

Village of Oreana
Water and Sewer Rate Study
November, 2017

GENERAL

The Village of Oreana currently purchases water from the Village of Forsyth through an interconnecting water main and a pumping/metering station between the two towns. This interconnection was placed in service in 2014 and it replaced the old Oreana water plant as the sole source of water for Oreana. Water is metered at the pumping station located about 1 mile west of Oreana on Illiniwick Rd.

Prior to 2013, the village of Oreana did not have a sewage collection system. A new sewage collection system was constructed for Oreana and placed in service 2013. Waste water is pumped into the Sanitary District of Decatur's collection system.

There is currently an average of 385 customers billed for the water and sewer utilities in Oreana. The 385 customers include customers in apartments. This value is used as a basis in this study when calculating various rate options. The number of customers will fluctuate as people and businesses move in and out of town.

Water and Sewer Rates

The current water and sewer rates in Oreana are:

Water \$22.21 per month per customer for the first 2,000 gallons
\$ 3.72 per 1,000 gallons used over the first 2,000 gallons

\$27.85 per month per custom for the first 2,000 gallons for customers outside Oreana
\$ 5.57 per 1,000 gallons used over the first 2,000 gallons for customers outside Oreana

\$ 8.25 per 1,000 gallons at the bulk water station

Sewer \$39.00 per month per customer
\$ 2.12 per 1,000 gallons used

WATER USAGE

Billing records for Oreana water customers have been reviewed and broken down by usage categories. Using 1,000 gallons per month increments the breakdown usage in Oreana is:

<u>Usage group</u>	<u>number of customers</u>	<u>percent of total</u>
0-1,000 gallons per month	59	15.3%
1,001 – 2,000 gallons per month	62	16.1%
2,001 – 3,000 gallons per month	72	18.7%
3,001 – 4,000 gallons per month	68	17.7%
4,001 – 5,000 gallons per month	53	13.8%
5,001 – 6,000 gallons per month	31	8.0%
6,001 – 7,000 gallons per month	16	4.1%
7,001 – 8,000 gallons per month	13	3.4%
8,001 – 9,000 gallons per month	3	0.8%
9,001 – 10,000 gallons per month	6	1.6%
<u>Over 10,000 gallons per month</u>	<u>2</u>	<u>0.5%</u>
Total	385	100%

Approximately half (50.1%) of the water customers use 3,000 gallons per month or less.

Unaccounted for Water

In a perfect world, the amount of water purchased from Forsyth would equal the amount of water sold to Oreana customers. In practice this is not the case. The amount of water purchased from Forsyth is greater than the amount of water sold to customers. Reasons for this are due to Forsyth’s and Oreana’s billing periods being slightly different, accuracy of water meters, unmetered water customers, hydrant use such as flushing or emergencies, and water main leakage.

Water purchased from Forsyth in 2016, gallons	22,148,620
Water billed to Oreana customers in 2016, gallons	15,618,700
Percent unaccounted for water, average for 2016	29.5%
Cost of unaccounted for water in 2016 at \$2.41/1,000 gallons	\$15,737

The 29.5% unaccounted for water seen in 2016 should be investigated to determine why there is such a large discrepancy. Unaccounted for water should be monitored on a monthly basis. Sudden changes in the percent water loss can indicate new leaks or other issues in the distribution and storage system. An average of 10% unaccounted for water should be a goal.

WATER DEPARTMENT EXPENSES

Debt Service - Water Bonds

The interconnecting water main and pumping station were financed with local funds and with Alternate Revenue Bonds in the amount of \$410,000, issued in 2012. These bonds have a variable interest rate and payment schedule. The bonds will be paid off in 2031 The remaining payment schedule is shown on

Attachment 1. The Alternate Revenue Bonds require an additional 25% reserve fund be set aside in lieu of levying a tax to cover the bond payments. According to the Annual Review, this reserve is not being met. Total annual bond payments remaining range from \$28,480 to \$33,860. The reserve fund requires a balance of \$7,120 to \$8,465.

General Fund Loan

The Oreana General Fund has previously loaned the Water Fund \$30,000 to cover costs in the water department. This loan should be repaid from the Water Fund to the General Fund. Although there is no formal contract specifying a time period, it is recommended that the repayment be completed within a 5 year period. This would require a transfer of \$6,000 per year for 5 years.

Operation and Maintenance

Operation and maintenance expenses attributed to the water department include water purchased from Forsyth, wages, gas and oil, office expense, supplies, materials, professional services, and engineering. Attachment 2 is a 3-year summary from 2014 through 2016 detailing the operation and maintenance costs for both water and sewer departments. The figures used in this attachment are taken from Oreana's Annual Reviews.

There is an annual shortfall in revenue to cover expenses in the water department. The 2015-2016 average annual deficit was 21%, or \$25,777. This amount should be made up either in the monthly base fee paid by customers, the per 1,000 gallons used fee paid by customers, or a combination of both.

In addition to the categories mentioned above, the water rate should also include a set aside amount to cover long term maintenance on the water metering and pumping station water tower painting and other maintenance items that could be expected over years of operation. Funds for the metering and pumping station should be set aside for eventual pump, controls and chemical feed system repairs and replacement. The water tower needs to have periodic cleaning and inspection and should be repainted every 12 to 15 years. It is recommended that an annual amount of \$2,000 for the meter and pump station, and \$6,700 for tower maintenance be added to the water rates.

Water purchased by Oreana from Forsyth is billed to Oreana at \$2.41 per 1,000 gallons used. There is not a monthly flat fee.

The suggested budget for operating and maintaining the water system is:

Water Purchased from Forsyth	\$ 49,000
Annual Alternate Bond Payments	\$ 31,000
Repayment of General Fund Loan	\$ 6,000
Wages, utilities, supplies etc.	\$ 57,000
System maintenance, pump station, tower, mains	<u>\$ 17,000</u>
Total Suggested Annual Budgeted Expenses	\$160,000

Current Revenues

\$125,000

Water System annual deficit

\$ 35,000

Water Rate Recommendations

The overall water revenues are about 28% short of expected expenses for the water department. It is recommended that the annual water department income be increased 28% or \$35,000 per year. This can be accomplished in various ways.

Method 1. The monthly base rate of \$22.21 for the first 2,000 gallons could be raised \$7.58 to \$29.79. The cost per 1,000 gallons over the first 2,000 gallons would be \$3.72. This would generate the most reliable revenue stream as it is directly tied to the number of water customers, not the amount of water used.

Method 2. The additional revenue could be generated by increasing the cost per 1,000 gallons sold. On average Oreana sells 15,620,000 gallons of water per year. To generate an additional \$35,000 in revenue, the rate per 1,000 gallons purchased would need to increase \$2.36, from the current \$3.72 per 1,000 gallons to \$6.08 per 1,000 gallons. The base cost for the first 2,000 gallons would remain at \$22.21.

Method 3. This would be a combination of Methods 1 and 2 above. For instance, if the base fee for the first 2,000 gallons was raised \$2.79 to \$25.00 and the rate per 1,000 gallons sold in excess of the first 2,000 gallons was raised \$1.49 from \$3.72 to \$5.21, an expected \$35,000 would be generated annually.

Method 4. This method has a monthly base fee of \$25.00 plus a charge of \$4.96/1,000 gallons used. There are no gallons included in the base fee.

Method 5. This is similar to Method 4 but the \$25.00 monthly base fee includes the first 1,000 gallons of water. The cost of additional water past the first 1,000 gallons is \$5.08/1,000 gallons.

Gallons per month used	current rates	Method 1		Method 2		Method 3		Method 4		Method 5	
		\$/month	increase	\$/month	increase	\$/month	increase	\$/month	increase	\$/month	increase
3,000	\$25.93	\$33.51	29.2%	\$28.29	9.1%	\$30.21	16.5%	\$39.87	53.7%	\$30.08	16.0%
6,000	\$37.09	\$44.67	20.4%	\$46.52	25.4%	\$45.84	23.6%	\$54.73	47.6%	\$50.41	35.9%
60,000	\$237.97	\$245.55	3.2%	\$374.67	57.4%	\$327.12	37.5%	\$322.33	35.4%	\$319.71	34.4%
ANNUAL REVENUE GENERATED											
meter charge	\$102,610	\$137,610		\$102,610		\$115,500		\$115,500		\$115,500	
per 1000	\$55,242	\$55,242		\$90,242		\$77,352		\$77,405		\$77,413	
total revenue	\$157,852	\$192,852		\$192,852		\$192,852		\$192,905		\$192,913	
Net Increase		\$35,000		\$35,000		\$35,000		\$35,053		\$35,061	

SEWER DEPARTMENT EXPENSES

Fixed Debt

The Oreana sewage collection system was constructed by the Sanitary District of Decatur (SDD) and put into operation in 2013. The total cost of the collection system was \$3,913,340. Oreana is financing the cost of the collection system through the SDD over a 30 year period a 0% interest rate.

In addition to the construction costs the SDD has an annexation fee of \$220,763 which is being financed by the SDD for 30 years at 0% interest.

There is also an annual ad valorem tax of approximately \$35,866. The ad valorem tax in lieu of property taxes that would have been assessed to Oreana residents if they were in the SDD corporate limits. This tax is calculated by multiplying the annual equalized assessed value, EAV, of Oreana times the yearly SDD tax rate. Both the EAV and tax rate typically change each year. The ad valorem tax amount has increased averaged a 3% increase per year.

The cost per year of these fees is:

	Total	Annual	Monthly	Monthly per customer (385)
Collection system debt	\$3,913,340	\$130,445	\$10,870	\$28.23
Annexation fee	\$ 220,763	\$ 7,358	\$ 613	\$ 1.59
Ad valorem tax		\$ 36,000	\$ 2,989	\$ 7.79
Total		\$173,669	\$14,472	\$37.61

Operation and Maintenance

Current Operation and maintenance expenses attributed to the sewer department include sewer collection fees from the SDD based on water usage and a portion of the office expense as shown in Attachment 2. The main waste water pumping station is maintained by the SDD. Because the collection system is new and there is not any mechanical equipment that Oreana has to maintain, the maintenance costs of the sewer collection system are quite low as compared to the water system.

Sewer collection fees payable to the SDD are based on a rate of \$1.866 per 1,000 gallons. The total gallons used in the billing is the sum of all of the Oreana customers, not the master meter at the water booster pumping station west of town.

Sewer Rate Recommendations

The rate the SDD charges Oreana for waste water discharged is \$1.866 per 1,000 gallons. The rate that Oreana charges customers is \$2.12 per 1,000 gallons or about 12% higher. This 12% surplus should be adequate to provide a financial buffer. However, if the SDD increases their rate, the rate charged by Oreana should be adjusted accordingly. The difference between the \$1.866 per 1,000 gallons charged to Oreana by the SDD and the \$2.12 per 1,000 gallons charged to sewer users by Oreana is \$0.254. Based

on an average year's usage, this generates a surplus of about \$4,000 per year. At this time, the rate of \$2.12 per 1,000 gallons is adequate to maintain the collection system.

The monthly base rate charged to Oreana by the SDD amounts to \$37.61 per customer, based on 385 customers. It is broken down as follows:

Debt Service for Collection System	
\$3,913,340 paid over 30 years, 0% interest = \$130,445 per year =	\$23.23 per customer per month
Sanitary District of Decatur Annexation Fee	
\$220,763 paid over 30 years, 0% interest = \$7,359 per year =	\$1.59 per customer per month
Annual Ad valorem Fee	
Currently \$36,000 per year, =	\$7.79 per customer per month
Total of monthly fees	\$37.61 per customer per month

The collection system debt payment and annexation fee payment should remain constant throughout the term of financing. The ad valorem tax has risen on average 3% per year. The current charge of \$39.00 per customer per month base rate is adequate to cover the associated costs at this time.

Both the sewer and water funds should be reviewed annually to see if the sewer and water rates being charged are adequate to pay the annual costs of operation and maintenance as well as build up the necessary reserve funds.

Village of Oreana
\$410,000 Alternate Revenue Bonds Issued June 1, 2012
Remaining Payment Schedule 2017-2031

Date	Principal	Interest Rate	Interest Due	Total	25% reserve
6/1/2017			7,152.50	7,152.50	1,788.13
12/1/2017	15,000.00	5.500%	7,152.50	22,152.50	5,538.13
total 2017				29,305.00	7,326.25
6/1/2018			6,740.00	6,740.00	1,685.00
12/1/2018	15,000.00	5.500%	6,740.00	21,740.00	5,435.00
total 2018				28,480.00	7,120.00
6/1/2019			6,327.50	6,327.50	1,581.88
12/1/2019	20,000.00	5.500%	6,327.50	26,327.50	6,581.88
total 2019				32,655.00	8,163.75
6/1/2020			5,777.50	5,777.50	1,444.38
12/1/2020	20,000.00	5.000%	5,777.50	25,777.50	6,444.38
total 2020				31,555.00	7,888.75
6/1/2021			5,277.50	5,277.50	1,319.38
12/1/2021	20,000.00	5.000%	5,277.50	25,277.50	6,319.38
total 2021				30,555.00	7,638.75
6/1/2022			4,777.50	4,777.50	1,194.38
12/1/2022	20,000.00	3.500%	4,777.50	24,777.50	6,194.38
total 2022				29,555.00	7,388.75
6/1/2023			4,430.00	4,430.00	1,107.50
12/1/2023	25,000.00	3.400%	4,430.00	29,430.00	7,357.50
total 2023				33,860.00	8,465.00
6/1/2024			4,005.00	4,005.00	1,001.25
12/1/2024	25,000.00	3.400%	4,005.00	29,005.00	7,251.25
total 2024				33,010.00	8,252.50
6/1/2025			3,580.00	3,580.00	895.00
12/1/2025	25,000.00	3.400%	3,580.00	28,580.00	7,145.00
total 2025				32,160.00	8,040.00
6/1/2026			3,155.00	3,155.00	788.75
12/1/2026	25,000.00	3.400%	3,155.00	28,155.00	7,038.75
total 2026				31,310.00	7,827.50
6/1/2027			2,730.00	2,730.00	682.50
12/1/2027	25,000.00	3.900%	2,730.00	27,730.00	6,932.50
total 2027				30,460.00	7,615.00
6/1/2028			2,242.50	2,242.50	560.63
12/1/2028	25,000.00	3.900%	2,242.50	27,242.50	6,810.63
total 2028				29,485.00	7,371.25
6/1/2029			1,755.00	1,755.00	438.75
12/1/2029	30,000.00	3.900%	1,755.00	31,755.00	7,938.75
total 2029				33,510.00	8,377.50
6/1/2030			1,170.00	1,170.00	292.50
12/1/2030	30,000.00	3.900%	1,170.00	31,170.00	7,792.50
total 2030				32,340.00	8,085.00
6/1/2031			585.00	585.00	146.25
12/1/2031	30,000.00	3.900%	585.00	30,585.00	7,646.25
total 2031				31,170.00	7,792.50
Totals:	350,000.00		119,410.00	938,820.00	

Village of Oreana Water and Sewer Fund Summary, 2014-2016

	Year Ending April 30, 2014			Year Ending April 30, 2015			Year Ending April 30, 2016			2014 - 2016 3-Year Average		
	Water	Sewer	Combined	Water	Sewer	Combined	Water	Sewer	Combined	Water	Sewer	Combined
Operating Revenues												
Charges for Services	100,326	172,300	272,626	120,327	206,648	326,975	125,172	214,968	340,140	115,275	197,972	313,247
Total Operating Revenues	100,326	172,300	272,626	120,327	206,648	326,975	125,172	214,968	340,140	115,275	197,972	313,247
Operating Expenditures												
Water Purchased	54,082	-	54,082	48,950	-	48,950	45,040	-	45,040	49,357	0	49,357
Alternate Water Revenue Bond Payments (18 yr)	31,840	-	31,840	30,978	-	30,978	29,305	-	29,305	30,708	-	30,708
Wages 100% water/0% sewer	24,654	-	24,654	26,991	-	26,991	25,242	-	25,242	25,629	-	25,629
Repairs and Maintenance 100% water/0% sewer	17,235	-	17,235	9,305	-	9,305	30,405	-	30,405	18,982	-	18,982
Utilities 100% water/0% sewer	7,539	-	7,539	7,427	-	7,427	4,949	-	4,949	6,638	0	6,638
Gas and Oil 100% water/0% sewer	1,929	-	1,929	1,505	-	1,505	958	-	958	1,464	-	1,464
Supplies and Materials 100% water/0% sewer	1,079	-	1,079	2,827	-	2,827	5,607	-	5,607	3,171	-	3,171
Engineering 100% water/0% sewer	6,111	-	6,111	-	-	-	-	-	-	2,037	-	2,037
Miscellaneous 100%/0%	500	-	500	1,049	-	1,049	368	-	368	639	-	639
Office Expense 50% water/50% sewer	873	873	1,745	1,033	1,033	2,065	853	853	1,705	919	919	1,838
Professional Services 50% water/50% sewer	686	686	1,372	814	814	1,627	970	970	1,939	823	823	1,646
SDD Collection System Loan (30 yr)	-	130,445	130,445	-	130,445	130,445	-	195,667	195,667	-	152,186	152,186
SDD Ad Valorem Taxes	-	84,143	84,143	-	30,310	30,310	-	50,363	50,363	-	54,939	54,939
SDD Sewer Discharge Fees	-	21,651	21,651	-	25,246	25,246	-	26,664	26,664	-	24,520	24,520
SDD Annexation Fee (30 yr)	-	7,358	7,358	-	7,358	7,358	-	11,038	11,038	-	8,585	8,585
Sewer Inspection Fees	-	150	150	-	-	-	-	-	-	-	50	50
Total Operating Expenditures	146,528	245,306	391,833	130,878	195,205	326,083	143,696	285,554	429,250	140,367	242,022	382,389
Non Operating Revenues (Expenditures)												
Permits and Fees	2,750	-	2,750	(16,840)	-	(16,840)	(15,978)	-	(15,978)	(10,023)	-	(10,023)
Bond Interest	(17,725)	-	(17,725)	(500)	-	(500)	(500)	-	(500)	(6,242)	-	(6,242)
Equipment and Improvements	(3,758)	-	(3,758)	-	-	-	-	-	-	(1,253)	-	(1,253)
Bond Fees	(500)	-	(500)	-	-	-	-	-	-	(167)	-	(167)
Grant Income	9,797	-	9,797	-	-	-	-	-	-	3,266	-	3,266
Miscellaneous Revenue	792	-	792	992	-	992	1,874	-	1,874	1,219	-	1,219
Interest Income	1,465	-	1,465	545	-	545	498	-	498	836	-	836
Total Non-Operating Revenues (Expenditures)	(7,179)	-	(7,179)	(15,803)	-	(15,803)	(14,106)	-	(14,106)	(12,363)	-	(12,363)
Net Change in Net Position - Profit or (Loss)	(53,380.13)	(73,005.87)	(126,386)	(26,353.70)	11,443.20	(14,911)	(32,630.48)	(70,585.52)	(103,216)	(37,455)	(44,049.40)	(81,504)
percent underfunded/overfunded	-53%	-42%	-46%	-22%	6%	-5%	-26%	-33%	-30%	-32%	-22%	-26%