AAPA FINANCE COMMITTEE WEBINAR
ON
STRATEGIC ASSET MANAGEMENT

Led by
Erik Stromberg
Port Industry Consultant
23 February 2011
AGENDA

• What’s Strategic AM?
• Who’s doing it? Why?
  • Other US and Canadian public infrastructure owners
  • International ports
  • North American ports
• Approaches to SAM development
  • Process
  • Regional collaboration?
• Discussion
BACKGROUND

• Financially, port authorities are on their own as perhaps never before
  • Public capital less available
  • Private capital more careful
• Aging infrastructure, deferred maintenance, revitalized demand
• Looming perfect storm?
What it’s not:
- Maintenance program (necessary but not sufficient).

What it is:
- *Systematic and functionally integrated business practice through which the owner manages assets and prioritizes capital spending based on the organization’s strategic and business goals, supported by an understanding and the monitoring of performance, cost and risk over the life cycle of the asset.*
WHY?
PORT MANAGEMENT IMPERATIVE:

• Whereas, North American public ports are:
  • Asset intensive public enterprises,
  • Established to fulfill often diverse public mandates,
  • Through self sustaining operations,
• Therefore, such ports should manage their assets in a manner fulfilling their role:
  • As responsible stewards of public resources,
  • Generating positive economic impact,
  • Maximizing ROI,
  • At the lowest possible cost,
  • Over the life of the asset,
  • Within an acceptable risk regime.
WHY?

SURVEY OF US AND CANADIAN PORTS:

- Aging infrastructure;
- Scarce capital and need for optimal investment strategies;
- Inadequate inventory and condition assessment;
- Productivity declines;
- Focus on existing facilities’ availability for future demand;
- Current maintenance practices ("run to failure") result in higher costs, longer down times, customer dissatisfaction;
- Increasing diverse, social/env’t demands on port’s asset base;
- Retirements and the loss of “institutional knowledge”; 
- Inadequacy of an asset based ledger system, e.g., distinction between assets and liabilities in the context of the port’s strategic priorities; 
- For landlord ports, assuring that tenants assume appropriate AM practices; 
- Privatization due diligence; 
- Support for sustainable, triple bottom line, development policies; 
- GASB 34; 
- US Federal Executive Orders 13327, 13423, 13514; 
- IT can now easily satisfy complex needs of a modern AM program; 
- Taken together, every port has need and capability for systematic, cross functional, integrated approach to managing port assets and prioritizing investment strategies.
WHY NOT STRATEGIC AM?

- Corporate culture—“we’ve got it covered”
- Insufficient or “silo’d” knowledge base
- Other priorities (“AM is on the front burner, and it sits there with 20 other front burner issues”)
- “What I don’t know won’t hurt me....?”
- Inertia—where to start?
- Up front commitment of time and money
- Consultants selling too much, or not the right stuff
- Lack of clear, feasible goals
- First North American port institutional experience with generational, end of life-cycle condition for such a large percentage of asset base
WHO’S DOING STRATEGIC AM

• US federal agencies
  USCG
  USN
  USAF
  GSA
  National Park Service
  NASA
  FHWA

Canadian government
  St. Lawrence Seaway Authority
  Quebec Provincial Ministry of Transportation
  City of Montreal

• Railroads
• US airport authorities
• International seaports
• North American seaports
STRATEGIC AM APPLICATION: US Coast Guard

• Since: *mid to late 90’s*

• Why:
  - *Can’t achieve performance (lowest ownership cost, maximum asset availability, minimal mission disruption) if you don’t manage assets;*
  - *CG assets located in harsh environments, are aging and CG has decreasing resources;*
  - *Therefore, CG must have process that is repeatable, defensible and auditable to determine where to invest.*

• Results to date:
  - *Ongoing. SAM implementation requires nontrivial organizational culture change. E.g., the CG civil program is embracing their role change from being engineers to asset managers, but it is slow…*
STRATEGIC AM APPLICATIONS: AIRPORTS
Seattle Tacoma International Airport

• Since: 2007
• Why:
  • Reduce total cost of ownership & environmental impacts
• Results to date:
  • Replacement of aging capital assets no longer meeting service needs and/or with greatly increased maintenance costs using TCO analysis, detailed inventory and condition assessment of all assets at one terminal

Wayne Grotheer, P.E.
Director, Aviation Project Management Group
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STRATEGIC AM at INTERNATIONAL SEAPORTS: Melbourne Port Authority (PoMC)

- Owns and manages a diverse range of infrastructure assets -- current total replacement value: AU$1.8 billion.
- Actively building on its asset management processes since 2008.
- The key deliverables of the AM Strategy are to:
  - Develop asset renewal forecasts based on age, condition, level of service and risk.
  - Develop life cycle planning processes so as to understand and predict total cost of ownership.
  - Understand asset risk exposure and its influence on maintenance and renewal forecasting.
  - Develop optimized renewals decision-making processes so as to reliably determine optimal treatments and associated timings.
  - Embed asset management as a core business discipline within the business.
Largest French container port
Aging asset: facilities date from 2000 to >100 years ago
260 assets classes
Needs:
  - Vision of critical risks
  - Maintenance master plan
  - Inspection master plan
Grand Port Maritime du Havre: Critical Issues

- Safety of goods, people and the environment
- Asset availability
- Performance
SOLUTION SIMEO™ PORT

SUSTAINABLE INFRASTRUCTURE MANAGEMENT SYSTEM
Description of the SIMEO™ PORT SOLUTION

- Software
- Implementation
- Training
- Software maintenance

- Capitalize know-how and feedback
- Control of risks linked to asset aging
- Manage resources in a predictive and updateable way
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<th>N1</th>
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<th>Danger</th>
<th>Défaut</th>
<th>Cause</th>
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<td>Précipitation</td>
<td>Instabilité hydraulique, surchauffe, etc.</td>
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<td>Hautes températures</td>
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## Grand Port Maritime du Havre : Risk estimation

### Impacts

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<th>DISPONIBILITE</th>
<th>1 : &lt; 10 TED</th>
<th>2 : 10 à 1 000 TED</th>
<th>3 : 1 001 à 100 000 TED</th>
<th>4 : &gt; 100 000 TED</th>
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<tr>
<td>6 : Quasiment certain</td>
<td>15</td>
<td>17</td>
<td>20</td>
<td>24</td>
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<td>5 : Très probable Déjà observé sur site</td>
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<td>16</td>
<td>19</td>
<td>23</td>
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<td>4 : Probable</td>
<td>7</td>
<td>12</td>
<td>18</td>
<td>22</td>
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<td>3 : Improbable Jamais observé, mais redouté</td>
<td>3</td>
<td>8</td>
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<td>21</td>
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<td>2 : Très improbable Jamais observé</td>
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<td>5</td>
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<tr>
<td>1 : En accord avec les normes</td>
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### Hazard

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Risk-based Asset Management

Traditional approach

Risk-based approach

18 assets in top priority

4 assets in top priority

Condition based ranking

Risk-based ranking
TEC INC.

- Founded 1990
- 280+ Staff
- Headquartered in Charlottesville, VA
- 20 Offices—throughout US
- Engineering – Architecture- Environmental
  - Asset Management
  - Port/Harbor Planning
  - Environmental Planning
THE TEC APPROACH

• Tailored Asset Management Solution
  • Based on Client Specific Needs Assessment

• Software Neutral

• Risk/Opportunity Lens

• Pilot Project

• Implementation
AM Process

Investment Planning Tools
- Builder™
- VERTEX™
- TECfms™
- VFA Facility™

Inventory → Assess / Inspect → Analysis → Work Planning → Work Execution

Investment Execution Tools
- IBMmaximo
- TRIRIGA Operations
- PWTools
Successful AM Program

Business Process Analysis
- Codify Goals/Objectives
- Review Legacy Systems
- Incorporate Airport Master Plan
- Develop Asset Risk to Mission Strategy
- Codify Business Processes
- Develop Change Management Plan

Software System(s)
- Real Property / Leasing
- Computerized Maintenance Management System
- Condition Assessment / Capital Investment Planning
- Equipment/Parts/Materials Purchasing
- Geographic Information Systems
- Building Information Modeling
- Record Drawings

Technical Support
- Design Development Consulting
- Design Review / Constructability Review
- Sustainability Review
- Assessment Technical Support
- Cost Estimating
- Systems/Building Commissioning

Asset Assessments
- Inventory (Uniformat II, ASTM E1557)
- Condition Assessments (Requirement, EMS, Parametric Economic)
- Maintenance Forecasting
- System Failure Analysis
- Maintenance Action Plan / Long Range Maintenance Plan
- Asset Recapitalization Plan

Enterprise Facilities Management Program
Evaluation of Risk to Mission: US Coast Guard

Diagram showing risk assessment with axes of likelihood, severity, mission alignment, tactical, strategic, operational impact, and cost.
Evaluation of Risk to Mission—Business Case

- Potential for Operational Impact
- Corrective Action Cost

Highly Recommended
Not Recommended

Bang for the Buck

Investment Opportunity

Budget
Residual Risk Evaluation: Additional Budget Argument

Additional 25% of Funding more than Doubles Risk Reduced
PROCESS--NEXT STEPS

- Analysis
  - What’s in place already?
  - Interviews/Work Groups
  - Culture/Mission
  - Organizational Goals
- Report
  - Recommendations
  - Phased, prioritized implementation plan
    - “Low hanging fruit”
    - Longer term, comprehensive AM program
NEXT STEPS AT YOUR PORT?

• Guidelines:
  • Don’t let best get in the way of the good!
  • Pick a starting point and get started;
  • AM issues will not go away, nor will solutions get easier or cheaper over time.

• AAPA website
  • ”Best Practices” (”Issues and Advocacy”)

• TRB Ports and Channels Committee
  • AM subcommittee and 3-year SP focus

• Regional Collaboration
1. Define and develop common understanding of strategic asset management, current status, goals and terminology.

2. Develop an understanding of process best practices and lessons learned.

3. Discuss the various approaches to the determination of performance metrics for each port asset class (e.g., docks, wharves, pavement, buildings, rail, utilities, etc.). If feasible, develop a common set of metrics for each asset class.

4. Develop a common understanding of risks and risk evaluation methodologies.

5. Discuss various approaches to prioritization of capital investment which captures appropriate risk and opportunity variables.

6. Establish a methodology to monitor and measure the success of port strategic asset management initiatives, including the use of consultants.
WHAT ARE SOME US AND CANADIAN PORTS DOING?

- Metro Van BC
- Port of Seattle
- Port of Everett
- Port of Portland—T-6
- Port of Oakland
- Port of San Diego
- Alabama State Port Authority
- Philadelphia Regional Port Authority
- PANYNJ
DISCUSSION