

City of Villa Grove
Independent Utility Review
Optimization or Disposition
Consideration

July 16, 2020

Prepared by: Hartman Consultants, LLC
637 North Park Avenue
Winter Park, Florida 32789

HC #: 20018.00

Hartman Consultants, LLC

www.hartmanconsultant.com

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July 16, 2020

Mayor and Aldermen
City of Villa Grove
City Hall
120 North Main Street
Villa Grove, Illinois 61956

**RE: Hartman Consultants Independent Utility Review
Optimization or Disposition**

Dear Mayor Cassandra Eversole-Gunter:

This summary letter addresses the topics shown above.

Context

For the past forty (40) years the City of Villa Grove has remained at approximately 2,500 residents (rounded) with approximately 1,050 households. Due to the lack of growth inflationary rate increases are required to maintain the systems. Recently, in the 2016 – 2020 period water rates were increased to fund approximately \$4 million spent predominately for a new ion exchange water softening water treatment plant. There are approximately 1,120 water customers and 1,060 wastewater customers (rounded). The unbilled water percentage is in the 25% to 30% range.

The City produces a high-quality softened water to its customers.

The City of Villa Grove supplies all of the potable water to the Village of Camargo through a master meter. Camargo has its own water tower for peaking demands and fire flows. Camargo has approximately 180 services (residential meters) behind the master meter. The City supplies the Village water system via an 8" water main.

Recently, the City's engineers proposed a variety of wastewater improvement options with associated costs up to an approximate \$14 million wastewater program. That presentation was a partial and preliminary effort.

Since that engineer's presentation, Scott Arbuckle of the City endeavored to find lower-cost solutions and solicited informal quotations to do so from contractors. Two quotations involved retrofitting the existing plants and one was for a sludge holding tank to reduce sludge hauling costs.

Operations/Facilities Overview

WATER

The water system operations are very good for the general age of the system. The new 500 gpm ion-exchange water softening facility with refurbished wells and new appurtenances was on-line in May 2019 at a cost of \$4.6 million. Also, co-located in the new WTP is the new City administration office.

The system has two (2) elevated storage tanks; one built in 1935 of 75,000 gallons and one built in 1992 of 150,000 gallons. Both are routinely inspected and refurbished.

There are 1,120 water customers and some 1,453 meters (5/8" x 3/4") (some customers have multiple meters). There are two (2) at 4" large customer meters.

There are 140 hydrants in the system.

I have estimated from the system mapping the following summary of water mains:

- 2" - 5,100 LF
- 4" - 40,000 LF
- 6" - 50,000 LF
- 8" - 40,000 LF
- 10" - 1,400 LF

for a total of 136,500 LF or approximately 26 miles.

Many of the water mains are fully depreciated and not shown in the RCNLD analysis.

WASTEWATER

The current wastewater facilities are older and in need of refurbishment or replacement.

The current facility sees significant inflow and/or infiltration as evidenced by the low influent BOD (37 mg/l last 12 months) and low TSS (10 mg/l last 12 months) concentrations and highly variable flows.

The facility is a conventional complete mix activated sludge CMAS pre-engineered facility. There are two (2) parallel trains. The DADF capacity is 0.6 MGD and the DMDF capacity is 1.2 MGD. (IEPA #IL0059005). See the next four (4) Fehr Graham Figures.

There are six (6) wastewater lift/pumping stations:

- McCoy with two (2) at 150 gpm pumps
- Old Sewer Plant with two (2) at 250 gpm pumps
- Birch Lane with two (2) at 400 gpm pumps
- Industrial Park with two (2) at 40 gpm pumps
- Adams Avenue with three (3) - 2 @ 500 gpm pumps & 1 @ 250 gpm pump
- Manhole 9 Bypass with two (2) at 450 gpm pumps

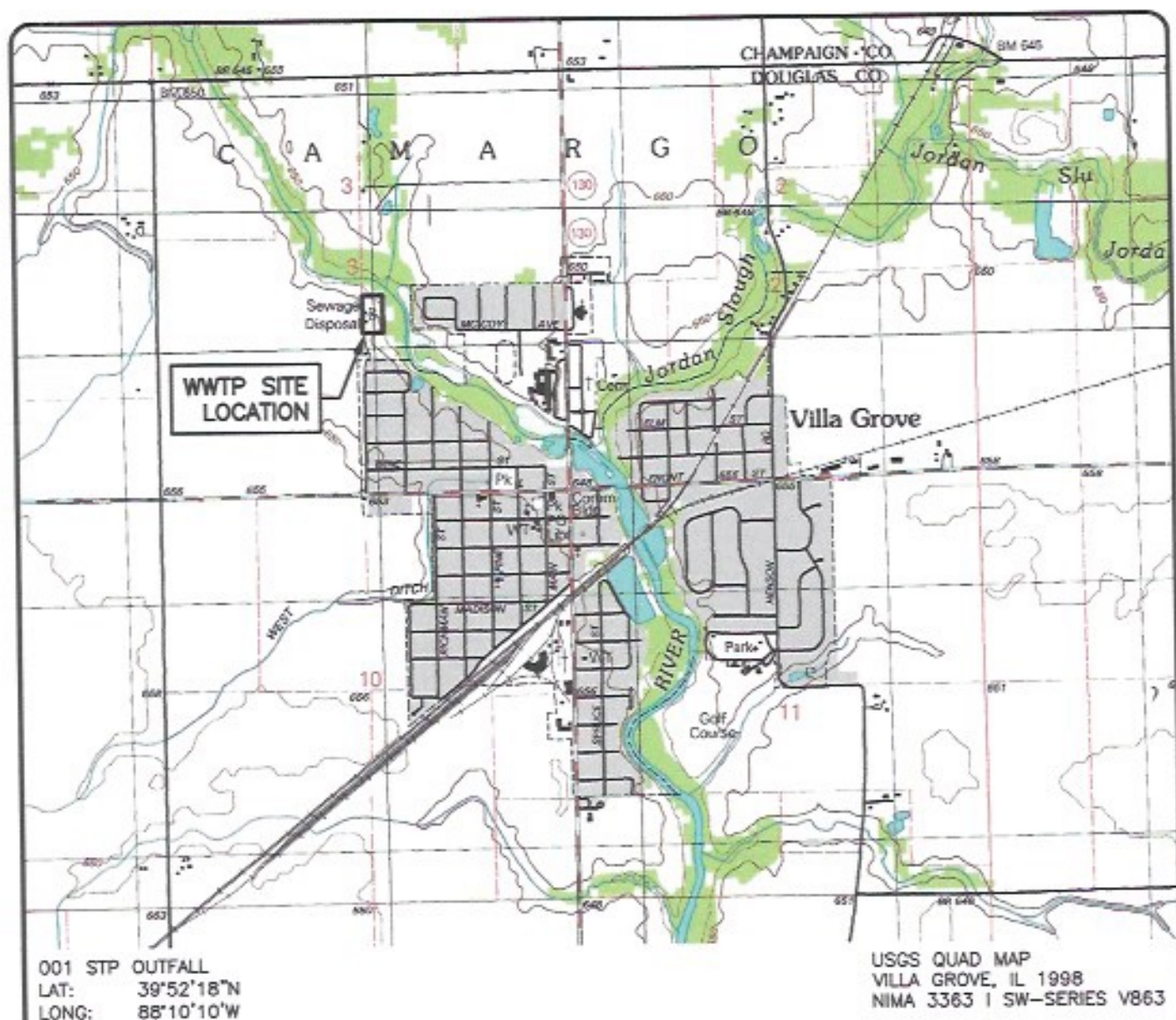


EXHIBIT B1

SITE LOCATION MAP

WASTE WATER TREATMENT PLANT

CITY OF VILLA GROVE

DOUGLAS COUNTY, ILLINOIS

10/18/19



2000' 0 2000'
GRAPHIC SCALE IN FEET

FEHR GRAHAM

ENGINEERING & ENVIRONMENTAL

ILLINOIS
IOWA
WISCONSIN



001 STP OUTFALL
 LAT: 39°52'18"N
 LONG: 88°10'10"W

GOOGLE EARTH 2019

EXHIBIT B2

SITE LOCATION MAP

WASTE WATER TREATMENT PLANT

CITY OF VILLA GROVE

DOUGLAS COUNTY, ILLINOIS

10/18/19



2000' 0 2000'
 GRAPHIC SCALE IN FEET

FEHR GRAHAM

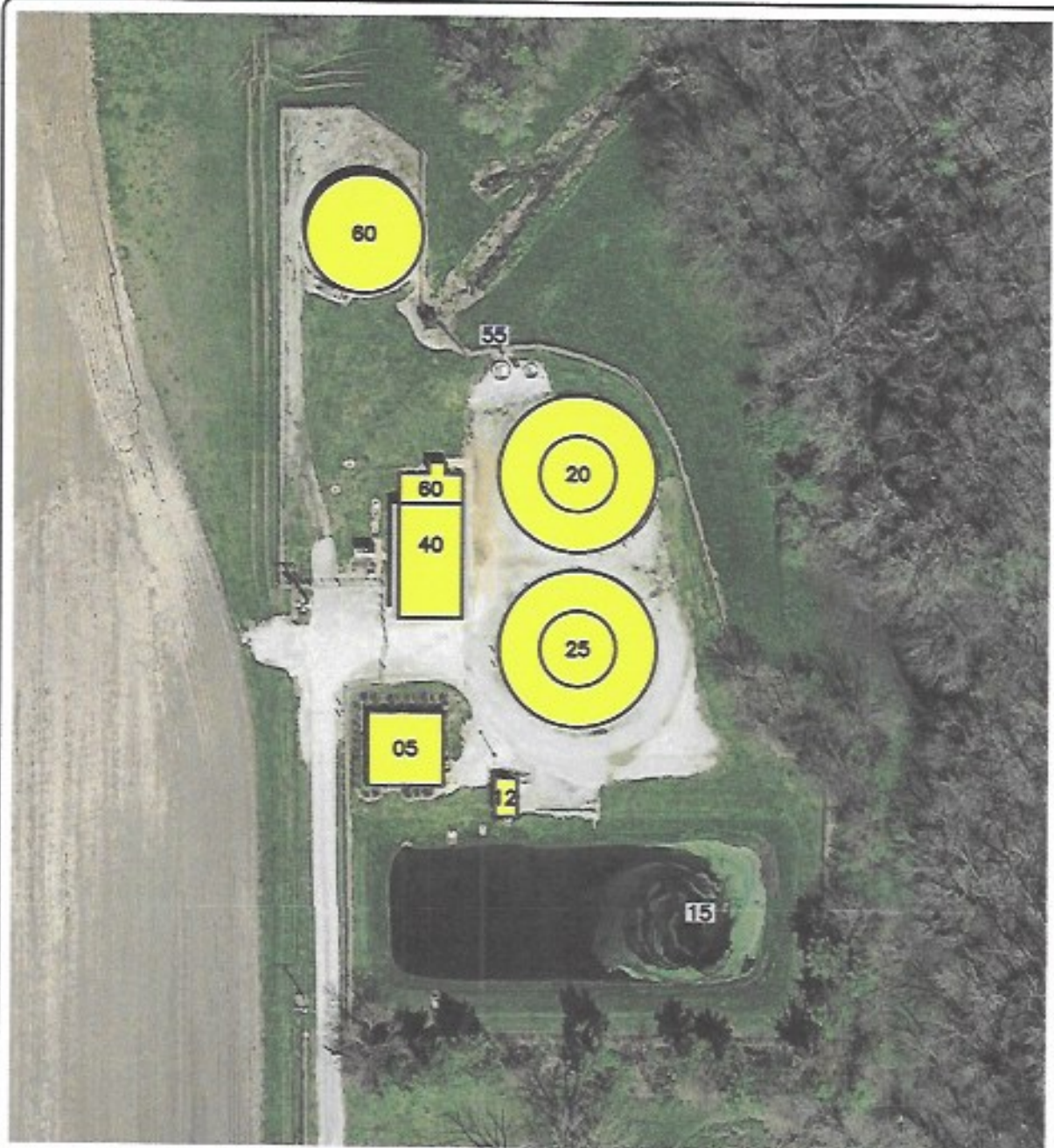
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ILLINOIS DESIGN FIRM NO. 104-003020

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STRUCTURES

- 05 INFLUENT SPLITTER BOX
- 12 STORMWATER DIVERSION BOX
- 15 FIRST FLUSH LAGOON
- 20/25 DUAL ACTIVATED SLUDGE PLANTS
- 40 CONTROL BUILDING/RAPID SAND FILTRATION
- 55 STORMWATER SOUTHWEST OF PUMP STATION
- 60 STORMWATER CLARIFIER
- 70 CHLORINE CONTACT TANK

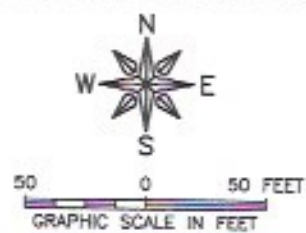


EXHIBIT D VILLA GROVE WWTW EXISTING SITE PLAN VILLA GROVE, ILLINOIS

10/18/19

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Two of the lift stations do not have VFD's (McCoy- too small and Birch Lane- Ameren to provide a grant for this one). Only one lift station does not have auxiliary power, the McCoy lift station.

The force mains include an estimated:

- 2" FM - 1,000 LF
- 4" FM - 1,000 LF
- 6" FM - 2,400 LF
- 8" FM - 5,100 LF
- 12" FM - 6,300 LF

There are some 190 manholes in the collection system.

The gravity sewers were estimated at:

- 8" - 9,500 LF
- 10"- 15,000 LF
- 12"- 5,800 LF

for a total of some 131,600 LF or approximately 25 miles.

Many of the gravity sewers are fully depreciated and are not included in the RCNLD.

There are approximately 1,060 wastewater customers.

There are some reported sewer overflows and peaking sewage flows at the WWTP. The new IEPA permit special condition #12 requires the City of Villa Grove to address the overflows in the future as well as the excessive I/I in the collection system.

The Public Works Department has equipment, tools, inventory, consumables, records, and other appurtenances.

A few of the pieces of equipment include:

- Oxygen meter
- Sewer cleaner/jetter
- Sludge applicator
- Several trash pumps
- Trucks

Optimization

The City of Villa Grove is an isolated utility system without the ability to attain a significant economy of scale through projected growth or regionalization (see Fehr Graham draft report) by itself.

The water system has been improved and needs only normal water loss, meter replacement, looping, etc., activities typical for any other good system.

The wastewater system needs plant upgrades and I/I control activities. The following options have been identified:

1. CAS with BNR

This has been taken from the draft and only 60% complete plan by (Fehr Graham)

Upgrading the package activated sludge plants for use as proposed Biological Nutrient Removal (BNR) plants. The scope of the work would include new preliminary screening and grit treatment, refurbishing existing process units, and constructing new clarifying units and sludge storage facilities. These improvements are summarized below:

- Modified influent splitter structure.
- New preliminary treatment building with headworks structures with screening equipment and grit removal equipment.
- New BNR activated sludge plant splitter box.
- Modifying current activated sludge plants to include nutrient removal and converting center clarifiers to aerobic digester tanks.
- New secondary clarifier splitter box.
- Two new secondary clarifiers.
- Refurbishment of existing control building.
- Modify chlorine contact tank to be used for future UV treatment channels.
- Abandonment and fill of existing first flush lagoon.
- Plant site piping, manholes, valves, and appurtenances.
- Plant electrical controls, instrumentation, and PLCs.
- Plant site electrical.

This alternative would also maintain the existing permitted DAF of 0.6 MGD and DMF of 1.2 MGD. The two existing activated sludge plants would be reconstructed to create nutrient treatment units, where the outer annulus of the structure contains Anaerobic and Anoxic compartments to remove nitrogen and phosphorus, and an aerobic compartment to treat for BOD and ammonia. The inner annulus will be converted to serve as the digestion area for sludge. Two clarifiers would be constructed to provide treatment after wastewater goes through the activated sludge plants. A new sludge storage tank would be constructed to provide required wintertime detention needed for land disposal. This alternative would also provide a new unheated headworks building with screening and grit removal. All structures would be sized for the design DMF of 1.2 MGD. No changes to existing excess flow treatment process are necessary.

This Alternative has a probable total project cost of \$14,696,000, an annual O&M cost of \$376,000, and a Net Present Worth of \$16,756,000.

Fehr Graham 60% Draft – partial and preliminary report of 10/2019 was not completed.

The current WWTP discharges into the Embarras River segment ILBE14 that is classified as impaired.

The above report has not been finished and has not had a value engineering analysis. With the above caveats and understanding, the 60% study level was subject to refinement that could significantly alter the final costing and findings.

2. Modified Ludzack-Ettinger (MLE) with Alum Polishing

A second option is the MLE activated sludge process (BIOS controls) with alum addition prior to filtration (alum polishing – phosphorus removal). This process can be retrofitted into the existing tankage with all new mechanical equipment and a new basin. The cost estimate for this option is approximately \$4 million with a grant expectation of \$2 million. Like the 1st preliminary option, these facilities have an average service life of 40 years.

3. Retrofit with reconditioned “like new” Equipment and Alum Polishing

The third option was developed by the City Public Works staff (Scott Arbuckle) and reviewed by me. This option brings the facilities generally in the same configuration back to a “like new” condition with some additional chemical feed as needed. Instead of a 40-year life span, such facilities normally have a 30-year life span. This is by far the lowest initial cost option.

Optimization efforts on the CIP included:

1. Rebuilt glass fused to steel tank at 244,200 gallons for a sludge storage tank for \$222,151 plus 40,000⁺ contingency = approximately \$270,000.
2. Sludge pumps and piping at \$50,000 plus \$15,000 contingency = \$65,000.
3. Treatment plant upgrades replace underwater steel components with launder system and weirs and baffles
 - a) \$186,417
 - b) \$85,865Add concrete work, painting, grouting, draining and cleaning of tank, lubrication, start-up and performance testing with repaired walkways, ladders, engineering and permitting, etc.
 - c) Est. \$200,000
 - d) Contingency \$100,000Say \$500,000 for a, b, c and d.

For all three items estimate \$835,000. Add closing costs and financing for total project cost of approximately \$950,000.

Average service life for rebuilds is at 30 years. Example Illinois Refinance at 2.5% fixed or less use \$45,000 to \$50,000 per year principal and interest (may be able to get a better rate from your depository bank).

Compare to a typical SRF or RD project which cost approximately 28% more due to requirements (Purdue Study) and all new facilities versus refurbished. Other requirements such as CMOM, I/I work, etc., also. Optimized total project cost approximately \$4 million. Grant expectation of \$2 million. Net \$2 million for 40-year repayment (RD). If below poverty line at 1.375% interest. The payment is approximately \$70,000 to \$80,000/yr.

Both programs would have energy savings.

The wastewater facilities program delineated as outlined by Public Works with some HC review results in a rate increase of approximately 10 percent for the wastewater customers or an overall rate increase of approximately 5 percent.

In comparison, an optimized \$4 million RD program (MLE), as an example, at the \$2 million grant level results in an approximate 16% rate increase for wastewater customers or an overall combined rate increase of some 8% level (with the coverage requirements).

For a cost frame of reference, the 4/30/2019 net book value of both the new water and older wastewater utilities combined was only \$7,502,916.

The above does not include the on-going necessary investments into wastewater lift/pumping stations or inflow/infiltration and other project requirements.

The least-cost option is the Refurbishment Option modified with a few appurtenances.

Nonetheless, a rate increase of roughly some 10% on the wastewater customers would be anticipated.

Divestiture

Illinois is a fair market value state. This means that instead of net book value (NBV) (currently about \$7,500,000) or less; the City could expect the fair market value for their utility property.

Fair market value is determined considering the three (3) standard approached namely:

- Cost
- Income
- Comparable Sales (Market)

Utilities are special purpose properties. This value consulting work is not a USPAP compliant appraisal, rather a consulting endeavor to assess approximately the effect of a divestiture.

Cost Consideration

This consideration generates a preliminary replacement cost new less depreciation (RCNLD) analysis for the City utilities. The first step is to apply average service lives (ASL's) to the facilities.

Below find the schedule of the average service lives for major water and wastewater systems components. These ASL values are applied to the various utility components to determine depreciation costs in this Report. The depreciation has been taken on a straight-line basis. Note that land, easements, and some other items have not experienced depreciation or are too new to be considered depreciated (inventory/consumables).

Average Service Lives Used

<u>Description</u>	<u>ASL (Years)</u>
<u>Wastewater</u>	
8" Gravity	60
12" Gravity	70
Wastewater Services	40
Manholes	55
Lift Stations	40
2" Force Main	35
4" Force Main	55
6" Force Main	60
8" Force Main	65
12" Force Main	70
<u>Water</u>	
Hydrants	50
Elevated Storage Tanks	65
10" Water Main	65
8" Water Main	65
6" Water Main	60
4" Water Main	55
2" Water Main	50
1.5" Water Main	45
Services	40
Meters	20

The various components are costed out using the furnish and installed pricing of one large project without major utility conflicts. In addition to the above pricing, overheads are incorporated to attain the unit prices shown. The overhead percentage breakdown is shown below.

Overhead Percentage Breakdown

Description	Percentage ⁽¹⁾
Legal	0.5%
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	10.0% ⁽²⁾
Financing	4.5% ⁽³⁾
Administration, Overhead, Planning, etc.	<u>1.0%</u>
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 CE curves.

(3) Assumes financing @ 3% for three (3) years midpoint convention.

From the description of facilities, Water and Wastewater RCNLPD and RCNLD tables are developed as shown on the following pages.

**City of Villa Grove Water System
Replacement Cost New Less
Physical Depreciation**

<u>Description</u>	<u>Quantity ⁽¹⁾</u>	<u>Unit Cost (\$)</u>	<u>Replacement Cost New (\$)</u>	<u>Physical Depreciation (\$)</u>	<u>RCNLPD (\$)</u>
New Water Softening WTP	L.S.	4,600,000	4,600,000	172,000	4,428,000
75,000 Gal Est	L.S.	285,000	285,000	199,000	86,000
150,000 Gal Est	L.S.	550,000	550,000	237,000	313,000
Customer Sev. & Meter	1,120	710	795,000	517,000	278,000
Hydrants	140	3,230	452,000	307,000	145,000
2"	5,100	12	61,000	49,000	12,000
4"	12,700	20	254,000	185,000	69,000
6"	45,300	34	1,540,000	1,027,000	513,000
8"	40,000	48	1,920,000	1,248,000	672,000
10"	1,400	60	84,000	50,000	34,000
Totals			\$ 10,541,000	\$ 3,991,000	\$ 6,550,000

⁽¹⁾ Fully depreciated facilities have been removed.

**City of Villa Grove Wastewater System
Replacement Cost New Less
Physical Depreciation**

<u>Description</u>	<u>Quantity ⁽¹⁾</u>	<u>Unit Cost (\$)</u>	<u>Replacement Cost New (\$)</u>	<u>Physical Depreciation (\$)</u>	<u>RCNLPD (\$)</u>
Wastewater Treatment Plant	L.S.	2,100,000	2,100,000	1,360,000	740,000
Lift Stations	6	175,000	1,050,000	560,000	490,000
FM 2"	2,100	12	25,000	20,000	5,000
FM 6"	2,400	34	82,000	41,000	41,000
FM 8"	5,100	48	245,000	110,000	135,000
FM 12"	6,300	70	441,000	176,000	265,000
Manholes	190	3,350	637,000	318,000	319,000
8" Gr.	56,200	60	3,372,000	2,192,000	1,180,000
10" Gr.	6,300	70	441,000	176,000	265,000
12" Gr.	5,800	80	464,000	167,000	297,000
Appurtenances	LS	LS	20,000	14,000	6,000
Totals			\$ 8,877,000	\$ 5,134,000	\$ 3,743,000

⁽¹⁾ Fully depreciated facilities have been removed.

City of Villa Grove
Initial RCNLD Summary ⁽¹⁾

Description	Amount
1. Replacement Cost New (Water)	\$ 10,541,000
2. Replacement Cost New (Wastewater)	\$ 8,877,000
Replacement Cost New	\$ 19,418,000
3. Physical Depreciation (Water)	(3,991,000)
4. Physical Depreciation (Wastewater)	(5,134,000)
Physical Depreciation	\$ (9,125,000)
5. Replacement Cost New Less Physical Depreciation	\$ 10,293,000
6. Consumables, Inventory, Tools, Equipment, Records	507,000
7. Deferred Maintenance	(315,000)
8. Functional Obsolescence	(650,000)
9. External Obsolescence	(400,000)
Subtotal	\$ 9,435,000
10. Land (from Books)	350,000
11. Going Concern	500,000
RCNLD ⁽¹⁾	\$ 10,300,000

⁽¹⁾Value Rounded.

The cost approach finding is approximately \$10,300,000 (rounded). The book value is \$7,503,000 (rounded). The cost approach to the book ratio is 1.37. This is somewhat lower than the market of approximately 1.62 due to the large recent \$4.6 million investment in the water system.

The net investment in capital assets as of 4/30/2019 was \$3,783,763 rounded to \$3,800,000. The debt outstanding is approximately \$3,830,000.

If the financial status is approximately the same as 4/30/2019 there is approximately \$1,150,000 in cash or equivalents encumbered by the utility.

Income Consideration

The City of Villa Grove is a not-for-profit entity. Relying on the financial statements of the net revenue available for debt service as of 4/30/2019 reflected a cash net revenue of \$263,000. The privatization regionalization offered by its expansive operations may realize another 10% net revenues rounded to \$290,000.

A direct capitalization rate from the build-up method is:

- (a) 7/16/2020 Treasury Bill (30 yr.)1.45%
- (b) rPe Factor4.02% - (Equity Risk)
- (c) Beta Factor0.93%

Then $rPe \times B + Rf = 3.74\% + 1.45\% = 5.19\%$

$\$290,000 / 0.0519 = \$5,588,000$ or $\$5,600,000$.

The finding is \$5,588,000 and is less than NBV and therefore not credible.

The large difference between the Cost Approach and the Income Approach is reflective of:

- (1) Management as non-for-profit.
- (2) Inadequate rates, fees, and change for a substantial long-term operation.
- (3) Inadequate renewals, replacements, major maintenance, and budgeting of small capital projects from rates.

Market Consideration

While the Illinois utility sales market is active, many governmental entities price themselves out of the market.

Table M-1 lists about 115 sales. The City of Villa Grove has 1,120 water customers, an equivalency of another 90 water customers from the wholesale meter totaling 1,210 water customers. There are approximately 1,060 wastewater customers. The total is 2,270 customers.

We will screen the sales listing from a low of 750 customers to 6,800 customers as a combined water and wastewater systems (excluding just water or just sewer customer sales).

Table M-2 provides time escalation factors for the selected sales.

Table M-3 provides the selected sales with the escalation factor applied.

The market indicator is \$9,300,000.

Table M-1
Comparable Sales Analysis
Cost Per Connection

<u>No.</u>	<u>Seller</u>	<u>Purchaser</u>	<u>Year</u>	<u>P.P.</u>	<u>Total Conn</u>	<u>\$/Conn</u>
1	Bourbonnais Tri Star	AQUA	2012	\$ 455,000	520	\$ 875
2	Grafton Water District	American	2013	\$ 1,800,000	400	\$ 4,500
3	Moecherville Water District	AQUA	2012	\$ 1,400,000	400	\$ 3,500
4	Nordic Woods W.C.	American	2014	\$ 1,680,000	510	\$ 3,294
5	Yankeetown W.C.	American	2014	\$ 1,995,000	633	\$ 3,152
6	North Maine (Glenview)	AQUA	2015	\$ 22,000,000	7,400	\$ 2,973
7	Mifflin Water	AQUA	2012	\$ 1,100,000	600	\$ 1,833
8	Eastwood Manor & Nunda Water Co.	AQUA	2015	\$ 1,500,000	525	\$ 2,857
9	Auburn Lakes, Ohio	AQUA	2017	\$ 400,000	400	\$ 1,000
10	American, Ohio	AQUA	2012	\$ 112,000,000	57,280	\$ 1,955
11	Fernwood	American	2012	\$ 1,200,000	575	\$ 2,087
12	Marietta GWC	CWC	2012	\$ 3,500,000	1,171	\$ 2,989
13	McHenry Shores	AQUA	2014	\$ 1,427,000	640	\$ 667
14	Mt. Jewett Bor.	AQUA	2014	\$ 1,126,350	502	\$ 2,244
15	Wingert Water	AQUA	2012	\$ 1,890,000	1,100	\$ 1,718
16	Grafton Sewer District	American	2016	\$ 600,000	400	\$ 1,500
17	Peotone	AQUA	2017	\$ 12,300,000	2,987	\$ 4,118
18	Fisher	American	2017	\$ 6,600,000	1,776	\$ 3,716
19	Sundale	American	2017	\$ 1,500,567	558	\$ 2,688
20	FHMP PWO	American	2017	\$ 900,000	525	\$ 1,714
21	Farmington	American	2017	\$ 3,750,000	1,060	\$ 3,538
22	Sadorus	American	2017	\$ 240,000	192	\$ 1,250
23	Manteno	AQUA	2017	\$ 25,000,000	4,300	\$ 5,814
24	Glasford	American	2018	\$ 1,900,000	980	\$ 1,939
25	Alton	American	2018	\$ 53,800,000	23,174	\$ 2,322
26	Lawson, MO	American	2018	\$ 4,000,000	1,881	\$ 2,127
27	Grant Park	AQUA	2018	\$ 2,300,000	540	\$ 4,259
28	Skyline	AQUA	2018	\$ 3,550,000	776	\$ 4,575
29	Godfrey	American	2019	\$ 13,550,000	6,200	\$ 2,185
30	Sidney	American	2019	\$ 2,300,000	535	\$ 4,299
31	Lake Region WSC	Camden Co.	2017	\$ 6,084,000	1,608	\$ 3,784

Table M-1 (cont.)
Comparable Sales Analysis
Cost Per Connection

<u>No.</u>	<u>Seller</u>	<u>Purchaser</u>	<u>Year</u>	<u>P.P.</u>		<u>Total Conn</u>	<u>\$/Conn</u>
32	Wardsville	American	2017	\$	2,750,000	887	\$ 3,100
33	Ransom	American	2016	\$	175,000	170	\$ 1,029
34	Ozark Shores WC.	Camden Co.	2015	\$	5,252,781	1,869	\$ 2,810
35	Arnold, MO	American	2015	\$	27,200,000	7,500	\$ 3,627
36	Andalusia	American	2019	\$	3,300,000	950	\$ 3,474
37	Shiloh	American	2019	\$	3,600,000	1,517	\$ 2,373
38	Rosiclare	American	2019	\$	600,000	401	\$ 1,496
39	Rockwell Utilities	AQUA	2019	\$	5,150,000	1,454	\$ 3,542
40	CWS/I-20	Lexington	2019	\$	7,250,000	2,220	\$ 3,266
41	Granite City	American	2019	\$	18,000,000	12,700	\$ 1,417
42	ICI	Indiantown	2020	\$	8,500,000	3,901	\$ 2,179
43	Sheridan	American	2018	\$	10,750,000	2,500	\$ 4,300
44	Suburban Ut.	American	2015	\$	140,000	100	\$ 1,400
45	Charlestown Water	American	2019	\$	13,403,711	2,898	\$ 4,625
46	Westfield	Citizens	2014	\$	91,000,000	21,000	\$ 4,333
47	City of Lake Station	American	2019	\$	20,680,000	3,270	\$ 6,324
48	Nine Star Conn	Gem Water Utili	2019	\$	4,000,000	500	\$ 8,000
49	Beech Groves Sewer	NYD	2019		NYD	4,825	NYD
50	IAWC (Not Purchased)	Mooreville, Ind	2014	\$	20,300,000	4,100	\$ 4,957
51	Indianapolis	CEG (W)	2011	\$	959,538,000	330,000	\$ 2,908
52	City of Falls Church	Fairfax Water	2014	\$	40,000,000	34,500	\$ 1,159
53	City of Dunnellon	FGUA	2017	\$	12,198,000	5,890	\$ 2,071
54	Pluris	Hillsborough	2014	\$	14,100,000	5,000	\$ 2,820
55	O-Tow	BLC-CDD	2012	\$	36,200,000	17,000	\$ 2,129
56	AQUA	FGUA	2013	\$	50,000,000	22,270	\$ 2,245
57	Mad Hatter	FGUA	2012	\$	14,400,000	7,133	\$ 2,019
58	Plantation Bay	Bun/Flagler Co.	2013	\$	5,500,000	3,152	\$ 1,745
59	Campbell, Ohio	AQUA	2019	\$	7,500,000	3,200	\$ 2,344
60	Cheltenham Township	AQUA	2019	\$	50,250,000	10,200	\$ 4,926
61	Jerseyville	American	2019	\$	43,250,000	8,200	\$ 5,274
62	Piasa Township	American	2017	\$	60,000	120	\$ 500

Table M-1 (cont.)
Comparable Sales Analysis
Cost Per Connection

<u>No.</u>	<u>Seller</u>	<u>Purchaser</u>	<u>Year</u>	<u>P.P.</u>	<u>Total Conn</u>	<u>\$/Conn</u>
63	SD Dana/LP/R/A	PWD	2016	\$ 1,075,000	150	\$ 7,167
64	Aledo	AQUA	2020	\$ 17,750,000	3,384	\$ 5,245
65	Oakbrook	AQUA	2020	\$ 8,500,000	2,021	\$ 4,206
66	Granite City	American	2020	\$ 18,000,000	12,783	\$ 1,408
67	CWS – Tega Cay Wastewater	Tega Cay	2014	\$ 5,850,000	1,749	\$ 3,345
68	AQUA	Ft. Wayne	2016	\$ 50,100,000	15,200	\$ 3,296
69	Hallsville, MO	MAWC	2020	\$ 2,000,000	700	\$ 2,857
70	Lindrick	Pasco	2019	\$ 24,600,000	5,700	\$ 4,316
71	Pasco AQUA	Pasco	2019	\$ 18,500,000	6,400	\$ 2,891
72	River Hills (BG)	York	2020	\$ 32,000,000	8,670	\$ 3,691
73	THISCD	Davie	2020	\$ 14,690,000	5,000	\$ 2,938
74	Leonore	American	2020	\$ 100,000	68	\$ 1,471
75	Hardin Co. WC	American	2014	NR	500	N/A
76	Sun River Terr WW	AQUA	2013	\$ 300,000	200	\$ 1,500
77	Woodlawn	AQUA	2013	\$ 204,000	200	\$ 1,020
78	St. Tammany Ldg.	AQUA	2013	\$ 28,000	40	\$ 700
79	Wintergreen Stoney	AQUA	2015	\$ 650,750	698	\$ 932
80	Sale Service Co.	American	2013	\$ 27,700,000	20,000	\$ 1,385
81	Presidential Service Co.	AQUA	2014	\$ 150,000	400	\$ 375
82	BF WC	American	2014	\$ 82,500	170	\$ 485
83	Superior Water Co.	AQUA	2016	\$ 16,800,000	3,868	\$ 4,343
84	Queen Shoals	American	2017	\$ 155,000	100	\$ 1,550
85	Venter Heights	AQUA	2015	\$ 85,000	160	\$ 531
86	Georgetown	American	2018	\$ 6,426,000	1,309	\$ 4,909
87	Russiaville	American	2015	\$ 1,785,693	430	\$ 4,153
88	Bourbonnais	AQUA	2020	\$ 32,100,000	6,469	\$ 4,962
89	Limerick	AQUA	2018	\$ 75,100,000	6,000	\$ 12,500
90	EL Dorado	EAWS	2004	\$ 11,047,000	2,650	\$ 4,169
91	NFMU	Lee County	2011	\$ 55,000,000	17,000	\$ 3,235
92	MHU/PL	FGUA	2013	\$ 13,000,000	6,775	\$ 1,919
93	A&NM American	EPCOR	2012	\$ 470,000,000	191,000	\$ 2,461

Table M-1 (cont.)
Comparable Sales Analysis
Cost Per Connection

<u>No.</u>	<u>Seller</u>	<u>Purchaser</u>	<u>Year</u>	<u>P.P.</u>	<u>Total</u> <u>Conn</u>	<u>\$/Conn</u>
94	East Norriton	AQUA	2020	\$ 21,000,000	5,000	\$ 4,200
95	Campbell	AQUA	2020	\$ 7,500,000	3,200	\$ 2,340
96	JEA (Offer)	American	2020	\$ 4,350,000	636,000	\$ 6,840
97	DELCORA	AQUA	2020	\$ 276,500,000	460,000	\$ 601
98	AQUA ME	CT. Water	2013	\$ 53,500,000	16,000	\$ 3,344
99	United Water AR Liberty	Liberty	2013	\$ 28,600,000	18,992	\$ 1,506
100	Pennichuck WC	NH	2015	\$ 150,600,000	36,940	\$ 4,077
101	Citizens, IL	IAWC	2013	\$ 219,896,000	67,000	\$ 3,282
102	Aloha	FGUA	2009	\$ 90,500,000	33,082	\$ 2,736
103	Royal Palm Beach	PB Co.	2007	\$ 70,000,000	24,339	\$ 2,876
104	AQUA	FGUA	2013	\$ 50,000,000	22,270	\$ 2,245
105	Dunnellon	FGUA	2017	\$ 12,198,091	5,890	\$ 2,071
106	East Pasadena Water	CA-AWC	2019	NYD	4,000	NYD
107	Perris	Liberty	2018	\$ 11,500,000	2,366	\$ 4,861
108	Park Water	Liberty	2016	\$ 327,000,000	74,000	\$ 4,419
109	Fruitridge Vista	CA-AWC	2020	\$ 20,750,000	4,800	\$ 4,323
110	Dunnigan	CA-AWC	2015	NYD	478	NYD
111	Conn. Water	SJW Group	2019	\$ 1,100,000,000	TBD	TBD
112	Meadowbrook	CA-AWC	2017	\$ 4,000,000	1,650	\$ 2,424
113	Bellfower	CA-AWC	2018	\$ 17,000,000	1,800	\$ 9,444
114	Mesa Crest Water CS	Liberty	2019	\$ 2,984,000	500	\$ 5,968
115	Thunder Mountain	EPCOR	2014	\$ 950,000	760	\$ 1,250
116	North Mohave Valley Co	EPCOR	2014	\$ 2,500,000	2,000	\$ 1,250
117	Willow Valley WC	EPCOR	2016	\$ 2,270,000	1,600	\$ 1,419

**M-2
Escalation Indices**

**Engineering News Record
Construction Cost Index (1)**

Year	ENR CCI	
	Index	% Chg.
	3,535	
1982	3,825	8.20%
1983	4,066	6.30%
1984	4,146	1.97%
1985	4,195	1.18%
1986	4,295	2.38%
1987	4,406	2.58%
1988	4,519	2.56%
1989	4,615	2.12%
1990	4,732	2.54%
1991	4,835	2.18%
1992	4,985	3.10%
1993	5,210	4.51%
1994	5,408	3.80%
1995	5,471	1.16%
1996	5,620	2.72%
1997	5,826	3.67%
1998	5,920	1.61%
1999	6,059	2.35%
2000	6,221	2.67%
2001	6,343	1.96%
2002	6,538	3.07%
2003	6,694	2.39%
2004	7,115	6.29%
2005	7,446	4.65%
2006	7,751	4.10%
2007	7,966	2.77%
2008	8,310	4.32%
2009	8,570	3.13%
2010	8,802	2.71%
2011	9,066	2.99%
2012	9,313	2.73%
2013	9,546	2.50%
2014	9,699	1.61%
2015	10,039	3.51%
2016	10,498	4.57%
2017	10,702	3.03%
2018	11,180	4.41%
2019	11,381	1.30%
2020	11,496	1.01%
(1) ENRCCI is used.		

**Table M-3
Selected Sales with Escalation**

Sale No.	Name	Buyer	Total Customers	Sale \$ Per Cust.	Escalated \$/Cust.
17	Peotone	AQUA	2,987	4,118	4,424
18	Fisher	American	1,776	3,716	3,992
28	Skyline	AQUA	776	4,575	4,704
39	Rockwell	AQUA	1,454	3,542	3,578
43	Sheridan	American	2,500	4,300	4,422
94	East Norriton	AQUA	5,000	4,200	4,200

Range \$ 3,578 - \$ 4,704 / customer
Average \$ 4,220 / customer
Most Similar Size \$ 3,992 / customer

Selected Metric \$ 4,100 / customer

Villa Grove Total Customers – 2,270 x \$ 4,100 = \$ 9,307,000

Rounded Opinion - \$ 9,300,000

Overview Summary (All Rounded)

Cost Approach	- \$ 10,300,000
Income Approach	- \$ 5,600,000 (Not Used)
Net Book Value	- \$ 7,500,000 (Comparison)
Debt	- \$ 3,830,000 (Comparison)
Encumbered Cash	- \$ 1,150,000 (Information)
Market Indication	- \$ 9,300,000

The Cost Approach may be overstated due to the recent \$4,600,000 investment of which a portion is for City administrative offices. From a market utility perspective, the City of Villa Grove's utility used and useful maybe some \$800,000 less. That typical market adjustment would reduce the cost approach to \$9,500,000.

From a consulting perspective, the expectation from a divestiture may be in the \$9,300,000 to \$9,500,000 range.

Discussion of the Potential Sale Versus Additional Investment into the Wastewater Systems

Gerald C. Hartman, PE, BCCE, ASA

- Duke University '75 BSCE, '76 MSCE (Water/Wastewater) – 44 yrs. Utility Transactions
- Co-Author Sludge Management and Disposal (Book) with P.A. Vesilind, PhD – Duke University
- 50+ papers and presentations – Utility Acquisitions, Water, Wastewater (AWWA, WEF, ASCE, Others)
- Owned/Operated and Sold 2 small Water/Wastewater Utilities
- Accepted Expert in 9 States PSC's including the ICC
- Accepted Expert Witness over 200 occasions
- Past 20 yrs. – Total Expert Testimony 138; Value 53; Rates 28; Water and Wastewater Issues 57
- Over 600 Utility Value Acquisition Projects in 36 States
- 50+ Value/Acquisition Projects in Illinois in the past 25 years (over 20 Governments, over 20 for American, AQUA, Utilities, Inc/Croix and Liberty combined in Illinois)
- Credit Worthiness Consultant to State of Florida (S&P Subconsultant)
- Bond Buyer Lecturer on Water (includes Wastewater) Industry
- USPAP Accredited Senior Appraiser for Public Utilities
- Major Projects – Citrus Co/Duke Energy \$4.7 Billion, JCC/JEA \$7 Billion, Orlando/OUC \$2.9 Billion (Water/Wastewater)
- Accredited Senior Appraiser – Public Utilities – ASA
- Board Certified Environmental Engineer (Diplomate Level) Water/Wastewater
- Professional Engineer in Illinois and dozens of other States

Preliminary Review of Situation City of Villa Grove

- Major CIP needed for WWTP (Approx. \$1.5 million) and inflow and infiltration (Approx. \$1 million) Improvements.
- Due to existing infrastructure an on-going investment need of approx. \$1 million per year for the next 18 months, thereafter \$400,000 +/- per year for the next 3.5 years (\$1.4 - \$1.5 million for I/I, L.S., and water).
- Rates are inadequate and not reflective of the capital needs.
- Community Goals:
 - 1) Full compliance with all regulatory requirements
 - 2) Continued employment of Utility System employees
 - 3) Rate Stability (Professional Management)
 - 4) Excellent Customer Service
 - 5) Economic development
 - 6) Sustainable revenue to the City
 - 7) Community Cooperation (Planning, Engineering, Programs)
 - 8) Rate Containment
 - 9) Risk Avoidance
 - 10) Others

Status

- City has studied the situation
- City decided there are two (2) options
 - Own, Optimize, Update and Invest into the Sewer System
 - Sell the Utility System
- City hired Hartman 6/1/2020
- City is isolated and cannot independently attain an economy of scale
 - Illinois Fair Market Value Legislation provides for full value or equity recapture for the City
 - A large private company does provide not only the economy of scale but also more cost-effective bulk purchasing

A Few Observations

- Private company – no connection fees, promotes development
- Summer/Winter Bill Averaging – removes rate variances to customer
- Proceeds from sale for community projects and on-going revenues, etc.
- Company will support Public Works, Fire, Police, etc., with cooperation, services, and some minor funding
- On-going Ad Valorem tax revenues on real property
- Flexibility, if needed in the future, for franchise fee, etc.
- Disadvantages include allocated overhead, co-locating with Company, etc.
- Risk avoidance with Company
- Lower rates with Company

Current Total Water & Sewer Bills Per Month ⁽³⁾

<u>Use/Month</u>	<u>City of Villa Grove</u>	<u>Near Term Expected Villa Grove</u>	<u>Estimated Rates at end of 5-Yr. CIP ⁽¹⁾</u>	<u>Current Private Company (PC)</u>	<u>Estimated Rates at end of 5-Yr. Period ⁽²⁾</u>	<u>Current Savings</u>	<u>Near Term Approx. Expected Savings (PC)</u>	<u>Projected Future at end of 5 Yr. Savings</u>
Upto 1,000 gal	\$ 43.19	\$ 45.35	\$ 56.69	\$ 40.35	\$ 45.03	(\$ 2.84)	(\$ 5.00)	(\$ 11.66)
2,000 gal	\$ 56.36	\$ 59.18	\$ 73.98	\$ 53.10	\$ 59.24	(\$ 3.26)	(\$ 6.08)	(\$ 14.74)
3,000 gal	\$ 69.53	\$ 73.01	\$ 91.26	\$ 65.85	\$ 73.49	(\$ 3.68)	(\$ 7.16)	(\$ 17.77)
4,000 gal	\$ 82.70	\$ 86.84	\$ 108.55	\$ 78.60	\$ 87.72	(\$ 4.10)	(\$ 8.24)	(\$ 20.83)
5,000 gal	\$ 95.87	\$ 100.66	\$ 125.83	\$ 91.35	\$ 101.95	(\$ 4.52)	(\$ 9.31)	(\$ 23.88)
6,000 gal	\$ 109.04	\$ 114.49	\$ 143.11	\$ 104.10	\$ 116.18	(\$ 4.94)	(\$ 10.39)	(\$ 26.93)
7,000 gal	\$ 122.21	\$ 128.32	\$ 160.40	\$ 116.85	\$ 130.40	(\$ 5.36)	(\$ 11.47)	(\$ 30.00)
8,000 gal	\$ 135.38	\$ 142.15	\$ 177.69	\$ 129.60	\$ 144.63	(\$ 5.78)	(\$ 12.55)	(\$ 33.06)
9,000 gal	\$ 148.55	\$ 155.98	\$ 194.98	\$ 142.35	\$ 158.86	(\$ 6.20)	(\$ 13.63)	(\$ 36.12)
10,000 gal	\$ 161.72	\$ 169.81	\$ 212.26	\$ 155.10	\$ 173.09	(\$ 6.62)	(\$ 14.71)	(\$ 39.17)

⁽¹⁾ Lowest Cost CIP

⁽²⁾ Based on Historical Record (5 yrs.)

⁽³⁾ Rate Comparisons favor a sale.

Example- \$9.4 MM Offer - Mid-Range Option Factor Comparison

<u>Factor</u>	<u>Ownership</u>	<u>Sale</u>
System Sustainable Management/Resources	---	✓
Willingness for Effective Investment	✓	✓
Control of Operations	✓	---
Customer Service	✓	✓
Economic Development Rates	---	✓
	Requires Updating	- Lower Rates Currently - Expected Lower Rates in Future
Tax Benefit	---	✓
Franchise Fee	---	✓
General Fund Income	---	✓
Equity Recapture from City Investments	---	✓
Public Works Flexibility	✓	---
Risk (Liability, Legal, Regulatory, and Financial)	---	✓
Admin Offices	✓	---
Staffing (Local)	✓	---

Summary of Comparative Benefits ⁽¹⁾

City 7 Superior Benefits

Sale 10 Superior Benefits

⁽¹⁾ Benefits from both are similar/close depending on individual weighting of factors.

Factor Comparison (2)

Sale of the water and sewer systems ranks higher than retaining ownership for several reasons:

- 1) Private Utilities have specialized resources that the City cannot support on its own, i.e. dedicated system engineers, environmental compliance officers, and management personnel.
- 2) Significant capital will be necessary in Villa Grove for both wastewater systems and sustainability. Private Utilities have the willingness and incentive to invest capital into the systems continuously for the long-term. The Villa Grove investments are included (pooled) into the state-wide investment program.
- 3) Private Utilities have the ability to partner with the City on economic development initiatives, encouraging development and growth.
- 4) The City as an example, if the \$9.4 MM alternative is realized, the City could have a very minor/reduction, then a rate “freeze” (no increase) for two (2) years to three (3) years.
- 5) Divesting of system assets puts the City-owned property back on the tax rolls and provides an ongoing source of revenue to all taxing entities.
- 6) Other sources of utility revenue are possible if negotiated into the asset purchase agreement, including a franchise fee, utility tax, etc. if desired.
- 7) Sale of the systems infuses funds into the General Fund, which makes them available for other valuable projects.
- 8) Proceeds from the sale of the system assets can be invested in other revenue generating projects that yield a greater return for the residents. Sale of system assets does not mean a drop in total asset value, rather a re-deployment of assets to more beneficial areas.
- 9) Sale to a Private Utility removes the City from risks associated with owning and operating the water and sewer utility, regulatory, legal, and financial risk, while at the same time ensuring that a reliable operator is maintaining and investing in the systems.
- 10) Currently, certain Private Utilities are eligible for favorable legislation that provides the City with a substantially higher purchase price associated with a sale than can be expected from any other options possible. The legislation is temporary, providing a unique and timely opportunity for the City.

Example- \$9.4 MM Alternative Preliminary Financial Comparison

	Item	No Sale	Illinois American
1)	Utility Cash on Hand, Fund Balances, Accounts Receivable, Services Provided-Not Billed	Maintained = 0	City “frees-up” - encumbered cash (Say \$1,000,000)
2)	Taxes on Real Property	0	On-going Revenue
3)	Franchise Fee Initially at 0% Typical is 2 to 3% of gross revenues	0	\$0 (Future \$20 - \$30,000/yr)
4)	Other City Levy’s Assumed at \$0	0	\$0 (Future \$30,000/yr)
5)	Approximate Proceeds	0	\$9.4 MM
6)	Debt	Continues	Defeased
7)	CIP (5-yr.)	\$4 MM +/-	\$4 MM +/-
8)	Assets	Owned by City	Owned by Illinois American
9)	Summary of Cash Approx.	Capital Need Approx. \$4 MM	Benefit Approx. \$14.4 MM
10)	Current Book Value 4/30/2019 (Rounded) + #1 Above	\$7.5 MM	\$7.5 MM
11)	Net Position Approx.	\$3.5 MM	\$6.9 MM
		Difference Approx.	\$4.4 MM^{+++ (1) (2) (3)}

⁽¹⁾ Does not include flexibility items or economic impact item.

⁽²⁾ Additional potential General Fund Rev. from Real Property Taxes, Franchise Fee, and Utility Tax.

⁽³⁾ Does not include lower rates or rate freeze.

Net proceeds of 9.4 million to the City of Villa Grove at closing. Financially, a sale is favored.

The comparison of sale versus continued ownership favors a sale. Nonetheless, many communities wish to keep control of their utilities even though such control leads to higher rates and additional debt. The intangible of control may be more desirable.

I appreciate the fine work of the Public Works professional, as well as the administrative and financial professional both of whom contributed greatly to this work. I extend my thanks to them.

Recommendation

1. Authorize your Attorney to solicit and evaluate proposals to purchase the water and wastewater systems and report the findings to the City.
2. Authorize your Engineer to complete the existing report considering the value engineering insights provided by HC and Scott Arbuckle and others. Report to the City the revised water and wastewater CIP.
3. Continue to operate and manage the systems appropriately.
4. After items #1 and #2 above are considered. The City Council should hold public meeting(s) on the subject.
5. After both consideration of #1 and #2 and the public meeting(s), the City Council should have sufficient information to decide on a course of action.

Very truly yours,

Hartman Consultants, LLC


Gerald C. Hartman
IL PE #062053100
ASA #7542

BCEE #88-10034 (Water & Wastewater)

