"WHAT'S IT WORTH TO YOU? VALUATION OF WATER SYSTEMS"

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## WATER INFRASTRUCTURE RENEWAL: HOW MUCH WILL IT COST AND HOW DO WE FINANCE IT?

<table>
<thead>
<tr>
<th>Pipeline 1</th>
<th>Pipeline 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installed 1860</td>
<td>Installed 1860</td>
</tr>
<tr>
<td>Brown sandy soil</td>
<td>Brown sandy soil</td>
</tr>
<tr>
<td>Moderate soil corrosivity</td>
<td>Moderate soil corrosivity</td>
</tr>
<tr>
<td>6” Cast Iron Pipe</td>
<td>6” Cast Iron Pipe</td>
</tr>
</tbody>
</table>

### Images

- **31% Thickness Loss**
- **1% Thickness Loss**
Knowing what drives value, and what does not, will help all interested parties know what their asset is worth:

**Interested parties:**
- State and Municipal Executives
- Financiers – banks and bondholders
- Purchasers
- Local Taxpayers
WHY ARE VALUATIONS NEEDED?

- **Governmental Regulations**
  - New Jersey: WIPA
  - Illinois: HB1379
  - Missouri: HB 142
  - Indiana: HB 1319

- **Internal Planning**
  - Ease of other economic burdens including pension funding
  - Municipal bond refinancing

- **Transaction-Related (financial reporting, tax)**
  - Public-Private Partnerships
  - Outright sale
  - Possible flotation

- **Insurance**

- **Collateral Financing**

- **Liquidations**
A “valuation” is a study/analysis to determine the monetary value of something (i.e. – an asset or a liability). It is an independent opinion of value.

A valuation typically differs from an evaluation in that the latter will look at the functionality and operational characteristics of an item, but may not provide a monetary value.
WHAT IS VALUE?

1. **Fair Value or Fair Market Value:** the price an asset or liability would change hands between a *willing buyer/seller*, both fully aware of the *facts*, with no *compulsion* to buy/sell, as of a *specific date*.

2. **Reproduction / Replacement Cost:** the cost to replace/reproduce an asset *today* using *identical/similar* materials that can equal/match the functionality / utility of the subject asset.

3. **Liquidation Value:** the price an asset/liability would change hands between parties, within a *defined/set time period*, as of a *specific date*.
1. **Cost Approach:** based on the principle of substitution in that a prudent investor would not buy an asset for more than the cost to replace it, less all forms of depreciation and obsolescence.

2. **Market Approach:** determines value by looking at comparable assets that have sold in the marketplace, and adjusting such comparables (based on capacity, condition, etc.) to equate them to the subject asset.

3. **Income approach:** determines value by looking at the present value of future economic benefits of owning the subject asset.
**Market Approach:** determines value by looking at comparable assets that have sold in the marketplace…

**Issue:** How do we find such comparables and adjust them to the subject asset?

**Income approach:** determines value by looking at the present value of future economic benefits of owning the subject asset.

**Issue:** How can this be determined if the subject asset is not an income-producing property, or if projections are not available?
METHODS OF APPLYING THE COST APPROACH

- **Determine the reproduction / replacement cost new**
  - Trending
  - Direct pricing (i.e. – engineering studies)
  - Cost-to-Capacity study
  - Ensure all hard and soft costs are captured (installation, freight, tax, etc.)

- **Measure and quantify physical deterioration (or “wear and tear”)**
  - Chronological age vs. effective age
  - Condition assessment (i.e. – Echologics ePulse)
  - Remaining life input

  **Normal Life = Effective Age + Remaining Life**

- **Measure/quantify functional obsolescence** (a **decrease** in value due to internal issues within the system)

- **Measure/quantify economic obsolescence** (a **decrease** in value due to **external** issues far and away the system):
  - Inutility
  - Business Enterprise Value*

*Cost approach results may be compared to the results of an income approach to ensure the value of the overall business can support the value of the discreet pieces.*
COST APPROACH EXAMPLE

- (2) Ten HP pumps at a local pump house

- **Subject Cost** – $60,000

- **Subject Capacity** – can pump 50 gallons/minute

- **Subject Age** – 9 years

- **Subject Condition** – Fair

<table>
<thead>
<tr>
<th></th>
<th>Cost App.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement Cost New (Installed)</td>
<td>$70,000</td>
</tr>
<tr>
<td>Normal Life</td>
<td>12</td>
</tr>
<tr>
<td>Effective Age</td>
<td>9</td>
</tr>
<tr>
<td>% Good</td>
<td>25%</td>
</tr>
<tr>
<td>RCNLD</td>
<td>$17,500</td>
</tr>
<tr>
<td>Obs. Adj.</td>
<td>None</td>
</tr>
<tr>
<td>Final Value</td>
<td>$17,500</td>
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</tbody>
</table>
The City of Valverde ("Valverde") operates a water system with 3,000 miles of buried distribution pipes (predominantly 6” cast-iron).

System initially constructed in 1940, material upgrades made in 1998 and 2004 where 40% of the buried infrastructure was replaced.

Valverde must replace/upgrade the remaining 60% of its buried infrastructure. As funds are not available, per state regulations a buyer must be found. During the search period, an unsolicited offer from Ajax Capital Corp. of $150 million is offered to own/operate the system.
- Valverde conducts an internal appraisal where it applies indexes from the Bureau of Labor Statistics to inflate the cost basis from $163,200,000 to $350,000,000.

- Depreciation is applied based on chronological age from the records, held at 20% good based on the local property tax tables.

- The value of the system is then calculated to be $70,000,000 ($350 million x 20%)

- No value is allocated to the vehicle fleet as it’s deemed immaterial.

### Asset Description

<table>
<thead>
<tr>
<th>Asset Description</th>
<th>Date in Svce.</th>
<th>Life (Yrs)</th>
<th>Cost Basis</th>
<th>Net Book Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>1940</td>
<td>40</td>
<td>$150,000,000</td>
<td>$0</td>
</tr>
<tr>
<td>Pump Houses</td>
<td>1940</td>
<td>20</td>
<td>300,000</td>
<td>0</td>
</tr>
<tr>
<td>Wastewater System</td>
<td>1975</td>
<td>25</td>
<td>4,500,000</td>
<td>0</td>
</tr>
<tr>
<td>Wastewater System Upgrade</td>
<td>2010</td>
<td>25</td>
<td>6,500,000</td>
<td>5,200,000</td>
</tr>
<tr>
<td>Truck Fleet</td>
<td>2010</td>
<td>5</td>
<td>500,000</td>
<td>0</td>
</tr>
<tr>
<td>New Water Tower</td>
<td>2014</td>
<td>25</td>
<td>1,400,000</td>
<td>1,300,000</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td><strong>$163,200,000</strong></td>
<td><strong>$6,500,000</strong></td>
</tr>
</tbody>
</table>
PITFALLS IN VALVERDE’S ESTIMATES OF VALUE

- The desktop analysis took the asset ledgers at face value. However, an independent valuation determines the following:
  
  - The buried infrastructure upgrades made in 1998 and 2004 were never capitalized
  
  - While the cost per mile capitalized in 1940 is represented at $50,000/mile, an independent engineering study estimates that the cost today would be $800,000/mile, which the indices applied do not accurately capture.
  
  - Based on the material of construction of the newer pipes, and the location of the older pipes, a condition assessment was done that determined the pipes are effectively 40% good rather than 10 to 20% good.
  
  - Including the vehicle fleet at $0 is not reflective of market value, as there is an active market for used trucks that are equipped with the tools and repair items necessary to maintain a system.
• Myth #1: Net book value is a good proxy for fair market value
  – Reality: Net book value is an accounting exercise to recapture costs over time and runs to zero after a set amount of years. Assets in operation whose costs are written off may (and are) still operating, thus adding value and are worth more than zero!

• Myth #2: Utilizing the cost basis on the books to “desktop” the system is sufficient
  – Reality: Depending on the passage of time, indices may not truly capture the true cost today of a system, not to mention the fact that if certain items of a system were no capitalized but expensed, all parties may not have a complete picture of “what’s out there,” thus understating value!

• Myth #3: “My system is old…it’s worthless! I’ll sell it for the value in the customer base!”
  – Reality: Utilizing certain technologies the remaining service life (RSL) of a system can be determined. The RSL can be compared to the design life, and applied against the current cost of the system to determine a true estimate of value!
<table>
<thead>
<tr>
<th>Asset Description</th>
<th>Cost Basis</th>
<th>RCN</th>
<th>% Good</th>
<th>Fair Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>$150,000,000</td>
<td>$2,400,000,000</td>
<td>40%</td>
<td>$960,000,000</td>
</tr>
<tr>
<td>Pump Houses</td>
<td>300,000</td>
<td>1,000,000</td>
<td>40%</td>
<td>400,000</td>
</tr>
<tr>
<td>Wastewater System</td>
<td>4,500,000</td>
<td>15,000,000</td>
<td>40%</td>
<td>6,000,000</td>
</tr>
<tr>
<td>Wastewater System Upgrade</td>
<td>6,500,000</td>
<td>Inc. Above</td>
<td>Inc. Above</td>
<td>Inc. Above</td>
</tr>
<tr>
<td>Truck Fleet</td>
<td>500,000</td>
<td>750,000</td>
<td>N/A</td>
<td>275,000</td>
</tr>
<tr>
<td>New Water Tower</td>
<td>1,400,000</td>
<td>1,500,000</td>
<td>95%</td>
<td>1,425,000</td>
</tr>
<tr>
<td>Totals</td>
<td>$163,200,000</td>
<td>$2,418,250,000</td>
<td></td>
<td>$968,100,000</td>
</tr>
</tbody>
</table>
The estimated value of the system is well above the offering price of $150 million based on the additional due diligence conducted.

Initial CAPEX planning based on the capitalized costs would need to be revisited, as the true cost to replace a mile of pipe is not indicative of what was capitalized historically.

If no internal or external due diligence were conducted, would assuming NBV of $6,500,000 have been a reasonable proxy for Fair Value?
• All three approaches to value are considered, not all may be used.

• If two or more methods are used, all approaches should be reconciled to each other.

• Valuations / appraisals are more art than science, but by conducting the necessary due diligence and gathering all the facts and circumstances, the probability of making a material misstatement in value is mitigated.

• What’s it worth to you?
QUESTIONS