

# Water and Sewer Fund 5 Year Analysis & Rate Study

Village of Pinckney | Michigan

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## Executive Summary

OHM was retained by the Village of Pinckney to update their 2005 Water and Sewer Rate Study. There were five main goals of this project. They include the following:

- Identify an appropriate water and sewer rate that will be sufficient to cover anticipated expenses through the year 2016
- Determine annual revenue needed to pay for desired, new capital improvements
- Determine needed reserves to provide funding for replacement and/or rehabilitation of the existing aging infrastructure
- Calculate and recommend appropriate surcharges for higher strength wastewater effluent
- Review and update (as needed) fees related to the water and wastewater system

To achieve the objectives of this project, OHM reviewed a number of documents and information related to both the water and sewer systems. These documents include:

- Revenue and expenditure reports from fiscal year 2005/2006 to 2010/2011
- 2011/2012 adopted budget
- Audit reports ending June 30, 2010 and June 30, 2011
- Proposed water and sewer capital improvements
- Existing infrastructure type and age
- Billing records
- Village water and sewer account forecasts
- August 2005 Water and Sewer Rate Study for the Village of Pinckney, Michigan

As of 2011, the Village has approximately 678 water customers and 825 sanitary sewer customers. Water billings from the years 2006-2011 generally show a level trend while sewer billings over the same time period show a downward trend.

The audit statement ending June 30, 2011 shows both the Sewage Disposal System Account (Sewer Account) and the Village Water Account (Water Account) have a net operating loss. The Sewer Account net operating loss was \$131,268 and the Water Account net operating loss was \$53,691. Upon further review of the audit details, it was determined that the operating loss was driven by depreciation, and not of cash expenditures exceeding revenues. Since depreciation is a non-cash expense (meaning no actual cash is expended), the Village has not experienced losses on a cash basis. However, as operating revenue is still insufficient to cover reserves for replacement of existing assets and new capital outlay, these future expenses should be covered through net earnings from the unrestricted current assets (cash and cash equivalents) or the restricted assets. The water and sewer operating accounts can be balanced by an increase in rates or a decrease in level-of-service provided. If the Village were to continue to operate as they are today, the water and sewer savings will be depleted over time and the Village will have insufficient funds to invest or reinvest in their systems.

The Village currently transfers \$75,000 from the sewer O&M account to the sewer capital replacement account and \$75,000 from the water O&M account to the water capital replacement account, annually. An analysis of the existing infrastructure remaining life and desired capital improvements would suggest that the revenue needed to offset the future cost of improvements would be between approximately \$100,000 and \$239,000 for water and between approximately \$171,000 and \$764,000 for sanitary sewer (See Tables 7 & 8). It is unlikely that rates can be increased sufficiently to cover the high-end expense, and the low-end expense may not be conservative enough. Therefore, it is recommended that the annual amount transferred to reserves be increased to \$125,000 for water and \$200,000 for sewer to build up the needed reserves for system improvements.

Customers of the Village’s water and sewer systems are predominantly residential users. The Village’s water and sewer operating accounts experience expense related to the ongoing operations and maintenance of the water transmission and distribution system and the sewer collection and treatment system. The most significant of the expenses that draw on these accounts is the cost of the Village’s work force. The same operating accounts receive revenue from the sale of water and sewer service. The cost of each is generally separated into components of a commodity charge, a readiness-to-serve charge, and a capital replacement charge. In addition, the Village assesses wastewater surcharges for effluent that exceeds normal strength.

Review of past expenses and projection of future ones indicate that water and sewer rates need to be increased. It was also determined that the wastewater surcharge rates need increasing. Table 1 displays the recommended rates. Other service-related fees, which include hydrant charges, service call fees and connection charges, are intended to cover the cost of providing these services. Current fees for these services were examined and appeared to be fair and consistent with other communities. No changes are recommended to these fees.

**TABLE 1: PROPOSED RATE SUMMARY**

<b>PROPOSED QUARTERLY RATE SUMMARY</b>	
WATER COMMODITY / 1,000 GALLONS	2.5875
SEWER COMMODITY / 1,000 GALLONS	3.8750
SEWER FLAT UNMETERED USER FEE	86.00
-EACH ADD'L BEDROOM	29.00
<b>SURCHARGE RATES PER POUND*</b>	
BOD <sub>5</sub>	\$0.61
TSS	\$0.73
TP	\$13.93
TKN	\$4.06

## **System Description**

The Village owns and operates their water system and wastewater system. This section provides a brief summary of both systems.

### ***Water System***

The Village obtains its potable water from two 500 gpm production wells located in the northeast portion of the Village off Depot Street. The wells were constructed in 1991.

Treatment of the Village's raw water is performed at the well house. The treatment consists of adding polyphosphate for iron sequestration since the raw water iron concentration is approximately 0.5 mg/l exceeding the desired level of 0.3 mg/l or less. The water is also disinfected using sodium hypochlorite. The water is considered "hard" (approximately 300 mg/l as  $\text{CaCO}_3$ ) with many customers using their own in-home water softeners.

The Village has a single 460,000 gallon water storage tank. The standpipe which was constructed in 1991 is located near the northern Village limit off of Howell Street.

Water is conveyed to customers through the distribution system. The Village system includes approximately 11.5 miles of water main ranging in size from 6-inches to 16-inches. Approximately ninety percent of the water main is ductile, five percent is asbestos cement pipe and five percent is HDPE. Service lines are made of Type K copper and vary in size from ¾-inch to 2-inch in diameter.

The majority of the water system was constructed in 1990 and 1991 with some older water main constructed in 1974. The present value of the water system is approximately \$6,885,000 in 2012 dollars, as shown in Table 7 and labeled as 2012 Cost to Replace.

### ***Wastewater System***

The Village owns and operates a lagoon wastewater treatment plant (WWTP) located in the southwest area of the Village that includes two aeration cells, two stabilization ponds, and two sand filters with ultimate effluent discharge of the treated wastewater to the groundwater via an underground infiltration bed.

The Village WWTP was constructed in 1968, with updates in 1991 and 2007 and has been in operation since that time. The WWTP serves residential, commercial and industrial developments within the Village. The plant is operating under a groundwater discharge permit (GW1810104).

The WWTP receives wastewater from the Village through five lift stations. Wastewater flow is then directed to one of two aerated cells. These cells are currently equipped with 7, 7.5 horsepower aerators to facilitate BOD removal and nitrification of waste. Flow from the aerated lagoons is directed to one of two stabilization lagoons for further treatment. Ferric Chloride is added to aid in phosphorus removal. Prior to reaching a deep underdrain infiltration system, flow is discharged from the stabilization lagoons to one of two sand filters.

Sludge depths in the WWTP lagoons are monitored on an annual basis. Sludge is removed as needed and land applied locally per DEQ guidelines. The Village incurs costs for this activity every 10-15 years.

The Village of Pinckney's wastewater collection system contains about 9 miles of sanitary sewer ranging in size from 8-inch to 15-inch diameter pipe. Roughly 65% of the sanitary sewer system was constructed in 1965 with the remaining amount constructed after 1990. The Village owns five pump stations; two are located along the main sanitary sewer line near S. Howell Street, the third serves a subdivision in the northeast corner of the Village, a fourth serves the M-36 SAD, and the fifth serves residential development on Pumpkin Lane.

The WWTP is sized for an average daily flow of 0.26 MGD. Flow is continuously discharged from April through December and held during the winter months. The current average daily flow is approximately 0.17 MGD. The wastewater is best characterized as typical municipal sewage.

The present value of the wastewater system is approximately \$9,491,000 in 2012 dollars, as shown in Table 7 and labeled as 2012 Cost to Replace.

## **Existing Water and Sanitary Sewer Rates**

The current rate structure includes a readiness-to-serve charge based on meter size and a commodity charge for all gallons used. In addition to these charges, the Village has a number of fees for hydrant use, connection charges, service call fees, capital connection charges and wastewater surcharges. See Appendix A for a listing of the existing fee schedule.

### ***Water***

The existing water rate structure includes a readiness-to-serve charge and a commodity charge. The readiness-to-serve charge is intended to cover fixed costs including debt retirement. Commodity charges are intended to pay for operating and maintenance costs associated with the system.

The remaining water fees, which include hydrant charges, service call fees and connection charges, are intended to cover the cost of providing these services.

### ***Sewer***

The existing sewer rate structure is similar to the water in that it includes a readiness-to-serve charge and a commodity charge. The readiness-to-serve charge is intended to cover fixed costs including debt retirement. The commodity charge is intended to pay for operating and maintenance costs associated with the system.

The sewer fees also include a connection charge based on meter size, a flat use for unmetered customers, and surcharges for higher strength wastewater discharge.



### Billed Water and Sewer Service Sales

Based on 2011 records provided by the Village, the number of water and sewer customers is summarized in Table 2.

**TABLE 2: 2011 WATER AND SEWER ACCOUNTS**

<b>WATER AND SEWER ACCOUNTS</b>	
Water Accounts	678
Sewer Accounts	825

Annual water sales approximately total 51,882,000 gallons per year. Table 3 summarizes the number of users and water sold for the various meter sizes. Table 4 summarizes the billed sewer services based on these meter sizes, as well as the number of unmetered sewer users.

**TABLE 3: CALENDAR YEAR 2010 BILLED WATER SALES**

<b>BILLED WATER SALES</b>			
<b>METER SIZE</b>	<b>NUMBER OF USERS</b>	<b>BILLED WATER SALES (GALLONS/YR)</b>	<b>PERCENT OF TOTAL</b>
5/8"	261	15,527,900	30%
3/4"	387	28,796,200	56%
1"	15	3,566,400	7%
1-1/2"	11	2,724,700	5%
2"	1	458,500	1%
3"	2	808,000	1%
4"	1	0	0%
<b>TOTAL</b>	<b>678</b>	<b>51,881,700</b>	<b>100%</b>

TABLE 4: CALENDAR YEAR 2010 BILLED SEWER SALES

<b>BILLED SEWER SALES</b>			
<b>METER SIZE</b>	<b>NUMBER OF USERS</b>	<b>BILLED SEWER SALES (GALLONS/YR)</b>	<b>PERCENT OF TOTAL</b>
UNMETERED	214	-	-
5/8"	205	14,301,000	30%
3/4"	377	23,639,900	49%
1"	14	2,773,900	6%
1-1/2"	11	4,026,700	8%
2"	1	458,500	1%
3"	2	1,122,000	2%
4"	1	1,777,000	4%
<b>TOTAL</b>	<b>825</b>	<b>48,099,000</b>	<b>100%</b>

## Expenses

Actual expenses for years 2006 – 2011 are presented in Table 5 for the water system and Table 6 for the sewer system. The expenses include operating expenses and non-operating expenses. Operating expenses include those needed to produce and distribute water, and collect and treat wastewater. Typical expenses include labor, chemicals, utilities and testing. Non-operating expenses include reserve, capital improvements and interest payments. The Village has no general obligation bonds for either the water or sanitary sewer system. A special assessment district was established to finance the M-36 project. The bond issue was for both sanitary sewer and water main improvements. As of June 30, 2011, the remaining outstanding balance was \$250,000.

TABLE 5: ACTUAL EXPENSES FOR WATER FROM 2006-2011

WATER EXPENDITURES							
GL NUMBER	DESCRIPTION	BALANCE 2005-2006	BALANCE 2006-2007	BALANCE 2007-2008	BALANCE 2008-2009	BALANCE 2009-2010	BALANCE 2010-2011
592-592.000-701.000	Labor Usage	44,555.77	47,794.35	47,700.00	52,670.00	50,780.00	41,660.00
592-592.000-703.000	Social Security	0.00	0.00	0.00	0.00	0.00	2,250.00
592-592.000-705.000	Workers Comp Insurance	697.00	817.00	890.00	1,130.00	1,050.00	730.00
592-592.000-706.000	Health Insurance	0.00	0.00	0.00	0.00	0.00	0.00
592-592.000-708.000	Pension	0.00	0.00	0.00	0.00	0.00	3,510.00
592-592.000-710.000	457 DEFERRED COMP PLAN	0.00	0.00	0.00	0.00	0.00	60.00
592-592.000-715.000	Equipment Usage	2,898.82	2,563.86	2,830.00	2,550.00	3,270.00	2,810.00
592-592.000-725.000	Seminars, Training & Cert.	141.50	188.58	270.00	410.00	330.00	310.00
592-592.000-727.000	Supplies	320.05	287.54	250.00	160.00	190.00	230.00
592-592.000-729.000	Safety Equipment	38.36	15.37	90.00	150.00	60.00	260.00
592-592.000-730.000	Postage	277.56	304.24	320.00	330.00	420.00	600.00
592-592.000-775.000	Chemicals	5,271.86	6,834.45	6,240.00	6,160.00	6,310.00	5,010.00
592-592.000-790.000	INTEREST EXPENSE	0.00	0.00	2,950.00	5,020.00	3,460.00	2,960.00
592-592.000-801.000	Legal Fees	1,123.00	150.00	260.00	370.00	510.00	0.00
592-592.000-802.000	Testing	2,561.26	1,863.55	1,490.00	2,860.00	1,790.00	2,860.00
592-592.000-803.000	Outside Engineering	5,627.74	0.00	0.00	0.00	0.00	1,360.00
592-592.000-806.000	Subcontract Services	1,707.55	2,920.00	3,310.00	37,580.00	36,360.00	20,250.00
592-592.000-807.000	Auditors	3,000.00	4,500.00	4,500.00	4,500.00	4,500.00	4,500.00
592-592.000-808.000	Utilities Administration	2,636.00	1,675.30	1,890.00	2,120.00	1,340.00	1,070.00
592-592.000-811.000	Insurance	6,612.36	3,667.64	2,720.00	2,110.00	2,040.00	1,910.00
592-592.000-823.000	Licenses & Permits	0.00	1,106.93	1,050.00	1,000.00	980.00	1,100.00
592-592.000-824.000	Dues & Subscriptions	250.00	341.00	360.00	390.00	220.00	470.00
592-592.000-853.000	Telephone	636.38	660.71	660.00	690.00	610.00	870.00
592-592.000-861.000	Fuels & Lubricants	1,867.83	1,562.16	2,520.00	2,510.00	2,550.00	2,730.00
592-592.000-900.000	Printing & Publishing	1,656.40	730.27	960.00	1,000.00	80.00	830.00
592-592.000-902.000	Water Meters	29,212.01	21,855.48	31,560.00	52,470.00	9,890.00	3,050.00
592-592.000-903.000	Plumbing Supplies	5,671.41	1,117.71	4,460.00	1,600.00	5,010.00	2,640.00
592-592.000-920.000	Utilities	10,100.38	9,748.63	9,630.00	9,160.00	10,240.00	9,570.00
592-592.000-925.000	Security	893.03	913.60	1,040.00	690.00	690.00	800.00
592-592.000-930.000	Repair & Mtce - Building	227.74	386.11	420.00	130.00	450.00	190.00
592-592.000-931.000	Repairs & Maintenance	1,646.24	2,588.46	1,810.00	1,160.00	510.00	970.00
592-592.000-932.000	Grounds Maintenance	0.00	0.00	0.00	20.00	80.00	50.00
592-592.000-939.000	Uniforms, Boots, ETC	0.00	1,180.96	1,210.00	1,460.00	1,480.00	1,800.00
592-592.000-952.000	ASSESSMENT EXPENSE	0.00	0.00	0.00	16,650.00	0.00	0.00
592-592.000-953.000	Bank Charges	0.00	0.00	0.00	0.00	0.00	0.00
592-592.000-954.000	REFUND CONN FEES & UTIL BILLING	0.00	387.70	0.00	0.00	6,660.00	0.00
592-592.000-954.100	METER REFUND	0.00	4,180.00	0.00	0.00	0.00	0.00
592-592.000-955.000	Miscellaneous	0.00	0.00	50.00	180.00	0.00	100.00
592-592.000-957.000	Property Taxes	5.58	0.00	0.00	0.00	10.00	10.00

WATER EXPENDITURES (Continued)							
GL NUMBER	DESCRIPTION	BALANCE 2005-2006	BALANCE 2006-2007	BALANCE 2007-2008	BALANCE 2008-2009	BALANCE 2009-2010	BALANCE 2010-2011
592-592.000-972.000	Furniture & Fixtures	0.00	100.00	0.00	0.00	0.00	0.00
592-592.000-973.000	Office Equipment & Copier	0.00	0.00	0.00	0.00	40.00	0.00
592-592.000-974.000	Computer Hardware & Software	685.84	2,208.86	920.00	930.00	930.00	1,770.00
592-592.000-975.000	Consulting	0.00	0.00	4,940.00	150.00	0.00	0.00
592-592.000-976.000	Agent Fees	0.00	0.00	250.00	250.00	250.00	250.00
592-592.000-977.000	Equipment & Tools	1,691.62	1,694.75	1,830.00	1,720.00	490.00	2,210.00
592-592.000-980.000	CAPITAL OUTLAY	1,768.00	22,673.66	1,260.00	2,190.00	3,180.00	8,260.00
<b>OPERATING EXPENSES</b>		133,781.29	147,018.87	140,640.00	212,470.00	156,760.00	130,010.00
<b>TOTAL NON-OPERATING EXPENSES</b>							
592-592.000-776.000	DEPRECIATION EXPENSE	101,473.26	102,368.38	102,370.00	109,350.00	112,301.00	113,080.00
<b>TOTAL EXPENDITURES</b>		235,254.55	249,387.25	243,010.00	321,820.00	269,061.00	243,090.00

TABLE 6: ACTUAL EXPENSES FOR SEWER FROM 2006-2011

SEWER EXPENDITURES							
GL NUMBER	DESCRIPTION	BALANCE 2005-2006	BALANCE 2006-2007	BALANCE 2007-2008	BALANCE 2008-2009	BALANCE 2009-2010	BALANCE 2010-2011
590-527.000-701.000	Labor Usage	66,103.67	81,094.37	80,000.00	63,030.00	69,690.00	66,570.00
590-527.000-703.000	Social Security	0.00	0.00	0.00	0.00	0.00	3,100.00
590-527.000-705.000	Workers Comp Insurance	1,008.00	972.00	1,040.00	1,270.00	1,080.00	620.00
590-527.000-708.000	Pension	0.00	0.00	0.00	0.00	0.00	4,850.00
590-527.000-710.000	457 DEFERRED COMP PLAN	0.00	0.00	0.00	0.00	0.00	100.00
590-527.000-715.000	Equipment Usage	7,554.42	7,850.61	9,130.00	6,460.00	6,600.00	7,160.00
590-527.000-725.000	Seminars, Training & Cert.	541.50	348.58	270.00	410.00	940.00	570.00
590-527.000-727.000	Supplies	404.08	204.83	350.00	180.00	300.00	140.00
590-527.000-729.000	Safety Equipment	357.77	137.58	1,860.00	230.00	80.00	600.00
590-527.000-730.000	Postage	281.51	286.56	610.00	330.00	420.00	590.00
590-527.000-740.000	Cleaning Supplies	0.00	120.31	60.00	40.00	100.00	40.00
590-527.000-775.000	Chemicals	616.00	3,801.51	8,180.00	11,710.00	13,030.00	11,130.00
590-527.000-790.000	INTEREST EXPENSE	27,250.00	25,781.25	29,780.00	24,830.00	14,100.00	7,690.00
590-527.000-801.000	Legal Fees	1,138.00	187.50	550.00	1,110.00	940.00	0.00
590-527.000-802.000	Testing	11,969.64	12,573.85	19,130.00	18,500.00	21,140.00	18,890.00
590-527.000-803.000	Outside Engineering	10,127.55	0.00	640.00	4,020.00	9,470.00	28,340.00
590-527.000-804.000	Lagoon & Manhole Work	6,554.19	44,487.45	9,070.00	10,550.00	6,620.00	11,550.00
590-527.000-806.000	Subcontract Services	2,572.92	17,170.27	6,530.00	15,910.00	10,410.00	9,510.00
590-527.000-807.000	Auditors	5,500.00	6,000.00	6,500.00	7,000.00	7,000.00	7,000.00
590-527.000-808.000	Utilities Administration	3,221.45	2,434.51	1,890.00	2,120.00	1,340.00	1,070.00
590-527.000-811.000	Insurance	7,402.28	4,152.00	3,120.00	2,860.00	2,930.00	3,180.00
590-527.000-823.000	Licenses & Permits	3,800.00	3,800.00	5,380.00	3,850.00	3,650.00	3,650.00
590-527.000-824.000	Dues & Subscriptions	580.00	505.00	450.00	450.00	80.00	50.00
590-527.000-850.000	Internet Services	220.84	240.28	240.00	220.00	290.00	390.00
590-527.000-853.000	Telephone	1,370.35	1,454.07	1,580.00	1,830.00	1,680.00	1,980.00
590-527.000-855.000	Mileage Reimbursement	53.05	0.00	0.00	0.00	0.00	0.00
590-527.000-861.000	Fuels & Lubricants	2,744.85	1,970.09	3,320.00	3,100.00	2,380.00	2,460.00
590-527.000-900.000	Printing & Publishing	1,317.42	153.31	620.00	160.00	30.00	170.00
590-527.000-903.000	Plumbing Supplies	80.83	15.94	530.00	10.00	300.00	30.00
590-527.000-920.000	Utilities	43,707.54	44,721.06	52,010.00	53,880.00	58,890.00	61,480.00
590-527.000-930.000	Repair & Mtce - Building	99.91	636.70	140.00	120.00	370.00	180.00
590-527.000-931.000	Repairs & Maintenance	3,357.18	4,761.19	1,950.00	3,190.00	2,290.00	810.00
590-527.000-932.000	Grounds Maintenance	0.00	100.00	50.00	160.00	370.00	430.00
590-527.000-939.000	Uniforms, Boots, ETC	129.99	1,180.96	1,210.00	1,460.00	1,480.00	1,800.00
590-527.000-952.000	ASSESSMENT EXPENSE	0.00	0.00	0.00	14,880.00	0.00	0.00
590-527.000-953.000	Bank Charges	0.00	0.00	0.00	0.00	0.00	0.00
590-527.000-954.000	REFUND CONN FEES & UTIL BILLING	103,377.07	496.23	0.00	9,050.00	14,270.00	0.00
590-527.000-954.200	REIMB. - WATER SOFTENER DISCHG.	0.00	0.00	15,480.00	490.00	0.00	0.00
590-527.000-955.000	Miscellaneous	900.00	0.00	50.00	920.00	0.00	90.00
590-527.000-957.000	Property Taxes	23.37	0.00	0.00	0.00	100.00	0.00

SEWER EXPENDITURES (Continued)							
GL NUMBER	DESCRIPTION	BALANCE 2005-2006	BALANCE 2006-2007	BALANCE 2007-2008	BALANCE 2008-2009	BALANCE 2009-2010	BALANCE 2010-2011
590-527.000-972.000	Furniture & Fixtures	0.00	100.00	0.00	0.00	0.00	0.00
590-527.000-973.000	Office Equipment & Copier	0.00	0.00	0.00	0.00	210.00	0.00
590-527.000-974.000	Computer Hardware & Software	1,285.82	2,208.86	970.00	930.00	940.00	1,770.00
590-527.000-975.000	Consulting	0.00	0.00	4,940.00	150.00	0.00	0.00
590-527.000-976.000	Agent Fees	325.00	325.00	570.00	570.00	250.00	570.00
590-527.000-977.000	Equipment & Tools	2,482.09	942.56	3,270.00	2,370.00	590.00	1,610.00
590-527.000-980.000	CAPITAL OUTLAY	3,152.30	278.96	1,500.00	8,120.00	4,070.00	8,790.00
<b>TOTAL OPERATING EXPENSES</b>		321,610.59	271,493.39	272,970.00	276,470.00	258,430.00	268,960.00
<b>TOTAL NON-OPERATING EXPENSES</b>							
590-527.000-776.000	DEPRECIATION EXPENSE	145,874.14	149,149.16	154,820.00	177,160.00	171,940.00	158,350.00
<b>TOTAL EXPENDITURES</b>		467,484.73	420,642.55	427,790.00	453,630.00	430,370.00	427,310.00

## Operating Expenses

As can be seen from the table, the operating expense for water has ranged from a low of \$130,010 in 2011 to a high of \$212,470 in 2009 and has averaged \$153,477 from 2006 – 2011. Sanitary sewer has ranged from a low of \$258,430 in 2010 to a high of \$321,611 in 2006 and has averaged \$278,322 from 2006 – 2011.

The Village currently transfers \$75,000 from the sewer O&M account to the sewer capital replacement account and \$75,000 from the water O&M account to the water capital replacement account, annually. As part of this project, OHM evaluated the present value of the water and sewer system, useful life expectancy, remaining life and cost to replace. Two methods of analysis were used to assess an appropriate amount for the Village to set aside each year for reserves, or future replacement of existing infrastructure. Table 7 performs the assessment based on present value, future value at the time of replacement, and a 2% annual cost increase. As Table 7 indicates, the annual reserve value for water is \$238,744 and for sewer is \$763,117, both in 2012 dollars. It's important to note this method is conservative in nature, requiring a 50% set-aside for an asset needing replacement in two years (see Sewer Jetter/Vactor as an example). The assets that have surpassed their useful life or nearing the end of their useful life have been denoted in Table 7 with an asterisk. The useful life of an asset has been established based on industry standards.

Recognizing that such a significant increase in an annual reserve transfer is not realistic, and perhaps too conservative, an alternate method of analysis was performed. Table 8 performs the second method of assessment. This assessment takes the current value of an asset and divides it by that asset's useful life expectancy, producing an annual value to save to replace that asset in the future. As Table 8 indicates, the annual reserve value for water is \$100,267 and for sewer is \$171,633, both in 2012 dollars. This method of analysis is a much less conservative approach. However, considering both methods and the results can be helpful in determining an appropriate annual reserve amount.

As the Village currently transfers \$75,000 to each of the water and sewer reserve accounts, it is recommended that a modest increase be considered with annual increases in the future. It is recommended that the annual replacement reserve transfer be raised to \$125,000 for the water system and to \$200,000 for the sewer system. Raising the capital reserve and setting the money aside will help to ensure adequate funds for repair, replacement and rehabilitation of the existing infrastructure.



**TABLE 7: ANNUAL RESERVES, METHOD 1, REMAINING USEFUL LIFE**

ANNUAL RESERVES, METHOD 1										
DESCRIPTION	QUANTITY	UNIT	ESTIMATED REPLACEMENT COST PER UNIT	2012 COST TO REPLACE	YEAR INSTALLED	USEFUL LIFE EXPECTANCY	REMAINING LIFE	COST TO REPLACE IN YR OF SUGGESTED REPLACEMENT	\$ / YR SET ASIDE	
<b>WATER</b>										
Well House #1 and # 2	2	ea	\$ 50,000	\$ 100,000	1991	50	29	\$ 177,584	\$ 4,578	
Well No. 1 (500 gpm)	1	ea	\$ 15,000	\$ 15,000	2009	10	7	\$ 17,230	\$ 2,318	
Well No. 2 (500gpm)	1	ea	\$ 16,000	\$ 16,000	2010	10	8	\$ 18,747	\$ 2,184	
Storage Tank, 460,000 gal	1	ea	\$ 500,000	\$ 500,000	1991	75	54	\$ 1,456,731	\$ 15,226	
Storage Tank Reseal	1	ea	\$ 65,000	\$ 65,000	2011	15	14	\$ 85,766	\$ 5,369	
Polyphosphate Feed System*	1	ea	\$ 15,000	\$ 15,000	1996	10	-6	\$ 15,000	\$ 15,000	
Sodium Hypochlorite Feed Pumps	2	ea	\$ 2,000	\$ 4,000	2008	10	6	\$ 4,505	\$ 714	
Distribution and Transmission System, New	57,200	ft	\$ 100	\$ 5,720,000	1990	75	53	\$ 16,338,235	\$ 176,027	
Distribution and Transmission System, Old	4,500	ft	\$ 100	\$ 450,000	1974	75	37	\$ 936,308	\$ 17,328	
<b>WATER TOTAL</b>				\$ 6,885,000					\$ 238,744	
<b>SEWER</b>										
WWTP Building and Various	1	ea	\$ 500,000	\$ 500,000	1990	50	28	\$ 870,512	\$ 23,495	
Lagoon Cleaning	1	ea	\$ 50,000	\$ 50,000	2006	15	9	\$ 59,755	\$ 6,126	
Ferric Chloride System	1	ea	\$ 15,000	\$ 15,000	2007	10	5	\$ 16,561	\$ 3,182	
Aeration Equipment/Blowers	1	ea	\$ 400,000	\$ 400,000	2012	30	30	\$ 724,545	\$ 17,860	
Underdrain Chlorine Dosing System*	1	ea	\$ 5,000	\$ 5,000	1990	10	-12	\$ 5,000	\$ 5,000	
Filtration bed/sand replacement	2	ea	\$ 150,000	\$ 300,000	1990	30	8	\$ 351,498	\$ 40,953	
Sewer Jetter/Vactor	1	ea	\$ 61,000	\$ 61,000	2008	6	2	\$ 63,464	\$ 31,418	
Collection and Transmission System, New	20,000	ft	\$ 120	\$ 2,400,000	1990	75	53	\$ 6,855,203	\$ 73,857	
Collection and Transmission System, Old	38,000	ft	\$ 120	\$ 4,560,000	1965	75	28	\$ 7,939,070	\$ 214,273	
Pump Station No. 1 499 South Howell*	1	ea	\$ 300,000	\$ 300,000	1965	40	-7	\$ 300,000	\$ 300,000	
Pump Station No. 2 750 South Howell	1	ea	\$ 300,000	\$ 300,000	1991	40	19	\$ 437,043	\$ 19,135	
Pump Station No. 3 (Bluebird)	1	ea	\$ 200,000	\$ 200,000	1996	40	24	\$ 321,687	\$ 10,574	
Pump Station No. 4 (M-36)	1	ea	\$ 200,000	\$ 200,000	2008	40	36	\$ 407,977	\$ 7,847	
Pump Station No. 5 (Pumpkin Lane)	1	ea	\$ 200,000	\$ 200,000	2000	40	28	\$ 348,205	\$ 9,398	
<b>SEWER TOTAL</b>				\$ 9,491,000					\$ 763,117	
<b>WATER AND SEWER TOTAL</b>	<b>Total Cost to Replace 2012</b>			<b>\$ 16,341,000</b>	<b>Total Annual Replacement set-aside</b>			<b>\$ 1,001,861</b>		

\* One time fee for projects that have exceeded 75% useful life or have exceeded its useful life

**TABLE 8: ANNUAL RESERVES, METHOD 2, USEFUL LIFE**

ANNUAL RESERVES, METHOD 2							
DESCRIPTION	QUANTITY	UNIT	ESTIMATED REPLACEMENT COST PER UNIT	2012 COST TO REPLACE	YEAR INSTALLED	USEFUL LIFE EXPECTANCY	\$ / YR SET ASIDE
<b>WATER</b>							
Well House #1 and # 2	2	ea	\$ 50,000	\$ 100,000	1991	50	\$ 2,000
Well No. 1 (500 gpm)	1	ea	\$ 15,000	\$ 15,000	2009	10	\$ 1,500
Well No. 2 (500gpm)	1	ea	\$ 16,000	\$ 16,000	2010	10	\$ 1,600
Storage Tank, 460,000 gal	1	ea	\$ 500,000	\$ 500,000	1991	75	\$ 6,667
Storage Tank Reseal	1	ea	\$ 65,000	\$ 65,000	2011	15	\$ 4,333
Polyphosphate Feed System	1	ea	\$ 15,000	\$ 15,000	1996	10	\$ 1,500
Sodium Hypochlorite Feed Pumps	2	ea	\$ 2,000	\$ 4,000	2008	10	\$ 400
Distribution and Transmission System, New	57,200	ft	\$ 100	\$ 5,720,000	1990	75	\$ 76,267
Distribution and Transmission System, Old	4,500	ft	\$ 100	\$ 450,000	1974	75	\$ 6,000
<b>WATER TOTAL</b>				\$ 6,885,000			\$ 100,267
<b>SEWER</b>							
WWTP Building and Various	1	ea	\$ 500,000	\$ 500,000	1990	50	\$ 10,000
Lagoon Cleaning	1	ea	\$ 50,000	\$ 50,000	2006	15	\$ 3,333
Ferric Chloride System	1	ea	\$ 15,000	\$ 15,000	2007	10	\$ 1,500
Aeration							
Equipment/Blowers	1	ea	\$ 400,000	\$ 400,000	2012	30	\$ 13,333
Underdrain Chlorine							
Dosing System	1	ea	\$ 5,000	\$ 5,000	1990	10	\$ 500
Filtration bed/sand							
replacement	2	ea	\$ 150,000	\$ 300,000	1990	30	\$ 10,000
Sewer Jetter/Vactor	1	ea	\$ 61,000	\$ 61,000	2008	6	\$ 10,167
Collection and Transmission System, New	20,000	ft	\$ 120	\$ 2,400,000	1990	75	\$ 32,000
Collection and Transmission System, Old	38,000	ft	\$ 120	\$ 4,560,000	1965	75	\$ 60,800
Pump Station No. 1 499 South Howell	1	ea	\$ 300,000	\$ 300,000	1965	40	\$ 7,500
Pump Station No. 2 750 South Howell	1	ea	\$ 300,000	\$ 300,000	1991	40	\$ 7,500
Pump Station No. 3 (Bluebird)	1	ea	\$ 200,000	\$ 200,000	1996	40	\$ 5,000
Pump Station No. 4 (M-36)	1	ea	\$ 200,000	\$ 200,000	2008	40	\$ 5,000
Pump Station No. 5 (Pumpkin Lane)	1	ea	\$ 200,000	\$ 200,000	2000	40	\$ 5,000
<b>SEWER TOTAL</b>				\$ 9,491,000			\$ 171,633
<b>WATER AND SEWER TOTAL</b>				<b>Total Cost to Replace 2012</b>	<b>\$ 16,341,000</b>	<b>Annual Replacement set-aside</b>	<b>\$ 271,900</b>

Future capital expenditures for new projects were also considered. Table 9 shows the proposed capital improvements along with the proposed year and anticipated cost for each water or sewer project.

**TABLE 9: FUTURE CAPITAL IMPROVEMENTS**

FUTURE CAPITAL IMPROVEMENTS						
DESCRIPTION	FY 2011/2012	FY 2012/2013	FY 2013/2014	FY 2014/2015	FY 2015/2016	FY 2016/2017
<b>WATER MAIN PROJECTS</b>						
Well House Improvements		\$ 100,000				
<b>SANITARY SEWER PROJECTS</b>						
Muriel to Ashton 1500 feet of 8-inch				\$555,000		
Aeration Equipment	\$614,000					
<b>TOTAL WATER COSTS</b>	\$0	\$ 100,000	\$0	\$0	\$0	\$0
<b>TOTAL SEWER COSTS</b>	\$ 614,000	\$0	\$0	\$ 555,000	\$0	\$0
<b>TOTAL</b>	\$ 614,000	\$ 100,000	\$0	\$ 555,000	\$0	\$0

Each of the above projects was analyzed with respect to water and sewer account reserves, respectively. Deposits and capital outlay were considered, including the recommended annual replacement reserves of \$125,000 for the water system and \$200,000 for the sewer system. In the event the reserve account was used up, it was assumed the project would be financed. The annual payment was assumed to begin one year after the project was constructed with a 20 year repayment period at a 2.5% interest rate, similar to that provided by the SRF or DWRP low-interest loan programs offered by the State of Michigan. Tables 10 & 11 reflect the capital improvements and financing.

**TABLE 10: PROPOSED WATER CAPITAL FINANCING**

CAPITAL OUTLAY FOR FISCAL YEARS ENDING							
WATER MAIN PROJECTS	FY 2011/2012	FY 2012/2013	FY 2013/2014	FY 2014/2015	FY 2015/2016	FY 2016/2017	FYs 2017/2030
<b>CAPITAL REPLACEMENT-BEGINNING</b>	\$1,109,300	\$1,109,300	\$1,010,820	\$1,012,580	\$1,014,300	\$1,015,980	\$1,017,600
<b>DEPOSITS</b>							
Transfers from operations	\$75,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$1,625,000
Rolling Hills SAD collections		\$1,520	\$1,760	\$1,720	\$1,680	\$1,620	\$13,860
<b>CAPITAL OUTLAY</b>							
Future Capital Improvements		(\$100,000)					
Maintenance & Repair Work	(\$75,000)	(\$125,000)	(\$125,000)	(\$125,000)	(\$125,000)	(\$125,000)	(\$1,625,000)
<b>CAPITAL REPLACEMENT-ENDING</b>	\$1,109,300	\$1,010,820	\$1,012,580	\$1,014,300	\$1,015,980	\$1,017,600	\$1,031,460
<b>ANNUAL PAYMENT &amp; FINANCING</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**TABLE 11: PROPOSED SEWER CAPITAL FINANCING**

CAPITAL OUTLAY FOR FISCAL YEARS ENDING							
SANITARY SEWER PROJECTS	FY 2011/2012	FY 2012/2013	FY 2013/2014	FY 2014/2015	FY 2015/2016	FY 2016/2017	FYs 2017/2030
<b>CAPITAL REPLACEMENT-BEGINNING</b>	\$664,600	\$76,810	\$108,830	\$140,820	\$135,928	\$129,727	\$122,235
<b>DEPOSITS</b>							
Transfers from operations	\$75,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$2,600,000
Sewer Upgrade SAD collections	\$26,210	\$25,120	\$24,030	\$22,950	\$21,860	\$20,770	\$19,680
Rolling Hills SAD collections		\$6,900	\$7,960	\$7,760	\$7,540	\$7,340	\$55,000
<b>CAPITAL OUTLAY</b>							
Future Capital Improvements	(\$614,000)	\$0	\$0	(\$555,000)	\$0	\$0	\$0
Maintenance & Repair Work	(\$75,000)	(\$200,000)	(\$200,000)	(\$200,000)	(\$200,000)	(\$200,000)	(\$2,600,000)
<b>Amount Financed</b>							
				\$555,000			
<b>NEW ANNUAL PAYMENT &amp; FINANCING</b>							
	\$0	\$0	\$0	(\$35,602)	(\$35,602)	(\$35,602)	(\$35,602)
<b>CAPITAL REPLACEMENT-ENDING</b>	\$76,810	\$108,830	\$140,820	\$171,530	\$165,328	\$157,837	\$196,915

As shown in Table 10, there are sufficient reserves in the Water Capital Replacement fund for expected and planned improvements. However, the same is not true for the Sewer Capital Replacement fund, as Table 11 indicates. If the Village were to complete the \$555,000 capital improvement planned in FY 2014/2015, the fund would have a balance of \$0 for improvements and the Village would have to finance the outstanding amount of the project. Therefore, it is expected that the \$555,000 project would be financed through bonding, and an ongoing bond payment starts in FY 2014/2015 in the amount of \$35,602. Knowing the Village’s expected costs, for both one-time project costs and ongoing bonding costs, is important for projecting the future expenses and necessary revenues.

Based on historical expenses outlined earlier and the expected capital costs indicated above, a five-year prediction of future expenses was created. Tables 12 & 13 show the anticipated expenses for both water and sewer systems from year 2012 – 2016. The budget 6/30/12 column is based on the adopted 2011/2012 budget. The remaining four years are considered a forecast, including the recommended capital reserve amounts and estimated bond payments for capital improvements from Tables 10 & 11.

It is important to note that the line item for Capital Outlay is projected with \$0 expense, as those improvements are planned to be paid for from the capital replacement funds.

**TABLE 12: FUTURE WATER EXPENSES FROM 2012-2017**

FORECASTED WATER EXPENDITURES							
GL NUMBER	DESCRIPTION	BUDGET 2011-2012	FORECAST 2012-2013	FORECAST 2013-2014	FORECAST 2014-2015	FORECAST 2015-2016	FORECAST 2016-2017
592-592.000-701.000	Labor Usage	35,000.00	35,700.00	36,400.00	37,100.00	37,800.00	38,600.00
592-592.000-703.000	Social Security	2,680.00	2,730.00	2,780.00	2,840.00	2,890.00	2,950.00
592-592.000-705.000	Workers Comp Insurance	800.00	820.00	840.00	860.00	880.00	900.00
592-592.000-706.000	Health Insurance	8,600.00	9,030.00	9,480.00	9,960.00	10,460.00	10,990.00
592-592.000-708.000	Pension	4,110.00	4,280.00	4,370.00	4,450.00	4,540.00	4,630.00
592-592.000-710.000	457 DEFERRED COMP PLAN	50.00	70.00	90.00	100.00	120.00	140.00
592-592.000-715.000	Equipment Usage	2,600.00	2,750.00	2,730.00	2,710.00	2,690.00	2,670.00
592-592.000-725.000	Seminars, Training & Cert.	1,200.00	1,200.00	1,400.00	1,610.00	1,810.00	2,010.00
592-592.000-727.000	Supplies	260.00	250.00	260.00	260.00	270.00	280.00
592-592.000-729.000	Safety Equipment	300.00	330.00	380.00	440.00	490.00	540.00
592-592.000-730.000	Postage	430.00	570.00	620.00	670.00	720.00	770.00
592-592.000-775.000	Chemicals	6,000.00	6,500.00	6,310.00	6,110.00	5,920.00	5,720.00
592-592.000-790.000	INTEREST EXPENSE	2,500.00	0.00	0.00	0.00	0.00	0.00
592-592.000-801.000	Legal Fees	2,000.00	1,560.00	1,870.00	2,180.00	2,490.00	2,800.00
592-592.000-802.000	Testing	3,500.00	3,700.00	4,110.00	4,510.00	4,910.00	5,310.00
592-592.000-803.000	Outside Engineering	10,000.00	8,680.00	10,820.00	12,950.00	15,090.00	17,220.00
592-592.000-806.000	Subcontract Services	9,000.00	19,520.00	18,920.00	18,330.00	17,730.00	17,140.00
592-592.000-807.000	Auditors	4,500.00	4,500.00	4,500.00	4,500.00	4,500.00	4,500.00
592-592.000-808.000	Utilities Administration	2,200.00	1,590.00	1,550.00	1,510.00	1,460.00	1,420.00
592-592.000-811.000	Insurance	1,950.00	1,960.00	1,750.00	1,540.00	1,330.00	1,120.00
592-592.000-823.000	Licenses & Permits	1,100.00	1,100.00	1,120.00	1,140.00	1,160.00	1,180.00
592-592.000-824.000	Dues & Subscriptions	450.00	460.00	480.00	510.00	540.00	560.00
592-592.000-853.000	Telephone	710.00	790.00	820.00	840.00	870.00	900.00
592-592.000-861.000	Fuels & Lubricants	2,000.00	2,400.00	2,600.00	2,800.00	2,900.00	3,000.00
592-592.000-900.000	Printing & Publishing	200.00	110.00	120.00	150.00	260.00	370.00
592-592.000-902.000	Water Meters	5,000.00	5,000.00	9,950.00	14,890.00	19,840.00	24,780.00
592-592.000-903.000	Plumbing Supplies	3,500.00	4,000.00	3,890.00	3,780.00	3,670.00	3,560.00
592-592.000-920.000	Utilities	10,000.00	10,070.00	10,180.00	10,300.00	10,410.00	10,530.00
592-592.000-925.000	Security	800.00	800.00	820.00	840.00	860.00	880.00
592-592.000-930.000	Repair & Mtce - Building	1,500.00	1,200.00	1,430.00	1,650.00	1,870.00	2,090.00
592-592.000-931.000	Repairs & Maintenance	2,500.00	1,740.00	1,860.00	1,980.00	2,100.00	2,210.00
592-592.000-932.000	Grounds Maintenance	100.00	120.00	140.00	160.00	180.00	210.00
592-592.000-939.000	Uniforms, Boots, ETC	1,500.00	1,760.00	1,860.00	1,950.00	2,040.00	2,130.00
592-592.000-952.000	ASSESSMENT EXPENSE	0.00	0.00	0.00	0.00	0.00	0.00

FORECASTED WATER EXPENDITURES							
GL NUMBER	DESCRIPTION	BUDGET 2011-2012	FORECAST 2012-2013	FORECAST 2013-2014	FORECAST 2014-2015	FORECAST 2015-2016	FORECAST 2016-2017
592-592.000-953.000	Bank Charges	0.00	0.00	0.00	0.00	0.00	0.00
592-592.000-954.000	REFUND CONN FEES & UTIL BILLING	0.00	0.00	0.00	0.00	0.00	0.00
592-592.000-954.100	METER REFUND	0.00	0.00	0.00	0.00	0.00	0.00
592-592.000-955.000	Miscellaneous	100.00	90.00	100.00	100.00	100.00	100.00
592-592.000-957.000	Property Taxes	10.00	20.00	20.00	20.00	30.00	30.00
592-592.000-972.000	Furniture & Fixtures	100.00	80.00	100.00	120.00	140.00	160.00
592-592.000-973.000	Office Equipment & Copier	150.00	130.00	160.00	190.00	220.00	250.00
592-592.000-974.000	Computer Hardware & Software	1,500.00	1,810.00	2,010.00	2,210.00	2,410.00	2,610.00
592-592.000-975.000	Consulting	0.00	0.00	0.00	0.00	0.00	0.00
592-592.000-976.000	Agent Fees	250.00	250.00	250.00	250.00	250.00	250.00
592-592.000-977.000	Equipment & Tools	2,500.00	2,290.00	2,480.00	2,660.00	2,840.00	3,020.00
592-592.000-980.000	CAPITAL OUTLAY	29,250.00	0.00	0.00	0.00	0.00	0.00
<b>TOTAL OPERATING EXPENSES</b>		160,900.00	139,960.00	149,570.00	159,170.00	168,790.00	178,530.00
<b>TOTAL NON-OPERATING EXPENSES</b>							
	CAPITAL RESERVE TRANSFER	75,000.00	125,000.00	125,000.00	125,000.00	125,000.00	125,000.00
<b>TOTAL EXPENDITURES</b>		235,900.00	264,960.00	274,570.00	284,170.00	293,790.00	303,530.00

TABLE 13: FUTURE SEWER EXPENSES FROM 2012-2017

FORECASTED SEWER EXPENDITURES							
GL NUMBER	DESCRIPTION	BUDGET 2011-2012	FORECAST 2012-2013	FORECAST 2013-2014	FORECAST 2014-2015	FORECAST 2015-2016	FORECAST 2016-2017
590-527.000-701.000	Labor Usage	65,000.00	66,300.00	67,600.00	68,900.00	70,300.00	71,800.00
590-527.000-703.000	Social Security	4,970.00	5,070.00	5,170.00	5,270.00	5,370.00	5,500.00
590-527.000-705.000	Workers Comp Insurance	950.00	970.00	990.00	1,010.00	1,030.00	1,050.00
590-527.000-706.000	Health Insurance	16,000.00	16,800.00	17,640.00	18,500.00	19,400.00	20,400.00
590-527.000-708.000	Pension	7,620.00	7,960.00	8,100.00	8,270.00	8,430.00	8,610.00
590-527.000-710.000	457 DEFERRED COMP PLAN	100.00	100.00	120.00	140.00	170.00	160.00
590-527.000-715.000	Equipment Usage	7,500.00	7,370.00	7,020.00	7,130.00	7,230.00	7,250.00
590-527.000-725.000	Seminars, Training & Cert.	1,000.00	1,000.00	1,110.00	1,210.00	1,160.00	1,210.00
590-527.000-727.000	Supplies	350.00	400.00	400.00	420.00	410.00	440.00
590-527.000-729.000	Safety Equipment	750.00	750.00	500.00	560.00	650.00	650.00
590-527.000-730.000	Postage	430.00	480.00	490.00	520.00	530.00	550.00
590-527.000-740.000	Cleaning Supplies	150.00	150.00	160.00	170.00	170.00	190.00
590-527.000-775.000	Chemicals	12,000.00	13,000.00	13,700.00	13,730.00	14,000.00	14,110.00
590-527.000-790.000	INTEREST EXPENSE	6,400.00	0.00	0.00	0.00	0.00	0.00
590-527.000-801.000	Legal Fees	1,500.00	820.00	870.00	830.00	800.00	960.00
590-527.000-802.000	Testing	20,270.00	19,580.00	19,680.00	19,910.00	19,670.00	19,820.00
590-527.000-803.000	Outside Engineering	30,000.00	14,500.00	17,270.00	19,920.00	22,000.00	20,740.00
590-527.000-804.000	Lagoon & Manhole Work	8,000.00	9,160.00	9,180.00	8,900.00	9,360.00	8,920.00
590-527.000-806.000	Subcontract Services	13,000.00	11,070.00	11,980.00	11,190.00	11,350.00	11,720.00
590-527.000-807.000	Auditors	7,000.00	6,900.00	6,980.00	6,980.00	6,970.00	6,960.00
590-527.000-808.000	Utilities Administration	2,200.00	1,720.00	1,690.00	1,600.00	1,660.00	1,770.00
590-527.000-811.000	Insurance	3,200.00	3,060.00	3,050.00	3,080.00	3,110.00	3,100.00
590-527.000-823.000	Licenses & Permits	4,500.00	4,210.00	3,970.00	4,000.00	4,060.00	4,150.00
590-527.000-824.000	Dues & Subscriptions	200.00	250.00	210.00	160.00	170.00	200.00
590-527.000-850.000	Internet Services	330.00	290.00	310.00	320.00	330.00	320.00
590-527.000-853.000	Telephone	1,700.00	1,750.00	1,790.00	1,780.00	1,800.00	1,760.00
590-527.000-855.000	Mileage Reimbursement	0.00	0.00	0.00	0.00	0.00	0.00
590-527.000-861.000	Fuels & Lubricants	3,000.00	3,200.00	3,400.00	3,600.00	3,800.00	4,000.00
590-527.000-900.000	Printing & Publishing	200.00	230.00	160.00	160.00	180.00	190.00
590-527.000-903.000	Plumbing Supplies	2,000.00	570.00	580.00	700.00	780.00	930.00
590-527.000-920.000	Utilities	53,000.00	55,850.00	56,620.00	57,170.00	57,500.00	58,000.00
	Utilities - Rolling Hills	960.00	1,500.00	1,545.00	1,625.00	1,700.00	1,785.00
590-527.000-930.000	Repair & Mtce - Building	500.00	500.00	550.00	610.00	590.00	640.00
590-527.000-931.000	Repairs & Maintenance	4,000.00	3,000.00	3,120.00	2,960.00	3,000.00	3,400.00
590-527.000-932.000	Grounds Maintenance	800.00	360.00	430.00	480.00	500.00	510.00
590-527.000-939.000	Uniforms, Boots, ETC	1,600.00	1,700.00	1,770.00	1,790.00	1,820.00	1,890.00
590-527.000-952.000	ASSESSMENT EXPENSE	0.00	0.00	0.00	0.00	0.00	0.00
590-527.000-953.000	Bank Charges	0.00	0.00	0.00	0.00	0.00	0.00
590-527.000-954.000	REFUND CONN FEES & UTIL BILLING	0.00	0.00	0.00	0.00	0.00	0.00
590-527.000-954.200	REIMB.- WATER SOFTENER DISCHG.	0.00	0.00	0.00	0.00	0.00	0.00
590-527.000-955.000	Miscellaneous	500.00	310.00	360.00	250.00	300.00	350.00
590-527.000-957.000	Property Taxes	0.00	20.00	20.00	30.00	10.00	20.00

FORECASTED SEWER EXPENDITURES							
GL NUMBER	DESCRIPTION	BUDGET 2011-2012	FORECAST 2012-2013	FORECAST 2013-2014	FORECAST 2014-2015	FORECAST 2015-2016	FORECAST 2016-2017
590-527.000-972.000	Furniture & Fixtures	200.00	40.00	50.00	60.00	70.00	80.00
590-527.000-973.000	Office Equipment & Copier	350.00	110.00	130.00	160.00	150.00	180.00
590-527.000-974.000	Computer Hardware & Software	1,500.00	1,600.00	1,670.00	1,760.00	1,860.00	1,770.00
590-527.000-975.000	Consulting	0.00	0.00	0.00	0.00	0.00	0.00
590-527.000-976.000	Agent Fees	250.00	250.00	250.00	250.00	250.00	250.00
590-527.000-977.000	Equipment & Tools	3,500.00	2,270.00	2,070.00	2,010.00	2,290.00	2,430.00
590-527.000-980.000	CAPITAL OUTLAY	26,223.00	0.00	0.00	0.00	0.00	0.00
	Bond Payment	0.00	0.00	0.00	35,601.66	35,601.66	35,601.66
<b>TOTAL OPERATING EXPENSES</b>		313,703.00	265,170.00	272,705.00	313,716.66	320,531.66	324,366.66
<b>TOTAL NON-OPERATING EXPENSES</b>							
	CAPITAL RESERVE TRANSFER	75,000.00	200,000.00	200,000.00	200,000.00	200,000.00	200,000.00
<b>TOTAL EXPENDITURES</b>		388,703.00	465,170.00	472,705.00	513,716.66	520,531.66	524,366.66



## Revenue

Table 14 shows the annual operating revenue from 2006 – 2011. Table 15 compares this with operating expenses during the same time frame. These are operating revenues and expenses, and therefore exclude depreciation and capital reserve transfer costs.

**TABLE 14: WATER ANNUAL REVENUE FROM 2006-2011**

WATER REVENUES							
GL NUMBER	DESCRIPTION	ACTUAL 2005-2006	ACTUAL 2006-2007	ACTUAL 2007-2008	ACTUAL 2008-2009	ACTUAL 2009-2010	ACTUAL 2010-2011
592-000.000-407.000	Interest Income - S.A.	0.00	0.00	0.00	4,040.00	3,480.00	3,050.00
592-000.000-424.101	Reimbursement - Equipment	3,427.68	1,973.96	4,850.00	3,570.00	3,070.00	3,370.00
592-000.000-430.000	M-36 SAD REVENUES	0.00	0.00	140,020.00	0.00	0.00	0.00
592-000.000-434.000	Water Billing	168,465.36	176,629.82	174,850.00	175,610.00	169,370.00	175,170.00
592-000.000-435.000	Tap-Ins	31,000.00	7,000.00	14,000.00	2,800.00	16,800.00	18,400.00
592-000.000-436.000	Water Meter Purchases	18,458.25	12,770.00	6,550.00	1,470.00	2,130.00	2,850.00
592-000.000-440.000	Late Fees	4,025.54	4,219.29	4,940.00	4,760.00	4,910.00	4,250.00
592-000.000-464.000	Interest Income	61,428.46	86,284.96	75,810.00	31,930.00	14,670.00	9,670.00
592-000.000-471.000	Other Revenue	0.00	5,627.74	100.00	100.00	0.00	0.00
592-000.000-473.000	Sale Of Fixed Assets	5,099.99	0.00	0.00	0.00	0.00	0.00
592-000.000-482.000	Inspection Fees	1,380.00	750.00	490.00	110.00	250.00	200.00
592-000.000-487.000	Refunds & Reimbursements	1,229.98	347.66	240.00	20.00	0.00	330.00
<b>TOTAL REVENUES</b>		294,515.26	295,603.43	421,850.00	224,410.00	214,680.00	217,290.00

**TABLE 15: OPERATING REVENUE TO EXPENSES FOR WATER FROM 2006-2011**

WATER SYSTEM OPERATIONS						
ANNUAL	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
<b>TOTAL REVENUE (Table 14)</b>	294,515.26	295,603.43	421,850.00	224,410.00	214,680.00	217,290.00
<b>TOTAL EXPENSE (Table 5)</b>	133,781.29	147,018.87	140,640.00	212,470.00	156,760.00	130,010.00
<b>NET DIFFERENCE</b>	160,733.97	148,584.56	281,210.00	11,940.00	57,920.00	87,280.00

The significant increase in operating revenue in 2007/2008 is attributed to the M-36 SAD project.

Table 16 shows the annual operating revenue from 2006 – 2011. Table 17 compares this with operating expenses during the same time frame. These are operating revenues and expenses, and therefore exclude depreciation and capital reserve transfer costs.

**TABLE 16: SEWER ANNUAL REVENUE FROM 2006-2011**

SEWER REVENUES							
GL NUMBER	DESCRIPTION	ACTUAL 2005-2006	ACTUAL 2006-2007	ACTUAL 2007-2008	ACTUAL 2008-2009	ACTUAL 2009-2010	ACTUAL 2010-2011
590-000.000-407.000	Interest Income - S.A.	17,035.97	15,919.70	14,160.00	26,110.00	23,210.00	20,270.00
590-000.000-424.101	Reimbursement - Equipment	5,786.54	3,300.30	7,790.00	5,960.00	8,800.00	8,800.00
590-000.000-427.000	Sewer Taps	34,750.00	7,500.00	0.00	3,000.00	21,000.00	19,600.00
590-000.000-430.000	M-36 SAD REVENUES	0.00	0.00	363,810.00	0.00	0.00	0.00
590-000.000-430.001	Sewer Billings	333,220.98	304,384.85	286,500.00	291,590.00	271,570.00	271,020.00
590-000.000-440.000	Late Fees	8,009.38	7,935.71	8,270.00	8,300.00	8,300.00	7,000.00
590-000.000-464.000	Interest Income	72,499.49	87,696.03	63,320.00	20,310.00	8,350.00	5,090.00
590-000.000-471.000	Other Revenue	0.00	5,627.75	0.00	0.00	0.00	0.00
590-000.000-473.000	Sale Of Fixed Assets	0.00	4,624.74	11,550.00	0.00	0.00	0.00
590-000.000-482.000	Inspection Fees	500.00	100.00	0.00	100.00	350.00	200.00
590-000.000-487.000	Refunds & Reimbursements	182.88	306.00	16,970.00	1,090.00	300.00	770.00
<b>TOTAL REVENUES</b>		471,985.24	437,395.08	772,370.00	356,460.00	341,880.00	332,750.00

**TABLE 17: OPERATING REVENUE TO EXPENSES FOR SEWER FROM 2006-2011**

SEWER SYSTEM OPERATIONS						
ANNUAL	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
<b>TOTAL REVENUE (Table 16)</b>	471,985.24	437,395.08	772,370.00	356,460.00	341,880.00	332,750.00
<b>TOTAL EXPENSES (Table 6)</b>	321,610.59	271,493.39	272,970.00	276,470.00	258,430.00	268,960.00
<b>NET DIFFERENCE</b>	150,374.65	165,901.69	499,400.00	79,990.00	83,450.00	63,790.00

The significant increase in operating revenue in 2007/2008 is attributed to the M-36 SAD project.

## Future Projections

The Village would like to ensure it collects sufficient revenue to cover current and future expenditures. The Village has forecasted water and sewer revenue based on the current rates. The Village's forecasts are shown in Tables 18 and 19.

**TABLE 18: FORECASTED WATER REVENUE**

WATER REVENUES							
GL NUMBER	DESCRIPTION	BUDGET 2011-2012	FORECAST 2012-2013	FORECAST 2013-2014	FORECAST 2014-2015	FORECAST 2015-2016	FORECAST 2016-2017
592-000.000-407.000	Interest Income - S.A.	2,610.00	0.00	0.00	0.00	0.00	0.00
592-000.000-424.101	Reimbursement - Equipment	3,900.00	3,120.00	2,910.00	2,700.00	2,490.00	2,280.00
592-000.000-430.000	M-36 SAD REVENUES	0.00	0.00	0.00	0.00	0.00	0.00
592-000.000-434.000	Water Billing	175,200.00	175,200.00	175,200.00	175,200.00	175,200.00	175,200.00
592-000.000-435.000	Tap-Ins	0.00	0.00	0.00	0.00	0.00	0.00
592-000.000-436.000	Water Meter Purchases	800.00	800.00	800.00	800.00	800.00	800.00
592-000.000-440.000	Late Fees	4,000.00	3,850.00	3,610.00	3,370.00	3,140.00	2,900.00
592-000.000-464.000	Interest Income	3,200.00	3,200.00	3,500.00	4,000.00	5,180.00	6,360.00
592-000.000-471.000	Other Revenue	0.00	0.00	0.00	0.00	0.00	0.00
592-000.000-473.000	Sale Of Fixed Assets	0.00	0.00	0.00	0.00	0.00	0.00
592-000.000-482.000	Inspection Fees	0.00	0.00	0.00	0.00	0.00	0.00
592-000.000-487.000	Refunds & Reimbursements	0.00	70.00	50.00	30.00	20.00	0.00
<b>TOTAL REVENUES</b>		<b>189,710.00</b>	<b>186,240.00</b>	<b>186,070.00</b>	<b>186,100.00</b>	<b>186,830.00</b>	<b>187,540.00</b>

**TABLE 19: FORECASTED SEWER REVENUE**

SEWER REVENUES							
GL NUMBER	DESCRIPTION	BUDGET 2011-2012	FORECAST 2012-2013	FORECAST 2013-2014	FORECAST 2014-2015	FORECAST 2015-2016	FORECAST 2016-2017
590-000.000-407.000	Interest Income - S.A.	17,630.00	0.00	0.00	0.00	0.00	0.00
590-000.000-424.101	Reimbursement - Equipment	8,000.00	7,870.00	7,890.00	8,270.00	8,170.00	8,040.00
590-000.000-427.000	Sewer Taps	0.00	7,500.00	0.00	0.00	0.00	0.00
590-000.000-430.000	M-36 SAD REVENUES	0.00	0.00	0.00	0.00	0.00	0.00
590-000.000-430.001	Sewer Billings	271,000.00	271,000.00	271,000.00	271,000.00	271,000.00	271,000.00
590-000.000-440.000	Late Fees	10,000.00	8,380.00	8,400.00	8,410.00	8,440.00	8,720.00
590-000.000-464.000	Interest Income	2,700.00	2,700.00	2,810.00	2,920.00	2,990.00	3,270.00
590-000.000-471.000	Other Revenue	0.00	0.00	0.00	0.00	0.00	0.00
590-000.000-473.000	Sale Of Fixed Assets	0.00	0.00	0.00	0.00	0.00	0.00
590-000.000-482.000	Inspection Fees	0.00	130.00	160.00	170.00	130.00	120.00
590-000.000-487.000	Refunds & Reimbursements	300.00	500.00	160.00	170.00	190.00	210.00
<b>TOTAL REVENUES</b>		<b>309,630.00</b>	<b>298,080.00</b>	<b>290,420.00</b>	<b>290,940.00</b>	<b>290,920.00</b>	<b>291,360.00</b>

While the revenue appears sufficient to offset the operating cost of the water and sewer system, there may be insufficient revenue to cover necessary future improvements. The following two scenarios are presented for the Village to consider how best to manage the revenues and expenditures associated with these accounts, and aid in decision-making with respect to setting rates. The scenarios assume no new tap fees. In addition, it is assumed the increase in interest and other revenues will have a negligible impact, and have not been considered.

***Scenario 1***

Scenario 1 considers revenue based on existing rates with current usage trends. It also considers expense from a modest increase reserve and capital outlay in the amounts recommended previously in this report. As previously recommended, the capital reserve transfer applied to the Water Account in this scenario is \$125,000 and the capital reserve transfer applied to the Sewer Account is \$200,000. The Water Account is presented in Table 20 and the Sewer Account presented in Table 21.

TABLE 20: SCENARIO 1 WATER ACCOUNT

SCENARIO 1: WATER REVENUE FORECAST						
PARAMETER	2012	2013	2014	2015	2016	2017
TOTAL REVENUE (Table 18)	189,710	186,240	186,070	186,100	186,830	187,540
TOTAL EXPENSES (Table 12)	235,900	264,960	274,570	284,170	293,790	303,530
NET DIFFERENCE	(46,190)	(78,720)	(88,500)	(98,070)	(106,960)	(115,990)

TABLE 21: SCENARIO 1 SEWER ACCOUNT

SCENARIO 1: SEWER REVENUE FORECAST						
PARAMETER	2012	2013	2014	2015	2016	2017
TOTAL REVENUE (Table 19)	309,630	298,080	290,420	290,940	290,920	291,360
TOTAL EXPENSES (Table 13)	388,703	465,170	472,705	513,717	520,532	524,367
NET DIFFERENCE	(79,073)	(167,090)	(182,285)	(222,777)	(229,612)	(233,007)

As each table shows, the water and sewer accounts would both operate at a loss if the Village was setting aside the recommend amount for future capital improvements (both maintaining existing infrastructure and new planned projects) and continue to use current rates. Raising the capital reserve transfer and setting the money aside will help to ensure adequate funds for repair, replacement and rehabilitation of the existing infrastructure. However, both accounts would still be operating at a loss. An increase in revenue is warranted.

## Scenario 2

Scenario 2 considers an increase in revenue to balance the Water and Sewer operating accounts against a modest increase in reserve and capital outlay expense. The water rate increases considered include a 25% increase in the existing commodity rate of \$2.07 per 1,000 gallons the first year to \$2.5875 per 1,000 gallons, a 15% increase the second year, and 4% increases per year thereafter. Revenue was calculated using current usage trends. The increase considered is shown in detail in Table 22 below.

**TABLE 22: SCENARIO 2 WATER REVENUE, YEAR 2012**

FORECASTED WATER REVENUE							
WATER RATE		2.5875	/1000 GALLONS				
METER SIZE	NUMBER OF USERS	BILLED WATER SALES (GALLONS/YR)	PERCENT OF TOTAL	READY TO SERVE \$/Qtr	READY TO SERVE REVENUE	COMMODITY REVENUE	TOTAL REVENUE
5/8"	261	15,527,900	30%	\$23.00	\$24,012	\$40,178	\$64,190
3/4"	387	28,796,200	56%	\$23.00	\$35,604	\$74,510	\$110,114
1"	15	3,566,400	7%	\$57.50	\$3,450	\$9,228	\$12,678
1-1/2"	11	2,724,700	5%	\$115.00	\$5,060	\$7,050	\$12,110
2"	1	458,500	1%	\$184.00	\$736	\$1,186	\$1,922
3"	2	808,000	1%	\$402.50	\$3,220	\$2,091	\$5,311
4"	1	0	0%	\$690.00	\$2,760	\$0	\$2,760
TOTAL	678	51,881,700	100%		\$74,842.00	\$134,243.90	\$209,085.90
ESTIMATED REVENUE FROM INTEREST & MISC.							\$24,000
<b>TOTAL REVENUE</b>							<b>\$233,086</b>

The proposed sewer rate includes a commodity charge increase of 25% the first two years, a 10% increase in the third year, a 5% increase in the fourth year, and 2% increases each year thereafter. The proposed sewer rate also includes an increase in the unmetered rate of approximately 15% the first year to be generally consistent with other residential users, with similar annual increases as projected for the commodity charge. The unmetered rate is based on the total projected sales per quarter to an average residential user (5/8" and 3/4"). The rate for each additional bedroom of an unmetered user is proposed as a third of the unmetered rate. The increase considered is shown in Table 23 below, with the detail for the unmetered rate shown in Table 24.

TABLE 23: SCENARIO 2 SEWER REVENUE, YEAR 2012

FORECASTED SEWER REVENUE							
SEWER RATE		3.875	/1000 GALLONS				
UNMETERED RATE		86.00	/1-3 BDRM/QTR	29.00	EA ADD'L BDRM		
METER SIZE	NUMBER OF USERS	BILLED SEWER SALES (GALLONS/YR)	PERCENT OF TOTAL	READY TO SERVE \$/Qtr	READY TO SERVE REVENUE	COMMODITY REVENUE	TOTAL REVENUE
UNMETERED	214						73,616
5/8"	205	14,301,000	30%	23	18,860	55,416	74,276
3/4"	377	23,639,900	49%	23	34,684	91,605	126,289
1"	14	2,773,900	6%	58	3,220	10,749	13,969
1-1/2"	11	4,026,700	8%	115	5,060	15,603	20,663
2"	1	458,500	1%	184	736	1,777	2,513
3"	2	1,122,000	2%	403	3,220	4,348	7,568
4"	1	1,777,000	4%	690	2,760	6,886	9,646
<b>TOTAL</b>	<b>825</b>	<b>48,099,000</b>	<b>100%</b>		<b>68,540</b>	<b>186,384</b>	<b>328,540</b>
ESTIMATED REVENUE FROM INTEREST & MISC.							41,500
<b>TOTAL REVENUE</b>							<b>370,040</b>

TABLE 24: DETERMINATION OF UNMETERED SEWER RATE

FORECASTED UNMETERED SEWER RATE							
METER SIZE	NUMBER OF USERS	BILLED SEWER SALES (GALLONS/YR)	PERCENT OF TOTAL	READY TO SERVE \$/Qtr	READY TO SERVE REVENUE	COMMODITY REVENUE	TOTAL REVENUE
5/8"	205	14,301,000	38%	23	18,860	55,416	74,276
3/4"	377	23,639,900	62%	23	34,684	91,605	126,289
<b>TOTAL</b>	<b>582</b>	<b>37,940,900</b>	<b>100%</b>		<b>53,544</b>	<b>147,021</b>	<b>200,565</b>
APPROXIMATE COST PER USER PER QUARTER - YEAR 1							86

As a result of the rate increases described above, overall water and sewer account revenue increases. This Scenario considers increased revenue compared with expense from a modest increase reserve and capital outlay in the amounts recommended previously in this report. As previously recommended, the annual reserve expense applied to the water account in this scenario is \$125,000 and the annual reserve expense applied to the sewer account is \$200,000. The water account is presented in Table 25 and the sewer account presented in Table 26.

TABLE 25: SCENARIO 2 WATER FUND

SCENARIO 2: WATER REVENUE FORECAST						
PARAMETER	2012	2013	2014	2015	2016	2017
TOTAL REVENUE (Table 22)	233,085.90	264,448.78	274,066.73	284,069.40	294,472.18	305,291.07
TOTAL EXPENSES (Table 12)	235,900.00	264,960.00	274,570.00	284,170.00	293,790.00	303,530.00
<b>NET DIFFERENCE</b>	<b>(2,814.10)</b>	<b>(511.22)</b>	<b>(503.27)</b>	<b>(100.60)</b>	682.18	1,761.07

TABLE 26: SCENARIO 2 SEWER FUND

SCENARIO 2: SEWER REVENUE FORECAST						
PARAMETER	2012	2013	2014	2015	2016	2017
TOTAL REVENUE (Table 23)	370,040	452,175	493,242	515,829	525,316	534,992
TOTAL EXPENSES (Table 13)	388,703	465,170	472,705	513,717	520,532	524,367
NET DIFFERENCE	(18,663)	(12,995)	20,537	2,112	4,784	10,625

As shown, in Table 25, the water revenue and expenses are relatively close with negligible net differences. Similarly, Table 26 indicates revenues exceeding expenses in most years with deficits in the early years being manageable and a negligible net difference. These rates may provide the most cost-effective solution to the Village. However, the increase in rates may cause concern with customers.



## Wastewater Surcharge Rate Determination

### *Surcharges*

The Village's wastewater treatment plant is an aerated lagoon system designed to treat typical residential wastewater. When higher strength wastewater enters the plant, additional energy and chemicals are needed to effectively treat the wastewater. If the strength is very high, then the wastewater treatment plant may be unable to properly treat the waste which could then result in a permit violation.

The Village desires to fairly charge all customers for the service they receive. Therefore, those that discharge a higher strength wastewater than the average customer should be subject to an appropriate surcharge. The surcharge is intended to cover the added costs of treating the wastewater.

The philosophy for establishing a surcharge is based on determining the average concentration of pollutants in consideration and then assigning costs to treat the amounts in excess of the average. For the Village's system there are four pollutants that are considered for surcharges. They include the following:

- 5- day Biological Oxygen Demand (BOD<sub>5</sub>)
- Total Suspended Solids (TSS)
- Total Phosphorus (TP)
- Total Kjeldahl Nitrogen (TKN)

These parameters are removed in the treatment process through settling, biologically (enhanced through the aeration process) and chemically. Therefore, the stronger the wastewater strength, typically more air needs to be added to the aerated lagoons and more chemicals are needed for removal of the phosphorus.

Based on sampling the Village conducted at Lift Station #1 from 2004 through 2010, the average pollutant loading rates were calculated. Table 27 summarizes the information.

**TABLE 27: EXISTING WASTEWATER STRENGTH AT LIFT STATION #1**

LIFT STATION #1													
PARAMETER	5/20/2010	9/14/2010	10/1/2008	3/18/2008	9/28/2007	9/5/2007	7/17/2007	9/20/2005	8/2/2005	2/16/2005	6/16/2004	5/12/2004- 5/14/2004	5/12/2004
BOD <sub>5</sub> mg/l	210	260	339	246	244	244	253	252	263	214	465	346	272
TSS mg/l	180	290	142	179	187	97	183	661	181	242	1376	563	399
TP mg/l	5.6	7.7	6.9	6.2	8.2	6.2	6.0	8.1	6.9	6.5	6.6	6.7	6.8
TKN mg/l	35.0	39.0	52.4	40.5	44.0	37.1	45.6	43.0	41.0	39.0	33.0	35.0	42.0

As can be seen from the table, the TSS concentration varied widely from a low of 97 mg/l on September 5, 2007 to a high of 1,376 mg/l on June 16, 2004. It is unknown why there was such a high reading in 2004. Table 28 shows the averages based on the observed data from Table 27.

**TABLE 28: EXISTING WASTEWATER STRENGTH RANGE AND AVERAGES**

INFLUENT SAMPLES AT LIFT STATION #1			
PARAMETER	LOW	HIGH	AVERAGE
BOD <sub>5</sub> mg/l	210	465	278
TSS mg/l	97	1,376	360
TP mg/l	5.6	8.2	6.8
TKN mg/l	33.0	52.4	40.5

Based on the data, it is recommended to eliminate the anomaly data point of June 16, 2004 to compute the average strength wastewater. The following averages are proposed:

**TABLE 29: PROPOSED AVERAGE STRENGTH WASTEWATER**

PROPOSED AVERAGES		
PARAMETER	AVG WITH 6/16/2004 DATA REMOVED	PROPOSED AVERAGES
BOD <sub>5</sub> mg/l	262	300 mg/l
TSS mg/l	275	300 mg/l
TP mg/l	6.8	7.0 mg/l
TKN mg/l	41.1	45.0 mg/l

Since these are averages, there is an expectation that some discharges will be lower strength and some will be higher strength. In addition, it is anticipated that as newer, high efficiency fixtures are utilized the overall concentration of these parameters will increase. It is recommended that an increase over these averages be allowed prior to imposing surcharge fees. The recommended strength at which surcharges are recommended to be imposed is shown in Table 30.

TABLE 30: RECOMMENDED SURCHARGE TRIGGER CONCENTRATIONS

PARAMETER	CONCENTRATION
BOD <sub>5</sub>	400 mg/l
TSS	400 mg/l
TP	9 mg/l
TKN	50 mg/l

Cost allocation associated with exceeding the trigger concentrations was determined from analyzing the current and anticipated costs for treating the wastewater. Costs were separated into four categories: operating expenses, reserve, interest expense, and capital outlay. Table 13 shows the forecasted expenses associated with the sewer system. For the operating system, the various descriptions were group into three categories. These included general, collection system and treatment. For some of the items the entire cost was considered to fall into one of these categories. For many of the items it was considered to be a shared expense. Table 31 summarizes the breakdown of the operating expenses by the three categories. It should be noted that capital outlay expense are not included n this table, and are added further in the analysis.

**TABLE 31: SEWER TREATMENT & COLLECTION EXPENSE BREAKDOWN**

GL NUMBER	DESCRIPTION	GENERAL	TREATMENT TOTAL	COLLECTION TOTAL	2012 TOTAL
590-527.000-701.000	Labor Usage	0.00	32,500.00	32,500.00	65,000.00
590-527.000-703.000	Social Security	0.00	2,485.00	2,485.00	4,970.00
590-527.000-705.000	Workers Comp Insurance	0.00	475.00	475.00	950.00
590-527.000-706.000	Health Insurance	16,000.00	0.00	0.00	16,000.00
590-527.000-708.000	Pension	0.00	3,810.00	3,810.00	7,620.00
590-527.000-710.000	457 DEFERRED COMP PLAN	0.00	50.00	50.00	100.00
590-527.000-715.000	Equipment Usage	0.00	3,750.00	3,750.00	7,500.00
590-527.000-725.000	Seminars, Training & Cert.	1,000.00	0.00	0.00	1,000.00
590-527.000-727.000	Supplies	0.00	350.00	0.00	350.00
590-527.000-729.000	Safety Equipment	0.00	375.00	375.00	750.00
590-527.000-730.000	Postage	430.00	0.00	0.00	430.00
590-527.000-740.000	Cleaning Supplies	150.00	0.00	0.00	150.00
590-527.000-775.000	Chemicals	0.00	12,000.00	0.00	12,000.00
590-527.000-790.000	INTEREST EXPENSE	6,400.00	0.00	0.00	6,400.00
590-527.000-801.000	Legal Fees	1,500.00	0.00	0.00	1,500.00
590-527.000-802.000	Testing	0.00	20,270.00	0.00	20,270.00
590-527.000-803.000	Outside Engineering	0.00	15,000.00	15,000.00	30,000.00
590-527.000-804.000	Lagoon & Manhole Work	0.00	8,000.00	0.00	8,000.00
590-527.000-806.000	Subcontract Services	0.00	0.00	13,000.00	13,000.00
590-527.000-807.000	Auditors	7,000.00	0.00	0.00	7,000.00
590-527.000-808.000	Utilities Administration	0.00	1,100.00	1,100.00	2,200.00
590-527.000-811.000	Insurance	3,200.00	0.00	0.00	3,200.00
590-527.000-823.000	Licenses & Permits	0.00	4,500.00	0.00	4,500.00
590-527.000-824.000	Dues & Subscriptions	200.00	0.00	0.00	200.00
590-527.000-850.000	Internet Services	330.00	0.00	0.00	330.00
590-527.000-853.000	Telephone	1,700.00	0.00	0.00	1,700.00
590-527.000-855.000	Mileage Reimbursement	0.00	0.00	0.00	0.00
590-527.000-861.000	Fuels & Lubricants	0.00	1,500.00	1,500.00	3,000.00
590-527.000-900.000	Printing & Publishing	200.00	0.00	0.00	200.00
590-527.000-903.000	Plumbing Supplies	0.00	2,000.00	0.00	2,000.00
590-527.000-920.000	Utilities	0.00	42,400.00	10,600.00	53,000.00
	Utilities - Rolling Hills	0.00	768.00	192.00	960.00
590-527.000-930.000	Repair & Mtce - Building	0.00	500.00	0.00	500.00
590-527.000-931.000	Repairs & Maintenance	0.00	0.00	4,000.00	4,000.00
590-527.000-932.000	Grounds Maintenance	0.00	800.00	0.00	800.00
590-527.000-939.000	Uniforms, Boots, ETC	0.00	800.00	800.00	1,600.00
590-527.000-952.000	ASSESSMENT EXPENSE	0.00	0.00	0.00	0.00
590-527.000-953.000	Bank Charges	0.00	0.00	0.00	0.00
590-527.000-954.000	REFUND CONN FEES & UTIL BILLING	0.00	0.00	0.00	0.00
590-527.000-954.200	REIMB.- WATER SOFTENER DISCHG.	0.00	0.00	0.00	0.00
590-527.000-955.000	Miscellaneous	500.00	0.00	0.00	500.00
590-527.000-957.000	Property Taxes	0.00	0.00	0.00	0.00
590-527.000-972.000	Furniture & Fixtures	200.00	0.00	0.00	200.00
590-527.000-973.000	Office Equipment & Copier	350.00	0.00	0.00	350.00
590-527.000-974.000	Computer Hardware & Software	1,500.00	0.00	0.00	1,500.00
590-527.000-975.000	Consulting	0.00	0.00	0.00	0.00
590-527.000-976.000	Agent Fees	250.00	0.00	0.00	250.00
590-527.000-977.000	Equipment & Tools	3,500.00	0.00	0.00	3,500.00
<b>2012 TOTAL</b>		<b>44,410.00</b>	<b>153,433.00</b>	<b>89,637.00</b>	<b>287,480.00</b>

As can be seen from the table, the treatment costs are approximately 55% of the total operating expense, collection system is approximately 30% and the remaining 15% is attributed to general.

Table 32 shows a summary of the expense allocation among the three categories (general, collection system and treatment system). The average cost for operating expense, reserves transfer and new capital improvements were taken from Tables 11 & 13. The numbers shown in Table 32 are the average of the six years from 2012-2017. The operating expense allocated to general, collection system and treatment was determined by multiplying the total operating expense by 0.15, 0.3 and 0.55 respectively (percentages indicated in the previous paragraph). The average cost of new project capital outlay and reserve transfers for maintenance/repair work is \$374,000. This cost was further broken down into collection and treatment with 50% of the cost attributed to collection and 50% to treatment.

**TABLE 32: SUMMARY OF EXPENSE ALLOCATION AMONG GENERAL, COLLECTION SYSTEM AND TREATMENT SYSTEM**

PARAMETER	AVG COST 2012-2017	GENERAL	COLLECTION SYSTEM	TREATMENT SYSTEM
Operating Expense	\$279,528	\$41,929	\$83,858	\$153,740
Reserves Transfer & New Capital Improvements	\$374,000	\$0	\$187,000	\$187,000
<b>TOTAL</b>	\$653,528 rounded to \$654,000	\$41,929 rounded to \$42,000	\$270,858 rounded to \$271,000	\$340,740 rounded to \$341,000

It was desired to further breakdown the treatment system into the main components; aerated lagoon, storage lagoon and sand filters. Table 33 shows how the costs were allocated.

**TABLE 33: BREAKDOWN OF EXPENSES BY THE VARIOUS TREATMENT COMPONENTS**

PARAMETER	OPERATING EXPENSE	OPERATING EXPENSE DOLLARS	RESERVE & CAPITAL OUTLAY EXPENSE	RESERVE & CAPITAL OUTLAY EXPENSE DOLLARS	TOTAL	ROUNDED TOTAL
Aerated Lagoons	65%	\$ 99,931	83%	\$ 155,210	\$252,340	\$250,000
Storage Lagoons	15%	\$ 23,061	0%	\$ -	\$25,575	\$30,000
Sand Filters	20%	\$ 30,748	17%	\$ 31,790	\$63,085	\$60,000
<b>TOTAL</b>	<b>100%</b>	<b>\$ 153,740</b>	<b>100%</b>	<b>\$ 187,000</b>	<b>\$341,000</b>	<b>\$340,000</b>

Table 34 identifies the cost associated with treating the BOD<sub>5</sub>, TSS, TP and TKN based on percentages assigned to the various parameters for each unit process. For example, the total annual cost for the aerated lagoons is \$250,000. Thirty-percent of that cost is attributed to the BOD, TSS, and TKN, while 10% is attributed to TP reduction.

**TABLE 34: TREATMENT COST ALLOCATION**

UNIT PROCESS	TOTAL ANNUAL COSTS	BOD		SUSPENDED SOLIDS (TSS)		PHOSPHOROUS (TP)		TKN	
		PERCENT	AMOUNT	PERCENT	AMOUNT	PERCENT	AMOUNT	PERCENT	AMOUNT
COLLECTION SYSTEM*	\$13,550	0%	\$0	100%	\$13,550	0%	\$0	0%	\$0
<b>TREATMENT SYSTEM</b>									
Aerated Lagoons	\$250,000	30%	\$75,000	30%	\$75,000	10%	\$25,000	30%	\$75,000
Storage Lagoons	\$30,000	15%	\$4,500	15%	\$4,500	55%	\$16,500	15%	\$4,500
Sand Filters	\$60,000	25%	\$15,000	35%	\$21,000	15%	\$9,000	25%	\$15,000
<b>GENERAL</b>	\$41,000								
<b>TOTAL O&amp;M COSTS</b>	<b>\$394,550</b>		<b>\$94,500</b>		<b>\$114,050</b>		<b>\$50,500</b>		<b>\$94,500</b>

\*Total collection annual cost is expected to be \$271,000 (see Table 32) with 5%, or \$13,550, assignable to Treatment.

The average strength of the wastewater along with the current average daily flow (0.17 MGD) was used to calculate the anticipated pounds/year of each parameter considered for a surcharge. The following calculation is an example of how the pounds per year were calculated in Table 34.

$$\frac{\text{Lb BOD}_5}{\text{year}} = 0.17 \text{ MGD} \times \frac{1,000,000 \text{ gal}}{\text{MG}} \times \frac{300 \text{ mg}}{\text{liter}} \times \frac{3.785 \text{ liters}}{\text{gallon}} \times \frac{\text{lb}}{454,000 \text{ mg}} \times \frac{365 \text{ days}}{\text{year}}$$

Table 35 displays the calculated values along with the recommended surcharge threshold values.

TABLE 35: ANTICIPATED POUNDS/YEAR

PARAMETER	AVERAGE (mg/L)	POUNDS / YR	SURCHARGE THRESHOLD (mg/L)
BOD <sub>5</sub>	300	155,193	400
TSS	300	155,193	400
TP	7	3,621	9
TKN	45	23,279	50

Table 36 provides the recommended surcharge rate/lb for BOD<sub>5</sub>, TSS, TP and TKN. These rates were calculated by taking the total cost of treatment from Table 34 divided by the corresponding annual pounds received by the WWTP. For example for TSS, the surcharge rate was determined by dividing the total cost of \$114,050 by the anticipated annual pounds of 155,193, which equals \$0.73.

TABLE 36: SURCHARGE RATES PER POUND

SURCHARGE RATES PER POUND	
(Attributable O&M Costs / Annual Loading)	
BOD <sub>5</sub>	\$0.61
TSS	\$0.73
TP	\$13.93
TKN	\$4.06

Example Surcharge Calculation: Industrial Customer A

Sample average concentration:

- BOD<sub>5</sub> = 350 mg/L
- TSS = 600 mg/L
- TP = 6 mg/L
- TKN = 60 mg/L
- Quarterly Flow = 50,000 gal

BOD<sub>5</sub> at 350 mg/L is less than 400 mg/L surcharge threshold, therefore surcharge equals zero.

TSS at 600 mg/L is greater than 400 mg/L surcharge threshold, therefore surcharge applies to the amount over threshold...

$$\text{TSS over threshold} = 600 \text{ mg/L} - 400 \text{ mg/L} = 200 \text{ mg/L}$$

$$\text{TSS surcharge} = \frac{200 \text{ mg}}{\text{liter}} \times \frac{3.785 \text{ liter}}{\text{gal}} \times 50,000 \text{ gal} \times \frac{\text{lb}}{454,000 \text{ mg}} \times \frac{\$0.73}{\text{lb}}$$

$$= \$60.86 \text{ for one billing quarter.}$$

TP at 6 mg/L is less than 9 mg/L surcharge threshold,  
therefore surcharge equals zero.

TKN at 60 mg/L > 50 mg/L surcharge threshold,  
therefore surcharge applies to the amount over threshold...

$$\text{TKN over threshold} = 60 \text{ mg/L} - 50 \text{ mg/L} = 10 \text{ mg/L}$$

$$\text{TKN surcharge} = \frac{10 \text{ mg}}{\text{liter}} \times \frac{3.785 \text{ Liter}}{\text{gal}} \times 50,000 \text{ gal} \times \frac{\text{lb}}{454,000 \text{ mg}} \times \frac{\$4.06}{\text{lb}}$$

$$= \$16.92 \text{ for one billing quarter.}$$

**Total Surcharge equals the sum of \$60.86 and \$16.92 which is \$77.78.**



## Comparison to Other Communities

The Village's existing and proposed rate from Scenario 2 of the water system was compared against similar communities. As can be seen in Table 37, some communities have debt service and/or a readiness-to-serve charge. In all cases the communities also have a commodity charge. Pinckney's proposed water rate is based on a 25% increase of the existing rate. The readiness-to-serve charge was maintained.

**TABLE 37: QUARTERLY WATER BILL FOR A TYPICAL RESIDENTIAL CUSTOMER**

WATER UTILITY RATE COMPARISON					
COMMUNITY	DEBT SERVICE \$/QTR	READINESS-TO-SERVE \$/Qtr	COMMODITY CHARGE / 1,000 GALLONS	ASSUMED QUARTERLY GALLONS	TOTAL QUARTERLY
Pinckney Existing		23.00	2.0188	21,000	65.39
Pinckney Proposed		23.00	2.5875	21,000	77.34
Village of Dexter		20.13	3.03	21,000	83.76
Village of Stockbridge		25.30	3.59	21,000	100.69
Village of Webberville		15.00	3.03	21,000	78.63
City of Chelsea		22.26	6.13	21,000	150.99
Village of Milford	48.72	12.00	1.58	21,000	93.90
Hamburg Township	33.00		4.2	21,000	121.20
Village of Baraga			5.6	21,000	117.60

Table 37 also estimates a typical quarterly bill for a residential customer using 21,000 gallons/quarter. Even with the recommended rate increase, Pinckney's quarterly bill is still the lowest of the bench-marked communities. Further, an additional 15% increase in year two, as Scenario 2 proposes, would increase the rate to 2.9760 resulting in a quarterly bill of \$85.50 which remains relatively low compared with other bench-marked communities.

The water rate increases considered include a 25% increase in the existing commodity rate of \$2.07 per 1,000 gallons the first year to \$2.5875 per 1,000 gallons, a 15% increase the second year, and 4% increases per year thereafter.

Table 38 displays similar information for the sewer system. Pinckney’s existing commodity rate and quarterly bill is much less than the other communities evaluated. Increasing the commodity charge, as proposed in Scenario 2, brings the proposed Pinckney quarterly bill into the lower range of bench-marked communities.

**TABLE 38: QUARTERLY SEWER BILL FOR A TYPICAL RESIDENTIAL CUSTOMER**

SEWER UTILITY RATE COMPARISON					
COMMUNITY	DEBT SERVICE \$/QTR	READINESS-TO-SERVE \$/Qtr	COMMODITY CHARGE / 1,000 GALLONS	ASSUMED QUARTERLY GALLONS	TOTAL QUARTERLY
Pinckney Existing		23.00	3.10	21,000	88.10
Pinckney Proposed		23.00	3.88	21,000	104.38
Village of Dexter		5.80	7.14	21,000	155.74
Village of Stockbridge		70.05	5.77	21,001	191.23
Village of Webberville		19.00	4.19	21,002	107.00
City of Chelsea		15.76	5.63	21,000	133.99
Village of Milford	3.99	1.44	4.84	21,000	107.07
Hamburg Township	58.41		4.34	21,000	149.55
Village of Baraga			6.76	21,000	141.96

Table 39 shows an overall comparison with both the water and sewer. With the proposed increases described in Scenario 2 for both the water and sewer, the resulting total bill is \$181.71. The overall rate remains lower than all other communities evaluated.

**TABLE 39: COMPAIRSON OF TYPICAL RESIDENTIAL QUARTERLY BILL**

COMPARISON OF TYPICAL QUARTERLY BILL				
COMMUNITY	POPULATION	WATER	SEWER	TOTAL
Village of Pinckney Existing	2,427	65.39	88.10	153.49
Village of Pinckney Proposed	2,427	77.34	104.38	181.71
Village of Dexter	3,611	83.76	155.74	239.50
Village of Stockbridge	1,218	100.69	191.23	291.92
Village of Webberville	1,273	78.63	107.00	185.63
City of Chelsea	4,944	150.99	133.99	284.98
Village of Milford	6,175	93.90	107.07	200.97
Hamburg Township	21,165	121.20	149.55	270.75
Village of Baraga	2,053	117.60	141.96	259.56
Village of Lake Linden *	1,005	-	-	215.04
* Lake Linden charge is for water and sewer (6.34 Sewer Authority fee + 3.9 Village fee = 10.24 total)				
Totals also include existing debt charges for applicable communities				

Appendix A

Existing Metered Water Rates

METERED WATER RATES	
<b>READINESS-TO-SERVE CHARGE</b>	
<b>METER SIZE</b>	<b>QUARTERLY READINESS TO SERVICE CHARGE</b>
3/4"	\$23.00
1"	\$57.50
1-1/2"	\$115.00
2"	\$184.00
3"	\$402.50
4"	\$690.00
6"	\$1,437.50
8"	\$2,070.00
<b>COMMODITY CHARGE</b>	
<b>VOLUME</b>	Per 1,000 Gallons
Actual Volume Used	\$2.07
<b>HYDRANT CHARGES</b>	
Fire Hydrant Rental Fee	\$250.00 per hydrant plus commodity charge for water used
Fire Hydrant Rental Refundable Deposit	\$1,500.00
<b>CONNECTION CHARGES</b>	
Meter Cost	Property owners shall reimburse the Village for the actual cost of the water meter
Administration and Inspection Fees	
1" Service	\$100.00
2" Service	\$150.00
Larger than 2" Service	\$250.00
Service Call Fees	
Service Turn-On or Turn-Off	\$100.00 for each event
<b>CAPITAL CONNECTION CHARGE</b>	
<b>METER SIZE</b>	<b>CONNECTION CHARGE</b>
3/4"	\$2,800.00
1"	\$7,000.00
1-1/2"	\$14,000.00
2"	\$22,400.00
3"	\$49,000.00
4"	\$84,000.00
6"	\$175,000.00
8"	\$252,000.00

METERED WATER RATES (Continued)	
FIRE SERVICE CONNECTION FEES	
LINE SIZE	SERVICE CHARGE PER QUARTER
2"	\$50.00
4"	\$100.00
6"	\$150.00
8"	\$200.00

*Existing Sewer Rates*

SEWER RATES		
<b>READINESS-TO-SERVE CHARGE</b>		
<b>METER SIZE</b>	<b>QUARTERLY READINESS TO SERVICE CHARGE</b>	
3/4"	\$23.00	
1"	\$57.50	
1-1/2"	\$115.00	
2"	\$184.00	
3"	\$402.50	
4"	\$690.00	
6"	\$1,437.50	
8"	\$2,070.00	
<b>COMMODITY CHARGE</b>		
<b>VOLUME</b>	Per 1,000 Gallons	
Actual Volume Used	\$3.10	
<b>CONNECTION CHARGES</b>		
Administration and Inspection Fees		
Service Lead	\$100.00	
<b>CAPITAL CONNECTION CHARGE</b>		
<b>METER SIZE</b>	<b>CONNECTION CHARGE</b>	
3/4"	\$3,000.00	
1"	\$7,500.00	
1-1/2"	\$15,000.00	
2"	\$24,000.00	
3"	\$52,500.00	
4"	\$90,000.00	
6"	\$187,500.00	
8"	\$270,000.00	
<b>UNMETERED USERS (FLAT RATE)</b>		
Quarterly Charge		
1 to 3 Bedrooms	\$75.00	
Each Additional Bedroom	\$20.00	
<b>SURCHARGES</b>		
<b>PARAMETER</b>	<b>SURCHARGES (per lb.)</b>	<b>BASE CONCENTRATION (mg/L)</b>
Suspended Solids (SS)	\$0.29	430
Biochemical Oxygen	\$0.33	410
Phosphorus (P)	\$6.55	8.5
Kjeldahl Nitrogen (TKN)	\$2.15	50

## Appendix B

### Forecasted Water Revenue

FORECASTED WATER REVENUE							
WATER RATE		2.5875	/1000 GALLONS				
METER SIZE	NUMBER OF USERS	BILLED WATER SALES (GALLONS/YR)	PERCENT OF TOTAL	READY TO SERVE \$/Qtr	READY TO SERVE REVENUE	COMMODITY REVENUE	TOTAL REVENUE
5/8"	261	15,527,900	30%	\$23.00	\$24,012	\$40,178	\$64,190
3/4"	387	28,796,200	56%	\$23.00	\$35,604	\$74,510	\$110,114
1"	15	3,566,400	7%	\$57.50	\$3,450	\$9,228	\$12,678
1-1/2"	11	2,724,700	5%	\$115.00	\$5,060	\$7,050	\$12,110
2"	1	458,500	1%	\$184.00	\$736	\$1,186	\$1,922
3"	2	808,000	1%	\$402.50	\$3,220	\$2,091	\$5,311
4"	1	0	0%	\$690.00	\$2,760	\$0	\$2,760
<b>TOTAL</b>	<b>678</b>	<b>51,881,700</b>	<b>100%</b>		<b>\$74,842.00</b>	<b>\$134,243.90</b>	<b>\$209,085.90</b>
ESTIMATED REVENUE FROM INTEREST & MISC.							\$24,000
<b>TOTAL REVENUE</b>							<b>\$233,086</b>

### Forecasted Sewer Revenue

FORECASTED SEWER REVENUE							
SEWER RATE		3.875	/1000 GALLONS				
UNMETERED RATE		86.00	/1-3 BDRM/QTR	29.00	EA ADD'L BDRM		
METER SIZE	NUMBER OF USERS	BILLED SEWER SALES (GALLONS/YR)	PERCENT OF TOTAL	READY TO SERVE \$/Qtr	READY TO SERVE REVENUE	COMMODITY REVENUE	TOTAL REVENUE
UNMETERED	214						73,616
5/8"	205	14,301,000	30%	23	18,860	55,416	74,276
3/4"	377	23,639,900	49%	23	34,684	91,605	126,289
1"	14	2,773,900	6%	58	3,220	10,749	13,969
1-1/2"	11	4,026,700	8%	115	5,060	15,603	20,663
2"	1	458,500	1%	184	736	1,777	2,513
3"	2	1,122,000	2%	403	3,220	4,348	7,568
4"	1	1,777,000	4%	690	2,760	6,886	9,646
<b>TOTAL</b>	<b>825</b>	<b>48,099,000</b>	<b>100%</b>		<b>68,540</b>	<b>186,384</b>	<b>328,540</b>
ESTIMATED REVENUE FROM INTEREST & MISC.							41,500
<b>TOTAL REVENUE</b>							<b>370,040</b>

## Appendix C

### Detailed Sewer Treatment & Collection Expense Breakdown

GL NUMBER	DESCRIPTION	GENERAL	TREATMENT ONLY	COLLECTION ONLY	COMBINED TREATMENT & COLLECTION	TREATMENT BREAKDOWN FROM COMBINED	COLLECTION BREAKDOWN FROM COMBINED	TREATMENT TOTAL	COLLECTION TOTAL	2012 TOTAL
590-527.000-701.000	Labor Usage	0.00			65,000.00	32,500.00	32,500.00	32,500.00	32,500.00	65,000.00
590-527.000-703.000	Social Security	0.00			4,970.00	2,485.00	2,485.00	2,485.00	2,485.00	4,970.00
590-527.000-705.000	Workers Comp Insurance	0.00			950.00	475.00	475.00	475.00	475.00	950.00
590-527.000-706.000	Health Insurance	16,000.00						0.00	0.00	16,000.00
590-527.000-708.000	Pension	0.00			7,620.00	3,810.00	3,810.00	3,810.00	3,810.00	7,620.00
590-527.000-710.000	457 DEFERRED COMP PLAN	0.00			100.00	50.00	50.00	50.00	50.00	100.00
590-527.000-715.000	Equipment Usage	0.00			7,500.00	3,750.00	3,750.00	3,750.00	3,750.00	7,500.00
590-527.000-725.000	Seminars, Training & Cert.	1,000.00						0.00	0.00	1,000.00
590-527.000-727.000	Supplies	0.00	350.00					350.00	0.00	350.00
590-527.000-729.000	Safety Equipment	0.00			750.00	375.00	375.00	375.00	375.00	750.00
590-527.000-730.000	Postage	430.00						0.00	0.00	430.00
590-527.000-740.000	Cleaning Supplies	150.00						0.00	0.00	150.00
590-527.000-775.000	Chemicals	0.00	12,000.00					12,000.00	0.00	12,000.00
590-527.000-790.000	INTEREST EXPENSE	6,400.00						0.00	0.00	6,400.00
590-527.000-801.000	Legal Fees	1,500.00						0.00	0.00	1,500.00
590-527.000-802.000	Testing	0.00	20,270.00					20,270.00	0.00	20,270.00
590-527.000-803.000	Outside Engineering	0.00			30,000.00	15,000.00	15,000.00	15,000.00	15,000.00	30,000.00
590-527.000-804.000	Lagoon & Manhole Work	0.00	8,000.00					8,000.00	0.00	8,000.00
590-527.000-806.000	Subcontract Services	0.00		13,000.00				0.00	13,000.00	13,000.00
590-527.000-807.000	Auditors	7,000.00						0.00	0.00	7,000.00
590-527.000-808.000	Utilities Administration	0.00			2,200.00	1,100.00	1,100.00	1,100.00	1,100.00	2,200.00
590-527.000-811.000	Insurance	3,200.00						0.00	0.00	3,200.00
590-527.000-823.000	Licenses & Permits	0.00	4,500.00					4,500.00	0.00	4,500.00
590-527.000-824.000	Dues & Subscriptions	200.00						0.00	0.00	200.00
590-527.000-850.000	Internet Services	330.00						0.00	0.00	330.00
590-527.000-853.000	Telephone	1,700.00						0.00	0.00	1,700.00
590-527.000-855.000	Mileage Reimbursement	0.00						0.00	0.00	0.00
590-527.000-861.000	Fuels & Lubricants	0.00			3,000.00	1,500.00	1,500.00	1,500.00	1,500.00	3,000.00
590-527.000-900.000	Printing & Publishing	200.00			200.00	160.00	40.00	0.00	0.00	200.00
590-527.000-903.000	Plumbing Supplies	0.00	500.00					2,000.00	0.00	2,000.00
590-527.000-920.000	Utilities	0.00			53,000.00	42,400.00	10,600.00	42,400.00	10,600.00	53,000.00
	Utilities - Rolling Hills	0.00			960.00	768.00	192.00	768.00	192.00	960.00
590-527.000-930.000	Repair & Mtce - Building	0.00	500.00					500.00	0.00	500.00
590-527.000-931.000	Repairs & Maintenance	0.00		4,000.00				0.00	4,000.00	4,000.00
590-527.000-932.000	Grounds Maintenance	0.00	500.00					800.00	0.00	800.00
590-527.000-939.000	Uniforms, Boots, ETC	0.00			1,600.00	800.00	800.00	800.00	800.00	1,600.00
590-527.000-952.000	ASSESSMENT EXPENSE	0.00						0.00	0.00	0.00
590-527.000-953.000	Bank Charges	0.00						0.00	0.00	0.00
590-527.000-954.000	REFUND CONN FEES & UTIL BILLING	0.00						0.00	0.00	0.00
590-527.000-954.200	REIMB.- WATER SOFTENER DISCHG.	0.00						0.00	0.00	0.00
590-527.000-955.000	Miscellaneous	500.00						0.00	0.00	500.00
590-527.000-957.000	Property Taxes	0.00						0.00	0.00	0.00
590-527.000-972.000	Furniture & Fixtures	200.00						0.00	0.00	200.00
590-527.000-973.000	Office Equipment & Copier	350.00						0.00	0.00	350.00
590-527.000-974.000	Computer Hardware & Software	1,500.00			1,500.00	750.00	750.00	0.00	0.00	1,500.00
590-527.000-975.000	Consulting	0.00						0.00	0.00	0.00
590-527.000-976.000	Agent Fees	250.00						0.00	0.00	250.00
590-527.000-977.000	Equipment & Tools	3,500.00						0.00	0.00	3,500.00
<b>2012 TOTAL</b>		44,410.00	37,222.00	17,000.00	188,298.00	119,709.00	68,589.00	153,433.00	89,637.00	287,480.00

