

# **Water & Sanitary Valuation**

PREPARED FOR

**CITY OF SALEM**  
17 New Market Street  
Salem, New Jersey 08079

PREPARED BY

**REMINGTON & VERICK ENGINEERS**  
232 Kings Highway  
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October 2020

## CITY OF SALEM

### WATER & SANITARY VALUATION

October 2020

The City of Salem (City) is located in Salem County, New Jersey. It covers approximately 2.8 square miles of area and has approximately 5,000 residents. The City owns and operates their own potable water supply, water treatment plant, water distribution system, a series of sanitary sewer lift stations, a sanitary sewer conveyance system, and a wastewater treatment plant. The water services and sanitary laterals are owned by the residents from the house to the main in the street. There are approximately 2,310 service connections for both water and sanitary (4,620 connections total).

In March 2020, the City retained Remington & Vernick Engineers to complete a valuation of the system based upon its current condition. The components of both the water and sanitary utility were identified based upon the following:

- Facility tours to assess the equipment installed and in place
- Review of the water and sanitary system maps
- Interview of utility personnel and operator
- Well pump and maintenance records including replacements / improvements
- City of Salem Water Audit – 2018
- Water Meter Replacement Documentation
- Previously completed Capital Improvement Plans
- Annual Audits
- Tax Map review and property ownership

#### **Basis of Valuation**

Upon completion of the inventory and review of historic information, the reproduction cost was determined for each item of the system. The replacement cost was based upon our experience and current industry standards and bid tabulation for the area. A lifespan or useful life was assigned to each type component.

The average lives chosen were based on our experience with previous valuations and subsequent BPU review and comment. In addition, lifespans were established based upon our 1) experience with other utility systems, 2) lifespans approved by other studies for regulatory review and 3) condition of the assets at the time of our facility tours

Once the above information was established, the value of the system was developed utilizing both the Original Cost Less Depreciation (OCLD) and the Replacement Cost New Less Depreciation (RCNLD) methodologies. The RCNLD was calculated by subtracted the depreciation from the Reproduction Cost New amount. To establish the OCLD, Trend Factors were developed to determine the original cost. We utilized indices published by Whitman Handy Bulletin No. 153. These trend factors were applied to the Reproduction Cost and Depreciation.

We also felt that it was necessary to look at the current market value for the sale of utility systems and factor this information into the calculated valuation (OCLD & RCNLD). Accordingly, we looked at systems that sold recently and factored in their similarity to the City of Salem. The utilities which were utilized as a basis of comparison per connection were:

- Long Hill Township
- Borough of Haddonfield
- Borough of Mount Ephraim

### **Conclusions**

Based upon the weight average of the OCLD, RCNLD and Market Value, we anticipate that the value of the water and sanitary system infrastructure is approximately \$23.1 to \$28.2 million. It should be noted that the fair market value of the existing property has not been included in the system value. Accordingly, it is anticipated that the value would be greater than indicated.

**CITY OF SALEM  
WATER & SANITARY SYSTEM  
VALUATION ANALYSIS  
OCTOBER 2020**

<b>CONSTRUCTION COSTS</b>						
	<b>ORIGINAL COSTS</b>	<b>DEPRECIATION</b>	<b>OCLD</b>	<b>REPLACEMENT COSTS</b>	<b>DEPRECIATION</b>	<b>RCNLD</b>
<b>WATER SYSTEM</b>						
WATER FACILITIES	\$15,216,150.00	\$7,981,466.00	\$7,234,684.00	\$21,345,000.00	\$11,737,200.00	\$9,607,800.00
<b>WATER DISTRIBUTION</b>						
WATER MAIN	\$11,364,194.00	\$7,126,505.60	\$4,237,688.40	\$22,290,500.00	\$15,696,950.00	\$6,593,550.00
WATER VALVES	\$812,090.00	\$365,998.50	\$446,091.50	\$4,594,000.00	\$3,154,450.00	\$1,439,550.00
FIRE HYDRANTS	\$192,195.00	\$92,439.00	\$99,756.00	\$1,350,000.00	\$1,001,700.00	\$348,300.00
<b>TOTAL WATER SYSTEM COSTS</b>	<b>\$27,584,629.00</b>	<b>\$15,566,409.10</b>	<b>\$12,018,219.90</b>	<b>\$49,579,500.00</b>	<b>\$31,590,300.00</b>	<b>\$17,989,200.00</b>
<b>SANITARY SYSTEM</b>						
SANITARY FACILITIES	\$3,626,800.00	\$2,045,950.00	\$1,580,850.00	\$9,180,000.00	\$5,631,000.00	\$3,549,000.00
<b>SANITARY CONVEYANCE</b>						
SANITARY GRAVITY MAIN	\$445,875.00	\$357,225.00	\$88,650.00	\$10,715,625.00	\$9,910,312.50	\$805,312.50
SANITARY FORCE MAIN	\$393,600.00	\$197,300.00	\$196,300.00	\$3,220,000.00	\$2,536,000.00	\$684,000.00
MANHOLES	\$49,800.00	\$39,850.00	\$9,950.00	\$1,190,000.00	\$1,100,000.00	\$90,000.00
<b>TOTAL SANITARY SYSTEM COSTS</b>	<b>\$4,516,075.00</b>	<b>\$2,640,325.00</b>	<b>\$1,875,750.00</b>	<b>\$24,305,625.00</b>	<b>\$19,177,312.50</b>	<b>\$5,128,312.50</b>
<b>TOTAL CONSTRUCTION COSTS</b>	<b>\$32,100,704.00</b>	<b>\$18,206,734.10</b>	<b>\$13,893,969.90</b>	<b>\$73,885,125.00</b>	<b>\$50,767,612.50</b>	<b>\$23,117,512.50</b>
<b>SOFT COSTS</b>						
DESIGN & PERMITTING ENGINEERING (12%)	\$3,852,084.48	\$2,184,808.09	\$1,667,276.39	\$8,866,215.00	\$6,092,113.50	\$2,774,101.50
CONTRACT ADMINISTRATION (4%)	\$1,284,028.16	\$728,269.36	\$555,758.80	\$2,955,405.00	\$2,030,704.50	\$924,700.50
CONSTRUCTION OVERSIGHT (6%)	\$1,926,042.24	\$1,092,404.05	\$833,638.19	\$4,433,107.50	\$3,046,056.75	\$1,387,050.75
<b>TOTAL SOFT COSTS</b>	<b>\$7,062,154.88</b>	<b>\$4,005,481.50</b>	<b>\$3,056,673.38</b>	<b>\$16,254,727.50</b>	<b>\$11,168,874.75</b>	<b>\$5,085,852.75</b>
<b>OVERALL WATER &amp; SEWER SYSTEM COSTS</b>	<b>\$39,162,858.88</b>	<b>\$22,212,215.60</b>	<b>\$16,950,643.28</b>	<b>\$90,139,852.50</b>	<b>\$61,936,487.25</b>	<b>\$28,203,365.25</b>

<b>WEIGHTED AVERAGE</b>			
\$25,410,000.00	0.2	\$5,082,000.00	Market Analysis
\$28,203,365.25	0.4	\$11,281,346.10	Cost Analysis - RCNLD
\$16,950,643.28	0.4	\$6,780,257.31	Cost Analysis - OCLD
		<b>\$23,143,603.41</b>	

CITY OF SALEM  
WATER & SANITARY SYSTEM  
VALUATION ANALYSIS  
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**WATER SYSTEM FACILITIES**

YEAR OF PURCHASE	ITEM	AGE (YEARS)	ORIGINAL COST	LIFE	DEPRECIATION FACTOR	DEPRECIATION COST	OCLD	REPLACEMENT COST	ACCUMULATED DEPRECIATION	RCNLD
	<b>WELL NO. 2</b>									
1936	WELL NO. 2 - STRUCTURE	84	\$7,500.00	100	0.84	\$6,300.00	\$1,200.00	\$150,000.00	\$126,000.00	\$24,000.00
1936	WELL NO. 2 - WELL AND PIPING	84	\$7,500.00	50	1.00	\$7,500.00	\$0.00	\$150,000.00	\$150,000.00	\$0.00
2012	WELL NO. 2 - REDEVELOPMENT AND PUMP REPAIR	8	\$52,650.00	10	0.80	\$42,120.00	\$10,530.00	\$65,000.00	\$52,000.00	\$13,000.00
2012	WELL NO. 2 ELECTRICAL & CONTROLS	8	\$40,500.00	50	0.16	\$6,480.00	\$34,020.00	\$50,000.00	\$8,000.00	\$42,000.00
2012	WELL NO. 2 - PREMIUM EFFICIENCY MOTOR	8	\$8,100.00	20	0.40	\$3,240.00	\$4,860.00	\$10,000.00	\$4,000.00	\$6,000.00
2001	GENERATOR	19	\$56,000.00	50	0.38	\$21,280.00	\$34,720.00	\$70,000.00	\$26,600.00	\$43,400.00
	<b>WELL NO. 6</b>									
2002	WELL NO. 6 STRUCTURE	18	\$4,050.00	100	0.18	\$729.00	\$3,321.00	\$5,000.00	\$900.00	\$4,100.00
2002	WELL NO. 6 WELL AND PIPING	18	\$121,500.00	20	0.90	\$109,350.00	\$12,150.00	\$150,000.00	\$135,000.00	\$15,000.00
2012	WELL NO. 6 - REDEVELOPMENT AND PUMP REPAIR	8	\$56,700.00	10	0.80	\$45,360.00	\$11,340.00	\$70,000.00	\$56,000.00	\$14,000.00
2002	WELL NO. 6 ELECTRICAL & CONTROLS	18	\$40,500.00	50	0.36	\$14,580.00	\$25,920.00	\$50,000.00	\$18,000.00	\$32,000.00
2012	WELL NO. 6 - PREMIUM EFFICIENCY MOTOR	8	\$8,100.00	20	0.40	\$3,240.00	\$4,860.00	\$10,000.00	\$4,000.00	\$6,000.00
2001	GENERATOR	19	\$120,000.00	50	0.38	\$45,600.00	\$74,400.00	\$150,000.00	\$57,000.00	\$93,000.00
	<b>WELL NO. 7</b>									
2002	WELL NO. 7 STRUCTURE	18	\$4,050.00	100	0.18	\$729.00	\$3,321.00	\$5,000.00	\$900.00	\$4,100.00
2002	WELL NO. 7 WELL AND PIPING	18	\$121,500.00	50	0.36	\$43,740.00	\$77,760.00	\$150,000.00	\$54,000.00	\$96,000.00
2012	WELL NO. 6 - REDEVELOPMENT AND PUMP REPAIR	8	\$56,700.00	10	0.80	\$45,360.00	\$11,340.00	\$70,000.00	\$56,000.00	\$14,000.00
2002	WELL NO. 7 ELECTRICAL & CONTROLS	18	\$40,500.00	50	0.36	\$14,580.00	\$25,920.00	\$50,000.00	\$18,000.00	\$32,000.00
2012	WELL NO. 6 - PREMIUM EFFICIENCY MOTOR	8	\$8,100.00	20	0.40	\$3,240.00	\$4,860.00	\$10,000.00	\$4,000.00	\$6,000.00
2003	GENERATOR	17	\$97,200.00	50	0.34	\$33,048.00	\$64,152.00	\$120,000.00	\$40,800.00	\$79,200.00
	<b>WELL NO. 8</b>									
2014	WELL NO. 8 - WELL AND PIPING	6	\$170,000.00	50	0.12	\$20,400.00	\$149,600.00	\$200,000.00	\$24,000.00	\$176,000.00
2014	WELL NO. 8 PUMP	6	\$59,500.00	10	0.60	\$35,700.00	\$23,800.00	\$70,000.00	\$42,000.00	\$28,000.00
2014	WELL NO. 8 ELECTRICAL & CONTROLS	6	\$42,500.00	50	0.12	\$5,100.00	\$37,400.00	\$50,000.00	\$6,000.00	\$44,000.00
2014	WELL NO. 8 - PREMIUM EFFICIENCY MOTOR	6	\$8,500.00	20	0.30	\$2,550.00	\$5,950.00	\$10,000.00	\$3,000.00	\$7,000.00
	<b>WELL NO. 9</b>									
2020	WELL NO. 9 STRUCTURE	0	\$150,000.00	100	0.00	\$0.00	\$150,000.00	\$150,000.00	\$0.00	\$150,000.00
2020	WELL NO. 9 WELL AND PIPING	0	\$400,000.00	50	0.00	\$0.00	\$400,000.00	\$400,000.00	\$0.00	\$400,000.00
2020	WELL NO. 9 PUMP	0	\$70,000.00	10	0.00	\$0.00	\$70,000.00	\$70,000.00	\$0.00	\$70,000.00
2020	WELL NO. 9 ELECTRICAL & CONTROLS	0	\$100,000.00	50	0.00	\$0.00	\$100,000.00	\$100,000.00	\$0.00	\$100,000.00
2020	WELL NO. 9 - PREMIUM EFFICIENCY MOTOR	0	\$10,000.00	20	0.00	\$0.00	\$10,000.00	\$10,000.00	\$0.00	\$10,000.00
2020	GENERATOR	0	\$200,000.00	50	0.00	\$0.00	\$200,000.00	\$200,000.00	\$0.00	\$200,000.00

	<b>LAUREL LAKE SURFACE WATER INTAKE PLANT</b>									
1980	BUILDING STRUCTURE	40	\$87,500.00	100	0.40	\$35,000.00	\$52,500.00	\$250,000.00	\$100,000.00	\$150,000.00
2012	RAW WATER PUMPS AND PIPING	8	\$202,500.00	50	0.16	\$32,400.00	\$170,100.00	\$250,000.00	\$40,000.00	\$210,000.00
2012	ELECTRICAL AND CONTROLS	8	\$81,000.00	50	0.16	\$12,960.00	\$68,040.00	\$100,000.00	\$16,000.00	\$84,000.00
2012	GENERATOR	8	\$162,000.00	50	1.00	\$162,000.00	\$0.00	\$200,000.00	\$200,000.00	\$0.00
	<b>ELKINTON POND PUMP STATION</b>									
1980	BUILDING STRUCTURE	100	\$52,500.00	100	1.00	\$52,500.00	\$0.00	\$150,000.00	\$150,000.00	\$0.00
1980	PUMP AND PIPING	40	\$87,500.00	50	0.80	\$70,000.00	\$17,500.00	\$250,000.00	\$200,000.00	\$50,000.00
1980	ELECTRICAL & CONTROLS	40	\$17,500.00	50	0.80	\$14,000.00	\$3,500.00	\$50,000.00	\$40,000.00	\$10,000.00
	<b>WATER TREATMENT PLANT</b>									
2012	BUILDING STRUCTURE	8	\$4,050,000.00	100	0.08	\$324,000.00	\$3,726,000.00	\$5,000,000.00	\$400,000.00	\$4,600,000.00
2012	PRETREATMENT SYSTEM	8	\$810,000.00	25	0.32	\$259,200.00	\$550,800.00	\$1,000,000.00	\$320,000.00	\$680,000.00
2012	MEMBRANES	8	\$1,620,000.00	10	0.80	\$1,296,000.00	\$324,000.00	\$2,000,000.00	\$1,600,000.00	\$400,000.00
2012	AIR COMPRESSORS	8	\$324,000.00	25	0.32	\$103,680.00	\$220,320.00	\$400,000.00	\$128,000.00	\$272,000.00
2012	PLATE SETTLERS	8	\$405,000.00	25	0.32	\$129,600.00	\$275,400.00	\$500,000.00	\$160,000.00	\$340,000.00
2012	UV DISINFECTION SYSTEM	8	\$405,000.00	25	1.00	\$405,000.00	\$0.00	\$500,000.00	\$500,000.00	\$0.00
2012	CLEAR WELL	8	\$405,000.00	100	1.00	\$405,000.00	\$0.00	\$500,000.00	\$500,000.00	\$0.00
2012	HIGH SERVICE PUMPS	8	\$162,000.00	10	1.00	\$162,000.00	\$0.00	\$200,000.00	\$200,000.00	\$0.00
2012	GENERATOR	8	\$810,000.00	50	1.00	\$810,000.00	\$0.00	\$1,000,000.00	\$1,000,000.00	\$0.00
2012	CHEMICAL STORAGE AND FEED EQUIPMENT	8	\$810,000.00	25	1.00	\$810,000.00	\$0.00	\$1,000,000.00	\$1,000,000.00	\$0.00
2012	MISCELLANEOUS PUMPS AND PIPING	8	\$810,000.00	25	1.00	\$810,000.00	\$0.00	\$1,000,000.00	\$1,000,000.00	\$0.00
2012	ELECTRICAL AND CONTROLS	8	\$810,000.00	50	1.00	\$810,000.00	\$0.00	\$1,000,000.00	\$1,000,000.00	\$0.00
2012	LAB AND OFFICE EQUIPMENT	8	\$162,000.00	25	1.00	\$162,000.00	\$0.00	\$200,000.00	\$200,000.00	\$0.00
1980	OLD GARAGE STRUCTURE	40	\$105,000.00	100	1.00	\$105,000.00	\$0.00	\$300,000.00	\$300,000.00	\$0.00
1980	OLD TREATMENT BUILDING	40	\$70,000.00	100	0.40	\$28,000.00	\$42,000.00	\$200,000.00	\$80,000.00	\$120,000.00
1980	OLD FILTERS	40	\$70,000.00	50	0.80	\$56,000.00	\$14,000.00	\$200,000.00	\$160,000.00	\$40,000.00
1980	OLD CLARIFIERS	40	\$175,000.00	50	1.00	\$175,000.00	\$0.00	\$500,000.00	\$500,000.00	\$0.00
	<b>MISCELLANEOUS</b>									
1967	ELEVATED WATER TANK	53	\$220,000.00	100	0.53	\$116,600.00	\$103,400.00	\$1,100,000.00	\$583,000.00	\$517,000.00
1967	STANDPIPE	53	\$160,000.00	100	0.53	\$84,800.00	\$75,200.00	\$800,000.00	\$424,000.00	\$376,000.00
2010	WATER METER REPLACEMENTS (APPROX. 200)	10	\$81,000.00	20	0.50	\$40,500.00	\$40,500.00	\$100,000.00	\$50,000.00	\$50,000.00
<b>TOTAL</b>			<b>\$15,216,150.00</b>	<b>\$2,685.00</b>	<b>\$29.10</b>	<b>\$7,981,466.00</b>	<b>\$7,234,684.00</b>	<b>\$21,345,000.00</b>	<b>\$11,737,200.00</b>	<b>\$9,607,800.00</b>

CITY OF SALEM  
WATER & SANITARY SYSTEM  
VALUATION ANALYSIS  
OCTOBER 2020

WATER DISTRIBUTION SYSTEM

WATER MAIN												
YEAR OF PURCHASE	ITEM	LINER FEET OF PIPE	AGE (YEARS)	LIFE	ORIGINAL UNIT COST	ORIGINAL COST	DEPRECIATION FACTOR	DEPRECIATION COST/UNIT	OCLD	REPLACEMENT COSTS	DEPRECIATION	RCNLD
2020			0	100		\$0.00	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2019			1	100		\$0.00	0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2018			2	100		\$0.00	0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2017			3	100		\$0.00	0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2016			4	100		\$0.00	0.04	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2015			5	100		\$0.00	0.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2014	12" Ductile Iron - Waterworks Road	2100	6	100	\$191.60	\$402,360.00	0.06	\$11.50	\$378,218.40	\$420,000.00	\$25,200.00	\$394,800.00
2013			7	100		\$0.00	0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2012			8	100		\$0.00	0.08	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2011			9	100		\$0.00	0.09	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2010			10	100		\$0.00	0.1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2000			20	100		\$0.00	0.2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1990			30	100		\$0.00	0.3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1980	12" Ductile Iron	12900	40	100	\$146.60	\$1,891,140.00	0.4	\$58.64	\$1,134,684.00	\$2,580,000.00	\$1,032,000.00	\$1,548,000.00
1980	20" Ductile Iron	15000	40	100	\$183.25	\$2,748,750.00	0.4	\$73.30	\$1,649,250.00	\$3,750,000.00	\$1,500,000.00	\$2,250,000.00
1970			50	100		\$0.00	0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1960	6" Ductile Iron	4000	60	100	\$67.20	\$268,800.00	0.60	\$40.32	\$107,520.00	\$600,000.00	\$360,000.00	\$240,000.00
1960	8" Ductile Iron	2000	60	100	\$78.40	\$156,800.00	0.60	\$47.04	\$62,720.00	\$350,000.00	\$210,000.00	\$140,000.00
1960	16" Ductile Iron	11700	60	100	\$98.56	\$1,153,152.00	0.60	\$59.14	\$461,260.80	\$2,574,000.00	\$1,544,400.00	\$1,029,600.00
1950	6" Ductile Iron	3400	70	100	\$67.20	\$228,480.00	0.70	\$47.04	\$68,544.00	\$510,000.00	\$357,000.00	\$153,000.00
1950	8" Ductile Iron	6000	70	100	\$78.40	\$470,400.00	0.70	\$54.88	\$141,120.00	\$1,050,000.00	\$735,000.00	\$315,000.00
1940			80	100		\$0.00	0.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1930	6" Ductile Iron	7500	90	100	\$67.20	\$504,000.00	0.90	\$60.48	\$50,400.00	\$1,125,000.00	\$1,012,500.00	\$112,500.00
1930	8" Ductile Iron	7500	90	100	\$78.40	\$588,000.00	0.90	\$70.56	\$58,800.00	\$1,312,500.00	\$1,181,250.00	\$131,250.00
1930	16" Ductile Iron	12700	90	100	\$98.56	\$1,251,712.00	0.90	\$88.70	\$125,171.20	\$2,794,000.00	\$2,514,600.00	\$279,400.00
1920	6" Cast Iron	2500	100	100	\$67.20	\$168,000.00	1.00	\$67.20	\$0.00	\$375,000.00	\$375,000.00	\$0.00
1910	---		110	100		\$0.00	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1900	4" Cast Iron	6000	120	100	\$47.40	\$284,400.00	1.00	\$47.40	\$0.00	\$900,000.00	\$900,000.00	\$0.00
1900	6" Cast Iron	6000	120	100	\$47.40	\$284,400.00	1.00	\$47.40	\$0.00	\$900,000.00	\$900,000.00	\$0.00
1900	8" Cast Iron	6000	120	100	\$55.30	\$331,800.00	1.00	\$55.30	\$0.00	\$1,050,000.00	\$1,050,000.00	\$0.00
1900	12" Cast Iron	10000	120	100	\$63.20	\$632,000.00	1.00	\$63.20	\$0.00	\$2,000,000.00	\$2,000,000.00	\$0.00
1900	16" Cast Iron	5200	120	100	\$69.52	\$361,504.00	1.00	\$69.52	\$0.00	\$1,144,000.00	\$1,144,000.00	\$0.00
		<b>120,500</b>				<b>\$11,364,194.00</b>		<b>\$7,126,505.60</b>	<b>\$4,237,688.40</b>	<b>\$22,290,500.00</b>	<b>\$15,696,950.00</b>	<b>\$6,593,550.00</b>

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WATER & SANITARY SYSTEM  
VALUATION ANALYSIS  
OCTOBER 2020

WATER DISTRIBUTION SYSTEM

WATER VALVES												
YEAR OF PURCHASE	ITEM	# OF VALVES	AGE (YEARS)	LIFE	ORIGINAL UNIT COST	ORIGINAL COST	DEPRECIATION FACTOR	DEPRECIATION COST/UNIT	OCLD	REPLACEMENT COSTS	DEPRECIATION	RCNLD
2020			0	100		\$0.00	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2019			1	100		\$0.00	0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2018			2	100		\$0.00	0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2017			3	100		\$0.00	0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2016			4	100		\$0.00	0.04	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2015			5	100		\$0.00	0.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2014	12" Ductile Iron - Waterworks Road	17	6	100	4250	\$72,250.00	0.06	\$255.00	\$67,915.00	\$85,000.00	\$5,100.00	\$79,900.00
2013		0	7	100		\$0.00	0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2012		0	8	100		\$0.00	0.08	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2011		0	9	100		\$0.00	0.09	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2010		0	10	100		\$0.00	0.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2000		0	20	100		\$0.00	0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1990		0	30	100		\$0.00	0.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1980	12" Ductile Iron	107	40	100	1750	\$187,250.00	0.40	\$700.00	\$112,350.00	\$535,000.00	\$214,000.00	\$321,000.00
1980	20" Ductile Iron	125	40	100	2800	\$350,000.00	0.40	\$1,120.00	\$210,000.00	\$1,000,000.00	\$400,000.00	\$600,000.00
1970		0	50	100		\$0.00	0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1960	6" Ductile Iron	33	60	100	425	\$14,025.00	0.60	\$255.00	\$5,610.00	\$82,500.00	\$49,500.00	\$33,000.00
1960	8" Ductile Iron	17	60	100	595	\$10,115.00	0.60	\$357.00	\$4,046.00	\$59,500.00	\$35,700.00	\$23,800.00
1960	16" Ductile Iron	97	60	100	935	\$90,695.00	0.60	\$561.00	\$36,278.00	\$533,500.00	\$320,100.00	\$213,400.00
1950	6" Ductile Iron	28	70	100	175	\$4,900.00	0.70	\$122.50	\$1,470.00	\$70,000.00	\$49,000.00	\$21,000.00
1950	8" Ductile Iron	50	70	100	245	\$12,250.00	0.70	\$171.50	\$3,675.00	\$175,000.00	\$122,500.00	\$52,500.00
1940		0	80	100		\$0.00	0.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1930	6" Ductile Iron	62	90	100	125	\$7,750.00	0.90	\$112.50	\$775.00	\$155,000.00	\$139,500.00	\$15,500.00
1930	8" Ductile Iron	62	90	100	175	\$10,850.00	0.90	\$157.50	\$1,085.00	\$217,000.00	\$195,300.00	\$21,700.00
1930	16" Ductile Iron	105	90	100	275	\$28,875.00	0.90	\$247.50	\$2,887.50	\$577,500.00	\$519,750.00	\$57,750.00
1920	6" Cast Iron	21	100	100	100	\$2,100.00	1.00	\$100.00	\$0.00	\$52,500.00	\$52,500.00	\$0.00
1910		0	110	100		\$0.00	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1900	4" Cast Iron	50	120	100	40	\$2,000.00	1.00	\$40.00	\$0.00	\$100,000.00	\$100,000.00	\$0.00
1900	6" Cast Iron	50	120	100	50	\$2,500.00	1.00	\$50.00	\$0.00	\$125,000.00	\$125,000.00	\$0.00
1900	8" Cast Iron	50	120	100	70	\$3,500.00	1.00	\$70.00	\$0.00	\$175,000.00	\$175,000.00	\$0.00
1900	12" Cast Iron	83	120	100	100	\$8,300.00	1.00	\$100.00	\$0.00	\$415,000.00	\$415,000.00	\$0.00
1900	16" Cast Iron	43	120	100	110	\$4,730.00	1.00	\$110.00	\$0.00	\$236,500.00	\$236,500.00	\$0.00
		<b>1000</b>				<b>\$812,090.00</b>		<b>\$365,998.50</b>	<b>\$446,091.50</b>	<b>\$4,594,000.00</b>	<b>\$3,154,450.00</b>	<b>\$1,439,550.00</b>



CITY OF SALEM  
WATER & SANITARY SYSTEM  
VALUATION ANALYSIS  
OCTOBER 2020

WATER DISTRIBUTION SYSTEM

FIRE HYDRANTS												
YEAR OF PURCHASE	ITEM	# OF HYDRANTS	AGE (YEARS)	LIFE	ORIGINAL UNIT COST	ORIGINAL COST	DEPRECIATION FACTOR	DEPRECIATION COST/UNIT	OCLD	REPLACEMENT COSTS	DEPRECIATION	RCNLD
2020			0	100		\$0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2019			1	100		\$0.00	0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2018			2	100		\$0.00	0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2017			3	100		\$0.00	0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2016			4	100		\$0.00	0.04	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2015			5	100		\$0.00	0.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2014	12" Ductile Iron - Waterworks Road	5	6	100	3825	\$19,125.00	0.06	\$229.50	\$17,977.50	\$22,500.00	\$1,350.00	\$21,150.00
2013		0	7	100		\$0.00	0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2012		0	8	100		\$0.00	0.08	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2011		0	9	100		\$0.00	0.09	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2010		0	10	100		\$0.00	0.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2000		0	20	100		\$0.00	0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1990		0	30	100		\$0.00	0.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1980	12" Ductile Iron	32	40	100	1575	\$50,400.00	0.40	\$630.00	\$30,240.00	\$144,000.00	\$57,600.00	\$86,400.00
1980	20" Ductile Iron	36	40	100	1575	\$56,700.00	0.40	\$630.00	\$34,020.00	\$162,000.00	\$64,800.00	\$97,200.00
1970		0	50	100		\$0.00	0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1960	6" Ductile Iron	10	60	100	765	\$7,650.00	0.60	\$459.00	\$3,060.00	\$45,000.00	\$27,000.00	\$18,000.00
1960	8" Ductile Iron	5	60	100	765	\$3,825.00	0.60	\$459.00	\$1,530.00	\$22,500.00	\$13,500.00	\$9,000.00
1960	16" Ductile Iron	30	60	100	765	\$22,950.00	0.60	\$459.00	\$9,180.00	\$135,000.00	\$81,000.00	\$54,000.00
1950	6" Ductile Iron	8	70	100	315	\$2,520.00	0.70	\$220.50	\$756.00	\$36,000.00	\$25,200.00	\$10,800.00
1950	8" Ductile Iron	15	70	100	315	\$4,725.00	0.70	\$220.50	\$1,417.50	\$67,500.00	\$47,250.00	\$20,250.00
1940		0	80	100		\$0.00	0.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1930	6" Ductile Iron	19	90	100	225	\$4,275.00	0.90	\$202.50	\$427.50	\$85,500.00	\$76,950.00	\$8,550.00
1930	8" Ductile Iron	19	90	100	225	\$4,275.00	0.90	\$202.50	\$427.50	\$85,500.00	\$76,950.00	\$8,550.00
1930	16" Ductile Iron	32	90	100	225	\$7,200.00	0.90	\$202.50	\$720.00	\$144,000.00	\$129,600.00	\$14,400.00
1920	6" Cast Iron	6	100	100	180	\$1,080.00	1.00	\$180.00	\$0.00	\$27,000.00	\$27,000.00	\$0.00
1910		0	110	100		\$0.00	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1900	4" Cast Iron	15	120	100	90	\$1,350.00	1.00	\$90.00	\$0.00	\$67,500.00	\$67,500.00	\$0.00
1900	6" Cast Iron	15	120	100	90	\$1,350.00	1.00	\$90.00	\$0.00	\$67,500.00	\$67,500.00	\$0.00
1900	8" Cast Iron	15	120	100	90	\$1,350.00	1.00	\$90.00	\$0.00	\$67,500.00	\$67,500.00	\$0.00
1900	12" Cast Iron	25	120	100	90	\$2,250.00	1.00	\$90.00	\$0.00	\$112,500.00	\$112,500.00	\$0.00
1900	16" Cast Iron	13	120	100	90	\$1,170.00	1.00	\$90.00	\$0.00	\$58,500.00	\$58,500.00	\$0.00
		<b>300</b>				<b>\$192,195.00</b>		<b>\$92,439.00</b>	<b>\$99,756.00</b>	<b>\$1,350,000.00</b>	<b>\$1,001,700.00</b>	<b>\$348,300.00</b>

CITY OF SALEM  
WATER & SANITARY SYSTEM  
VALUATION ANALYSIS  
OCTOBER 2020

**SANITARY SYSTEM FACILITIES**

YEAR OF PURCHASE		AGE (YEARS)	ORIGINAL COST	LIFE	DEPRECIATION FACTOR	DEPRECIATION COST	OCLD	REPLACEMENT COST	ACCUMULATED DEPRECIATION	RCNLD	
	<b>OAK STREET LIFT STATION</b>										
2011	LIFT STATION STRUCTURE	9	\$127,500.00	100	0.09	\$11,475.00	\$116,025.00	\$150,000.00	\$13,500.00	\$136,500.00	
2011	WET WELL & EQUIPMENT	9	\$127,500.00	50	0.18	\$22,950.00	\$104,550.00	\$150,000.00	\$27,000.00	\$123,000.00	
2011	PUMPS AND CONTROLS	9	\$85,000.00	30	0.30	\$25,500.00	\$59,500.00	\$100,000.00	\$30,000.00	\$70,000.00	
	<b>MAGNOLIA STREET LIFT STATION</b>										
2011	LIFT STATION STRUCTURE	9	\$127,500.00	100	0.09	\$11,475.00	\$116,025.00	\$150,000.00	\$13,500.00	\$136,500.00	
2011	WET WELL & EQUIPMENT	9	\$127,500.00	50	0.18	\$22,950.00	\$104,550.00	\$150,000.00	\$27,000.00	\$123,000.00	
2011	PUMPS AND CONTROLS	9	\$85,000.00	30	0.30	\$25,500.00	\$59,500.00	\$100,000.00	\$30,000.00	\$70,000.00	
	<b>WALNUT STREET LIFT STATION</b>										
1980	WET WELL & EQUIPMENT	40	\$52,500.00	50	0.80	\$42,000.00	\$10,500.00	\$150,000.00	\$120,000.00	\$30,000.00	
2010	PUMPS AND CONTROLS	10	\$24,300.00	30	0.33	\$8,100.00	\$16,200.00	\$30,000.00	\$10,000.00	\$20,000.00	
	<b>WASTEWATER TREATMENT PLANT</b>										
	<b>PLANT INFLUENT</b>										
1980	SCREW PUMPS	40	\$175,000.00	40	1.00	\$175,000.00	\$0.00	\$500,000.00	\$500,000.00	\$0.00	
1980	SCREEN SYSTEM	40	\$35,000.00	40	1.00	\$35,000.00	\$0.00	\$100,000.00	\$100,000.00	\$0.00	
	<b>ORBAL</b>										
1980	ORBAL TANK STRUCTURE	40	\$350,000.00	100	0.40	\$140,000.00	\$210,000.00	\$1,000,000.00	\$400,000.00	\$600,000.00	
1980	ORBAL DISKS	40	\$175,000.00	40	1.00	\$175,000.00	\$0.00	\$500,000.00	\$500,000.00	\$0.00	
	<b>CLARIFIER</b>										
1980	CLARIFIER STRUCTURE	40	\$350,000.00	100	0.40	\$140,000.00	\$210,000.00	\$1,000,000.00	\$400,000.00	\$600,000.00	
1980	CLARIFIER RAKE ARMS	40	\$70,000.00	40	1.00	\$70,000.00	\$0.00	\$200,000.00	\$200,000.00	\$0.00	
1980	PUMPING EQUIPMENT	40	\$70,000.00	40	1.00	\$70,000.00	\$0.00	\$200,000.00	\$200,000.00	\$0.00	
	<b>DIGESTERS</b>										
1980	DIGESTER STRUCTURE	40	\$350,000.00	100	0.40	\$140,000.00	\$210,000.00	\$1,000,000.00	\$400,000.00	\$600,000.00	
1980	BELT FILTER PRESS	40	\$175,000.00	40	1.00	\$175,000.00	\$0.00	\$500,000.00	\$500,000.00	\$0.00	
1980	AIR COMPRESSORS	40	\$175,000.00	40	1.00	\$175,000.00	\$0.00	\$500,000.00	\$500,000.00	\$0.00	
1980	PUMPING EQUIPMENT	40	\$70,000.00	40	1.00	\$70,000.00	\$0.00	\$200,000.00	\$200,000.00	\$0.00	
	<b>EFFLUENT TANK</b>										
1980	BUILDING/TANK STRUCTURE	40	\$350,000.00	100	0.40	\$140,000.00	\$210,000.00	\$1,000,000.00	\$400,000.00	\$600,000.00	
1980	CHEMICAL TANKS AND FEED EQUIPMENT	40	\$70,000.00	40	1.00	\$70,000.00	\$0.00	\$200,000.00	\$200,000.00	\$0.00	
1980	SCREW PUMP	40	\$35,000.00	40	1.00	\$35,000.00	\$0.00	\$100,000.00	\$100,000.00	\$0.00	
	<b>MISCELLANEOUS</b>										
1980	WWTP - GENERATOR	40	\$245,000.00	50	0.80	\$196,000.00	\$49,000.00	\$700,000.00	\$560,000.00	\$140,000.00	
1980	WWTP - GARAGE	40	\$175,000.00	100	0.40	\$70,000.00	\$105,000.00	\$500,000.00	\$200,000.00	\$300,000.00	
			<b>\$3,626,800.00</b>			<b>\$2,045,950.00</b>	<b>\$1,580,850.00</b>	<b>\$9,180,000.00</b>	<b>\$5,631,000.00</b>	<b>\$3,549,000.00</b>	

**CITY OF SALEM  
WATER & SANITARY SYSTEM  
VALUATION ANALYSIS  
OCTOBER 2020**

**SANITARY GRAVITY MAIN**

YEAR OF PURCHASE	ITEM	LINER FEET OF PIPE	AGE (YEARS)	LIFE	ORIGINAL UNIT COST	ORIGINAL COST	DEPRECIATION FACTOR	DEPRECIATION COST/UNIT	OCLD	REPLACEMENT COST	DEPRECIATION	RCNLD
2020			0	100		\$0.00	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2019			1	100		\$0.00	0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2018			2	100		\$0.00	0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2017			3	100		\$0.00	0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2016			4	100		\$0.00	0.04	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2015			5	100		\$0.00	0.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2014			6	100		\$0.00	0.06	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2013			7	100		\$0.00	0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2012			8	100		\$0.00	0.08	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2011			9	100		\$0.00	0.09	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2010			10	100		\$0.00	0.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2000			20	100		\$0.00	0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1990			30	100		\$0.00	0.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1980			40	100		\$0.00	0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1970			50	100		\$0.00	0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1960	6" Ductile Iron	3900	60	100	25.5	\$99,450.00	0.60	\$15.30	\$39,780.00	\$585,000.00	\$351,000.00	\$234,000.00
1960	8" Ductile Iron	2600	60	100	25.5	\$66,300.00	0.60	\$15.30	\$26,520.00	\$390,000.00	\$234,000.00	\$156,000.00
1950	6" Ductile Iron	2550	70	100	10.5	\$26,775.00	0.70	\$7.35	\$8,032.50	\$382,500.00	\$267,750.00	\$114,750.00
1950	8" Ductile Iron	1700	70	100	10.5	\$17,850.00	0.70	\$7.35	\$5,355.00	\$255,000.00	\$178,500.00	\$76,500.00
1940			80	100		\$0.00	0.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1930	6" Ductile Iron	8963	90	100	6	\$53,775.00	0.90	\$5.40	\$5,377.50	\$1,344,375.00	\$1,209,937.50	\$134,437.50
1930	8" Ductile Iron	5975	90	100	6	\$35,850.00	0.90	\$5.40	\$3,585.00	\$896,250.00	\$806,625.00	\$89,625.00
1920	6" Cast Iron	1725	100	100	6	\$10,350.00	1.00	\$6.00	\$0.00	\$258,750.00	\$258,750.00	\$0.00
1920	8" Cast Iron	1150	100	100	6	\$6,900.00	1.00	\$6.00	\$0.00	\$172,500.00	\$172,500.00	\$0.00
1910			110	100		\$0.00	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1900	6" Cast Iron	25725	120	100	3	\$77,175.00	1.00	\$3.00	\$0.00	\$3,858,750.00	\$3,858,750.00	\$0.00
1900	8" Cast Iron	17150	120	100	3	\$51,450.00	1.00	\$3.00	\$0.00	\$2,572,500.00	\$2,572,500.00	\$0.00
		<b>71,438</b>				<b>\$445,875.00</b>		<b>\$357,225.00</b>	<b>\$88,650.00</b>	<b>\$10,715,625.00</b>	<b>\$9,910,312.50</b>	<b>\$805,312.50</b>

**CITY OF SALEM  
WATER & SANITARY SYSTEM  
VALUATION ANALYSIS  
OCTOBER 2020**

**SANITARY MANHOLES**

YEAR OF PURCHASE	ITEM	# OF MANHOLES	AGE (YEARS)	LIFE	ORIGINAL UNIT COST	ORIGINAL COST	DEPRECIATION FACTOR	DEPRECIATION COST/UNIT	OCLD	REPLACEMENT COST	DEPRECIATION	RCNLD
2020			0	100		\$0.00	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2019			1	100		\$0.00	0.01	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2018			2	100		\$0.00	0.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2017			3	100		\$0.00	0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2016			4	100		\$0.00	0.04	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2015			5	100		\$0.00	0.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2014			6	100		\$0.00	0.06	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2013			7	100		\$0.00	0.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2012			8	100		\$0.00	0.08	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2011			9	100		\$0.00	0.09	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2010			10	100		\$0.00	0.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2000			20	100		\$0.00	0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1990			30	100		\$0.00	0.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1980			40	100		\$0.00	0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1970			50	100		\$0.00	0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1960	4' Diameter Manhole	22	60	100	850	\$18,700.00	0.60	\$510.00	\$7,480.00	\$110,000.00	\$66,000.00	\$44,000.00
1950	4' Diameter Manhole	14	70	100	350	\$4,900.00	0.70	\$245.00	\$1,470.00	\$70,000.00	\$49,000.00	\$21,000.00
1940			80	100		\$0.00	0.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1930	4' Diameter Manhole	50	90	100	200	\$10,000.00	0.90	\$180.00	\$1,000.00	\$250,000.00	\$225,000.00	\$25,000.00
1920	4' Diameter Manhole	10	100	100	200	\$2,000.00	1.00	\$200.00	\$0.00	\$50,000.00	\$50,000.00	\$0.00
1910			110	100		\$0.00	1.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1900	4' Diameter Manhole	142	120	100	100	\$14,200.00	1.00	\$100.00	\$0.00	\$710,000.00	\$710,000.00	\$0.00
		<b>238</b>				<b>\$49,800.00</b>		<b>\$39,850.00</b>	<b>\$9,950.00</b>	<b>\$1,190,000.00</b>	<b>\$1,100,000.00</b>	<b>\$90,000.00</b>

**CITY OF SALEM  
WATER & SANITARY SYSTEM  
VALUATION ANALYSIS  
OCTOBER 2020**

**SANITARY FORCE MAIN**

YEAR OF PURCHASE	ITEM	LINER FEET OF PIPE	AGE (YEARS)	LIFE	ORIGINAL UNIT COST	ORIGINAL COST	DEPRECIATION FACTOR	DEPRECIATION COST/UNIT	OCLD	REPLACEMENT COST NEW	DEPRECIATION	RCNLD
1980	OAK STREET PUMP STATION	1300	40	100	\$52.50	\$68,250.00	0.4	\$21.00	\$40,950.00	\$195,000.00	\$78,000.00	\$117,000.00
1980	MAGNOLIA PUMP STATION	300	40	100	\$52.50	\$15,750.00	0.4	\$21.00	\$9,450.00	\$45,000.00	\$18,000.00	\$27,000.00
1980	WALNUT STREET PUMP STATION	4000	40	100	\$52.50	\$210,000.00	0.4	\$21.00	\$126,000.00	\$600,000.00	\$240,000.00	\$360,000.00
		<b>6,076</b>				<b>\$393,600.00</b>		<b>\$197,300.00</b>	<b>\$196,300.00</b>	<b>\$3,220,000.00</b>	<b>\$2,536,000.00</b>	<b>\$684,000.00</b>