SECTION 3

SECTION 3
VALUATION METHODS

3.1 GENERAL

The objective of this Report is to establish an opinion of the fair market value of the Utility. Fair market value assumes that both the buyer and the seller are aware of all relevant information and that neither party is under the compulsion to act. The method utilized herein to provide a basis for an opinion of value consists of the reconciliation of three approaches consisting of:

(i) the cost approach;
(ii) the income approach; and
(iii) the comparable sales approach.

These approaches analyze various aspects of the utility system, including the physical conditions of the existing utility system, the cash flows anticipated to be generated by the utility system in the future, and finally, the transaction factors related to the acquisition of similar systems in the past. Even though none of these methods may be considered ideal on a stand-alone basis, since each evaluates a particular facet of the utility system, the consideration and relative weighting of all three provides valuable input when considering other factors and the use of judgment in determining the value of the Utility. The remainder of this section provides a general description of the valuation approaches utilized for the Report.

3.2 COST APPROACH

Replacement cost new less depreciation (RCNLD) is a cost approach method selected for this report that is commonly utilized in the determination of estimated value in utilities and has been an accepted method in litigation cases involving the acquisition of utilities throughout the United States. The primary reason for this is the fact that most utilities are comprised of complex treatment, pumping, and piping networks which all have various service lives and different years of installation. In order to address these technically complex facilities, the RCNLD method has been developed.

There is a difference between the reproduction cost and the replacement cost of utility assets. The reproduction cost is a duplication of exactly the same facilities. In contrast, the replacement cost is the provision of facilities that would be available today with their improved efficiencies and more effective cost utilizing the commercially available materials, equipment, etc. complete as one single project and obtaining the economy of scale thereof. The replacement cost method assumes that the most economical sequence of construction is utilized. This means that the cost of restoration, impacts of conflicts, etc. are not included. In addition, only one (1) start up and shut down cost is included. Similarly, any premiums or overtime costs or special procurement mobilization/demobilization costs are not included other than for the single large economic construction project. The replacement cost approach excludes excess capital which an investor would normally not pay for in the existing facilities. Rather, the approach is based upon the theory of the substitution and the prevailing market concept that no investor would pay more than the cost to replace the same system with the same characteristics.

There are three (3) components to the overall depreciation taken in this approach. The first component of depreciation, and the first to be applied, is the physical depreciation of the asset. The second level is the functional obsolescence of the existing asset and is deducted from the replacement cost new less physical depreciation. The functional obsolescence is associated with the facilities themselves and is inherent to the Utility itself being derived from construction, configuration, operations, management, and administration. The final component in the method is for external obsolescence. External obsolescence accrues from all factors impacting the Utility. The impact of regulation, customer acceptance, historical rate and charge regulation or lack thereof, the ability to generate excess revenues sufficient to support the physical asset value, market conditions, development conditions, and many other factors external to the system itself.

The RCNLD analysis is based upon the following assumptions:

1. All Utility physical assets are designed, permitted and constructed in one continuous effort.

2. The construction activities are assumed to follow the same historical sequence as that followed in the service area. For example, water mains, gravity collection mains, force mains and manholes were assumed to be constructed before or simultaneously with the roads and driveways.

3. The engagement of general contractors, acting for the Utility and under its supervision, utilizing current construction practices and procedures to replace the property in such a manner so as to achieve all efficiencies that these procedures and practices would allow.

4. The replacement unit prices from recent sources are adjusted based on the appropriate index.

5. The replacement unit prices include the costs of all labor, material, and equipment directly related to specific items.

6. The replacement cost includes the costs associated with overhead and engineering fees incurred throughout the course of the project. These costs are presented as a percentage of the total construction costs of the replaced facilities and depreciated in the replacement cost analysis.

3.2.1 Depreciation Analysis

Depreciation is defined basically as the loss of value or worth of a property from all causes including those resulting from physical deterioration, functional obsolescence, and economic obsolescence. These causes and their effects are usually unique to each utility.

3.2.1.1 Average Service Life (ASL) Schedule

The appropriate ASL schedule for valuation of any utility should consider manufacturers' anticipated service lives, maintenance of facilities, service lives of like components and the utility system as determined by field inspections. This information is utilized to obtain the ASL for the Utility assets under normal service, including proper maintenance and repair. The National Association of Regulatory Commissioners (NARUC) helps establish ASLs through many studies and is considered an industry standard. GAI has incorporated ASLs being used by representatives of NARUC in this appraisal. The ASLs utilized in the replacement cost approach are shown in **Table 4-3** located in **Section 4**.

The effects of both the level of maintenance performed on the Utility and the deficiencies of the Utility on the value of the assets are addressed later in this analysis. These effects are determined based on inspections, evaluation, and analyses of the Utility assets which provide specific functions for the Utility. The impacts from lack of maintenance and observed deficiencies are then applied in the replacement cost analysis.

3.2.2 Cost Determination

The use of construction costs in the determination of the estimated cost-new valuation is of primary significance. These construction costs are obtained from several sources. A listing of the various sources used in the determination of costs is presented in **Section 4**.

3.2.3 Indirect Cost Components and Percentages

The cost approach includes the costs associated with overhead incurred throughout the course of construction. These costs are presented as a percentage of the total construction costs of the replaced facilities. Engineering and other costs are depreciated as they are associated with the assets in the replacement cost analysis.

3.3 INCOME APPROACH

The income approach values a utility based on the present value of the available cash flows anticipated to be generated in the future. The theory behind this particular approach is based upon the concept of converting the anticipated financial benefits of ownership in the future to an estimate of the present value in today's environment. Depending upon the circumstances surrounding each acquisition, the income stream may be based on the net operating revenues derived from existing and future growth as well as the value of capital contributions received from new system growth in the future.

Utilizing this approach, the net income for the utility is projected over a specific timeframe and subsequently expressed in terms of its value today based upon the use of an appropriate present value or discount factor. In order to reflect future financial and operational conditions as accurately as possible, this approach relies heavily on past and present financial data such as that found in audited financial statements and financial reports. Once the projection of net income available over the specified time period is determined, a reversion value of the assets is estimated in order to recognize the value of the system as an ongoing entity beyond this projected time period. This adjustment is based on the concept that the utility does not simply cease to exist at the end of the projection period. Rather, the assets of the system will still provide a means of generating revenue. As such, the reversion, or residual, value of the assets existing at the end of the projection period is included in the present value analysis. Finally, any other adjustments which may be appropriate are made based on the circumstances surrounding the particular acquisition. Such circumstances may include, but not be limited to, adjustments for capital deficiencies that may exist at the time of acquisition, deferred maintenance items, and similar requirements.

In general, the development of an income approach would involve the following steps and decisions:

1. Determine the appropriate term to use for the projection period. Based on the individual circumstances, this period may change from acquisition to acquisition. For example, the anticipated remaining useful life of the physical assets may be used if adequate information exists for this determination.

2. Review relevant past and present financial and operating data available for the utility as it exists today. This will include sources of operating and capital revenues and expenses; transfers; depreciation (if appropriate); personnel and associated costs; historical customer growth and usage patterns; known and anticipated changes in future customer statistics; and similar factors.

3. Develop a customer and usage forecast corresponding to the projection period chosen based on the review of past and present actual financial data and any known or anticipated changes in the future.

4. Develop a schedule of revenues and expenses for the projection period based on the customer forecast and current financial statistics of the system while reflecting applicable adjustment thereto pursuant to the ownership assumed in the analysis. In projecting the revenues and expenses, other adjustments may be necessary based on the assumptions inherent in the particular analysis.

5. Determine any appropriate capital contributions and/or capital expenditures which may be necessary as a result of new customer growth or capital improvement needs in the future. This facet of the cash flow analysis will depend on factors such as the remaining capacity in the existing system and the assumed customer forecast. Based on such assumptions, the inclusion of capital revenues and/or capital expenditures in the present value analysis may be appropriate.

6. Determine the applicable present value discount factor to be utilized in the analysis. This factor will vary depending on the ownership assumed in the future. For example, under a public ownership scenario, the current interest rate on long-term municipal utility revenue bonds may serve as the basis for the discount rate. Alternatively, if private ownership is assumed, the utility's current average cost of capital (or that of other similar utilities) may be used.

7. Apply the present value discount factor to the anticipated cash flows for the projection period.

8. Allow consideration of the reversion value of the assets in the last year of the analysis.

9. Make any other appropriate adjustments which may be necessary.

For this particular valuation, there are factors which diminish the importance of the income approach in the opinion of value, such that the weight given to this approach would basically be zero. Essentially, due to the nature of this type of transaction, none of the typical adjustments for a not-for-profit to a for-profit or vice-versa should be made. As such, this type of transaction typically would have little to no weight associated with the income approach. This is further discussed in **Section 5**, but as such, this approach is not applicable for this valuation.

3.4 COMPARABLE SALES APPROACH

The comparable sales approach to utility valuation assumes that knowledgeable buyers and sellers of water, wastewater and reclaimed utilities generally know the “Market” for such utility systems. The purpose of this market approach is to examine the history of water, wastewater and reclaimed utility acquisitions, and to analyze the conditions under which the systems were acquired in an effort to arrive at an implied purchase price for the subject system. Extensive research has been conducted in order to gather a database of information regarding utility acquisitions. In order to compare the different transactions, various financial, technical, legal, and customer service information was analyzed and adjusted. Moreover, discussions with the negotiators, buyers, and sellers are useful and informative to the analyses.

There are many factors which are involved in the determination of an acquisition price of a utility system. These factors create both similarities and differences between the transactions, which in essence, result in the formation of a well-mixed market of utility sales. The comparable sales approach considers such factors and makes adjustments as necessary in order to arrive at an implied value for the Utility.

3.5 SUMMARY

In an effort to formulate an opinion of value for the Utility proposed to be acquired, this Report considers three valuation approaches. The three valuation approaches include the: 1) cost approach; 2) income approach (not used herein, as discussed above); and 3) comparable sales approach. Each approach is independent and results in a separate and distinct finding. Such findings are subsequently weighted and considered together with other factors to formulate an opinion of value for the Utility. The resulting opinion of value is based upon the foregoing findings as well as professional experience.

SECTION 4

SECTION 4
COST APPROACH

4.1 INTRODUCTION

This section of the Report presents the opinion of value utilizing the Cost Approach for the Utility assets that are currently providing water and wastewater utility services to the Village of Oakwood, IL. The methodology selected for use in the cost approach valuation of the above Utility is replacement cost new less depreciation (RCNLD). This method is commonly utilized in the determination of value of public utilities and has been an accepted method with regard to value for several court cases involving the acquisition of utilities throughout the United States. The primary reason for using the RCNLD method is the fact that most utilities are comprised of complex treatment, pumping, and piping networks with various service lives and years of installation. In order to address these technically complex facilities, the RCNLD method has been chosen for the cost approach for valuation.

4.2 REPLACEMENT COST DETERMINATION

The replacement cost of this special purpose property in place and in-service is determined by calculating the construction cost of the same, equivalent or like-kind new facilities which the marketplace would install and deducting the various forms of depreciation. The determination of replacement assumes that replacing the Utility is one (1) large project with inherent economies of scale which are represented in the determination of replacements costs. The replacement costs used are derived from a variety of sources. Those sources include:

(a) Actual construction costs of projects from GAI records;

(b) Calls to contractors for estimates of prices, including those direct cost components which are generally described in **Table 4-1** herein;

Table 4-1
Direct Cost Components
Included In Unit Prices

Item No.	Description
1	Replacement Cost of the Item
2	Sales Taxes, as Applicable
3	Freight
4	Rigging and Moving, as Applicable
5	General Electrical Item Related
6	Item Foundation or Fixture
7	Item Piping Connection to Value of Plant Piping, as Applicable
8	Debugging, as Applicable
9	Item Operation and Maintenance (O&M) Manual
10	Start-Up
11	Labor and Cost for Construction Equipment/Machinery/Tools/Specials Necessary for Installation Complete

(c) Calls to manufacturers for material prices as well as for their experiences associated with the installation of their equipment;

(d) Bill of sales where applicable;

(e) Utilization of various construction cost estimating manuals such as the RS Means Cost Data (RS) and/or the Engineering News Record (ENR) Cost Indices/Information for various components;

(f) Utilizing capacity ratios as necessary to interpolate to a needed equivalent facility from two (2) comparable bids of slightly differing size; and

(g) Information from Mr. Joe Pisula, P.E., Village Engineer.

Data obtained from the above sources has been summarized and included within the analyses provided. Additionally, construction work in progress is not valued and is considered as part of the standard terms and conditions of a utility transaction.

The American Society of Appraisers (ASA), in their Principals of Valuation courses involving the machinery and technical specialties which include the specific provision for public utilities, have developed valuation guidelines. Through their courses titled ME 201, 202, 203, and 204 for machinery and equipment valuation, the methodology is summarized. These guidelines provide for the rounding of valuation amounts. This report is compliant with the Uniform Standards of Professional Appraisal Practice, 2012-2013 Edition. The rounding pursuant to ASA guidelines are shown in **Table 4-2,** below.

Table 4-2
Rounding of Valuation Amounts

Amount Determined	Rounded to Nearest [1]
0 - $2,000	$10
$2,001 - $20,000	$100
$20,001 - $500,000	$1,000
$500,001 - $10,000,000	$10,000
Over $10,000,000	$100,000

Source: ASA guidelines

4.3 RECOMMENDED DEPRECIATION SCHEDULE

Each Utility component has been assigned an average service life. GAI's professional staff has performed numerous asset studies including surveys of Illinois utilities, analysis of Public Service Commission regulated utilities, specific surveys and testing for utility systems and specific cases, as well as utilizing the available information on depreciation of public utility assets specific to the design specification delineated within this Section. GAI has used the information compiled and their professional experience and judgment to assign appropriate average service lives.

Table 4-3 summarizes utility system component average service life (ASL) for each of the various categories utilized in this appraisal. The depreciation has been taken on a straight-line basis utilizing the components and the average service lives shown on **Table 4-3**.

Table 4-3
Water and Wastewater Utility Component
Average Service Life (ASL)

Category	ASL
Raw and Potable Water Mains	75 years
Fire Hydrants	50 years
Meters	15 years
Services	50 years
Gravity Sewers	75 years
Manholes	45 years
Lift Stations	35 years
Force Mains	75 years
Water Treatment Plant (Structure and Improvements)	33 years
Raw Water Supply Wells	30 years
Pumping Equipment	20 years
Water Treatment Equipment	10 years
Ground Storage Tank	40 years
Aerator, Pressure Filters	17 years
Hydro-pneumatic Tanks	35 years
Electrical Equipment	20 years
Master Meter	15 years
Wastewater Treatment Plant	45 years
Valves	35 years
Percolation Pond Piping and Appurtenances	45 years
Chlorination Equipment	30 Years
Site Work	45 years
Land	Separate
Easements	Separate
Inventory/Consumables	At Cost
Engineering, Records, Reports, etc.	Composite
Legal Agreement, Entitlements, etc.	N/A - Overheads

4.4 INDIRECT COST COMPONENTS

The indirect cost components included in this analysis are legal costs; insurance costs and other related insurance items; licenses, permits, and fees; technical services; financing; and overhead costs. These costs are presented as a percentage of the asset costs in **Table 4-4**. This is customary and typical for the industry. Note that the ASCE Manual of Practice No. 45 and the Florida Institute of Consulting Engineering curves are

utilized for the technical service aspects. Also note that it is assumed that the Client's interest rate on financing is 6.0%, allocated to the indirect cost. The percentages shown are typical and provide for the total indirect cost for the project at 18.0%.

Table 4-4
Indirect Cost Components and Percentages

Description	Percentage [1]
Legal	1.0%
Insurances, etc.	0.5%
Licenses, Permits, and Fees	1.0%
Accounting	0.5%
Engineering, Surveying, Construction Management, Testing, Technical Services, O&M Manual, Start-up, and Certification	8.0% [2]
Financing	6.0% [3]
Administration, Overhead, Planning, etc.	1.0%
Total	18.0%

Notes: (1) Otherwise stated from market review of total project costs without premiums or interveners or special services.

(2) ASCE MOP 45 and FICE curves.

(3) Assumes financing @ 6.0%.

In addition to the indirect cost components listed above, GAI has provided for an additional 10% to reflect contractor mobilization/demobilization, profits, insurance, etc.

4.5 REPLACEMENT COST ANALYSES

This Report includes the replacement cost analyses as conducted by Mr. Gerald C. Hartman, P.E., BCEE, ASA, P.E. # 062-053100, ASA # 7542. The replacement cost estimates are shown for the water facilities in **Schedule 4-1** and for the wastewater facilities in **Schedule 4-2**. The quantities and inventory of assets were retained from the reports provided by the Village. GAI personnel inspected the Utility on June 10, 2013, and the inspection photos are attached in **Appendix B**. The Client, and Mr. Joe Pisula, P.E., Village Engineer, through earlier study and evaluation reports, were significant contributors to this effort as well.

The results of the replacement cost new less physical depreciation determination are summarized in the following sub-sections.

4.5.1 Water System

These water system facilities were constructed in the 1939 through 2012 time period. These facilities include fire hydrants, gate valves, and backflow preventers and are detailed in **Schedule 4-1**. After applying the overhead percentages, the new replacement cost value of the assets is $2,970,670, rounded to **$2,980,000** as shown in **Schedule 4-1**. The total physical depreciation of these assets using the average service life schedule is $2,055,886, rounded to **$2,060,000**. The remaining replacement cost new less physical depreciation (RCNLPD) is $672,382, rounded to **$670,000**.

Note that in **Schedule 4-1**, the water system facilities presented there include impaired raw water mains and water treatment facilities. The “impaired” classification is assigned to facilities which do not meet applicable regulatory requirements and therefore show no estimated value in the evaluation totals with the exception of land value and salvage value at the water treatment plant.

4.5.2 Wastewater System

This system includes the gravity sewer mains, wastewater pumping stations and force mains and the wastewater treatment plant. These services were constructed between 1970 through 2001. After applying the necessary overhead percentages, the replacement cost new value of the assets is $6,385,177, rounded to **$6,390,000** as shown in **Schedule 4-2.** The total physical depreciation of these assets is $3,474,271, rounded to **$3,470,000**. The remaining RCNLPD is $2,912,906, rounded to **$2,910,000**.

4.5.3 Summary of Replacement Cost New Less Physical Depreciation

As shown in **Schedule 4-1** and **4-2**, the replacement cost new less physical depreciation is $670,000 for the water system and $2,910,000 for the wastewater system. This shows that the utility assets have an approximate composite depreciation rate of 69% for water facilities and 54% for wastewater facilities. **Table 4-5** summarizes the RCNLPD values for the water and wastewater systems.

Table 4-5
Summary of Facilities
Replacement Cost New Less Physical Depreciation (RCNLPD)

	Category	Replacement Cost New	Physical Depreciation	Replacement Cost New Less Physical Depreciation
1.	Water System	$ 2,970,670	$ 2,055,886	$ 672,382[1]
2.	Wastewater System	6,385,177	3,474,271	2,912,906
	Total	**$ 9,355,847**	**$ 5,530,157**	**$ 3,585,288**
	Total Rounded	**$ 9,360,000**	**$ 5,530,000**	**$ 3,590,000**

Note: (1) The impaired facilities are not estimated in value exception of land value and salvage value of the water treatment plant.

4.5.4 Consumables and Inventory at Cost

The facilities vary in their consumables and inventory throughout the month, and the cost of consumables and inventory are not included in this valuation.

4.5.5 Tools and Equipment Depreciated

Tools and equipment for the Utility are not included in this valuation.

4.5.6 Records Depreciated

The drawings, reports, permits, and other rights and information associated with the system are not complete. The remaining value of what is available has been taken in addition to the engineering percentages delineated above over and above those costs associated with construction of the assets and specifically, attributed to regulatory activities, facility planning, customers, and other related utility operations at 3% or **$108,000**.

4.5.7 Deficiencies and Deferred

The deficiencies and deferred maintenance are not significant given the age of the Utility. These include fencing, structures, lift stations, line replacement and other deferred maintenance items. A deficiencies allowance of 2% of the depreciated value for the water system and 5% of the depreciated value for the wastewater system are taken for this report and equates to **$159,000** total.

4.6 FUNCTIONAL DEPRECIATION

Significant functional depreciation is applied. A minimum capital cost for Powdered Activated Carbon feed and Granular Activated Carbon pressure filters to meet IEPA regulations is **$100,000**. Due to the upstream wastewater discharge to the raw water intake, a chlorination/dechlorination and media cap to the existing filters is expected at an approximate cost of **$300,000**.

4.7 EXTERNAL DEPRECIATION

Future regulatory compliance is a cloud over this system. The market would discount these facilities due to the type and performance. In addition, there are no synergistic neighboring utilities. As an isolated system, a large capital expense will be required to attain an economics of scale. The amounts taken for external depreciation are **$310,000** for water and **$600,000** for wastewater.

4.8 GOING CONCERN

The value of a business property, including a utility, is more than the mere cost to reproduce less depreciation. Going concern value is an enhancement to the structure value because the structure is in use. Such a value increment must include whatever is contributed by the fact of connection of the items making a complete and operating Utility. Elements of going concern value include, but are not limited to, the time and cost of building the business, the establishment of routes and customers, the exercise of managerial skill, the efficiency of the work force, and the records of profitability of the fully functioning, organized business. Going concern value of comparable water and wastewater systems has generally ranged from zero to fifteen (0 to 15) percent. For the purpose of this analysis, the amount of 2 percent or **$71,000** is applied to the Utility for the estimated going concern value.

4.9 REPLACEMENT COST NEW LESS DEPRECIATION

The summary of the replacement cost new less depreciation is shown on **Table 4-6**.

Table 4-6
Summary of Adjustments for Replacement Cost
New Less Depreciation Analysis
Water and Wastewater
(Rounded)

	Item	Water	Wastewater	Total
1	Replacement Cost New	$ 2,970,000	$ 6,390,000	$ 9,360,000
2	Physical Depreciation	$ (2,060,000)	$ (3,470,000)	$ (5,530,000)
3	RCNLPD (Rounded)	$ 670,000	$ 2,910,000	$ 3,590,000
4	Consumables and Inventory	N/I(1)	N/I(1)	N/I(1)
5	Equipment and Tools	N/I(1)	N/I(1)	N/I(1)
6	Records, Reports, Business Information, SOPs, O&M Manuals (3%)	$ 20,000	$ 87,000	$ 108,000
7	Deficiencies and Deferred (2% wtr 5% wwtr)(2)	$ (13,400)	$ (146,000)	$ (159,000)
8	Functional Depreciation	$ (100,000)	$ (300,000)	$ (400,000)
	Subtotal	$ 580,000	$ 2,550,000	$ 3,130,000
9	External Depreciation	$ (310,000)	$ (600,000)	$ (910,000)
	Subtotal (Rounded)	$ 270,000	$ 1,950,000	$ 2,220,000
10	Going Concern @ 2%	$ 5,400	$ 39,000	$ 44,000
11	Cost (Rounded)	**$ 280,000**	**$ 1,989,000**	**$ 2,270,000**

Notes:

(1) N/I: not included.
(2) Deficiencies and Deferred is 2% for water and 5% for wastewater. 2%: deferred maintenances associated with the age of water main, fencing, structures, etc. 5%: deferred maintenances associated with the age of collection lines and lift stations, fencing, structures, etc.

SCHEDULE 4-1
VILLAGE OF OAKWOOD WATER AND WASTEWATER SYSTEM
REPLACEMENT COST NEW LESS PHYSICAL DEPRECIATION

Water System

Description[1]	Year in Service	Quantity	Unit	Unit Cost [2]	Replacement Cost	Age [3] (Years)	ASL [4] (Years)	Percent Depreciated	Amount Depreciated	Replacement Cost Less Physical Depreciation
Water Main										
2-inch Water Main	1939	4,600	LF	$ 8.00	$ 36,800	75	75	90%	$ 33,120	$ 3,680
2-inch Water Main	1950	650	LF	$ 8.00	$ 5,200	64	75	85%	$ 4,426	$ 774
2-inch Water Main	1960	750	LF	$ 8.00	$ 6,000	54	75	72%	$ 4,307	$ 1,693
2-inch Water Main	1970	6,200	LF	$ 8.00	$ 49,600	44	75	58%	$ 28,988	$ 20,612
2-inch Water Main	1981	260	LF	$ 8.00	$ 2,080	33	75	44%	$ 911	$ 1,169
2-inch Water Main	1985	1,290	LF	$ 8.00	$ 10,320	29	75	38%	$ 3,967	$ 6,353
4-inch Water Main	1939	6,715	LF	$ 12.00	$ 80,580	75	75	90%	$ 72,522	$ 8,058
4-inch Water Main	1960	4,230	LF	$ 12.00	$ 50,760	54	75	72%	$ 36,434	$ 14,326
4-inch Water Main	1970	10,870	LF	$ 12.00	$ 130,440	44	75	58%	$ 76,235	$ 54,205
4-inch Water Main	1999	2,450	LF	$ 12.00	$ 29,400	15	75	20%	$ 5,815	$ 23,585
4-inch Water Main	1981	1,380	LF	$ 12.00	$ 16,560	33	75	44%	$ 7,250	$ 9,310
4-inch Water Main	1985	2,610	LF	$ 12.00	$ 31,320	29	75	38%	$ 12,041	$ 19,279
6-inch Water Main	1960	469	LF	$ 22.00	$ 10,318	54	75	72%	$ 7,406	$ 2,912
6-inch Water Main	1970	6,040	LF	$ 22.00	$ 132,880	44	75	58%	$ 77,661	$ 55,219
6-inch Water Main	1972	1,100	LF	$ 22.00	$ 24,200	42	75	56%	$ 13,498	$ 10,702
6-inch Water Main	2012	2,843	LF	$ 22.00	$ 62,546	2	75	2%	$ 1,529	$ 61,017
Impaired Water Main (No Value Estimated)										
6-inch Raw Water Main	1939	1,455	LF	$ 22.00	$ 32,010	75	75	90%	$ 28,809	
6-inch Raw Water Main	1960	4,680	LF	$ 22.00	$ 102,960	54	75	72%	$ 73,902	
6-inch Water Main	1960	531	LF	$ 22.00	$ 11,682	54	75	72%	$ 8,385	

SCHEDULE 4-1
VILLAGE OF OAKWOOD WATER AND WASTEWATER SYSTEM
REPLACEMENT COST NEW LESS PHYSICAL DEPRECIATION

Water System

Description[1]	Year in Service	Quantity	Unit	Unit Cost [2]	Replacement Cost	Age [3] (Years)	ASL [4] (Years)	Percent Depreciated	Amount Depreciated	Replacement Cost Less Physical Depreciation
Water Treatment Plant (Imparied, and the Salvage Value estimated as $21,000)										
1960 Origional Constrction										
Building	1960	820	SF	$ 100	$ 82,000	54	33	90%	$ 73,800	$ 8,200
Clearwell's Concrete	1960	36	CY	$ 200	$ 7,200	54	45	90%	$ 6,480	$ 720
Clearwell's Concrete - 2	1960	82	CY	$ 750	$ 61,500	54	45	90%	$ 55,350	$ 6,150
Pump Room Concrete	1960	36	CY	$ 200	$ 7,200	54	45	90%	$ 6,480	$ 720
Pump Room Concrete - 2	1960	55	CY	$ 750	$ 41,250	54	45	90%	$ 37,125	$ 4,125
Excavation for Clearwell	1960	794	CY	$ 5	$ 3,970	54	45	90%	$ 3,573	$ 397
Equipment	1960	1	LS	$ 15,000	$ 15,000	54	20	90%	$ 13,500	$ 1,500
Lagoons & Ponds	1960	2,000	CY	$ 10	$ 20,000	54	45	90%	$ 18,000	$ 2,000
Treatment Plant Upgrade										
WTP - 1980 Upgrade	1980	1	LS	$ 180,000	$ 180,000	34	33	90%	$ 162,000	$ 18,000
WTP - 2001 Upgrade - Contract A, Tank	2001	1	LS	$ 97,580	$ 97,580	13	40	32%	$ 31,307	$ 66,273
WTP - 2001 Upgrade - Contract B, General Work	2001	1	LS	$ 145,159	$ 145,159	13	45	29%	$ 41,397	$ 103,762
Land Value		1	LS	$ 16,000	$ 16,000					$ 16,000
									Salvage Value:	$ 21,000

SCHEDULE 4-1
VILLAGE OF OAKWOOD WATER AND WASTEWATER SYSTEM
REPLACEMENT COST NEW LESS PHYSICAL DEPRECIATION

Water System

Description[1]	Year in Service	Quantity	Unit	Unit Cost [2]	Replacement Cost	Age [3] (Years)	ASL [4] (Years)	Percent Depreciated	Amount Depreciated	Replacement Cost Less Physical Depreciation
Water Tank										
Elevated Tank, 75,000 gal	1980	1	LS	$ 285,371	$ 285,371	34	40	85%	$241,376	$ 43,995
Valves										
2" Gate Valves	1939	3	LS	$ 276	$ 829	75	35	90%	$ 746	$ 83
2" Gate Valves	1950	2	LS	$ 276	$ 553	64	35	90%	$ 498	$ 55
2" Gate Valves	1960	1	LS	$ 276	$ 276	54	35	90%	$ 249	$ 28
2" Gate Valves	1970	3	LS	$ 276	$ 829	44	35	90%	$ 746	$ 83
4" Gate Valves	1939	7	LS	$ 670	$ 4,692	75	35	90%	$ 4,223	$ 469
4" Gate Valves	1960	1	LS	$ 670	$ 670	54	35	90%	$ 603	$ 67
4" Gate Valves	1970	6	LS	$ 670	$ 4,022	44	35	90%	$ 3,620	$ 402
4" Gate Valves	1981	2	LS	$ 670	$ 1,341	33	35	90%	$ 1,207	$ 134
4" Gate Valves	1985	1	LS	$ 670	$ 670	29	35	82%	$ 552	$ 118
4" Gate Valves	1999	1	LS	$ 670	$ 670	15	35	42%	$ 284	$ 386
6" Gate Valves	1939	3	LS	$ 900	$ 2,700	75	35	90%	$ 2,430	$ 270
6" Gate Valves	1960	2	LS	$ 900	$ 1,800	54	35	90%	$ 1,620	$ 180
6" Gate Valves	1970	2	LS	$ 900	$ 1,800	44	35	90%	$ 1,620	$ 180
6" Gate Valves	1972	2	LS	$ 900	$ 1,800	42	35	90%	$ 1,620	$ 180
6" Gate Valves	2012	7	LS	$ 900	$ 6,299	2	35	5%	$ 330	$ 5,969

SCHEDULE 4-1
VILLAGE OF OAKWOOD WATER AND WASTEWATER SYSTEM
REPLACEMENT COST NEW LESS PHYSICAL DEPRECIATION

Water System

Description[1]	Year in Service	Quantity	Unit	Unit Cost [2]	Replacement Cost	Age [3] (Years)	ASL [4] (Years)	Percent Depreciated	Amount Depreciated	Replacement Cost Less Physical Depreciation
Fire Hydrant										
Fire Hydrants	1939	15	LS	$ 3,500	$ 52,500	75	50	90%	$ 47,250	$ 5,250
Fire Hydrants	1960	7	LS	$ 3,500	$ 24,500	54	50	90%	$ 22,050	$ 2,450
Fire Hydrants	1970	13	LS	$ 3,500	$ 45,500	44	50	88%	$ 39,888	$ 5,612
Fire Hydrants	1972	1	LS	$ 3,500	$ 3,500	42	50	84%	$ 2,928	$ 572
Fire Hydrants	1981	1	LS	$ 3,500	$ 3,500	33	50	66%	$ 2,298	$ 1,202
Fire Hydrants	1985	1	LS	$ 3,500	$ 3,500	29	50	58%	$ 2,018	$ 1,482
Fire Hydrants	1999	1	LS	$ 3,500	$ 3,500	15	50	30%	$ 1,038	$ 2,462
Fire Hydrants	2012	3	LS	$ 3,500	$ 10,500	2	50	4%	$ 385	$ 10,115
Water Service										
Water Service Line	1976	714	LS	$ 400	$ 285,600	38	50	76%	$216,104	$ 69,496
Water Meters	1985	714	LS	$ 100	$ 71,400	29	15	90%	$64,260	$ 7,140
Subtotal					**$ 2,320,836**			**69.21%**	**$ 1,606,161**	**$ 472,273**
Administration, Finance, Legal, Eng., etc @ 18%					**$ 417,751**			**69.21%**	**$ 289,109**	**$ 128,642**
Contractor Mobilization/Demobilization, Profits, etc @ 10%					**$ 232,084**			**69.21%**	**$ 160,616**	**$ 71,468**
					$ 2,970,670			**69.21%**	**$ 2,055,886**	**$ 672,382**

Notes:

(1) The assets, quantities and year in service were documented from available reports and other information provided.

(2) Cost new to replace per bid tabs and contractor/manufacturer quote includes material, labor, installation, site preparation, etc. and all assets built at the same time with economy of purchase.

(3) Age of all assets calculated as of September 31, 2013.

(4) Average service lives are based on recommended depreciation schedules.

SCHEDULE 4-2
VILLAGE OF OAKWOOD WATER AND WASTEWATER SYSTEM
REPLACEMENT COST NEW LESS PHYSICAL DEPRECIATION

Wastewater System

Description[1]	Year in Service	Quantity	Unit	Unit Cost [2]	Replacement Cost	Age [3] (Years)	ASL [4] (Years)	Percent Depreciated	Amount Depreciated	Replacement Cost Less Physical Depreciation
McDonalds Lift Station and Force Main										
McDonalds Lift Station	1999	1	LS	$ 200,000	$ 200,000	15	35	42%	$ 84,762	$ 115,238
McDonalds PS Forcemain, old 4" FM	1970	1,470	LF	$ 16	$ 23,520	44	75	58%	$ 13,746	$ 9,774
McDonalds PS Forcemain, newer 4" FM	1999	1,272	LF	$ 16	$ 20,352	15	75	20%	$ 4,025	$ 16,327
McDonalds PS Air Release MH	1999	1	LS	$ 2,500	$ 2,500	15	25	59%	$ 1,483	$ 1,017
South Lift Station and Force Main										
South Lift Station Upgrade + new 6" FM	2001	1	LS	$ 174,728	$ 174,728	13	50	26%	$ 44,847	$ 129,881
South Lift Station's generator, separate	2000	1	LS	$ 21,804	$ 21,804	14	25	55%	$ 12,065	$ 9,739
South Lift Station land/site value		1	LS	$ 2,000						$ 2,000
South PS Forcemain's Air Release MH	1979	1	LS	$ 2,500	$ 2,500	35	25	90%	$ 2,250	$ 250
South PS Forcemain, old 6" FM	1979	7,210	LF	$ 20	$ 144,200	35	50	70%	$ 100,459	$ 43,741
Gravity Mains										
8-inch PVC	1979	31,556	LF	$ 36	$ 1,136,016	35	75	46%	$ 527,616	$ 608,400
8-inch PVC	1999	335	LF	$ 36	$ 12,060	15	75	20%	$ 2,385	$ 9,675
10-inch PVC	1979	6,583	LF	$ 45	$ 296,235	35	75	46%	$ 137,585	$ 158,650
12-inch PVC	1979	5,669	LF	$ 45	$ 255,105	35	75	46%	$ 118,482	$ 136,623