GOVERNMENT - INDUSTRY FORUM
Engineering, Construction, and Facilities Asset Management: A Cultural Revolution
The National Academies, Washington, DC
31 October 2006

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T.E.A.M.S. Total Enterprise Asset Management Solution TM
A Cultural Revolution

- Began in 1981…..

Create a NEW Capital Management Culture
- What **Standard** can we afford?
- What will the **next 40** years cost us? **Condition**?
- How do we make our **current investment** last?
- Given limited funds, **What is important**?
- What are the **TOTAL COSTS**?
- Have we **invested wisely**?
T.E.A.M.S. Total Enterprise Asset Management Solution TM

Asset Management
The Future Paradigm

✓ ALL Capital assets will be managed HOLISTICALLY
✓ The NEEDS of the institution will determine and match the asset resource levels
✓ The STRATEGIC USE of limited resources will be required to match readiness of vision & mission
✓ The assurance that ALL is being done to MAXIMIZE the USEFUL LIFE of ASSETS is in place
✓ There is TRUST in what is really needed
✓ Finding better ways to EFFECTIVELY use assets
✓ Support services and tools would be SEAMLESS

VISION

T.E.A.M.S. Total Enterprise Asset Management Solution TM
### T.E.A.M.S. Vision

**Total Cost of Ownership**

**Birth & Burial** *(non-recurring)*

<table>
<thead>
<tr>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Concept to Bid</td>
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<tr>
<td>B</td>
<td>Financing</td>
</tr>
<tr>
<td>C</td>
<td>Construction/ Install</td>
</tr>
<tr>
<td>K</td>
<td>Decommission/Demolition/Disposal</td>
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**Maintenance & Operations** *(annual recurring)*

<table>
<thead>
<tr>
<th>Cost</th>
<th>Description</th>
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<tbody>
<tr>
<td>D</td>
<td>Operations</td>
</tr>
<tr>
<td>E</td>
<td>Planned Maintenance/Routine</td>
</tr>
<tr>
<td>F</td>
<td>Repairs/ Breakdowns</td>
</tr>
<tr>
<td>G</td>
<td>Utilities</td>
</tr>
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</table>

**Recapitalization** *(periodic recurring)*

<table>
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<tr>
<th>Cost</th>
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<tbody>
<tr>
<td>H</td>
<td>Retrofits/ Improvements</td>
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<tr>
<td>I</td>
<td>Programmatic Upgrade</td>
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<tr>
<td>J</td>
<td>Replacement/ Renewal</td>
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</tbody>
</table>

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Maintenance & Operations

Useful Asset Life

Asset Renewal

Total Lifetime Cost

Renewal/Recapitalization

Life Cycle Management

Value

Time

Birth

Maintenance & Operations

Useful Asset Life

Project Cycle Time

Asset Commission

Asset Start-up

Asset Disposal

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Asset Assessment Types

Levels

1. No Assessment – No awareness of asset status (Hope for the Best)

2. Breakdown Assessment – Wait until an asset fails; then an assessment needs to be made

3. Parametric Assessment – A statistical analysis of assets in which global projection of resource needs is without specific details

4. General Condition Assessment – A snapshot review of assets that focuses on projects needing improvement

5. Detailed Condition Assessment – A detailed snapshot review of asset condition and projects for the next 3-5 years

6. Life Cycle Assessment – A detailed inventory of assets where lifecycle is tracked and decisions are made on asset useful life

7. Lifetime Assessment – An detailed inventory of assets where all costs are tracked and useful lifecycle decisions are made
Knowledge Management

Knowledge Management is the Goal

Data Maturity Model

GOAL
Decision Making
Sharing
Gathering

DATA
INFORMATION
KNOWLEDGE
UNDERSTANDING
WISDOM
Investment Questions
What Needs to be Asked?

When and Where should we Invest?
Why should we Invest?
How much do we Invest?
How much should we Invest?
T.E.A.M.S Total Enterprise Asset Management Solution

Administrative Management

Project Delivery Management

Space Management

Capital Asset Management

Work Management

Resource Management

Web Portal and Metrics tracking
- Projections, Measurements Web Portal, etc

Track Master Plan & Projects
- Regulatory Compliance, Remodels, Additions, etc

Location Warehouse, Space Use & Needs
- Space Inventories, Space Assigned, Space Growth, etc

Life-Cycle Management of ALL Assets
- Roofs, Utilities, Flooring, Equipment, etc

Tracking Work, PM & Service Requests
- Routine Work, Project Work, PM Work, etc

Tracking Labor and Materials
- Job Cards, Time Cards, Materials Used, etc

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Coaching for Long-term Success

History

Needs

Capital Results

Operating Results

Future

40-year Average

Capital Resource Plan

Maintenance & Operating Plan
611th Civil Engineer Squadron

Facility Status and Maintenance Challenges
Largest “Cumulative Base” in PACAF

37,490 Acres
1,284 Facilities
$4.3B Plant Value
$452M Radar Value

AREA OF RESPONSIBILITY
Challenge: Climate

- Winds in excess of 100 MPH
- Sea state impacts operations
- Arctic extremes: -80 to +90 deg F
- 35% WX cancellation for airlift missions

- May-Sep: Peak construction season
  - Competition for resources
  - Location cost factor
    - 400% of lower 48

- Special requirements
  - Arctic foundations; Snow/wind loads; Thermal expansion; Seismic design requirements

Bulldozer at Tin City in June
# 611 ASG IRR Trends

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<tr>
<td><strong>Cost To Raise to C-2</strong></td>
<td><strong>$62M</strong></td>
<td><strong>$450M</strong></td>
<td><strong>$576M</strong></td>
<td><strong>$681M</strong></td>
<td><strong>$814 M</strong></td>
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