Building on PSAB 3150: Assessment of Tangible Capital Assets

Best Practices for Assessing Your Assets
A Balancing Act?

$ Needs

Taxes
Reserves

Services
Infrastructure
Facilities
Parkland
Alignment (Service, Assets, Funding)

Service Delivery Plan
- Set LOS
- Demand Management
- Staffing

Asset Management Plan
- PSAB Inventories + FMV
- Condition
- Service Life Predictions
- Maint./Upgrade Planning
- Service Risk Management

Financial Plan
- Balanced Budget
- Taxation Requirements
- Debt Requirements
- Alternative Funding

We are Here!
Alignment ??? (Service, Assets, Funding)

- Balanced Budget
- Taxation Requirements
- Debt Requirements
- Alternative Funding

- Set LOS
- Demand Management
- Staffing

- PSAB Inventories + FMV
- Condition
- Service Life Predictions
- Maint./Upgrade Planning
- Service Risk Management

Financial Plan

Infrastructure Gap

Service Delivery Plan

Asset Management Plan
Systems Thinking...
Who’s Job is That?

- Asset Management as an organization wide behaviour requires:
  - an open mind
  - a desire to learn and
  - acceptance of a shared responsibility

1 Senge
Systems Thinking

• Working together, helping each other fulfill AM stewardship responsibilities:
  • Builds
    1. organizational capacity,
    2. organizational knowledge,
    3. relationships
  • Breaks down the silos and
  • Eliminates “systems blindness”.

1 Oshry
Overcoming Systems Blindness

- AM Steering Committee – Vision - a full AM framework...
- PSAB - just the beginning
- First 6 months - Team Building and learning about each other = Group Trust
- Measuring to Learn versus Measuring to Report
PSAB in AM

Long term

Asset Management Framework Project

2 years

PSAB to go live

At the end of 2 years the PSAB sub-project needs to:

1. fulfill PSAB requirements
2. align with the larger AMF project
3. Be capable of measuring assets in a manner that supports and is supported by other systems
PSAB in an Asset Management System

- Use of Financial Resources
- Asset/Service/Financial
- Asset Measures
- Financial Measures
- GIS/ Financial Systems

- Funding
- Risk
- Condition
- PSAB + FV
## 2009 Depreciable Asset Base

### Depreciable Assets (in millions)

<table>
<thead>
<tr>
<th>Land Imp.</th>
<th>Buildings</th>
<th>Utilities</th>
<th>Roads, Bridges, Culverts, Networks</th>
<th>Fleet and Other Assets</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical Cost</td>
<td>$ 57</td>
<td>$ 126</td>
<td>$ 225</td>
<td>$ 158</td>
<td>$ 28</td>
</tr>
<tr>
<td>Acc Depn</td>
<td>27</td>
<td>44</td>
<td>62</td>
<td>84</td>
<td>14</td>
</tr>
<tr>
<td>Net Book Value</td>
<td>30</td>
<td>82</td>
<td>163</td>
<td>74</td>
<td>14</td>
</tr>
<tr>
<td>% Life Consumed</td>
<td>47%</td>
<td>35%</td>
<td>27%</td>
<td>53%</td>
<td>50%</td>
</tr>
<tr>
<td>Annual Depreciation</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

### Fair Value

| Replacement Cost | 116 | 275 | 779 | 623 | 44 | 1,837 |
| FV Life Consumed | 54 | 97 | 214 | 333 | 22 | 719 |
| Annual FV Depreciation | 3 | 8 | 9 | 12 | 3 | 35 |
Cities are Infrastructure Intensive

Total 2009 Asset Replacement Value = $1.8 Billion
Our Infrastructure is Ageing

(In Millions)

- Roads $482
- Storm $324
- Buildings $302
- Sewer $289
- Water $202
- Other Assets $161
- Bridges $39
- Street and Traffic $32
- Sidewalk $30

(Useful life in Years and Average Age (In Millions))

- Roads: Useful life = 482, Average Age = 30
- Storm: Useful life = 324, Average Age = 32
- Buildings: Useful life = 302, Average Age = 20
- Sewer: Useful life = 289, Average Age = 30
- Water: Useful life = 202, Average Age = 30
- Other Assets: Useful life = 161, Average Age = 20
- Bridges: Useful life = 39, Average Age = 30
- Street and Traffic: Useful life = 32, Average Age = 30
- Sidewalk: Useful life = 30, Average Age = 30
## Annual Funding Gap Unadjusted

<table>
<thead>
<tr>
<th>Description</th>
<th>Annual</th>
<th>15 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2009 Asset Base</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumption Based Replacement Cost</td>
<td>$35</td>
<td>$525</td>
</tr>
<tr>
<td><strong>Draft Long Term Funding Plan (PSAB model)</strong></td>
<td>36</td>
<td>540</td>
</tr>
<tr>
<td>less: Not due for replacement next 15 years</td>
<td>(11)</td>
<td>(165)</td>
</tr>
<tr>
<td>DNV Current Asset Funding</td>
<td>(13)</td>
<td>(195)</td>
</tr>
<tr>
<td><strong>Unadjusted Gap DNV Funding only</strong></td>
<td>12</td>
<td>180</td>
</tr>
<tr>
<td>less: Other Funding Sources</td>
<td>(2)</td>
<td>(30)</td>
</tr>
<tr>
<td><strong>Unadjusted Gap - Existing Assets Only</strong></td>
<td>$10</td>
<td>$150</td>
</tr>
</tbody>
</table>

1% Tax Levy for Capital = 13 to 15 years to build $10m
PSAB Inventories Support Asset Management Plans

• Solid, standard, repeatable physical count of all assets ... subject to annual audit
• PSAB inventory measures align with other systems
• Removes the debate on how deep you need to go to define “what is an asset” = (mutual trust)
• Helps answer 3 of the 7 Questions:
  ✓ An inventory (what and where?)
  ✓ Valuation (replacement or fair value easily applied)
  ✓ Age (how old is it?)
Standardized Condition Rating System

- A robust predictor of:
  - asset failure,
  - replacement strategies and
  - timed funding requirements
Standardized Rating System

- Transparency
  - All stakeholders
  - Builds shared knowledge
  - Can drill down to individual assets

- Conversion
  - From specialized measures

- Improves
  - Upon PSAB and facilitates changes to PSAB = alignment
Standardized Rating Measures

- Physical
- Demand/Capacity
- Functionality

DNV model based on City of Edmonton
<table>
<thead>
<tr>
<th>Physical Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Very Good</strong></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>The sub-element/asset is physically sound and is performing its function as originally intended. Required maintenance costs are well within standards and norms. Typically, sub-element/asset is new or recently rehabilitated.</td>
</tr>
<tr>
<td><strong>Good</strong></td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>The sub-element/asset is physically sound and is performing its function as originally intended. Required maintenance costs are within acceptable standards and norms but are increasing. Typically, sub-element/asset has been used for sometime but is within mid-stage of its expected life.</td>
</tr>
<tr>
<td><strong>Fair</strong></td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>The sub-element/asset is showing signs of deterioration and is performing at a lower level than originally intended. Some components of the sub-element/asset are becoming physically deficient. Required maintenance costs exceed acceptable standards and norms but are increasing. Typically, sub-element/asset has been used for a long time and is within the later stage of its expected life.</td>
</tr>
<tr>
<td><strong>Poor</strong></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>The sub-element/asset is showing significant signs of deterioration and is performing to a much lower level than originally intended. A major portion of the sub-element/asset is physically deficient. Required maintenance costs significantly exceed acceptable standards and norms. Typically, sub-element/asset is approaching the end of its expected life.</td>
</tr>
<tr>
<td><strong>Very Poor</strong></td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>The sub-element/asset is physically unsound and/or not performing as originally intended. Sub-element/asset has higher probability of failure or failure is imminent. Maintenance costs are unacceptable and rehabilitation is not cost effective. Replacement/major refurbishment is required.</td>
</tr>
</tbody>
</table>
### Demand/Capacity

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Good</td>
<td>Demand corresponds well with design capacity and no operational problems experienced.</td>
</tr>
<tr>
<td>Good</td>
<td>Demand is within design capacity and occasional operational problems experienced.</td>
</tr>
<tr>
<td>Fair</td>
<td>Demand is approaching design capacity and/or operational problems occur frequently.</td>
</tr>
<tr>
<td>Poor</td>
<td>Demand exceeds design capacity and/or significant operational problems are evident.</td>
</tr>
<tr>
<td>Very Poor</td>
<td>Demand exceeds design capacity and/or operational problems are serious and ongoing.</td>
</tr>
</tbody>
</table>
## Functionality

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Very Good</strong></td>
<td>The sub-element/asset meets all program/service delivery needs in a fully efficient and effective manner.</td>
</tr>
<tr>
<td><strong>Good</strong></td>
<td>The sub-element/asset meets program/service delivery needs in an acceptable manner.</td>
</tr>
<tr>
<td><strong>Fair</strong></td>
<td>The sub-element/asset meets most program/service delivery needs and some inefficiencies and ineffectiveness present.</td>
</tr>
<tr>
<td><strong>Poor</strong></td>
<td>The sub-element/asset has a limited ability to meet program/service delivery needs.</td>
</tr>
<tr>
<td><strong>Very Poor</strong></td>
<td>The sub-element/asset is critically deficient and does not meet program/service delivery and is neither efficient nor effective.</td>
</tr>
</tbody>
</table>
## Building Condition 2010

### Replacement Value

<table>
<thead>
<tr>
<th></th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>263,232,609</td>
</tr>
</tbody>
</table>

### Primary Quantity

|            | 125          |

### Secondary Quantity

|            | 0            |

### Primary Measure

|            | EA           |

### Secondary Measure

|            | 0            |

### Average Remaining Life

|            | 18.2         |

### Expected Asset Life

|            | 38.5         |

### Assessment Classification

<table>
<thead>
<tr>
<th>Physical Condition</th>
<th>A 12%</th>
<th>B 23%</th>
<th>C 41%</th>
<th>D 20%</th>
<th>F 3%</th>
<th>Total 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ 53m</td>
<td>$ 8.3m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demand/Capacity (Level of Service)</th>
<th>A 72%</th>
<th>B 17%</th>
<th>C 7%</th>
<th>D 4%</th>
<th>F 0%</th>
<th>Total 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Functionality (code requirement)</th>
<th>A 21%</th>
<th>B 49%</th>
<th>C 28%</th>
<th>D 2%</th>
<th>F 0%</th>
<th>Total 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Buildings - 2010 Condition

Quantity: 125 EA
Expected life: 38.5
Life remains: 18.2

$263,232,609
Condition D = $53.0 m
Condition F = $8.3 m

Physical
Demand
Functionality

A - Very Good
B - Good
C - Fair
D - Poor
F - Very Poor
Sewer Linear 2010 Condition

Quantity: 387,106 M
Expected life: 100.0
Life remains: 57.3

Condition D = $10.4 m
Condition F = $2.6 m

$260,584,343
Pavement - 2010 Condition

$111,573,798 (excludes Road Base of approx. $370 million)

- Quantity: 3,270,883 SQM
- Expected life: 23.0
- Life remains: 6.5

Condition D = $16.2 m
Condition F = $6.1 m

Legend:
- A - Very Good
- B - Good
- C - Fair
- D - Poor
- F - Very Poor
Culverts - 2010 Condition

DNV Asset Condition Assessment

Quantity: 350
Expected life: 33.2
Life remains: 7.0

100% = Total Replacement cost
$25,045,200

A - Very Good
B - Good
C - Fair
D - Poor
F - Very Poor

Condition D = $.4 m
Condition F = $1.6 m

Nothing in Excellent condition
Vehicle Bridges - 2010 Condition

Keith Road & Montroyal
Condition F = $7.4m

$35,706,782

Quantity: 16 EA
Expected life: 50.0
Life remains: 21.6

Physical
Demand
Functionality

A - Very Good
B - Good
C - Fair
D - Poor
F - Very Poor
Sewer 20 Year Condition Profile

$2.6 \text{ m}$
What we know:

- Average life expectancy is 100 years
- Some mains are approaching 70 years old
- Probability of failure increases with age
20 Year Asset Profile

- Need = est. $24 m
- Funded = avg. $14 m
- Unadjusted Gap = $10 m
20 Year View

- Age starting to show
- PSAB inventory
  - Hist. Cost vs FMV = +- est. $10 gap
- Condition
  - better measure of replacement timing
  - Managers plans = +- est. $10 gap
- Needs to be risk adjusted
- Unadjusted Gap needs to be challenged
  - Further analysis, reserves, debt reduction, sale of assets,
Are We There Yet?

- Long Term Asset Management
  - Condition changes
  - Levels of service changes
  - Inventories change
  - Risk models
  1. Long term on asset groups
  2. Decision matrixes focused on allocation of resources
Summary

- PSAB inventory (a reference point) for financial reporting and AM reporting
- Standardized Condition
  - Assets - silent but finding a voice
  - Assets – growing “champions” at all organizational levels (multi-disciplinary, Council)
- Systeming Thinking – Working together to “see” the whole organization not just the parts