Village of

CARPENTERSVILLE

Water and Sewer Rate Study

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Village of Carpentersville, Illinois
Water and Sewer Rate Study

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EXECUTIVE SUMMARY

Introduction

This report was prepared to document the work performed by Baxter & Woodman, Inc. during the Water and Sewer Rate Study authorized by the Village of Carpentersville (the Village). This study uses a cash flow analysis and cost of service evaluation to support recommendations for revisions to water and sewer rates. The study uses a five-year planning period beginning May 1, 2011 (FY 2012) and continuing through FY 2016. See Appendix A for a glossary of terms used in this report.

Findings

The Village has experienced considerable growth and development since the early 1990s, which resulted in substantial revenue from water and sewer connection fees. Additionally, growth continually increased revenues from water and sewer rates without the need for many rate increases. As a result, the water and sewer availability fees have not been increased in over ten years. Usage rates have been increased annually for the last four years, but were not increased from 2000 to 2006.

Current rates provide for routine operations and maintenance, debt service for previous capital improvements and annual inter-fund transfers, but they do not provide funding for an annual capital improvement program for long-term sustainability of infrastructure and equipment. Nor do the current rates reflect the value of the services provided by the water and sewer utilities. The financial projections indicate the current

rates cannot sustain total expenses while at the same time maintaining a positive cash balance in the Water and Sewer Enterprise Fund.

Conclusions

Water and sewer rates must be increased annually in FY 2012 through FY 2016 in order to meet projected expenses during the five-year study period. In particular, the need to provide a dedicated source of funding for an annual capital improvement program is a key driver of the rate increases, as the Village has nearly reached its bond limit for capital improvement projects. The alternative of failing to fund an annual capital program is gradual deterioration of infrastructure, which, over time, will make service issues such as water main breaks, sewer backups, service outages and property damage more and more prevalent.

Revisions to the water and sewer rate structure would also be beneficial to more accurately reflect the current cost of service delineations between fixed (overhead) costs and variable costs.

Recommendations - Water and Sewer Rates

The recommended schedule of water and sewer rates factors in projected operating expenses, capital improvement costs, debt service and inter-fund transfers. Proposed rate increases are designed to cover these expenses while maintaining a positive cash balance in the Water and Sewer Fund.

Modifications to the rate structure are also recommended. The availability charges were set over ten years ago and have not been increased since. These charges are intended to cover overhead costs that do not vary with the amount of water and sewer usage, such as meter reading, billing and customer service. A revised schedule of

availability charges is recommended, which is based on current overhead costs for the water and sewer utilities. These charges escalate by water meter size to reflect the additional demand placed on the system by larger users. Additionally, the Village should begin assessing availability charges to customers with unmetered fire services to reflect the system capacity that must be maintained for these fire services.

A monthly surcharge of $5 per customer is also proposed to quickly replenish operating reserves after the Randall Road elevated tank repair and repainting project is completed in FY 2012. This surcharge would be assessed starting August 2011, and discontinued by July 2012.

The final recommendation is to transition from a quarterly billing cycle to a bi-monthly billing cycle. With the conversion to an automatic meter reading system underway, this change ultimately should not significantly increase workload for meter reading staff, though it will temporarily increase meter reading time until the majority of the meter change-out process is completed. A more frequent billing cycle has several benefits:

- Improved cash flow.
- Help customers budget for water and sewer bills and reduce the number of unpaid bills by spreading out payments.
- Faster detection of service issues such as stopped meters, meter tampering or water leaks.

The recommended five-year rate schedule in the following table is based on full funding of projected operating expenses, the five-year capital improvement plan and annual investment in underground infrastructure renewal (Rate Scenario 3). The full funding of underground infrastructure renewal is the largest driver of rate increases. If

the Board determines the rate increases needed for full funding are too significant at this time, Rate Scenarios 1 and 2 provide options for lower levels of underground infrastructure investment and corresponding lower rate increases.

Recommended Water and Sewer Rate Schedule – Scenario 3

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Usage Rates per 1,000 gallons						
Water Usage Rate	$3.10	$3.88	$4.85	$5.53	$5.70	$5.87
Sewer Usage Rate	$3.45	$4.04	$4.61	$4.98	$5.13	$5.28
Water Availability Charges (Bi-Monthly)						
≤ 3/4-inch meter	$3.55	$4.74	$4.88	$5.03	$5.18	$5.34
1-inch meter	$3.55	$6.78	$6.98	$7.19	$7.41	$7.63
1½-inch meter	$3.55	$13.54	$13.95	$14.37	$14.80	$15.24
2-inch meter	$3.55	$21.66	$22.31	$22.98	$23.67	$24.38
3-inch meter	$3.55	$43	$44	$45	$46	$47
4-inch meter	$3.55	$68	$70	$72	$74	$76
6-inch meter	$3.55	$135	$149	$151	$152	$154
Sewer Availability Charges (Bi-Monthly)						
≤ 3/4-inch meter	$8.04	$4.74	$4.88	$5.03	$5.18	$5.34
1-inch meter	$8.04	$6.78	$6.98	$7.19	$7.41	$7.63
1½-inch meter	$8.04	$13.54	$13.95	$14.37	$14.80	$15.24
2-inch meter	$8.04	$21.66	$22.31	$22.98	$23.67	$24.38
3-inch meter	$8.04	$43	$44	$45	$46	$47
4-inch meter	$8.04	$68	$70	$72	$74	$76
6-inch meter	$8.04	$135	$149	$151	$152	$154
Elevated Tank Surcharge (Monthly)*	-	$5.00	$5.00	-	-	-

* Surcharge begins August 2011, and is discontinued by July 2012.

Bi-monthly bills in the following table are compared to current quarterly bills (shown in the FY 2011 column) to demonstrate the change that customers will see in their bills after the combination of a rate increase and a new billing cycle takes effect. Rate increases are assumed to take effect August 1 of each year, with the first rate

increase in August 2011 (FY 2012). The Village should verify actual revenues and expenses at the end of each fiscal year to determine if they remain in line with the financial projections developed in this study.

Projected Water and Sewer Bills – Scenario 3

	Quarterly	Bi-Monthly				
Customer Class	FY 2011	FY 2012*	FY 2013*	FY 2014	FY 2015	FY 2016
Avg. Senior Citizen Usage (2,000 gallons/month)	$32	$36	$38	$30	$31	$32
Avg. Residential Usage (6,000 gallons/month)	$129	$115	$133	$136	$141	$145

* Bi-monthly bills include $5/month elevated tank surcharge from August 2011 through July 2012.

Recommendations - Other Water and Sewer Fees

The Village is further advised to revise other water and sewer rates and charges as follows:

- ***Senior Rates*** **–** Revise the water availability charges for seniors to provide 2,000 gallons per month (4,000 gallons per bi-monthly bill) with the water availability charges. Usage rates would be assessed for all usage exceeding 4,000 gallons in a bi-monthly billing cycle.

- ***Hydrant Usage Rates*** **–** Revise the rate ordinance to only list the hydrant surcharge rate of $4.25 per 1,000 gallons, with an explanation that this surcharge will be assessed in addition to the regular water usage rate for all metered hydrant usage. This will allow the total hydrant usage rate (regular water usage rate plus surcharge rate) to keep pace with future water usage rate increases.

- ***Unmetered Sewer Fees*** **-** Revise the unmetered sewer fees to the equivalent of 6,000 gallons per month billed at the sewer usage rate. This will automatically adjust the unmetered sewer fee each year as sewer usage rates are increased, without requiring any changes to the rate ordinance.

- ***Water Meter Fees -*** Revise the license and permit fee schedule to simply state that customers shall pay twice the material cost of the meter at the time the connection application is submitted, rather than listing specific dollar amounts for each meter size.

- ***Water Service Reinstatement Fees -*** Increase the standard fee, if needed, to cover all costs associated with water service shutoff and reinstatement.

1. PURPOSE OF STUDY

The primary purpose of this rate study is to ensure that the water and sewer utilities are self-sustaining. To this end, the study includes an in-depth evaluation of the current and projected revenues and expenses of the water and sanitary sewer utilities. A cash flow analysis, along with water and sewer billing projections, is used to determine the rates necessary to make these utilities fully self-supporting.

Another goal of this rate study is to determine if the current rate structure, which was established in the 1990s, is still applicable; and further, to ensure that rates are equitable and defensible in accordance with American Water Works Association (AWWA) rate-setting guidelines. This part of the study considers such factors as financial impacts on various customer classes; the division of water and sewer expenses within the enterprise fund; and overhead costs to the water and sewer utilities.

Finally, this study includes an evaluation of current and projected spending for water and sewer system capital improvement projects. This includes projects needed to maintain existing equipment and infrastructure in good working condition, such as water main replacement, sanitary sewer lining, pump rehabilitation, water meter and treatment equipment replacement, and water storage tank painting. Evaluating these future needs is crucial because proper maintenance of the water and sewer systems will allow the Village to maintain a high level of service and minimize extra operating costs such as lost water, damages resulting from system failures, and the labor, materials and contractual services associated with continual repairs of failing equipment and infrastructure.

2. PRESENT CONDITIONS

2.1 Overview

The Village of Carpentersville is located approximately 40 miles northwest of downtown Chicago in Kane County. The Village has undergone significant growth and commercial development in the last 20 years, growing from a population of 23,049 at the 1990 Census to a population of 37,691 at the 2010 Census.

The Village produces water from four shallow wells, treats the water at a centralized iron removal and softening facility and distributes the treated water to customers. The water distribution system consists of approximately 130 miles of water main from 3-inch to 20-inch diameter, and nearly 10,400 water meters.

All municipal wastewater is conveyed through a collection system consisting of approximately 92 miles of sanitary sewers and force mains and 12 sewage lift stations. Wastewater is treated at an activated sludge treatment facility.

2.2 Water and Sewer Rates

The Village currently bills quarterly for water and sewer services using a uniform rate structure for incorporated customers, meaning that these customers all pay the same availability charges and the same usage rates. Unincorporated customers and customers who do not receive both water and sewer service from the Village pay a different set of fees.

The water and sewer rate structure was set up in the 1990s and rates remained unchanged through the year 2006. Availability charges are assessed on a quarterly

basis and were established to cover overhead costs that do not vary throughout the year as usage patterns change. This includes meter reading, billing, customer service and inter-fund transfers. The usage rates are intended to recover costs for routine operation and maintenance of the water and sewer systems, capital improvement projects, and debt service. Beginning in 2007, the usage rates have been increased annually; the availability charges have not been increased since before 2000. Current rates are listed in Table 1.

TABLE 1

Current Water and Sewer Rates

Water Rates	
Usage Rate per 1,000 gallons	$3.10
Availability Charge per quarter	$3.55
Sewer Rates	
Usage Rate per 1,000 gallons	$3.45
Availability Charge per quarter	$8.04

Figures 1 and 2 compare historical rate increases against historical increases in the Consumer Price Index, which tracks inflation in goods and services.

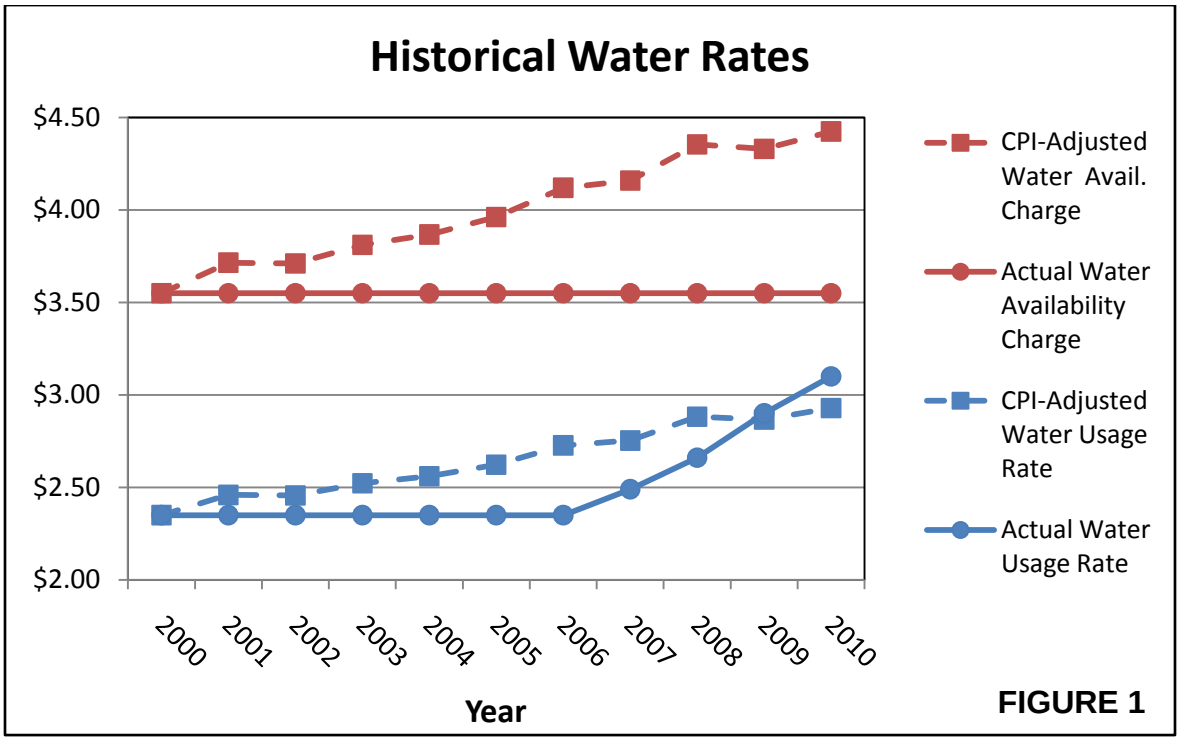

FIGURE 1

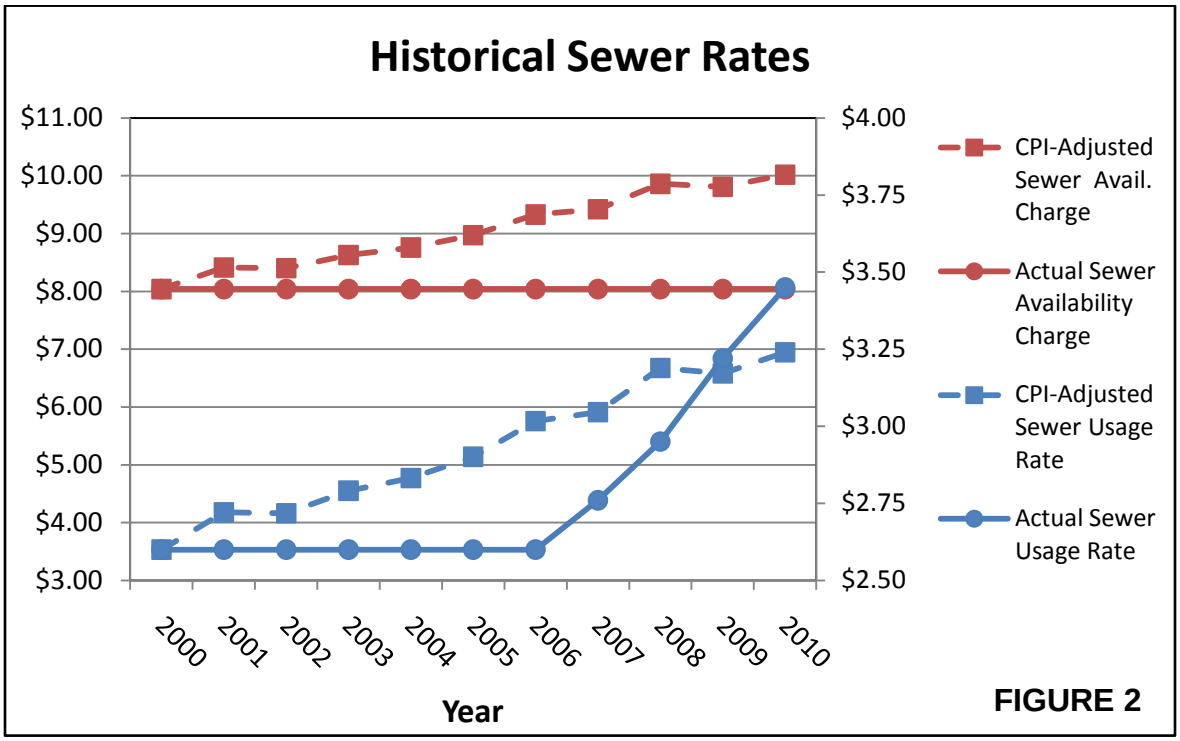

FIGURE 2

Figures 1 and 2 demonstrate that historical water and sewer rate increases have not kept pace with inflation in the costs of operating these utilities. The Water and Sewer Fund remained financially stable during this time primarily due to growth and development, which increased revenues annually without the need for rate increases. However, with the recent economic decline and resulting business closures and reductions in outdoor water usage, overall water consumption has declined. This has resulted in unforeseen negative impacts to operating revenues.

Table 2 shows the quarterly water and sewer bills for a Carpentersville resident compared to the equivalent quarterly water and sewer costs for residents in nearby communities. Costs for all communities include water production and distribution as well as wastewater conveyance and treatment, though not all communities have the same type of treatment processes. Communities are ordered from lowest to highest total water and sewer bill. Water and sewer bills are calculated for a residential customer with a 3/4-inch water meter using 6,000 gallons per month (18,000 gallons per quarter). In some communities, rates differ based on water meter size, so a specific meter size must be assumed for an equivalent comparison.

TABLE 2

Regional Water and Sewer Cost Comparison

Municipality	Equivalent Quarterly Water Bill [1]	Equivalent Quarterly Sewer Bill [1]	Equivalent Quarterly Water and Sewer Bill [1]
Huntley	$ 47	$ 63	$110
Crystal Lake	$ 53	$ 58	$111
Algonquin	$ 63	$ 60	$123
Carpentersville	$ 59	$ 70	$129
West Dundee	$ 82	$ 52	$134
Barrington	$ 55	$ 92	$147
South Barrington	$ 95	$ 66	$161
Gilberts	$ 81	$ 81	$162
Elgin	$108	$ 63	$171
Pingree Grove	$ 82	$ 92	$174
East Dundee	$ 84	$107	$191
Sleepy Hollow	$129	$156	$285
Averages	**$ 78**	**$ 80**	**$158**

Carpentersville's combined water and sewer bill for average residential usage is about 18 percent below the average for nearby communities. While this provides a general barometer of water and sewer rate affordability in the area, comparison with other communities' rates should not be the sole method for determining the fairness and affordability of the Village's water and sewer rates. This is especially important because each community has different financial situations, revenue requirements, treatment processes and cost allocation methods. Furthermore, infrastructure replacement and rehabilitation spending, which is becoming an ever larger portion of

[1] Not all of the communities surveyed bill on a quarterly cycle, so water and sewer bills for some communities were adjusted to calculate a residential customer's equivalent quarterly bill.

total expenses for many municipal utilities, can vary widely between communities based on system age and condition.

Besides usage rates, the Village charges water and sewer connection fees and infrastructure fees to new customers. This has historically been a large source of revenue for the water and sewer utilities, but revenues from new connections have declined considerably due to the downturn in the housing and development markets. Other sources of revenue for the Water and Sewer Fund include water meter fees, hydrant charges for filling tanker trucks, late payment penalties, water service restoration charges and fees paid by wireless communication providers to lease antenna space on the elevated water storage tanks.

2.3 Water and Sewer Usage

The Village currently has 10,381 water and sewer accounts. The vast majority of accounts are residential, with approximately 200 non-residential accounts consisting of commercial, industrial, institutional and public buildings. Table 3 lists historical treated water pumpage and total metered water consumption.

TABLE 3

Historical Water Pumpage and Consumption

	FY 2009	FY 2010	FY 2011
Treated Water Pumpage (gallons)	1,007,881,000	1,036,697,000	1,003,480,000
Billed Water Usage (gallons)	825,642,000	773,165,000	762,270,000
Ratio of Billed to Pumped Water	82%	75%	76%
Average Usage per Customer (gal/month)	7,000	6,600	6,400

Treated water pumpage has declined in recent years as a result of business closures and decreased outdoor water usage. This is also reflected by a drop in the average monthly consumption per customer. The amount of pumped water that is recorded as metered water consumption has also declined. A medium-sized water system such as Carpentersville can expect unbilled water in the range of 4 to 8 percent due to normal water main leakage, 2 to 3 percent due to under-reading by meters, and 1 to 2 percent for unmetered municipal uses such as hydrant flushing and fire fighting (a total of 7 to 13 percent unbilled water). In comparison, the Village's unbilled treated water pumpage has ranged from 18 to 25 percent in the last three years.

The elevated level of unbilled water, along with the increase in unbilled water since FY 2009, indicates the need to invest more in systematic replacement of water mains, fire hydrants and water meters in order to reduce leaks and unmetered water. The Public Works Department plans to conduct leak detection testing in conjunction with updates to the existing water system model in FY 2012 to identify a cost-effective approach to water main and hydrant replacement. In addition, a community-wide water meter replacement program is underway to eliminate obsolete meters and reading devices that are likely not capturing all usage. It is likely that the slight increase in billed water percentage from FY 2010 resulted from more accurate readings from meters that have already been replaced. Using current usage rates, the Village can expect an additional $590,000 in operating revenue annually if these efforts are successful in reducing unbilled water pumpage from 24 percent as observed in FY 2011 to a more desirable level of 13 percent. However, to be conservative, this additional revenue is not factored into the rate analysis.

2.4 Capital Improvement Projects

Expense projections for this study include improvements to maintain or upgrade existing equipment and infrastructure, thus ensuring consistent, high quality service for the Village's water and sewer customers. These are termed capital improvement projects. The five-year water and sewer capital improvement plan includes the following:

- Water storage tank rehabilitation to maintain structural integrity and water quality.
- Annual rehabilitation of water supply wells and lift stations to prevent equipment failure.
- Replacement of water and wastewater treatment equipment that has reached the end of its useful life.
- Upgrades to the Supervisory Control and Data Acquisition (SCADA) system to eliminate obsolete equipment and improve communication and monitoring efficiency.
- Replacement of aging vehicles that are no longer cost-effective to maintain.
- Annual investment in water main replacement to reduce lost water and maximize operating revenue.
- Annual investment in sanitary sewer and manhole rehabilitation to reduce costs to treat infiltration and inflow.

3. FUTURE CONDITIONS

3.1 Water and Sewer Usage

Carpentersville has undergone significant growth in the last 20 years, but new connections have slowed due to a decline in the economy in general and the housing market in particular. The Village prefers not to rely on any significant growth when forecasting future usage revenues, since it is unknown how long it will take for the economy to recover enough to spur new developments. Therefore, future water and sewer usage is forecasted assuming the only new connections will come from the completion of the final phase of the Pulte development (119 new homes over the next five years @ 6,000 gallons per month per home).

3.2 Revenue Projections

Several resources provided by the Village were used to project future revenues for the Water and Sewer Fund. These include:

- Audited revenues for FY 2008 through FY 2010, year-end estimated revenues for FY 2011, and budgeted revenues for FY 2012.
- Water pumpage and water/sewer billing records from January 2007 through December 2010.
- Lease agreements for antennae mounted on the water towers.
- Projected rates of return on investments.

Revenues from water and sewer usage rates are estimated based on projected usage, which incorporates historical trends in water/sewer usage and build-out of the Pulte development. This information was used to create baseline five-year revenue

projections for the Water and Sewer Fund. The term "baseline" refers to existing revenue sources only, and does not include increases to water and sewer rates. To be conservative, the usage projections do not include any additional revenue resulting from reductions in unbilled water, though this is the goal of several of the planned capital improvement projects. The baseline revenue forecasts are summarized in Table 4, with details provided in Appendix B.

TABLE 4

Water and Sewer Fund Baseline Revenue Projections

Revenue Description	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Water Sales	$2,636,000	$2,654,500	$2,659,800	$2,665,100	$2,670,400	$2,675,700
Sewer Sales	$3,177,000	$3,205,100	$3,210,800	$3,217,500	$3,224,200	$3,229,900
Connection Fees	$325,000	$325,000	$325,000	$325,000	$109,000	$109,000
Infrastructure & Inspection Fees	$59,155	$84,000	$84,000	$84,000	$0	$0
Meter Sales	$11,000	$16,000	$16,000	$16,000	$16,000	$16,000
Penalties & Service Fees	$191,500	$201,500	$201,500	$201,500	$201,500	$201,500
Rental Income	$74,300	$77,400	$70,400	$58,200	$58,600	$60,300
Interest	$800	$2,600	$0	$0	$0	$0
Debt Proceeds*	$0	$750,000	$750,000	$0	$0	$0
Miscellaneous	$610	$3,500	$3,500	$3,500	$3,500	$3,500
Total Revenues	**$6,475,365**	**$7,319,600**	**$7,321,000**	**$6,570,800**	**$6,283,200**	**$6,295,900**

* IEPA loan to fund replacement of the sludge dewatering system at the wastewater treatment plant.

3.3 Expense Projections

Several resources provided by the Village were used to project future expenses for the Water and Sewer Fund. These include:

- Audited expenses for FY 2008 through FY 2010, year-end estimated expenses for FY 2011, and budgeted expenses for FY 2012.

- Input from Village staff on inflation factors for operating expenses.
- Five-year water and sewer system capital improvement plan.
- Repayment schedules for existing debt and anticipated borrowing terms for future debt.
- Projected transfers to the General Fund for services rendered by non-water and sewer personnel and equipment.

Expense projections are separated into three categories: routine operations and maintenance, capital improvement projects and debt service. These expense categories are discussed in the following subsections, with additional detail provided in Appendix B.

3.3.1 Operations and Maintenance - Routine operation and maintenance (O&M) expenses include the day-to-day costs of keeping the water and sewer systems in operation. These include administrative and overhead costs, salaries and benefits for operations and maintenance staff, commodities such as chemicals and salt, utilities such as electric and gas, and contractual obligations such as sludge hauling and audit services. These expenses typically increase at regular intervals due to inflation, but can sometimes increase or decrease significantly due to situations such as increasing or reducing staffing levels, or making a major process change.

O&M expenses from previous years and those budgeted in the current fiscal year were compared to assess inflation trends. These observed trends and Village staff's input on future conditions were used to develop individual inflation rates for each operating expense line item. This information was compiled into detailed five-year expense projections for the Water and Sewer Fund. These projections are summarized by budget division in Table 5, with details provided in Appendix B. Each of the rate scenarios discussed later in this report include these O&M expense projections.

TABLE 5

Operation and Maintenance Expense Projections

Expense Description	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Water Facilities						
Personnel Services	$756,890	$699,520	$719,460	$739,400	$760,300	$781,160
Contractual Svcs.	$779,210	$731,910	$744,860	$773,610	$802,470	$833,430
Commodities	$374,200	$420,800	$434,650	$448,600	$462,650	$248,800
Water Underground						
Personnel Services	$491,760	$390,180	$400,800	$458,420	$471,040	$484,620
Contractual Svcs.	$41,350	$68,300	$43,030	$44,270	$45,610	$46,950
Commodities	$133,000	$109,400	$112,940	$137,480	$142,120	$146,760
Water Utility Total	**$2,576,410**	**$2,420,110**	**$2,455,740**	**$2,601,780**	**$2,684,190**	**$2,541,720**
Sewer Facilities						
Personnel Services	$807,040	$712,920	$733,760	$754,600	$777,440	$789,280
Contractual Svcs.	$635,610	$673,600	$699,620	$725,640	$752,760	$780,880
Commodities	$90,500	$103,700	$107,240	$110,780	$114,520	$118,260
Sewer Underground						
Personnel Services	$492,360	$390,180	$400,800	$458,420	$471,040	$484,620
Contractual Svcs.	$14,940	$21,200	$21,830	$22,460	$23,090	$23,730
Commodities	$80,200	$72,400	$74,730	$85,860	$88,690	$91,550
Sewer Utility Total	**$2,120,650**	**$1,974,000**	**$2,037,980**	**$2,157,760**	**$2,227,540**	**$2,288,320**
W&S Fund Total	**$4,697,060**	**$4,394,110**	**$4,493,720**	**$4,759,540**	**$4,911,730**	**$4,830,040**
% Increase	**-**	**-6%**	**2%**	**6%**	**3%**	**-2%**

In general, O&M expenses are projected to trend upward over the next five years. Major influences on expenses are outlined below. Apart from these major expense drivers, most other O&M expenses are projected to increase annually due to inflation and cost of living increases.

1. Staff reductions were undertaken in FY 2011, which considerably lowered personnel costs in the FY 2012 budget.

2. Future personnel expenses include one employee added to Water Underground and one to Sewer Underground in FY 2014 to allow the water and sewer divisions to keep pace with future system maintenance needs.

3. The cost of a six-year, community-wide water meter replacement program is included under the Commodities division of the Water Facilities budget. This program is projected to finish in FY 2015, resulting in a cost reduction in FY 2016.

3.3.2 Capital Improvement Projects – The Village has historically undertaken capital improvements in response to growth and development. Those projects that were not specifically related to development, such as water main and sewer replacement in conjunction with roadway improvements, were typically bonded. Conditions have changed considerably in recent years as growth has dwindled and the Village has nearly reached its bonding capacity. The focus has now shifted to capital improvements needed to renew existing infrastructure, and with limited bonding ability, these costs must now be built directly into water and sewer rates.

The five-year capital improvement plan includes annual funding for replacement and rehabilitation (R&R) of existing infrastructure and equipment in order to prevent failures and large-scale service issues (such as a water main break causing a road closure or lift station failure causing sewer backups). The Village also has a vehicle

replacement schedule to replace municipal fleet vehicles when continued maintenance is no longer cost-effective. Table 6 summarizes the five-year capital improvement plan. Details are provided in Appendix C.

TABLE 6

Five-Year Capital Improvement Plan

Expense Description	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Water Utility						
Treatment Equipmt.	$0	$0	$0	$150,000	$150,000	$16,000
Well Rehabilitation	$45,000	$40,000	$40,000	$40,000	$40,000	$40,000
SCADA Upgrade	$0	$177,000	$0	$0	$0	$0
Tank Painting	$0	$550,000	$300,000	$100,000	$250,000	$0
Vehicles	$0	$44,700	$44,700	$44,700	$44,700	$44,700
Water Utility Total	**$45,000**	**$811,700**	**$384,700**	**$334,700**	**$484,700**	**$100,700**
Sewer Utility						
Treatment Equipmt.	$0	$750,000	$750,000	$0	$40,000	$120,000
Lift Stations	$0	$50,000	$50,000	$50,000	$50,000	$50,000
SCADA Upgrade	$0	$0	$0	$0	$250,000	$0
Vehicles	$0	$79,200	$79,200	$79,200	$79,200	$79,200
Sewer Utility Total	**$0**	**$879,200**	**$879,200**	**$129,200**	**$419,200**	**$249,200**
W&S Fund Total	**$45,000**	**$1,690,900**	**$1,263,900**	**$463,900**	**$903,900**	**$349,900**

A detailed inventory of the Village's water and sewer systems was prepared to determine target annual allocations for major R&R projects. For each major type of equipment or infrastructure – such as pump stations, water meters or piping – Baxter & Woodman worked with Public Works staff to determine the useful life of each item and an approximate replacement or rehabilitation cost. The recommendations include amounts to set aside annually for cyclical projects such as large-scale water meter replacement or water storage tank painting, in order to prevent reactionary rate

increases when these projects become needed; as well as target annual spending levels for ongoing projects that are completed over many years, such as water main replacement and sanitary sewer lining.

The goal for cyclical projects is to have dedicated reserves available when these projects come due, to avoid significant impacts to the operating reserve or delays due to insufficient funds. For the ongoing efforts of water main replacement and sanitary sewer rehab, the goal is to structure rates to provide for annual investment in underground infrastructure to prevent major piping failures. The results of this analysis are summarized in Table 7 with details available in Appendix D.

TABLE 7

Target Replacement and Rehabilitation Allocations

Description	Useful Life	Annual Allocation
Replace Treatment Plant Equipment*	15-20 years	$ 392,000
Replace Sewage Lift Station Equipment*	15-20 years	$ 48,000
Replace Water Booster/PRV Station Equipment*	20-30 years	$ 24,000
Replace Stationary Generators	25 years	$ 90,000
Rehabilitate Water Supply Wells	5 years	$ 40,000
Repair and Repaint Water Storage Tanks	15 years	$ 125,000
Replace Vehicles and Maintenance Equipment	15 years	$ 124,000
Replace Water Meters	15 years	$ 130,000
Replace Water Mains and Appurtenances	75 years	$1,460,000
Rehabilitate Sanitary Sewers and Manholes	75 years	$ 270,000

* Includes replacement/upgrade of associated electrical panels, wiring, SCADA, and instrumentation.

Projected average annual spending for treatment equipment replacement, water storage tank painting and water meter replacement exceeds the target annual allocations due to the timing for specific projects in these categories. The capital

improvement plan also includes the recommended annual allocation for well rehabilitation, lift station equipment replacement and vehicle replacement. The capital improvement plan does not include any water booster/valve station rehabilitation projects or replacement of any generators.

The water and sewer capital improvement plan does not currently include an annual allocation for water main replacement and sanitary sewer rehabilitation. These large-scale projects require a continuous annual investment to keep pace with deterioration over such a large network of piping. A considerable portion of the water distribution and sanitary sewer systems were installed in the last 20 years, though the original sections are over 55 years old. The risk of service outages and property damage due to breaks in aging water mains and leaks in older sewers will increase in the future as the oldest pipes begin to reach the end of their useful life. The rate analysis assesses the financial impact of funding annual replacement/rehabilitation programs at 50, 75 and 100 percent of the target funding level.

3.3.3 Debt Service – Debt service expenses include a portion of annual revenue bond payments for previous roadway and underground infrastructure improvements, as well as annual payments on an Illinois Environmental Protection Agency (IEPA) low interest loan for a previous wastewater treatment plant upgrade. This study assumes the Village will take out an additional IEPA low interest loan for sludge dewatering system replacement at the wastewater treatment plant, with the first payment due in FY 2013. These costs are summarized in Table 8.

TABLE 8

Debt Service Expense Projections

Expense Description	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Bond Payments	$754,000	$754,000	$752,000	$756,000	$754,000	$648,000
IEPA Loan (WWTP Upgrade)	$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000
IEPA Loan (Sludge Dewatering)	$0	$0	$96,000	$96,000	$96,000	$96,000
Totals	**$1,897,000**	**$1,897,000**	**$1,991,000**	**$1,995,000**	**$1,993,000**	**$1,887,000**

4. BASELINE CASH FLOW ANALYSIS

Comparison of the baseline revenue projections to the five-year expense projections demonstrates a shortfall in revenues in every year of the study period as well as the current fiscal year, as shown in Table 9. This demonstrates that current rates are not sufficient to cover all projected expenses during the study period. This situation is due to several factors that are largely beyond control, such as the need for infrastructure investment to prevent system failures and annual inflation in many goods and services.

TABLE 9

Baseline Cash Flow Analysis

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Revenue Projections	$6,475,365	$7,319,600	$7,321,000	$6,570,800	$6,283,200	$6,295,900
Expense Projections	$7,143,860	$8,549,930	$8,393,330	$7,874,490	$8,470,220	$7,740,480
Surplus (Shortfall)	**($668,495)**	**($1,230,330)**	**($1,072,330)**	**($1,303,690)**	**($2,187,020)**	**($1,444,580)**

As of May 1, 2010 (beginning of FY 2011), the Water and Sewer Fund held approximately $923,000 in operating reserves. As shown in Figure 3 below, this reserve is projected to be completely depleted by the end of FY 2012 if rate increases are not implemented to combat rising costs.

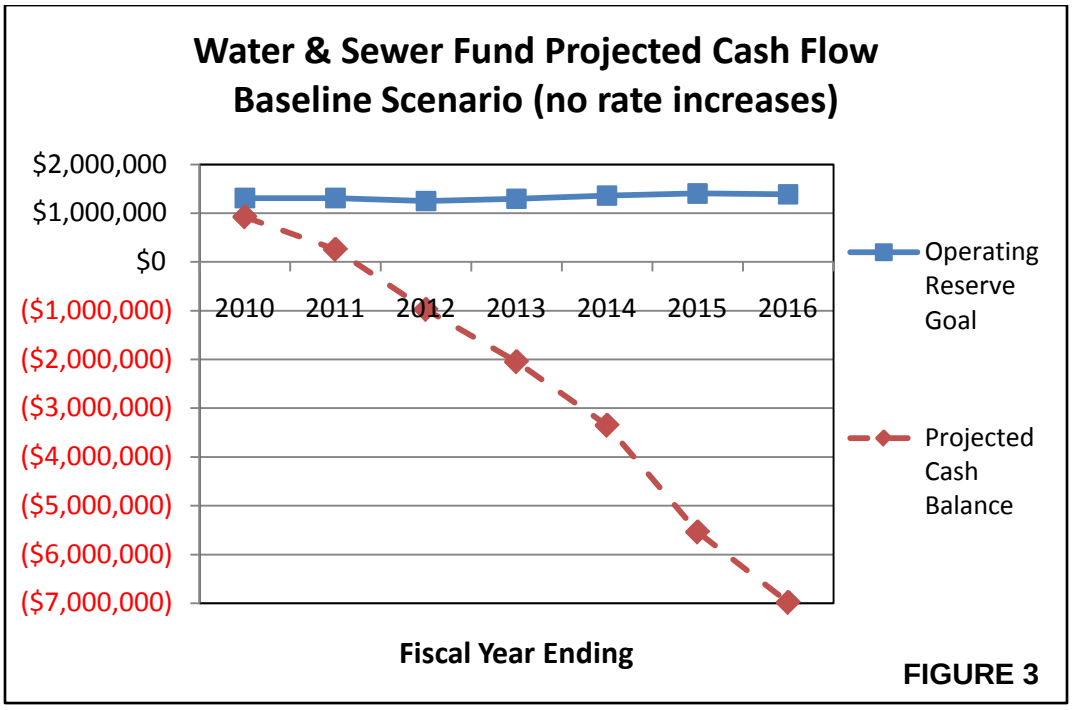

FIGURE 3

The Village was fortunate to experience considerable operating revenue growth and connection fee revenues in past years, which allowed water and sewer usage rate increases to be suspended for several years. However, dwindling growth has made it necessary to revise rates to fully reflect the current cost of service, since growth can no longer be relied upon as a significant additional revenue source.

Sections 5 and 6 of this report outline various alternatives for increasing water and sewer rates to prevent a cash flow deficit in the Water and Sewer Fund, as well as methods for revising the rate structure and billing frequency to better reflect the current costs of service and improve cash flow.

5. PRELIMINARY RATE ANALYSIS

In advance of preparing detailed rate scenarios, this study evaluated billing frequency, distribution of water and sewer usage rates, availability charge structure and funding for major capital projects. The recommendations outlined below are common to all three of the usage rate increase scenarios discussed in Section 6 of this report.

5.1 Billing Cycle

Currently, the Village bills quarterly for water and sewer services, but has been considering switching to a bi-monthly billing cycle. There are many benefits of more frequent billing for both the Village and its customers, including faster detection of service issues such as stopped meters, meter tampering and plumbing leaks; the likelihood of more on-time payments and fewer customer service calls due to high bills; and improved cash flow year-round.

The Village anticipates that additional meter reading and billing associated with a more frequent billing cycle could be accomplished by existing staff. The ongoing installation of new water meters with automatic meter reading devices will significantly reduce the time needed for meter reading once completed. The current water and sewer billing software can also be reconfigured to function on a bi-monthly cycle. The additional cost for postage and mailing supplies is estimated at $12,000.

Considering the many benefits of more frequent billing and relatively low cost, the recommendation is to switch to bi-monthly billing concurrent with the next rate

increase (projected for August 2011). The detailed rate scenarios evaluated in Sections 6 through 8 of this report were prepared using this assumption.

5.2 Water and Sewer Usage Rate Distribution

At present, approximately 45 percent of annual Water and Sewer Fund costs are attributable to the water utility and 55 percent to the sanitary sewer utility (Appendix E). In comparison, the current water usage rate of $3.10 per 1,000 gallons constitutes approximately 47 percent of the combined water and sewer rate of $6.55 per 1,000 gallons; and the sewer usage rate of $3.45 per 1,000 gallons constitutes 53 percent. This indicates that the usage rate distribution is mostly reflective of the current distribution of expenses between the two utilities, and little adjustment is needed in the rate proportions in the future.

5.3 Availability Charge Structure

The availability charges were set in the 1990s and have not been updated since that time. Most customers pay the availability charges as a base bill, with all water and sewer usage billed in addition to these charges (senior citizens receive 15,000 gallons of water per quarter with their water availability charges). The availability charges are intended to recover the costs of overhead and administrative services that are relatively constant throughout the year, such as meter reading, billing, customer service, financial services and inter-fund transfers.

The FY 2012 budget includes overhead costs of $296,840 under the Water Administrative & General expense division, and the same amount under the Sewer Administrative & General division. Divided among 10,381 accounts, this equates to a basic fixed cost of $2.37 per month per customer for each water and sewer. It is

recommended that availability charges be revised to charge all customers with a 3/4-inch or smaller water meter $2.37 per month for water and $2.37 per month for sewer. Applied on a bi-monthly cycle, this results in a total availability charge of $9.48 per bill for customers using both water and sewer services. Most residential customers would fall into this category, as well as small businesses.

It is further recommended that availability charges be escalated for customers with larger meters, based on their proportionally higher meter capacities as compared to a 3/4-inch meter. This structure will allow the Village to distribute the costs of maintaining larger water mains, water meters and higher fire flows to customers with higher usage and fire demands. Table 10 lists proposed bi-monthly availability charges for implementation in FY 2012.

TABLE 10

Availability Charge Escalation

Water Meter Size	Capacity (gpm)	Capacity Proportion	Bi-Monthly Availability Charges	
			Water Accounts	Sewer Accounts
≤ 3/4-inch	35	1.0	$ 4.74	$ 4.74
1-inch	50	1.4	$ 6.78	$ 6.78
1½-inch	100	2.9	$ 13.54	$ 13.54
2-inch	160	4.6	$ 21.66	$ 21.66
3-inch	320	9.1	$ 43.00	$ 43.00
4-inch	500	14.3	$ 68.00	$ 68.00
6-inch	1,000	28.6	$135.00	$135.00

The overhead and administrative costs used to calculate availability charges are projected to increase by an average of four percent per year through FY 2016, which includes the additional postage and mailing supply costs associated with switching

from quarterly to bi-monthly billing. Therefore, the proposed schedule of availability charges also increases by four percent per year, with increases to the usage rates generating the remainder of revenues. The proposed five-year availability charge schedule is shown below in Table 11.

TABLE 11

Proposed Availability Charge Schedule

	Quarterly	Bi-Monthly				
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Water Availability Charges						
≤ 3/4-inch meter	$3.55	$4.74	$4.88	$5.03	$5.18	$5.34
1-inch meter	$3.55	$6.78	$6.98	$7.19	$7.41	$7.63
1½-inch meter	$3.55	$13.54	$13.95	$14.37	$14.80	$15.24
2-inch meter	$3.55	$21.66	$22.31	$22.98	$23.67	$24.38
3-inch meter	$3.55	$43	$44	$45	$46	$47
4-inch meter	$3.55	$68	$70	$72	$74	$76
6-inch meter	$3.55	$135	$149	$151	$152	$154
Sewer Availability Charges						
≤ 3/4-inch meter	$8.04	$4.74	$4.88	$5.03	$5.18	$5.34
1-inch meter	$8.04	$6.78	$6.98	$7.19	$7.41	$7.63
1½-inch meter	$8.04	$13.54	$13.95	$14.37	$14.80	$15.24
2-inch meter	$8.04	$21.66	$22.31	$22.98	$23.67	$24.38
3-inch meter	$8.04	$43	$44	$45	$46	$47
4-inch meter	$8.04	$68	$70	$72	$74	$76
6-inch meter	$8.04	$135	$149	$151	$152	$154

Customers that have unmetered water services for fire suppression currently do not pay any water or sewer charges. However, the water system is sized to provide fire flows to these services and the sanitary sewer system must also provide capacity for drainage of fire suppression water. Therefore, it is recommended that availability

charges also be assessed to unmetered fire services based on service pipe diameter. Assumed average fire service size is 6-inch.

5.4 Alternative Capital Improvement Project Funding

This study evaluated specific funding options for the two largest capital improvement projects planned for the next five years: repair and repainting of the Randall Road elevated tank and replacement of the sludge dewatering system at the wastewater treatment plant.

Randall Road Elevated Tank - This 1.5 million gallon, single pedestal elevated tank was constructed in 1994. The tank is exhibiting rust on the exterior and must be repainted in FY 2012 in order to maintain the structural integrity of the steel shell. The estimated capital cost for this project is $550,000, which includes engineering, sandblasting and repainting of the interior and exterior, and structural repairs if needed. Funding this project using cash on hand would require a major rate increase to avoid depleting the Water and Sewer Fund operating reserve. Therefore, it is recommended the Village assess a temporary surcharge on all water and sewer bills to quickly replenish operating reserves. A surcharge of $5 per month per customer would recover the entire cost of the project in less than a year.

Sludge Dewatering Improvements - The 18-year-old sludge dewatering system at the wastewater treatment plant is becoming increasingly labor intensive to operate and maintain. Replacement of this equipment will provide a sludge processing system that requires less operator attention, enabling treatment plant staff to direct more attention to preventive maintenance and to work more efficiently. It will also reduce

maintenance costs and improve sludge dewatering efficiency, reducing the volume of sludge and corresponding disposal costs.

The estimated capital cost for the sludge dewatering improvements is $1,500,000, which includes engineering and replacement of the belt filter press, sludge pumps, and associated piping and electrical equipment. The Village has applied for an IEPA low interest loan for this project, and IEPA's review of the project has progressed to the point that it appears the Village has an opportunity to receive the loan funding in FY 2012. Therefore, it is assumed the improvements will be designed and permitted by mid-FY 2012, with construction completed in FY 2013. The loan's first payment would be due in late FY 2013. Using IEPA's current loan interest rate of 2.5 percent, the annual debt service cost would be approximately $96,000.

6. USAGE RATE INCREASE SCENARIOS

6.1 General

Current usage rates do not fully reflect the current cost of service, making rate increases necessary in order to attain financial stability in the enterprise fund, avoid delays to critical capital improvement projects and provide annual funding for underground infrastructure renewal. The three usage rate increase scenarios were all developed under the following controlling assumptions:

- The proposed five-year availability charge schedule in Table 11 is common to all usage rate scenarios.
- Availability charge revisions and the first usage rate increase take effect on August 1, 2011, with additional rate increases implemented annually through August 1, 2015.
- Convert from quarterly billing to bi-monthly billing concurrent with the first rate increase on August 1, 2011.
- The O&M and debt service expenses and the five-year capital improvement plan outlined in Section 3 of this report are utilized in all scenarios.
- The elevated tank surcharge of $5 per month per customer is implemented concurrent with the first rate increase on August 1, 2011, and discontinued by July 1, 2012.
- The sludge dewatering improvements proceed in FY 2012 with funding from an IEPA low interest loan, with repayment of the loan beginning in late FY 2013.
- All scenarios incorporate some measure of drawdown in operating reserves to allow rates to be increased as gradually as possible. A major first-year rate increase would be necessary to avoid any drawdown in reserves.

In each rate scenario, a significant portion of the first-year rate increase is necessary to begin reversing the recent trend of spending deficits in the Water and Sewer Fund. The key difference between the three usage rate scenarios is the additional level of usage rate increases to fund annual water main replacement and sanitary sewer rehabilitation (see Table 12). This provides a wide range of options for increasing the annual investment in underground infrastructure, to address pipe segments in the older parts of the Village that are becoming maintenance intensive and/or require upsizing to increase capacity and efficiency.

TABLE 12

Usage Rate Increase Alternatives

Underground Infrastructure Funding Level	Resulting Renewal Cycle	Annual Capital Cost	
		Water Main Replacement	Sanitary Sewer Rehabilitation
Alternative 1 – 50%	150 years	$ 730,000	$135,000
Alternative 2 – 75%	100 years	$1,095,000	$202,500
Alternative 3 – 100%	75 years	$1,460,000	$270,000

Following is a comparison of differences in the usage rates among the three scenarios, and the resulting differences in projected bi-monthly water and sewer bills.

6.2 Usage Rate Increases

Table 13 and Table 14 provide five-year schedules of water and sewer usage rates needed to meet baseline expense projections plus varying levels of annual investment in water main replacement and sanitary sewer rehabilitation. Current usage rates are listed in the FY 2011 column of each table.

TABLE 13

Projected Water Usage Rates

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Rate Scenario 1	$3.10	$3.57	$4.11	$4.64	$4.78	$4.88
Rate Scenario 2	$3.10	$3.72	$4.43	$5.09	$5.24	$5.40
Rate Scenario 3	$3.10	$3.88	$4.85	$5.53	$5.70	$5.87

TABLE 14

Projected Sewer Usage Rates

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Rate Scenario 1	$3.45	$3.97	$4.57	$4.80	$4.94	$5.04
Rate Scenario 2	$3.45	$4.00	$4.60	$4.88	$5.03	$5.18
Rate Scenario 3	$3.45	$4.04	$4.61	$4.98	$5.13	$5.28

6.3 Projected Water and Sewer Bills

Table 15 and Table 16 compare water and sewer bills for average senior citizen usage (2,000 gallons/month) and average residential usage (6,000 gallons/month). Current quarterly bills (shown in the FY 2011 columns) are compared to projected bi-monthly bills to demonstrate the change that customers will see in their bills after the combination of a rate increase and a new billing cycle takes effect.

TABLE 15

Projected Water and Sewer Bills – Average Senior Citizen Usage

	Quarterly	Bi-Monthly				
	FY 2011	FY 2012*	FY 2013*	FY 2014	FY 2015	FY 2016
Rate Scenario 1	$32	$35	$38	$29	$30	$31
Rate Scenario 2	$32	$35	$38	$30	$31	$32
Rate Scenario 3	$32	$36	$38	$30	$31	$32

* Bi-monthly bills include $5/month elevated tank surcharge from August 2011 through July 2012.

TABLE 16

Projected Water and Sewer Bills – Average Residential Usage

	Quarterly	Bi-Monthly				
	FY 2011	FY 2012*	FY 2013*	FY 2014	FY 2015	FY 2016
Rate Scenario 1	$129	$110	$124	$124	$127	$130
Rate Scenario 2	$129	$112	$128	$130	$134	$138
Rate Scenario 3	$129	$115	$133	$136	$141	$145

* Bi-monthly bills include $5/month elevated tank surcharge from August 2011 through July 2012.

6.4 Cash Flow Projections

Figure 4 demonstrates how operating reserves are expected to change over the next five years as rates are increased to reflect current cost of service. This graph is taken from Rate Scenario 3, but all three scenarios exhibit similar patterns in cash flow. See Appendices F, G and H for detailed revenue and expense projections for the three rate scenarios.

In all scenarios, existing reserves are utilized to supplement revenues for the first two years to buffer the near-term rate increases, but by FY 2014 revenues begin to rebound and the operating reserve is projected to reach the recommended level by FY 2016. Recommended operating reserves are the equivalent of 25 percent of annual O&M expenses.

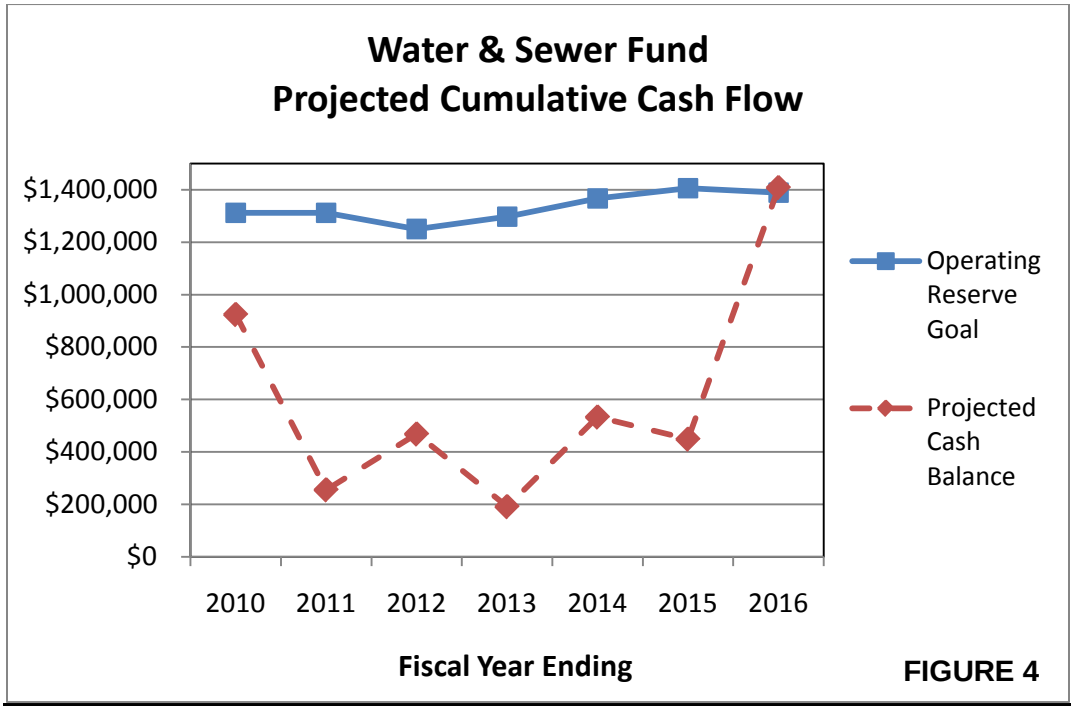
Water & Sewer Fund
Projected Cumulative Cash Flow
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$0
2010
2011
2012
2013
2014
2015
2016
Fiscal Year Ending
Operating Reserve Goal
Projected Cash Balance

FIGURE 4

7. OTHER WATER AND SEWER CHARGES

7.1 Senior Rates

The Village provides discounted water service to senior citizens (age 65 and over) as well as customers on full social security status or receiving veteran's disability benefits of 80 percent or more. These customers receive 15,000 gallons with their quarterly water availability charge and are charged the water usage rate only for usage exceeding 15,000 gallons per quarter. These customers, however, do pay the sewer usage rate on all usage.

This discount was established primarily to assist small (one- to two-person) households living on limited or fixed incomes. These types of households typically consume in the range of 1,000 to 2,000 gallons per month. Therefore, the current senior discount is likely extending this benefit beyond the residents who truly need it to survive financially. It is recommended the Village reduce the volume included with the water availability charge to 2,000 gallons per month (4,000 gallons per bi-monthly bill) effective with the August 1, 2011 rate revisions.

7.2 Hydrant Usage Rates

The Village allows contractors to obtain bulk water directly from fire hydrants for construction and landscaping activities. The usage rate charged for hydrant use is $7.35 per 1,000 gallons ($3.10 regular water usage rate + $4.25 surcharge for related administrative tasks and payment processing). In order to ensure the hydrant usage rate is automatically adjusted each time the regular water usage rate is increased, the

rate ordinance should be modified to only list the hydrant usage rate surcharge of $4.25 per 1,000 gallons, with an explanation that this surcharge will be assessed in addition to the regular water usage rate for all metered hydrant usage.

7.3 Unmetered Sewer Charges

The Village has a handful of unmetered residential sewer accounts that are charged a flat fee for sewer usage each billing cycle. We recommend revising the unmetered sewer fees to the equivalent of 6,000 gallons per month billed at the sewer usage rate. This will automatically adjust the unmetered sewer fee each year as sewer usage rates are increased without requiring any changes to the rate ordinance.

7.4 Water Meter Fees

The Village's license and permit fee schedule includes specific fees for water meters from 5/8-inch through 2-inch in size, which are calculated at two times the material cost of the meter to account for additional expenses such as account setup, payment processing and inspection of the meter installation. There are no specific fees listed for other water meter sizes. We recommend revision of the fee schedule to simply state that customers will be charged twice the material cost of the meter, regardless of meter size, rather than listing specific dollar amounts for each meter size. This will eliminate the time needed to update the fee schedule each time water meter prices change.

7.5 Water Service Reinstatement Fees

The Village considers water and sanitary sewer bills not paid in full within 15 days of the billing date to be delinquent. At that point, the billing department mails a delinquency notice and adds a surcharge to the bill equal to ten percent of the unpaid

balance. If a bill remains unpaid 60 days after the billing date, the Public Works Department will shut off water service. A customer is required to pay the entire past due balance, late payment penalty, an additional penalty of $25 and a water service reinstatement fee of $100 in order to have water service restored.

Actual costs to perform these tasks are potentially higher than the fee charged to late-paying customers. The labor alone includes two trips to the customer's property (one to shut off the water service and one to turn it back on). Additional costs involved in these tasks include administrative time to process the work orders and late payments as well as vehicle costs to visit each shut-off location. The Village should evaluate all of these costs and revise the water service reinstatement charge if necessary to fully cover costs.

8. CONCLUSION AND RECOMMENDATIONS

8.1 Rate Structure

The rate structure changes evaluated in Section 5 are recommended for implementation in August 2011, including establishment of escalating availability charges to recover overhead and administrative costs, and temporary assessment of a surcharge for elevated tank repainting. This rate structure is based on actual cost of service and equitably distributes both fixed and variable costs among all rate payers.

8.2 Water and Sewer Usage Rate Increases

Though the existing water and sewer usage rates are sufficient to recover routine O&M costs, they will not be able to fund an annual capital improvement program while also maintaining a positive cash balance in the Water and Sewer Fund. The five-year usage rate increase program proposed under Scenario 3 is recommended to address these issues to provide long-term financial and infrastructure sustainability.

Table 17 compares the bi-monthly water and sewer bill for average residential usage in Carpentersville (6,000 gallons/month) after the first proposed rate increase against equivalent bi-monthly bills in other communities at their current rates. This demonstrates that Carpentersville's rates would be only slightly above the current average for nearby communities after the first rate increase (including the temporary elevated tank surcharge).

TABLE 17

Future Regional Cost Comparison

Municipality	Equivalent Bi-Monthly Water and Sewer Bill [1]
Huntley	$ 73
Crystal Lake	$ 74
Algonquin	$ 82
Carpentersville (current)	$ 86
West Dundee	$ 89
Barrington	$ 98
South Barrington	$107
Gilberts	$108
Elgin	$114
Carpentersville (Scenario 3, FY 2012)	$115
Pingree Grove	$116
East Dundee	$128
Sleepy Hollow	$231
Averages (current)	**$109**

If the Village determines the financial impacts of the full recommended rate increase program are too significant for customers to bear at this time, Scenarios 1 and 2 provide alternate underground infrastructure funding options that result in less impact to rate payers.

8.3 Other Water and Sewer Fees

The Village is further advised to revise other water and sewer rates and charges as follows:

- ***Senior Rates*** **–** Revise the water availability charges for seniors to provide 2,000 gallons per month (4,000 gallons per bi-monthly bill) with the water availability charges. Usage rates would be assessed for all usage exceeding 4,000 gallons in a bi-monthly billing cycle.

- ***Hydrant Usage Rates*** **–** Revise the rate ordinance to only list the hydrant surcharge rate of $4.25 per 1,000 gallons, with an explanation that this

surcharge will be assessed in addition to the regular water usage rate for all metered hydrant usage. This will allow the total hydrant usage rate (regular water usage rate plus surcharge rate) to keep pace with future water usage rate increases.

- ***Unmetered Sewer Fees -*** Revise the unmetered sewer fees to the equivalent of 6,000 gallons per month billed at the sewer usage rate. This will automatically adjust the unmetered sewer fee each year as sewer usage rates are increased, without requiring any changes to the rate ordinance.

- ***Water Meter Fees -*** Revise the license and permit fee schedule to simply state that customers shall pay twice the material cost of the meter at the time the connection application is submitted, rather than listing specific dollar amounts for each meter size.

- ***Water Service Reinstatement Fees -*** Increase the standard fee if needed to cover all costs associated with water service shutoff and reinstatement.

8.4 Implementation Plan

The recommended five-year rate schedule, including availability charges, elevated tank surcharge and usage rate increases should be adopted in May 2011, with new rates set to become effective for all usage on and after August 1 of each year. Other recommended changes, such as the switch to bi-monthly billing and revisions to other rates and charges, should be completed concurrently. This will allow three months to fulfill public notice requirements for the first rate increase, set up availability charge accounts for unmetered fire services and reconfigure the billing system for a bi-monthly cycle.

At the end of each fiscal year, the Village should compare revenues and expenses to the projections in the rate study. This will ensure that the adopted rate increases are truly keeping up with actual expenses in the future, and help determine if the additional rate increases proposed for FY 2013 through FY 2016 are still appropriate at those times.

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX A: GLOSSARY OF TERMS AND ACRONYMS

Term	Definition
Availability Charges	Charged to each customer with every bill to recover the basic overhead and administrative costs to operate and maintain the water and sewer systems. Because these costs typically do not vary with usage, availability charges do not include a usage component (i.e. all usage is billed on top of the availability charges).
AWWA	The acronym for the American Water Works Association. AWWA is a recognized authority on water rate setting and water infrastructure operation, maintenance, and replacement.
Capital Improvement Projects	Major projects intended to maintain or improve existing equipment and infrastructure, such as water main looping and replacement, sewer lining, and pump station rehabilitation.
Cash Flow Analysis	Study of the cycle of cash inflows and outflows, with the purpose of maintaining an adequate cash flow to cover expenses as they occur, and maintain a specified cash reserve balance.
Debt Service Expenses	Payments made to repay a loan or bond (non-operating expenses).
Enterprise Fund	In governmental accounting, a fund that provides goods or services to the public for a fee that makes the fund self-supporting. The Village's Water and Sewer Fund is an enterprise fund, and the Village's water and sanitary sewer rates are set to cover expenses payable from this fund.
Non-Operating Expenses	Expenses that do not vary with usage or operational changes. These include debt service and transfers to the General Fund to reimburse costs for non-utility personnel and equipment.
Operating Reserve	A reserve cash balance held in the Water and Sewer Fund. The purpose of this reserve is to supplement revenues in situations such as unexpected decreases in water usage, relocation of a large water user to another community, or uneven cash flow.
Operations and Maintenance (O&M) Expenses	The costs of everyday operations. These expenses include salaries, benefits, commodities, contractual services, and routine maintenance of infrastructure and equipment.
Overhead Expenses	These expenses are not affected based on the level of water/sewer usage. Examples include administrative salaries and benefits, meter reading and billing, postage, office supplies, and annual transfers to the General Fund. These costs are a subset of Operations and Maintenance expenses.

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX A: GLOSSARY OF TERMS AND ACRONYMS

Term	Definition
Replacement and Rehabilitation Projects (R&R)	Investments in the water and sewer systems to replace or rehabilitate major equipment and infrastructure. This includes such projects as water main replacement, water tower painting, pump replacement, and sanitary sewer lining.
Sanitary Sewer System	The Village's system of sanitary sewers that collects wastewater and conveys it to interceptor sewers for treatment by the North Shore Sanitary District.
Unaccounted-for Water Loss	Treated water that is pumped to the distribution system, but is not recorded as billable water consumption. Further, this water typically **cannot** be directly measured or even reliably estimated. Causes include water main breaks, service leaks, and under-reading by water meters.
Unbilled Water Use	Water that is pumped from JAWA, but not recorded as billable water consumption. This water typically **can** be accounted for by direct measurement or estimation. Unbilled water uses include consumption at municipal facilities, irrigation of public property, hydrant flushing, street cleaning, and sanitary sewer flushing.
Uniform Rate Structure	The structure that currently applies to both the Village's usage rates and availability charges, in which rates are the same for all standard customers, i.e. rates do not vary based on water meter size or level of water consumption.
Usage Rates	The rates charged by the Village to recover the costs of operating and maintaining its water and sewer systems. These are volume-based rates charged for every 1,000 gallons of usage.
Water Distribution System	The Village's system of water mains, fire hydrants, isolation valves, and water storage facilities that delivers water to residents and businesses in sufficient quantities and at sufficient pressures.
Water Meter Fees	Fees charged by the Village to provide and install water meters for new customers.
Water Service Reinstatement Charges	When a customer fails to pay their water and sewer bill within the prescribed time, their water service is shut off. To have water service restored, customers must pay a fee to cover the costs for the Village's water department personnel to shut off and restore water service, plus the delinquent balance and late payment penalty.

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

CONTROLLING ASSUMPTIONS:

- **The Pulte development is the only growth factored into the analysis at 24 new homes per year and 6,000 gallons/month per home.**
- **Routine operations and maintenance expenses increase each year due to inflation, as well as two additional employees in FY 2014.**
- **Village's five-year CIP costs are included, and all are funded using cash on hand except the sludge dewatering system improvements.**
- **Debt service costs include existing bonds and an IEPA loan, and estimated payments for an IEPA loan for the sludge dewatering impts.**

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
REVENUES						
Operating Revenues						
Water User Charges	$2,490,000	$2,508,000	$2,513,000	$2,518,000	$2,523,000	$2,528,000
Sewer User Charges	$2,850,000	$2,877,000	$2,882,000	$2,888,000	$2,894,000	$2,899,000
Water Availability Charges	$146,000	$146,500	$146,800	$147,100	$147,400	$147,700
Sewer Availability Charges	$327,000	$328,100	$328,800	$329,500	$330,200	$330,900
Water Connection Fees	$137,500	$137,500	$137,500	$137,500	$46,000	$46,000
Sewer Connection Fees	$187,500	$187,500	$187,500	$187,500	$63,000	$63,000
Public Infrastructure Fees	$57,900	$81,000	$81,000	$81,000	$0	$0
Penalties and Service Fees	$190,000	$200,000	$200,000	$200,000	$200,000	$200,000
Meter Sales	$11,000	$16,000	$16,000	$16,000	$16,000	$16,000
NSF Fees	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Water/Sewer Construction Inspection	$1,255	$3,000	$3,000	$3,000	$0	$0
Rental Income	$74,300	$77,400	$70,400	$58,200	$58,600	$60,300
Miscellaneous Operating Revenue	$0	$1,500	$1,500	$1,500	$1,500	$1,500
Total Operating Revenues	$6,473,955	$6,565,000	$6,569,000	$6,568,800	$6,281,200	$6,293,900

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	Inflation Factor	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Non-Operating Revenues							
Interest and Investment Income		$800	$2,600	$0	$0	$0	$0
Debt Proceeds		$0	$750,000	$750,000	$0	$0	$0
Misc. Non-Operating Revenue		$610	$2,000	$2,000	$2,000	$2,000	$2,000
Total Non-Operating Revenues		$1,410	$754,600	$752,000	$2,000	$2,000	$2,000
TOTAL REVENUES		**$6,475,365**	**$7,319,600**	**$7,321,000**	**$6,570,800**	**$6,283,200**	**$6,295,900**
EXPENSES							
Water Facilities							
Personnel Services							
Employee Salaries	2%	$526,000	$480,000	$490,000	$500,000	$510,000	$520,000
Employee Overtime	2%	$34,300	$34,000	$34,700	$35,400	$36,100	$36,800
Longevity	varies	$3,300	$2,920	$3,160	$3,400	$3,600	$3,760
Sick Leave Incentive	0%	$1,790	$1,500	$1,500	$1,500	$1,500	$1,500
Health Insurance	8%	$86,000	$84,000	$91,000	$98,000	$106,000	$114,000
FICA/Medicare/IMRF	2%	$103,000	$95,000	$97,000	$99,000	$101,000	$103,000
Uniform Allowance	0%	$2,500	$2,100	$2,100	$2,100	$2,100	$2,100
Contractual Services							
Dues & Publications	3%	$810	$810	$830	$850	$880	$910
Training & Meetings	3%	$3,000	$3,500	$3,610	$3,720	$3,830	$3,940
Professional Services	3%	$25,900	$40,400	$27,500	$28,300	$29,100	$30,000
Liability Insurance	5%	$120,000	$48,000	$50,000	$53,000	$56,000	$59,000
Maintenance - Building & Grounds	3%	$3,300	$3,500	$3,600	$3,700	$3,800	$3,900
Maintenance - Equipment	3%	$45,000	$30,000	$30,900	$31,800	$32,800	$33,800
Maintenance - Vehicles	3%	$3,500	$3,500	$3,600	$3,700	$3,800	$3,900
Electricity	4%	$285,000	$306,000	$318,000	$331,000	$344,000	$358,000

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	Inflation Factor	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Heating	4%	$13,000	$13,500	$14,000	$14,600	$15,200	$15,800
Communications	3%	$4,000	$4,000	$4,100	$4,200	$4,300	$4,400
Water Softener Salt	4%	$230,000	$238,000	$248,000	$258,000	$268,000	$279,000
Maintenance - Wells	N/A	$45,000	$40,000	$40,000	$40,000	$40,000	$40,000
Maintenance - Alarms & Monitoring	3%	$700	$700	$720	$740	$760	$780
Commodities							
Materials - Building	3%	$5,000	$5,000	$5,200	$5,400	$5,600	$5,800
Materials - Maintenance	3%	$6,000	$5,500	$5,700	$5,900	$6,100	$6,300
Supplies - Automotive	3%	$3,200	$3,000	$3,100	$3,200	$3,300	$3,400
Tools & Equipment	3%	$6,000	$13,500	$13,900	$14,300	$14,700	$15,100
Gas & Oil	4%	$15,500	$16,000	$16,600	$17,300	$18,000	$18,700
Supplies - Office	3%	$1,500	$1,500	$1,550	$1,600	$1,650	$1,700
Supplies - Operating	3%	$13,000	$12,000	$12,400	$12,800	$13,200	$13,600
Meters - Replacement Program	3%	$280,000	$318,000	$328,000	$338,000	$348,000	$130,000
Chemicals	4%	$44,000	$46,300	$48,200	$50,100	$52,100	$54,200
Capital Improvements							
Water Treatment Plant	N/A	$0	$177,000	$0	$250,000	$150,000	$16,000
Water Storage Tanks	N/A	$0	$550,000	$300,000	$0	$250,000	$0
Vehicles & Equipment	N/A	$0	$17,200	$17,200	$17,200	$17,200	$17,200
Water Underground							
Personnel Services							
Employee Salaries	2%	$336,000	$257,000	$262,000	$307,000	$313,000	$319,000
Employee Overtime	2%	$23,700	$23,700	$24,200	$24,700	$25,200	$25,700
Longevity	varies	$2,000	$2,080	$2,200	$2,320	$2,440	$2,520
Sick Leave Incentive	0%	$1,130	$1,000	$1,000	$1,000	$1,000	$1,000

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	Inflation Factor	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Health Insurance	8%	$61,000	$53,000	$57,000	$64,000	$69,000	$75,000
FICA/Medicare/IMRF	2%	$66,000	$52,000	$53,000	$58,000	$59,000	$60,000
Uniform Allowance	0%	$1,930	$1,400	$1,400	$1,400	$1,400	$1,400
Contractual Services							
Dues & Publications	3%	$250	$250	$260	$270	$280	$290
Printing	0%	$0	$100	$100	$100	$100	$100
Training & Meetings	3%	$1,000	$1,000	$1,030	$1,060	$1,090	$1,120
Professional Services	3%	$2,900	$29,500	$3,100	$3,200	$3,300	$3,400
Maintenance - Building & Grounds	3%	$200	$250	$260	$270	$280	$290
Maintenance - Equipment	3%	$27,000	$27,000	$27,800	$28,600	$29,500	$30,400
Maintenance - Office Equipment	3%	$800	$900	$930	$960	$990	$1,020
Maintenance - Vehicles	3%	$7,500	$7,500	$7,700	$7,900	$8,100	$8,300
Communications	3%	$1,700	$1,800	$1,850	$1,910	$1,970	$2,030
Commodities							
Materials - Building	3%	$300	$200	$210	$220	$230	$240
Materials - Street	3%	$9,000	$8,500	$8,800	$9,100	$9,400	$9,700
Materials - Maintenance	3%	$12,500	$12,500	$12,900	$13,300	$13,700	$14,100
Supplies - Automotive	3%	$3,000	$3,000	$3,100	$3,200	$3,300	$3,400
Tools & Equipment	3%	$3,500	$3,500	$3,610	$3,720	$3,830	$3,940
Supplies - Gas & Oil	4%	$11,000	$13,000	$13,500	$14,000	$14,600	$15,200
Supplies - Office	3%	$200	$200	$210	$220	$230	$240
Supplies - Operating	3%	$3,500	$3,500	$3,610	$3,720	$3,830	$3,940
Pipes, Valves, & Hydrants	3%	$90,000	$65,000	$67,000	$90,000	$93,000	$96,000
Capital Improvements							
Water Main Replacement	N/A	$0	$0	$0	$0	$0	$0

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	Inflation Factor	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Vehicles & Equipment	N/A	$0	$27,500	$27,500	$27,500	$27,500	$27,500
Water Administrative & General							
Personnel Services							
Employee Salaries	2%	$88,000	$101,000	$103,000	$105,000	$107,000	$109,000
Part Time/Seasonal Salaries	2%	$0	$0	$8,000	$8,160	$8,320	$8,490
Longevity	0%	$590	$710	$710	$710	$710	$710
Sick Leave Incentive	0%	$310	$380	$380	$380	$380	$380
Health Insurance	8%	$13,800	$23,800	$25,700	$27,800	$30,000	$32,400
FICA/Medicare/IMRF	2%	$16,300	$18,900	$19,300	$19,700	$20,100	$20,500
Other Postemployment Benefits	0%	$3,000	$3,000	$3,000	$3,000	$0	$0
Contractual Services							
Accounting Services	3%	$7,000	$7,500	$7,700	$7,900	$8,100	$8,300
Dues & Publications	3%	$400	$530	$550	$570	$590	$610
Postage & Mailing	3%	$12,000	$12,000	$18,000	$18,500	$19,100	$19,700
Training & Meetings	3%	$1,150	$2,500	$2,600	$2,700	$2,800	$2,900
Professional Services	0%	$0	$0	$100	$100	$100	$100
Maintenance - Office Equipment	3%	$2,500	$2,000	$2,100	$2,200	$2,300	$2,400
Communications	3%	$1,250	$1,340	$1,380	$1,420	$1,460	$1,500
Commodities							
Tools & Equipment	3%	$0	$1,000	$1,030	$1,060	$1,090	$1,120
Supplies - Office	3%	$3,600	$4,300	$4,400	$4,500	$4,600	$4,700
Transfer to General Fund	0%	$125,000	$125,000	$150,000	$150,000	$150,000	$150,000
Total Water System Operating Expenses		$2,851,310	$3,495,770	$3,148,390	$3,250,180	$3,485,540	$2,965,230

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	Inflation Factor	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Sewer Facilities							
Personnel Services							
Employee Salaries	2%	$524,000	$465,000	$474,000	$483,000	$493,000	$503,000
Employee Overtime	2%	$35,000	$30,000	$30,600	$31,200	$31,800	$32,400
Longevity	varies	$2,500	$2,320	$2,560	$2,800	$3,040	$3,280
Sick Leave Incentive	0%	$2,040	$1,500	$1,500	$1,500	$1,500	$1,500
Health Insurance	8%	$126,000	$109,000	$118,000	$127,000	$137,000	$148,000
FICA/Medicare/IMRF	2%	$103,000	$91,000	$93,000	$95,000	$97,000	$99,000
Other Postemployment Benefits	0%	$12,000	$12,000	$12,000	$12,000	$12,000	$0
Uniform Allowance	0%	$2,500	$2,100	$2,100	$2,100	$2,100	$2,100
Contractual Services							
Dues & Publications	3%	$200	$200	$210	$220	$230	$240
Engineering	3%	$0	$0	$0	$0	$0	$0
Printing	3%	$410	$400	$410	$420	$430	$440
Training & Meetings	3%	$2,800	$3,000	$3,100	$3,200	$3,300	$3,400
Professional Services	3%	$21,000	$22,000	$22,700	$23,400	$24,100	$24,800
Liability Insurance	5%	$52,000	$55,000	$58,000	$61,000	$64,000	$67,000
Maintenance - Building & Grounds	3%	$2,500	$3,000	$3,100	$3,200	$3,300	$3,400
Maintenance - Equipment	3%	$121,000	$140,000	$144,000	$148,000	$152,000	$157,000
Maintenance - Vehicles	3%	$1,300	$3,000	$3,100	$3,200	$3,300	$3,400
Electricity	4%	$299,000	$299,000	$311,000	$323,000	$336,000	$349,000
Heating	4%	$14,000	$14,000	$14,600	$15,200	$15,800	$16,400
Communications	3%	$5,500	$6,000	$6,200	$6,400	$6,600	$6,800
Sludge Disposal	4%	$112,000	$120,000	$125,000	$130,000	$135,000	$140,000
Testing	3%	$3,900	$8,000	$8,200	$8,400	$8,700	$9,000

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	Inflation Factor	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Commodities							
Materials - Building	3%	$2,700	$3,000	$3,100	$3,200	$3,300	$3,400
Materials - Maintenance	3%	$8,000	$12,000	$12,400	$12,800	$13,200	$13,600
Supplies - Lift Station	3%	$4,000	$8,000	$8,200	$8,400	$8,700	$9,000
Supplies - Automotive	3%	$2,200	$1,000	$1,000	$1,000	$1,000	$1,000
Tools & Equipment	3%	$11,000	$10,000	$10,300	$10,600	$10,900	$11,200
Gas & Oil	4%	$6,200	$7,500	$7,800	$8,100	$8,400	$8,700
Supplies - Office	3%	$1,200	$1,200	$1,240	$1,280	$1,320	$1,360
Supplies - Operating	3%	$8,200	$8,000	$8,200	$8,400	$8,700	$9,000
Chemicals	4%	$47,000	$53,000	$55,000	$57,000	$59,000	$61,000
Capital Improvements							
Wastewater Treatment Plant	N/A	$0	$750,000	$750,000	$0	$290,000	$120,000
Vehicles & Equipment	N/A	$0	$8,000	$8,000	$8,000	$8,000	$8,000
Sewer Underground							
Personnel Services							
Employee Salaries	2%	$336,000	$257,000	$262,000	$307,000	$313,000	$319,000
Employee Overtime	2%	$23,700	$23,700	$24,200	$24,700	$25,200	$25,700
Longevity	varies	$2,000	$2,080	$2,200	$2,320	$2,440	$2,520
Sick Leave Incentive	0%	$1,130	$1,000	$1,000	$1,000	$1,000	$1,000
Health Insurance	8%	$61,200	$53,000	$57,000	$64,000	$69,000	$75,000
FICA/Medicare/IMRF	2%	$66,400	$52,000	$53,000	$58,000	$59,000	$60,000
Uniform Allowance	0%	$1,930	$1,400	$1,400	$1,400	$1,400	$1,400
Contractual Services							
Dues & Publications	3%	$250	$250	$260	$270	$280	$290
Printing	0%	$100	$100	$100	$100	$100	$100

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	Inflation Factor	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Training & Meetings	3%	$1,000	$1,000	$1,030	$1,060	$1,090	$1,120
Professional Services	3%	$2,500	$9,500	$9,800	$10,100	$10,400	$10,700
Maintenance - Building & Grounds	3%	$490	$250	$260	$270	$280	$290
Maintenance - Office Equipment	3%	$800	$900	$930	$960	$990	$1,020
Maintenance - Vehicles	3%	$8,100	$7,500	$7,700	$7,900	$8,100	$8,300
Communications	3%	$1,700	$1,700	$1,750	$1,800	$1,850	$1,910
Commodities							
Materials - Building	3%	$400	$200	$210	$220	$230	$240
Materials - Street	3%	$8,000	$8,500	$8,800	$9,100	$9,400	$9,700
Materials - Maintenance	3%	$12,500	$12,500	$12,900	$13,300	$13,700	$14,100
Supplies - Sanitary Sewer	3%	$8,000	$8,000	$8,200	$8,400	$8,700	$9,000
Supplies - Automotive	3%	$3,000	$3,000	$3,100	$3,200	$3,300	$3,400
Tools & Equipment	3%	$3,500	$3,500	$3,600	$3,700	$3,800	$3,900
Gas & Oil	4%	$11,200	$13,000	$13,500	$14,000	$14,600	$15,200
Supplies - Office	3%	$100	$200	$210	$220	$230	$240
Supplies - Operating	3%	$3,500	$3,500	$3,610	$3,720	$3,830	$3,940
Improvements	3%	$30,000	$20,000	$20,600	$30,000	$30,900	$31,830
Capital Improvements							
Lift Stations	N/A	$0	$50,000	$50,000	$50,000	$50,000	$50,000
Sanitary Sewer Rehabilitation	N/A	$0	$0	$0	$0	$0	$0
Vehicles & Equipment	N/A	$0	$71,200	$71,200	$71,200	$71,200	$71,200
Sewer Administrative & General							
Personnel Services							
Employee Salaries	2%	$88,000	$101,000	$103,000	$105,000	$107,000	$109,000
Part Time/Seasonal Salaries	2%	$0	$0	$8,000	$8,200	$8,400	$8,600

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	Inflation Factor	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Longevity	0%	$590	$710	$700	$700	$700	$700
Sick Leave Incentive	0%	$310	$380	$400	$400	$400	$400
Health Insurance	8%	$13,800	$23,800	$25,700	$27,800	$30,000	$32,400
FICA/Medicare/IMRF	2%	$16,300	$18,900	$19,300	$19,700	$20,100	$20,500
Other Postemployment Benefits	0%	$3,000	$3,000	$3,000	$3,000	$0	$0
Contractual Services							
Accounting Services	3%	$7,000	$7,500	$7,700	$7,900	$8,100	$8,300
Dues & Publications	3%	$400	$530	$550	$570	$590	$610
Postage & Mailing	3%	$12,000	$12,000	$18,000	$18,500	$19,100	$19,700
Training & Meetings	3%	$1,150	$2,500	$2,600	$2,700	$2,800	$2,900
Professional Services	3%	$0	$0	$100	$100	$100	$100
Maintenance - Office Equipment	3%	$2,500	$2,000	$2,100	$2,200	$2,300	$2,400
Communications	3%	$1,250	$1,340	$1,380	$1,420	$1,460	$1,500
Commodities							
Tools & Equipment	3%	$0	$1,000	$1,030	$1,060	$1,090	$1,120
Supplies - Office	3%	$3,600	$4,300	$4,400	$4,500	$4,600	$4,700
Transfer to General Fund	0%	$125,000	$125,000	$150,000	$150,000	$150,000	$150,000
Total Sewer Operating Expenses		$2,395,550	$3,157,160	$3,265,140	$2,640,710	$3,003,480	$2,900,450
Non-Operating Expenses							
Bond Payments		$754,000	$754,000	$752,000	$756,000	$754,000	$648,000
IEPA Loan Payments (WWTP Upgrade)		$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000
IEPA Loan Payments (Belt Press)		$0	$0	$96,000	$96,000	$96,000	$96,000
Total Non-Operating Expenses		$1,897,000	$1,897,000	$1,991,000	$1,995,000	$1,993,000	$1,887,000
TOTAL EXPENSES		**$7,143,860**	**$8,549,930**	**$8,404,530**	**$7,885,890**	**$8,482,020**	**$7,752,680**

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX B: BASELINE REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND YEAR-END SUMMARY	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Beginning Water & Sewer Fund Balance	$924,000	$255,505	($974,825)	($2,047,155)	($3,350,845)	($5,537,865)
Total Revenues	$6,475,365	$7,319,600	$7,321,000	$6,570,800	$6,283,200	$6,295,900
Total Expenses	$7,143,860	$8,549,930	$8,404,530	$7,885,890	$8,482,020	$7,752,680
Annual Net Income (Loss)	($668,495)	($1,230,330)	($1,083,530)	($1,315,090)	($2,198,820)	($1,456,780)
Ending Water & Sewer Fund Balance	$255,505	($974,825)	($2,058,355)	($3,362,245)	($5,549,665)	($6,994,645)
Operating Reserve Goal*	$1,312,000	$1,251,000	$1,297,000	$1,367,000	$1,406,000	$1,389,000

* Recommended year-end operating reserve is the equivalent of 25% of annual routine O&M expenses.

Information Sources: Village's FY 2011 year-end estimates, FY 2012 budget, five-year improvement plan, and debt service schedule.

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX C: BASELINE FIVE-YEAR CAPITAL IMPROVEMENT PLAN

WATER TREATMENT PLANT AND DISTRIBUTION SYSTEM IMPROVEMENTS	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Iron Filter Media & Equipment Replacement				$150,000	$150,000	
Fluoride Feed System Replacement						$8,000
Polyphosphate Feed System Replacement						$8,000
SCADA System Upgrade		$177,000				
Well Rehabilitation	$45,000	$40,000	$40,000	$40,000	$40,000	$40,000
Randall Road Elevated Tank Rehabilitation		$550,000				
Route 31 Reservoir Rehabilitation					$250,000	
Finished Water Reservoir Rehabilitation			$300,000			
Waste Holding Tank Rehabilitation				$100,000		
Vehicles & Equipment - Water Facilities		$17,200	$17,200	$17,200	$17,200	$17,200
Vehicles & Equipment - Water Underground		$27,500	$27,500	$27,500	$27,500	$27,500
Total Annual Costs	**$45,000**	**$811,700**	**$384,700**	**$334,700**	**$484,700**	**$100,700**

WASTEWATER TREATMENT PLANT AND COLLECTION SYSTEM IMPROVEMENTS	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Digester Aeration Equipment Replacement						$120,000
Digester Membrane Replacement					$40,000	
Belt Filter Replacement		$750,000	$750,000			
Lift Station Pump Replacement		$50,000	$50,000	$50,000	$50,000	$50,000
SCADA System Upgrade					$250,000	
Vehicles & Equipment - Sewer Facilities		$8,000	$8,000	$8,000	$8,000	$8,000
Vehicles & Equipment - Sewer Underground		$71,200	$71,200	$71,200	$71,200	$71,200
Total Annual Costs	**$0**	**$879,200**	**$879,200**	**$129,200**	**$419,200**	**$249,200**

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX D: WATER AND SEWER SYSTEM EQUIPMENT AND INFRASTRUCTURE INVENTORY

WATER DISTRIBUTION SYSTEM	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Water Meters - replace 10,500 meters @ average of $190/meter	$2,000,000	15	$130,000	
Water Main - replace 685,638 l.f. of 3" to 20" piping	$109,800,000	75	$1,460,000	

WATER TREATMENT PLANT	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Forced Draft Aerator - replace	$60,000	20	$3,000	Cost inflated from 2008 Delavan WTP project quote (similar aerator)
Iron Removal Filters (8) - replace media and equipment	$760,000	20	$38,000	Cost inflated from 2003 filter addition project quote
Ion Exchange Softeners (8) - replace vessel, media, and face piping	$1,020,000	20	$51,000	Cost inflated from 2004 US Filter quote
Fluoride Feed System	$8,000	15	$500	Cost inflated from 2004 softener addition project quote
Polyphosphate Feed System	$8,000	15	$500	Cost inflated from 2004 softener addition project quote
Chlorine Feed System	$15,000	15	$1,000	Variable rate, cost inflated from 2004 softener addition project quote
Blend Pumps No. 1 and 2 - replace	$23,000	20	$1,200	Vertical split case pumps, 1,600 gpm @ 45' TDH, cost inflated from 2004 quote
Low Service Pumps No. 1 and 2 - replace	$40,000	20	$2,000	Village estimates $20,000 per pump
High Service Pumps No. 1 and 2 - replace	$30,000	20	$1,500	Village estimates $15,000 per pump
High Service Pumps No. 3 and 4 - replace	$30,000	20	$1,500	Village estimates $15,000 per pump
SCADA System - full upgrade	$177,000	20	$8,900	Installed in 1990 and no major replacements since, cost provided by Village
Electrical and Instrumentation - replace	$239,000	20	$12,000	12% of total equipment cost
Totals for Water Treatment Plant Equipment	**$2,410,000**		**$121,100**	

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX D: WATER AND SEWER SYSTEM EQUIPMENT AND INFRASTRUCTURE INVENTORY

WATER SUPPLY WELLS	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Well No. 5 - inspection, repairs, rehab	$40,000	5	$8,000	Shallow well, rehab cost and cycle provided by Village
Well No. 6 - inspection, repairs, rehab	$40,000	5	$8,000	Shallow well, rehab cost and cycle provided by Village
Well No. 7 - inspection, repairs, rehab	$40,000	5	$8,000	Shallow well, rehab cost and cycle provided by Village
Well No. 8 - inspection, repairs, rehab	$40,000	5	$8,000	Shallow well, rehab cost and cycle provided by Village
Waste Pumps No. 1 and 2 - repair and rehab	$40,000	5	$8,000	Line shaft well-type pumps, cost and rehab cycle provided by Village
Totals for Water Supply Wells	**$200,000**		**$40,000**	

BOOSTER PUMPING & PRV STATIONS	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Booster Station No. 1 - replace 1 high demand pump	$15,000	30	$500	800 gpm, Village estimates 30-year replacement cycle
Booster Station No. 1 - replace 2 low demand pumps	$12,000	20	$600	200 gpm each, Village estimates 20-year replacement cycle
Booster Station No. 2 - replace 3 pumps	$45,000	20	$2,300	1,200 gpm each, Village estimates 20-year replacement cycle
PRV Stations (11) - replace PRVs	$165,000	25	$6,600	One 12" valve, eight 8" valves, two 6" valves, Village estimates 25-year cycle
Motorized Valve Station - replace valve	$50,000	25	$2,000	16" motorized flow control valve, Village estimates 25-year replacement cycle
Stationary Generators (4) - replace	$250,000	25	$10,000	Total replacement cost and replacement cycle provided by Village
Electrical and Instrumentation - replace	$34,400	20	$1,700	12% of total equipment cost
Totals for Booster Pumping & PRV Stations	**$571,400**		**$23,700**	

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX D: WATER AND SEWER SYSTEM EQUIPMENT AND INFRASTRUCTURE INVENTORY

WATER STORAGE TANKS	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Meadowdale Standpipe - rehab and repaint	$345,000	15	$23,000	1.0 MG, 40' diameter, welded steel, last rehabbed in 1996, cost provided by Village
Silverstone Elevated Tank - rehab and repaint	$400,000	15	$26,700	0.75 MG, waterspheroid, constructed in 2002 and not serviced since, cost estimated by
Randall Elevated Tank - rehab and repaint	$500,000	15	$33,300	1.5 MG, waterspheroid, constructed in 1994 and not serviced since, cost provided by Vil
Route 31 Reservoir - rehab and repaint	$250,000	15	$16,700	1.0 MG, 74' diameter, welded steel, constructed in 1963, last rehabbed in 1994, cost pro
Finished Water Reservoir - rehab and repaint	$300,000	15	$20,000	1.0 MG, 66' diameter, welded steel, located at WTP, built in 1963, last rehabbed in 1991
Waste Holding Tank - rehab	$100,000	20	$5,000	Located at WTP, constructed in 1963, last rehabbed in 1973, cost provided by Village
Totals for Water Storage Tanks	**$1,895,000**		**$124,700**	

WATER FACILITIES VEHICLES	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Minivan	$30,000	15	$2,000	2007 Dodge Caravan, cost provided by Village
Cargo Van	$34,500	15	$2,300	2002 Ford Cargo Van, cost provided by Village
Pickup Truck	$30,000	15	$2,000	2002 Ford Ranger, cost provided by Village
Heavy Duty Pickup Truck	$30,000	15	$2,000	2008 Ford F-250, cost from Kelley Blue Book
Cargo Van	$34,500	15	$2,300	1998 Ford Econoline, cost provided by Village
Pickup Truck	$30,000	15	$2,000	1998 Ford Ranger, cost provided by Village
Cargo Van	$34,500	15	$2,300	1998 Ford Econoline, cost provided by Village
Cargo Van	$34,500	15	$2,300	2000 GMC Sierra, cost provided by Village
Totals for Water Facilities Vehicles	**$258,000**		**$17,200**	

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX D: WATER AND SEWER SYSTEM EQUIPMENT AND INFRASTRUCTURE INVENTORY

WATER UNDERGROUND VEHICLES	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Pickup Truck	$15,000	15	$1,000	1999 Ford F-250, cost provided by Village, 50% allocated to water utility
5-Ton Truck	$55,000	15	$3,700	2007 International 7400, cost provided by Village, 50% allocated to water utility
Cargo Van	$15,850	15	$1,100	2006 Ford E-350, cost from Kelley Blue Book, 50% allocated to water utility
1-Ton Dump Truck	$25,350	15	$1,700	2001 Ford F-450, cost provided by Village, 50% allocated to water utility
Pickup Truck	$15,000	15	$1,000	1999 Dodge Ram 2500, cost provided by Village, 50% allocated to water utility
Pickup Truck	$15,000	15	$1,000	2002 Ford Pickup, cost provided by Village, 50% allocated to water utility
Cube Van	$40,000	15	$2,700	1997 Ford E-450, cost provided by Village, 50% allocated to water utility
Cube Van	$40,000	15	$2,700	1997 Ford E-350, cost provided by Village, 50% allocated to water utility
1-Ton Dump Truck	$25,350	15	$1,700	1993 Ford F-350, cost provided by Village, 50% allocated to water utility
6-Wheel	$70,000	15	$4,700	1996 International DT468, cost provided by Village, 50% allocated to water utility
Pickup Truck	$15,000	15	$1,000	2008 Ford F-250, cost from Kelley Blue Book, 50% allocated to water utility
Totals for Water Underground Vehicles	**$331,550**		**$22,300**	

WATER UNDERGROUND MAINTENANCE EQUIP.	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Backhoe	$55,000	15	$3,700	1997 John Deere, cost provided by Village, 50% allocated to water utility
Mini Excavator	$30,000	20	$1,500	2008 Bob Cat, cost and repl. cycle provided by Village, 50% allocated to sewer utility
Totals for Water Underground Maintenance Equipment	**$85,000**		**$5,200**	

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX D: WATER AND SEWER SYSTEM EQUIPMENT AND INFRASTRUCTURE INVENTORY

WASTEWATER COLLECTION SYSTEM	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Sanitary Sewers - line 92 miles @ average of $35/l.f.	$17,000,000	75	$230,000	Mostly 8" sanitary sewer
Manholes - rehabilitate 2,000 manholes @ average of $1,500 each	$3,000,000	75	$40,000	

WASTEWATER TREATMENT PLANT	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Raw Sewage Pumps (3) - replace	$110,000	20	$5,500	Cost provided by Village
Raw Sewage Screen (2) - replace	$350,000	20	$17,500	Cost provided by Village
Oxidation Ditch (1) - replace equipment	$500,000	20	$25,000	Cost provided by Village
Final Clarifiers (2) - replace equipment	$1,428,000	20	$71,400	Installed in 1995 and no major replacements since, cost provided by Village
Aerobic Digesters (2) - replace aeration equipment	$120,000	15	$8,000	Cost provided by Village
Digester Membranes (2) - replace	$40,000	5	$8,000	Cost and replacement cycle provided by Village
Gravity Belt Thickener (1) - replace	$185,000	20	$9,300	Cost provided by Village
Belt Filter Press (1) - replace	$1,500,000	20	$75,000	Installed in 1995 and no major replacements since, cost provided by Village
Disinfection/Dechlorination System - replace	$85,000	15	$5,700	Cost provided by Village
Sludge Pumps - replace	$120,000	20	$6,000	Cost provided by Village
SCADA System	$250,000	20	$12,500	Installed in 1990 and no major replacements since, cost provided by Village
Electrical and Instrumentation - replace	$533,000	20	$26,700	12% of total equipment cost
Totals for Wastewater Treatment Plant Equipment	**$5,221,000**		**$270,600**	

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX D: WATER AND SEWER SYSTEM EQUIPMENT AND INFRASTRUCTURE INVENTORY

SEWAGE LIFT STATIONS	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Lift Station No. 20 - replace pumps	$28,000	15	$1,900	Two pumps, 3 hp each, cost and replacement cycle provided by Village
Lift Station No. 17 - replace pumps	$40,000	15	$2,700	Two pumps, 3 hp each, cost and replacement cycle provided by Village
Lift Station No. 8 - replace pumps	$40,000	15	$2,700	Two pumps, 7.5 hp each, cost and replacement cycle provided by Village
Lift Station No. 9 - replace pumps	$28,000	15	$1,900	Two pumps, 7.5 hp each, cost and replacement cycle provided by Village
Lift Station No. 19 - replace pumps	$32,000	15	$2,100	Two pumps, 10 hp each, cost and replacement cycle provided by Village
Lift Station No. 10 - replace pumps	$52,000	15	$3,500	Two pumps, 20 hp each, cost and replacement cycle provided by Village
Lift Station No. 13 - replace pumps	$60,000	15	$4,000	Three pumps, 30 hp each, cost estimated by B&W
Lift Station No. 15 - replace pumps	$40,000	15	$2,700	Two pumps, 30 hp each, cost estimated by B&W
Lift Station No. 18 - replace pumps	$75,000	15	$5,000	Three pumps, 40 hp each, cost estimated by B&W
Lift Station No. 14 - replace pumps	$60,000	15	$4,000	Two pumps, 50 hp each, cost estimated by B&W
Lift Station No. 16 - replace pumps	$80,000	15	$5,300	Three pumps, 50 hp each, cost estimated by B&W
Lift Station No. 12 - replace pumps	$120,000	15	$8,000	Three pumps, 100 hp each, cost estimated by B&W
Stationary Generators (10) - replace	$2,000,000	25	$80,000	Cost estimated by B&W, replacement cycle provided by Village
Electrical and Instrumentation - replace	$79,000	20	$4,000	12% of total equipment cost
Totals for Sewage Lift Stations	**$2,734,000**		**$127,800**	
Totals for Water Storage Tanks	**$1,895,000**		**$124,700**	

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX D: WATER AND SEWER SYSTEM EQUIPMENT AND INFRASTRUCTURE INVENTORY

SEWER FACILITIES VEHICLES	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Pickup Truck	$30,000	15	$2,000	2003 Ford F-250, cost provided by Village
Pickup Truck	$30,000	15	$2,000	1995 Ford F-250, cost provided by Village
Pickup Truck	$30,000	15	$2,000	1999 Dodge Ram 2500, cost provided by Village
Pickup Truck	$30,000	15	$2,000	1998 Ford Ranger, cost provided by Village
Totals for Sewer Facilities Vehicles	**$120,000**		**$8,000**	

SEWER UNDERGROUND VEHICLES	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Pickup Truck	$15,000	15	$1,000	1999 Ford F-250, cost provided by Village, 50% allocated to water utility
5-Ton Truck	$55,000	15	$3,700	2007 International 7400, cost provided by Village, 50% allocated to water utility
Cargo Van	$15,850	15	$1,100	2006 Ford E-350, cost from Kelley Blue Book, 50% allocated to water utility
1-Ton Dump Truck	$25,350	15	$1,700	2001 Ford F-450, cost provided by Village, 50% allocated to water utility
Pickup Truck	$15,000	15	$1,000	1999 Dodge Ram 2500, cost provided by Village, 50% allocated to water utility
Pickup Truck	$15,000	15	$1,000	2002 Ford Pickup, cost provided by Village, 50% allocated to water utility
Cube Van	$40,000	15	$2,700	1997 Ford E-450, cost provided by Village, 50% allocated to water utility
Cube Van	$40,000	15	$2,700	1997 Ford E-350, cost provided by Village, 50% allocated to water utility
1-Ton Dump Truck	$25,350	15	$1,700	1993 Ford F-350, cost provided by Village, 50% allocated to sewer utility
6-Wheel	$70,000	15	$4,700	1996 International DT468, cost provided by Village, 50% allocated to sewer utility
Pickup Truck	$15,000	15	$1,000	2008 Ford F-250, cost from Kelley Blue Book, 50% allocated to sewer utility
Totals for Sewer Underground Vehicles	**$331,550**		**$22,300**	

APPENDIX D: WATER AND SEWER SYSTEM EQUIPMENT AND INFRASTRUCTURE INVENTORY

SEWER UNDERGROUND MAINTENANCE EQUIP.	Estimated Cost	Service Life (years)	Target Annual Allocation	NOTES:
Backhoe	$55,000	18	$3,100	1997 John Deere, cost and replacement cycle provided by Village, 50% allocated to sev
Mini Excavator	$30,000	20	$1,500	2008 Bob Cat, cost and replacement cycle provided by Village, 50% allocated to sewer
Vacuum Truck	$300,000	15	$20,000	2001 International VAC, cost provided by Village
Skid Steer	$50,000	15	$3,300	2000 Geil, cost provided by Village
Sewer Jetter	$210,000	15	$14,000	2008 International 7400, cost estimated by B&W
End Loader	$140,000	20	$7,000	Cost and replacement cycle provided by Village
Totals for Underground Maintenance Equipment	**$785,000**		**$48,900**	

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX E: WATER AND SEWER COST DISTRIBUTION

Theoretical Water-Only Rate Calculation		FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Water-Only Expenses							
Water Facilities		$1,910,300	$2,596,430	$2,216,170	$2,228,810	$2,442,620	$1,896,590
Water Underground		$666,110	$595,380	$584,270	$667,670	$686,270	$705,830
Water Administrative & General		$274,900	$303,960	$342,350	$348,000	$350,750	$356,710
Water Non-Operating Expenses		$377,000	$377,000	$376,000	$378,000	$377,000	$324,000
Total Water Expenses		$3,228,310	$3,872,770	$3,518,790	$3,622,480	$3,856,640	$3,283,130
Annual Water Usage (1,000s of gallons)	÷	762,270	764,790	766,302	767,814	769,326	770,838
Theoretical Water-Only Rate per 1,000 gallons		**$4.24**	**$5.06**	**$4.59**	**$4.72**	**$5.01**	**$4.26**
% of Total Water & Sewer Rate		**45%**	**45%**	**42%**	**46%**	**46%**	**42%**

Theoretical Sewer-Only Rate Calculation		FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Sewer-Only Expenses							
Sewer Facilities		$1,533,150	$2,248,220	$2,298,620	$1,599,020	$1,942,720	$1,816,420
Sewer Underground		$587,500	$604,980	$618,560	$687,940	$704,020	$721,100
Sewer Administrative & General		$274,900	$303,960	$342,350	$348,000	$350,750	$356,710
Sewer Non-Operating Expenses		$1,520,000	$1,520,000	$1,615,000	$1,617,000	$1,616,000	$1,563,000
Total Sewer Expenses		$3,915,550	$4,677,160	$4,874,530	$4,251,960	$4,613,490	$4,457,230
Annual Water Usage (1,000s of gallons)	÷	762,270	764,790	766,302	767,814	769,326	770,838
Theoretical Sewer-Only Rate per 1,000 gallons		**$5.14**	**$6.12**	**$6.36**	**$5.54**	**$6.00**	**$5.78**
% of Total Water & Sewer Rate		**55%**	**55%**	**58%**	**54%**	**54%**	**58%**

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX F: SCENARIO 1 REVENUE AND EXPENSE PROJECTIONS

CONTROLLING ASSUMPTIONS:

- **The Pulte development is the only growth factored into the analysis at 24 new homes per year and 6,000 gallons/month per home.**
- **Routine operations and maintenance expenses increase each year due to inflation, as well as two additional employees in FY 2014.**
- **Village's five-year CIP costs are included, and all are funded using cash on hand except the sludge dewatering system improvements.**
- **Debt service costs include existing bonds and an IEPA loan, and estimated payments for an IEPA loan for the sludge dewatering impts.**
- **Annual water main replacement and sanitary sewer rehabilitation are funded at 50% of target funding level.**

NOTE: SEE APPENDIX B FOR DETAILED LINE ITEM EXPENSES, WHICH ARE IDENTICAL IN EACH ALTERNATIVE EXCEPT FOR THE AMOUNT OF WATER MAIN REPLACEMENT AND SEWER REHABILITATION SPENDING.

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Budget	FY 2012 Projected	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
REVENUES						
Operating Revenues						
Water User Charges	$2,490,000	$2,790,000	$3,219,000	$3,658,000	$3,861,000	$3,959,000
Sewer User Charges	$2,850,000	$3,198,000	$3,688,000	$3,968,000	$4,113,000	$4,214,000
Water Availability Charges	$146,000	$324,200	$400,500	$417,500	$432,300	$447,500
Sewer Availability Charges	$327,000	$366,500	$396,000	$412,800	$427,500	$442,500
Elevated Tank Surcharge	$0	$400,000	$150,000	$0	$0	$0
Water Connection Fees	$137,500	$137,500	$137,500	$137,500	$46,000	$46,000
Sewer Connection Fees	$187,500	$187,500	$187,500	$187,500	$63,000	$63,000
Public Infrastructure Fees	$57,900	$81,000	$81,000	$81,000	$0	$0
Penalties and Service Fees	$190,000	$200,000	$200,000	$200,000	$200,000	$200,000
Meter Sales	$11,000	$16,000	$16,000	$16,000	$16,000	$16,000
NSF Fees	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Water/Sewer Construction Inspection	$1,255	$3,000	$3,000	$3,000	$0	$0

APPENDIX F: SCENARIO 1 REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Rental Income	$74,300	$77,400	$70,400	$58,200	$58,600	$60,300
Miscellaneous Operating Revenue	$0	$1,500	$1,500	$1,500	$1,500	$1,500
Total Operating Revenues	$6,473,955	$7,784,100	$8,551,900	$9,142,500	$9,220,400	$9,451,300
Non-Operating Revenues						
Interest and Investment Income	$800	$2,600	$2,400	$2,800	$6,700	$5,600
Debt Proceeds	$0	$750,000	$750,000	$0	$0	$0
Misc. Non-Operating Revenue	$610	$2,000	$2,000	$2,000	$2,000	$2,000
Total Non-Operating Revenues	$1,410	$754,600	$754,400	$4,800	$8,700	$7,600
TOTAL REVENUES	**$6,475,365**	**$8,538,700**	**$9,306,300**	**$9,147,300**	**$9,229,100**	**$9,458,900**
EXPENSES						
Water Facilities						
Personnel Services	$756,890	$699,520	$719,460	$739,400	$760,300	$781,160
Contractual Services	$779,210	$731,910	$744,860	$773,610	$802,470	$833,430
Commodities	$374,200	$420,800	$434,650	$448,600	$462,650	$248,800
Capital Improvements	$0	$744,200	$317,200	$267,200	$417,200	$33,200
Water Underground						
Personnel Services	$491,760	$390,180	$400,800	$458,420	$471,040	$484,620
Contractual Services	$41,350	$68,300	$43,030	$44,270	$45,610	$46,950
Commodities	$133,000	$109,400	$112,940	$137,480	$142,120	$146,760
Capital Improvements	$0	$32,500	$757,500	$757,500	$757,500	$757,500
Water Administrative & General						
Personnel Services	$122,000	$147,790	$160,090	$164,750	$166,510	$171,480
Contractual Services	$24,300	$25,870	$32,430	$33,390	$34,450	$35,510
Commodities	$3,600	$5,300	$5,430	$5,560	$5,690	$5,820

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX F: SCENARIO 1 REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Transfer to General Fund	$125,000	$125,000	$150,000	$150,000	$150,000	$150,000
Total Water Operating Expenses	$2,851,310	$3,500,770	$3,878,390	$3,980,180	$4,215,540	$3,695,230
Sewer Facilities						
Personnel Services	$807,040	$712,920	$733,760	$754,600	$777,440	$789,280
Contractual Services	$635,610	$673,600	$699,620	$725,640	$752,760	$780,880
Commodities	$90,500	$103,700	$107,240	$110,780	$114,520	$118,260
Capital Improvements	$0	$758,000	$758,000	$8,000	$298,000	$128,000
Sewer Underground						
Personnel Services	$492,360	$390,180	$400,800	$458,420	$471,040	$484,620
Contractual Services	$14,940	$21,200	$21,830	$22,460	$23,090	$23,730
Commodities	$50,200	$52,400	$54,130	$55,860	$57,790	$59,720
Capital Improvements	$30,000	$141,200	$276,800	$286,200	$287,100	$288,030
Sewer Administrative & General						
Personnel Services	$122,000	$147,790	$160,100	$164,800	$166,600	$171,600
Contractual Services	$24,300	$25,870	$32,430	$33,390	$34,450	$35,510
Commodities	$3,600	$5,300	$5,430	$5,560	$5,690	$5,820
Transfer to General Fund	$125,000	$125,000	$150,000	$150,000	$150,000	$150,000
Total Sewer Operating Expenses	$2,395,550	$3,157,160	$3,400,140	$2,775,710	$3,138,480	$3,035,450
Non-Operating Expenses						
Bond Payments	$754,000	$754,000	$752,000	$756,000	$754,000	$648,000
IEPA Loan Payments (WWTP Upgrade)	$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000
IEPA Loan Payments (Belt Press)	$0	$0	$96,000	$96,000	$96,000	$96,000
Total Non-Operating Expenses	$1,897,000	$1,897,000	$1,991,000	$1,995,000	$1,993,000	$1,887,000
TOTAL EXPENSES	**$7,143,860**	**$8,554,930**	**$9,269,530**	**$8,750,890**	**$9,347,020**	**$8,617,680**

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX F: SCENARIO 1 REVENUE AND EXPENSE PROJECTIONS

ALTERNATIVE 2: WATER AND SEWER FUND YEAR-END SUMMARY	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Beginning Water & Sewer Fund Balance	$924,000	$255,505	$239,275	$276,045	$672,455	$554,535
Total Revenues	$6,475,365	$8,538,700	$9,306,300	$9,147,300	$9,229,100	$9,458,900
Total Expenses	$7,143,860	$8,554,930	$9,269,530	$8,750,890	$9,347,020	$8,617,680
Annual Net Income (Loss)	($668,495)	($16,230)	$36,770	$396,410	($117,920)	$841,220
Ending Water & Sewer Fund Balance	$255,505	$239,275	$276,045	$672,455	$554,535	$1,395,755
Operating Reserve Goal*	$1,312,000	$1,251,000	$1,297,000	$1,367,000	$1,406,000	$1,389,000

* Recommended operating reserve is the equivalent of 25% of annual operating expenses (not including major capital improvements and debt service).

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX G: SCENARIO 2 REVENUE AND EXPENSE PROJECTIONS

CONTROLLING ASSUMPTIONS:

- **The Pulte development is the only growth factored into the analysis at 24 new homes per year and 6,000 gallons/month per home.**
- **Routine operations and maintenance expenses increase each year due to inflation, as well as two additional employees in FY 2014.**
- **Village's five-year CIP costs are included, and all are funded using cash on hand except the sludge dewatering system improvements.**
- **Debt service costs include existing bonds and an IEPA loan, and estimated payments for an IEPA loan for the sludge dewatering impts.**
- **Annual water main replacement and sanitary sewer rehabilitation are funded at 75% of target funding level.**

NOTE: SEE APPENDIX B FOR DETAILED LINE ITEM EXPENSES, WHICH ARE IDENTICAL IN EACH ALTERNATIVE EXCEPT FOR THE AMOUNT OF WATER MAIN REPLACEMENT AND SEWER REHABILITATION SPENDING.

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Budget	FY 2012 Projected	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
REVENUES						
Operating Revenues						
Water User Charges	$2,490,000	$2,880,000	$3,442,000	$3,996,000	$4,234,000	$4,370,000
Sewer User Charges	$2,850,000	$3,216,000	$3,713,000	$4,024,000	$4,186,000	$4,321,000
Water Availability Charges	$146,000	$324,200	$400,500	$417,500	$432,300	$447,500
Sewer Availability Charges	$327,000	$366,500	$396,000	$412,800	$427,500	$442,500
Elevated Tank Surcharge	$0	$400,000	$150,000	$0	$0	$0
Water Connection Fees	$137,500	$137,500	$137,500	$137,500	$46,000	$46,000
Sewer Connection Fees	$187,500	$187,500	$187,500	$187,500	$63,000	$63,000
Public Infrastructure Fees	$57,900	$81,000	$81,000	$81,000	$0	$0
Penalties and Service Fees	$190,000	$200,000	$200,000	$200,000	$200,000	$200,000
Meter Sales	$11,000	$16,000	$16,000	$16,000	$16,000	$16,000
NSF Fees	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Water/Sewer Construction Inspection	$1,255	$3,000	$3,000	$3,000	$0	$0

APPENDIX G: SCENARIO 2 REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Rental Income	$74,300	$77,400	$70,400	$58,200	$58,600	$60,300
Miscellaneous Operating Revenue	$0	$1,500	$1,500	$1,500	$1,500	$1,500
Total Operating Revenues	$6,473,955	$7,892,100	$8,799,900	$9,536,500	$9,666,400	$9,969,300
Non-Operating Revenues						
Interest and Investment Income	$800	$2,600	$3,400	$2,000	$5,500	$4,500
Debt Proceeds	$0	$750,000	$750,000	$0	$0	$0
Misc. Non-Operating Revenue	$610	$2,000	$2,000	$2,000	$2,000	$2,000
Total Non-Operating Revenues	$1,410	$754,600	$755,400	$4,000	$7,500	$6,500
TOTAL REVENUES	**$6,475,365**	**$8,646,700**	**$9,555,300**	**$9,540,500**	**$9,673,900**	**$9,975,800**
EXPENSES						
Water Facilities						
Personnel Services	$756,890	$699,520	$719,460	$739,400	$760,300	$781,160
Contractual Services	$779,210	$731,910	$744,860	$773,610	$802,470	$833,430
Commodities	$374,200	$420,800	$434,650	$448,600	$462,650	$248,800
Capital Improvements	$0	$744,200	$317,200	$267,200	$417,200	$33,200
Water Underground						
Personnel Services	$491,760	$390,180	$400,800	$458,420	$471,040	$484,620
Contractual Services	$41,350	$68,300	$43,030	$44,270	$45,610	$46,950
Commodities	$133,000	$109,400	$112,940	$137,480	$142,120	$146,760
Capital Improvements	$0	$32,500	$1,122,500	$1,122,500	$1,122,500	$1,122,500
Water Administrative & General						
Personnel Services	$122,000	$147,790	$160,090	$164,750	$166,510	$171,480
Contractual Services	$24,300	$25,870	$32,430	$33,390	$34,450	$35,510
Commodities	$3,600	$5,300	$5,430	$5,560	$5,690	$5,820

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX G: SCENARIO 2 REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Transfer to General Fund	$125,000	$125,000	$150,000	$150,000	$150,000	$150,000
Total Water Operating Expenses	$2,851,310	$3,500,770	$4,243,390	$4,345,180	$4,580,540	$4,060,230
Sewer Facilities						
Personnel Services	$807,040	$712,920	$733,760	$754,600	$777,440	$789,280
Contractual Services	$635,610	$673,600	$699,620	$725,640	$752,760	$780,880
Commodities	$90,500	$103,700	$107,240	$110,780	$114,520	$118,260
Capital Improvements	$0	$758,000	$758,000	$8,000	$298,000	$128,000
Sewer Underground						
Personnel Services	$492,360	$390,180	$400,800	$458,420	$471,040	$484,620
Contractual Services	$14,940	$21,200	$21,830	$22,460	$23,090	$23,730
Commodities	$50,200	$52,400	$54,130	$55,860	$57,790	$59,720
Capital Improvements	$30,000	$141,200	$344,300	$353,700	$354,600	$355,530
Sewer Administrative & General						
Personnel Services	$122,000	$147,790	$160,100	$164,800	$166,600	$171,600
Contractual Services	$24,300	$25,870	$32,430	$33,390	$34,450	$35,510
Commodities	$3,600	$5,300	$5,430	$5,560	$5,690	$5,820
Transfer to General Fund	$125,000	$125,000	$150,000	$150,000	$150,000	$150,000
Total Sewer Operating Expenses	$2,395,550	$3,157,160	$3,467,640	$2,843,210	$3,205,980	$3,102,950
Non-Operating Expenses						
Bond Payments	$754,000	$754,000	$752,000	$756,000	$754,000	$648,000
IEPA Loan Payments (WWTP Upgrade)	$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000
IEPA Loan Payments (Belt Press)	$0	$0	$96,000	$96,000	$96,000	$96,000
Total Non-Operating Expenses	$1,897,000	$1,897,000	$1,991,000	$1,995,000	$1,993,000	$1,887,000
TOTAL EXPENSES	**$7,143,860**	**$8,554,930**	**$9,702,030**	**$9,183,390**	**$9,779,520**	**$9,050,180**

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX G: SCENARIO 2 REVENUE AND EXPENSE PROJECTIONS

ALTERNATIVE 3: WATER AND SEWER FUND YEAR-END SUMMARY	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Beginning Water & Sewer Fund Balance	$924,000	$255,505	$347,275	$200,545	$557,655	$452,035
Total Revenues	$6,475,365	$8,646,700	$9,555,300	$9,540,500	$9,673,900	$9,975,800
Total Expenses	$7,143,860	$8,554,930	$9,702,030	$9,183,390	$9,779,520	$9,050,180
Annual Net Income (Loss)	($668,495)	$91,770	($146,730)	$357,110	($105,620)	$925,620
Ending Water & Sewer Fund Balance	$255,505	$347,275	$200,545	$557,655	$452,035	$1,377,655
Operating Reserve Goal*	$1,312,000	$1,251,000	$1,297,000	$1,367,000	$1,406,000	$1,389,000

* Recommended operating reserve is the equivalent of 25% of annual operating expenses (not including major capital improvements and debt service).

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX H: SCENARIO 3 REVENUE AND EXPENSE PROJECTIONS

CONTROLLING ASSUMPTIONS:

- **The Pulte development is the only growth factored into the analysis at 24 new homes per year and 6,000 gallons/month per home.**
- **Routine operations and maintenance expenses increase each year due to inflation, as well as two additional employees in FY 2014.**
- **Village's five-year CIP costs are included, and all are funded using cash on hand except the sludge dewatering system improvements.**
- **Debt service costs include existing bonds and an IEPA loan, and estimated payments for an IEPA loan for the sludge dewatering impts.**
- **Annual water main replacement and sanitary sewer rehabilitation are funded at 100% of target funding level.**

NOTE: SEE APPENDIX B FOR DETAILED LINE ITEM EXPENSES, WHICH ARE IDENTICAL IN EACH ALTERNATIVE EXCEPT FOR THE AMOUNT OF WATER MAIN REPLACEMENT AND SEWER REHABILITATION SPENDING.

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Budget	FY 2012 Projected	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
REVENUES						
Operating Revenues						
Water User Charges	$2,490,000	$2,976,000	$3,728,000	$4,349,000	$4,604,000	$4,752,000
Sewer User Charges	$2,850,000	$3,241,000	$3,728,000	$4,088,000	$4,270,000	$4,405,000
Water Availability Charges	$146,000	$324,200	$400,500	$417,500	$432,300	$447,500
Sewer Availability Charges	$327,000	$366,500	$396,000	$412,800	$427,500	$442,500
Elevated Tank Surcharge	$0	$400,000	$150,000	$0	$0	$0
Water Connection Fees	$137,500	$137,500	$137,500	$137,500	$46,000	$46,000
Sewer Connection Fees	$187,500	$187,500	$187,500	$187,500	$63,000	$63,000
Public Infrastructure Fees	$57,900	$81,000	$81,000	$81,000	$0	$0
Penalties and Service Fees	$190,000	$200,000	$200,000	$200,000	$200,000	$200,000
Meter Sales	$11,000	$16,000	$16,000	$16,000	$16,000	$16,000
NSF Fees	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Water/Sewer Construction Inspection	$1,255	$3,000	$3,000	$3,000	$0	$0

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX H: SCENARIO 3 REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Rental Income	$74,300	$77,400	$70,400	$58,200	$58,600	$60,300
Miscellaneous Operating Revenue	$0	$1,500	$1,500	$1,500	$1,500	$1,500
Total Operating Revenues	$6,473,955	$8,013,100	$9,100,900	$9,953,500	$10,120,400	$10,435,300
Non-Operating Revenues						
Interest and Investment Income	$800	$2,600	$4,700	$2,000	$5,300	$4,500
Debt Proceeds	$0	$750,000	$750,000	$0	$0	$0
Misc. Non-Operating Revenue	$610	$2,000	$2,000	$2,000	$2,000	$2,000
Total Non-Operating Revenues	$1,410	$754,600	$756,700	$4,000	$7,300	$6,500
TOTAL REVENUES	**$6,475,365**	**$8,767,700**	**$9,857,600**	**$9,957,500**	**$10,127,700**	**$10,441,800**
EXPENSES						
Water Facilities						
Personnel Services	$756,890	$699,520	$719,460	$739,400	$760,300	$781,160
Contractual Services	$779,210	$731,910	$744,860	$773,610	$802,470	$833,430
Commodities	$374,200	$420,800	$434,650	$448,600	$462,650	$248,800
Capital Improvements	$0	$744,200	$317,200	$267,200	$417,200	$33,200
Water Underground						
Personnel Services	$491,760	$390,180	$400,800	$458,420	$471,040	$484,620
Contractual Services	$41,350	$68,300	$43,030	$44,270	$45,610	$46,950
Commodities	$133,000	$109,400	$112,940	$137,480	$142,120	$146,760
Capital Improvements	$0	$32,500	$1,487,500	$1,487,500	$1,487,500	$1,487,500
Water Administrative & General						
Personnel Services	$122,000	$147,790	$160,090	$164,750	$166,510	$171,480
Contractual Services	$24,300	$25,870	$32,430	$33,390	$34,450	$35,510
Commodities	$3,600	$5,300	$5,430	$5,560	$5,690	$5,820

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX H: SCENARIO 3 REVENUE AND EXPENSE PROJECTIONS

WATER & SEWER FUND ANNUAL REVENUES AND EXPENSES	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Transfer to General Fund	$125,000	$125,000	$150,000	$150,000	$150,000	$150,000
Total Water Operating Expenses	$2,851,310	$3,500,770	$4,608,390	$4,710,180	$4,945,540	$4,425,230
Sewer Facilities						
Personnel Services	$807,040	$712,920	$733,760	$754,600	$777,440	$789,280
Contractual Services	$635,610	$673,600	$699,620	$725,640	$752,760	$780,880
Commodities	$90,500	$103,700	$107,240	$110,780	$114,520	$118,260
Capital Improvements	$0	$758,000	$758,000	$8,000	$298,000	$128,000
Sewer Underground						
Personnel Services	$492,360	$390,180	$400,800	$458,420	$471,040	$484,620
Contractual Services	$14,940	$21,200	$21,830	$22,460	$23,090	$23,730
Commodities	$50,200	$52,400	$54,130	$55,860	$57,790	$59,720
Capital Improvements	$30,000	$141,200	$411,800	$421,200	$422,100	$423,030
Sewer Administrative & General						
Personnel Services	$122,000	$147,790	$160,100	$164,800	$166,600	$171,600
Contractual Services	$24,300	$25,870	$32,430	$33,390	$34,450	$35,510
Commodities	$3,600	$5,300	$5,430	$5,560	$5,690	$5,820
Transfer to General Fund	$125,000	$125,000	$150,000	$150,000	$150,000	$150,000
Total Sewer Operating Expenses	$2,395,550	$3,157,160	$3,535,140	$2,910,710	$3,273,480	$3,170,450
Non-Operating Expenses						
Bond Payments	$754,000	$754,000	$752,000	$756,000	$754,000	$648,000
IEPA Loan Payments (WWTP Upgrade)	$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000	$1,143,000
IEPA Loan Payments (Belt Press)	$0	$0	$96,000	$96,000	$96,000	$96,000
Total Non-Operating Expenses	$1,897,000	$1,897,000	$1,991,000	$1,995,000	$1,993,000	$1,887,000
TOTAL EXPENSES	**$7,143,860**	**$8,554,930**	**$10,134,530**	**$9,615,890**	**$10,212,020**	**$9,482,680**

VILLAGE OF CARPENTERSVILLE, ILLINOIS
WATER AND SEWER RATE STUDY

APPENDIX H: SCENARIO 3 REVENUE AND EXPENSE PROJECTIONS

ALTERNATIVE 4: WATER AND SEWER FUND YEAR-END SUMMARY	FY 2011 Estimated	FY 2012 Budget	FY 2013 Projected	FY 2014 Projected	FY 2015 Projected	FY 2016 Projected
Beginning Water & Sewer Fund Balance	$924,000	$255,505	$468,275	$191,345	$532,955	$448,635
Total Revenues	$6,475,365	$8,767,700	$9,857,600	$9,957,500	$10,127,700	$10,441,800
Total Expenses	$7,143,860	$8,554,930	$10,134,530	$9,615,890	$10,212,020	$9,482,680
Annual Net Income (Loss)	($668,495)	$212,770	($276,930)	$341,610	($84,320)	$959,120
Ending Water & Sewer Fund Balance	$255,505	$468,275	$191,345	$532,955	$448,635	$1,407,755
Operating Reserve Goal*	$1,312,000	$1,251,000	$1,297,000	$1,367,000	$1,406,000	$1,389,000

* Recommended operating reserve is the equivalent of 25% of annual operating expenses (not including major capital improvements and debt service).