AVG	RESIDENTIAL			COMMERCIAL				
		AVG BILL	NO. BILLS	USAGE	INCOME	NO. BILLS	USAGE	INCOME	
0 TO	10,000	3,017	76.32	0	0	0	51	153,867	3,892
10 TO	11,000	0	0.00	0	0	0	0	0	0
11 TO	12,000	11,467	84.68	0	0	0	6	68,802	508
12 TO	14,000	13,267	94.94	0	0	0	6	79,602	570
14 TO	16,000	14,933	104.44	0	0	0	12	179,196	1,253
16 TO	18,000	17,550	119.36	0	0	0	4	70,200	477
18 TO	20,000	19,017	127.72	0	0	0	6	114,102	766
20 TO	25,000	22,000	144.72	0	0	0	2	44,000	289
25 TO	30,000	27,357	175.25	0	0	0	14	382,998	2,454
30 TO	40,000	34,752	217.41	0	0	0	25	868,800	5,435
40 TO	50,000	46,384	283.71	0	0	0	13	602,992	3,688
50 TO	75,000	60,229	362.63	0	0	0	20	1,204,580	7,253
75 TO	100,000	78,850	468.77	0	0	0	2	157,700	938
100 TO	150,000	127,425	745.64	0	0	0	12	1,529,100	8,948
150 TO	200,000	152,500	888.57	0	0	0	1	152,500	889
200 TO	300,000	270,740	1536.36	0	0	0	5	1,353,700	7,682
300 TO	400,000	340,843	1910.01	0	0	0	7	2,385,901	13,370
400 TO	500,000	0	0.00	0	0	0	0	0	0
500 TO	ABOVE	0	0.00	0	0	0	0	0	0
SUBTOTALS				0	0	\$0	186	9,348,040	\$58,412

## 2" METERS:

USAGE/MON	AVG	RESIDENTIAL			COMMERCIAL				
		AVG BILL	NO. BILLS	USAGE	INCOME	NO. BILLS	USAGE	INCOME	
0 TO	16,000	2,056	112.15	0	0	0	90	185,040	10,094
16 TO	18,000	17,000	117.85	0	0	0	3	51,000	354
18 TO	20,000	19,020	129.36	0	0	0	5	95,100	647
20 TO	25,000	23,460	154.67	0	0	0	10	234,600	1,547
25 TO	30,000	27,864	179.77	0	0	0	11	306,504	1,977
30 TO	40,000	35,390	222.67	0	0	0	20	707,800	4,453
40 TO	50,000	44,700	275.74	0	0	0	27	1,206,900	7,445
50 TO	75,000	62,814	378.99	0	0	0	37	2,324,118	14,023
75 TO	100,000	87,232	518.17	0	0	0	50	4,361,600	25,909
100 TO	150,000	117,309	689.61	0	0	0	35	4,105,815	24,136
150 TO	200,000	176,650	1027.86	0	0	0	8	1,413,200	8,223
200 TO	300,000	228,742	1314.14	0	0	0	12	2,744,904	15,770
300 TO	400,000	349,900	1959.92	0	0	0	2	699,800	3,920
400 TO	500,000	415,300	2308.50	0	0	0	2	830,600	4,617
500 TO	750,000	0	0.00	0	0	0	0	0	0
750 TO	1.0 M	0	0.00	0	0	0	0	0	0
1.0 TO	1.5 M	1,294,770	6023.40	0	0	0	10	12,947,700	60,234
1.5 TO	ABOVE	1,520,250	6909.53	0	0	0	2	3,040,500	13,819
SUBTOTALS				0	0	\$0	324	35,255,181	\$197,168

## 3" METERS:

USAGE/MON	AVG	RESIDENTIAL			COMMERCIAL				
		AVG BILL	NO. BILLS	USAGE	INCOME	NO. BILLS	USAGE	INCOME	
0 TO	30,000	0	0.00	0	0	0	0	0	0
30 TO	40,000	0	0.00	0	0	0	0	0	0
40 TO	50,000	0	0.00	0	0	0	0	0	0
50 TO	75,000	50,700	339.58	0	0	0	1	50,700	340
75 TO	100,000	0	0.00	0	0	0	0	0	0
100 TO	150,000	123,000	751.69	0	0	0	2	246,000	1,503
150 TO	200,000	182,750	1092.27	0	0	0	6	1,096,500	6,554
200 TO	300,000	232,983	1366.39	0	0	0	6	1,397,898	8,198
300 TO	400,000	360,150	2044.19	0	0	0	8	2,881,200	16,354
400 TO	500,000	478,100	2672.86	0	0	0	1	478,100	2,673
500 TO	750,000	0	0.00	0	0	0	0	0	0
750 TO	1.0 M	0	0.00	0	0	0	0	0	0
1.0 TO	1.5 M	0	0.00	0	0	0	0	0	0
1.5 TO	ABOVE	0	0.00	0	0	0	0	0	0
SUBTOTALS				0	0	\$0	24	6,150,398	\$35,622

# Preliminary Engineering Report

## 4" METERS:

USAGE/MON	AVG	AVG			RESIDENTIAL			COMMERCIAL		
		BILL	NO. BILLS		USAGE	INCOME	NO. BILLS	USAGE	INCOME	
0 TO	50,000	14,325	342.10	0	0	0	62	888,150	21,210	
50 TO	75,000	61,297	406.49	0	0	0	6	367,782	2,439	
75 TO	100,000	93,000	587.20	0	0	0	6	558,000	3,523	
100 TO	150,000	126,114	775.95	0	0	0	29	3,657,306	22,503	
150 TO	200,000	159,333	965.30	0	0	0	3	477,999	2,896	
200 TO	300,000	220,130	1304.39	0	0	0	3	660,390	3,913	
300 TO	400,000	346,176	1976.22	0	0	0	5	1,730,880	9,881	
400 TO	500,000	432,756	2437.69	0	0	0	9	3,894,804	21,939	
500 TO	750,000	581,044	3228.06	0	0	0	8	4,648,352	25,824	
750 TO	1.0 M	0	0.00	0	0	0	0	0	0	
1.0 TO	1.5 M	0	0.00	0	0	0	0	0	0	
1.5 TO	ABOVE	0	0.00	0	0	0	0	0	0	
SUBTOTALS				0	0	\$0	131	16,883,663	\$114,128	

## 6" METERS:

USAGE/MON	AVG	AVG			RESIDENTIAL			COMMERCIAL		
		BILL	NO. BILLS		USAGE	INCOME	NO. BILLS	USAGE	INCOME	
0 TO	100,000	18,270	642.31	0	0	0	58	1,059,660	37,254	
100 TO	150,000	127,550	799.35	0	0	0	6	765,300	4,796	
150 TO	200,000	172,943	1058.09	0	0	0	14	2,421,202	14,813	
200 TO	300,000	227,177	1357.16	0	0	0	13	2,953,301	17,643	
300 TO	400,000	324,450	1875.63	0	0	0	4	1,297,800	7,503	
400 TO	500,000	442,100	2502.70	0	0	0	2	884,200	5,005	
500 TO	750,000	0	0.00	0	0	0	0	0	0	
750 TO	1.0 M	0	0.00	0	0	0	0	0	0	
1.0 TO	1.5 M	0	0.00	0	0	0	0	0	0	
1.5 TO	2.0 M	1,903,167	8465.76	0	0	0	3	5,709,501	25,397	
2.0 TO	2.5 M	2,050,600	9045.17	0	0	0	4	8,202,400	36,181	
2.5 TO	3.0 M	2,611,800	11250.68	0	0	0	1	2,611,800	11,251	
3.0 TO	4.0 M	0	0.00	0	0	0	0	0	0	
4.0 TO	5.0 M	0	0.00	0	0	0	0	0	0	
5.0 TO	ABOVE	0	0.00	0	0	0	0	0	0	
SUBTOTALS				0	0	\$0	105	25,905,164	\$159,843	

## 8" METERS:

USAGE/MON	AVG	AVG			RESIDENTIAL			COMMERCIAL		
		BILL	NO. BILLS		USAGE	INCOME	NO. BILLS	USAGE	INCOME	
0 TO	160,000	60,933	1006.09	0	0	0	39	2,376,387	39,238	
160 TO	200,000	0	0.00	0	0	0	0	0	0	
200 TO	300,000	260,933	1558.86	0	0	0	6	1,565,598	9,353	
300 TO	400,000	350,133	2034.30	0	0	0	12	4,201,596	24,412	
400 TO	500,000	451,450	2574.32	0	0	0	2	902,900	5,149	
500 TO	750,000	630,100	3484.38	0	0	0	5	3,150,500	17,422	
750 TO	1.0 M	865,560	4409.74	0	0	0	5	4,327,800	22,049	
1.0 TO	1.5 M	1,314,450	6173.88	0	0	0	8	10,515,600	49,391	
1.5 TO	2.0 M	1,686,400	7635.64	0	0	0	3	5,059,200	22,907	
2.0 TO	2.5 M	0	0.00	0	0	0	0	0	0	
2.5 TO	3.0 M	0	0.00	0	0	0	0	0	0	
3.0 TO	4.0 M	0	0.00	0	0	0	0	0	0	
4.0 TO	5.0 M	0	0.00	0	0	0	0	0	0	
5.0 TO	ABOVE	0	0.00	0	0	0	0	0	0	
SUBTOTALS				0	0	\$0	80	32,099,581	\$189,921	

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## 4" FIRE SERVICE METERS:

<u>USAGE/MON</u>	<u>AVG</u>	<u>RESIDENTIAL</u>			<u>COMMERCIAL</u>			
		<u>AVG BILL</u>	<u>NO. BILLS</u>	<u>USAGE</u>	<u>INCOME</u>	<u>NO. BILLS</u>	<u>USAGE</u>	<u>INCOME</u>
0 TO 50,000	35	142.96	0	0	0	108	3,780	15,440
50 TO 75,000	0	0.00	0	0	0	0	0	0
75 TO 100,000	0	0.00	0	0	0	0	0	0
100 TO 150,000	0	0.00	0	0	0	0	0	0
150 TO 200,000	0	0.00	0	0	0	0	0	0
200 TO 300,000	0	0.00	0	0	0	0	0	0
300 TO 400,000	0	0.00	0	0	0	0	0	0
400 TO 500,000	0	0.00	0	0	0	0	0	0
500 TO 750,000	0	0.00	0	0	0	0	0	0
750 TO 1.0 M	0	0.00	0	0	0	0	0	0
1.0 TO 1.5 M	0	0.00	0	0	0	0	0	0
1.5 TO ABOVE	0	0.00	0	0	0	0	0	0
SUBTOTALS			0	0	\$0	108	3,780	\$15,440

## 6" FIRE SERVICE METERS:

<u>USAGE/MON</u>	<u>AVG</u>	<u>RESIDENTIAL</u>			<u>COMMERCIAL</u>			
		<u>AVG BILL</u>	<u>NO. BILLS</u>	<u>USAGE</u>	<u>INCOME</u>	<u>NO. BILLS</u>	<u>USAGE</u>	<u>INCOME</u>
0 TO 100,000	4	355.58	0	0	0	72	288	25,602
100 TO 150,000	0	0.00	0	0	0	0	0	0
150 TO 200,000	0	0.00	0	0	0	0	0	0
200 TO 300,000	0	0.00	0	0	0	0	0	0
300 TO 400,000	0	0.00	0	0	0	0	0	0
400 TO 500,000	0	0.00	0	0	0	0	0	0
500 TO 750,000	0	0.00	0	0	0	0	0	0
750 TO 1.0 M	0	0.00	0	0	0	0	0	0
1.0 TO 1.5 M	0	0.00	0	0	0	0	0	0
1.5 TO 2.0 M	0	0.00	0	0	0	0	0	0
2.0 TO 2.5 M	0	0.00	0	0	0	0	0	0
2.5 TO 3.0 M	0	0.00	0	0	0	0	0	0
3.0 TO 4.0 M	0	0.00	0	0	0	0	0	0
4.0 TO 5.0 M	0	0.00	0	0	0	0	0	0
5.0 TO ABOVE	0	0.00	0	0	0	0	0	0
SUBTOTALS			0	0	\$0	72	288	\$25,602

TOTALS	36,401	168,477,674	1,293,211	4,361	154,119,996	994,208
TOTAL CUSTOMERS	3,033			363		
AVG. CONSUMPTION PER MONTH		4,628			35,341	
ANNUAL WATER SOLD		168,477,674			154,119,996	
ANNUAL WATER PURCH. OR PROD.		210,435,415			192,502,095	
ANNUAL REVENUE			\$1,293,211			\$994,208

TOTAL ANNUAL WATER SOLD	322,597,670
TOTAL ANNUAL WATER PURCH. OR PROD.	402,937,510
TOTAL ANNUAL REVENUE	<u>\$2,287,419</u> (1), (2)

### NOTES:

- (1) DOES NOT INCLUDE FULL YEAR OF FRITZ WINTER REVENUE
- (2) DOES NOT INCLUDE NEW CUSTOMERS

**Replacement Reserves - Short Lived Assets  
SIMPSON COUNTY WATER DISTRICT**

<b>Type</b>	<b>User Description</b>	<b>Cost</b>	<b>Reserve On Hand</b>	<b>Annual Reserve</b>
1-5 Years	Computer (3)	\$8,000	\$0	\$2,000
1-5 Years	GPS Unit (2)	\$10,000	\$0	<u>\$2,500</u>
<b>Subtotal 1-5 Years</b>				\$4,500
5-10 Years	Utility Truck	\$45,000	\$0	\$9,000
5-10 Years	Pumping Equipment	\$80,000	\$0	<u>\$11,429</u>
<b>Subtotal 5-10 Years</b>				\$11,429
10-15 Years	SCADA System Nodes (25)	\$750,000	\$0	\$50,000
10-15 Years	Valves (1,000)	\$400,000	\$0	\$26,667
10-15 Years	Hydrants (200)	\$500,000	\$0	\$33,333
10-15 Years	Elevated Tank Painting (7)	\$1,750,000	\$0	\$116,667
10-15 Years	Commercial Meters (53)	\$530,000	\$0	\$35,333
10-15 Years	Radio System	\$150,000	\$0	<u>\$10,000</u>
<b>Subtotal 5-10 Years</b>				\$272,000
<b>Replacement Reserve - Short Lived Assets</b>				<u>\$287,929</u>
<b>Monthly Reserve</b>				\$23,994

## **Conclusions and Recommendations**

The Fritz-Winter Capacity Improvements, Line Replacements, and Water Line Extensions as illustrated on the enclosed maps (Exhibit A and Exhibit B) are greatly needed to serve customer demand, reduce system water loss, and to provide safe water to five (5) additional households.

The proposed project is economically feasible with a 9.75 percent average general rate increase, a \$1,529,500 loan from RD, \$122,800 in District depreciation reserve funds, and a \$665,000 EDA grant. The proposed rate structure provides for proper cost recovery.