BUILDER Implementation by DOD Military Departments

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AMERICAN STRUCTUREPOINT INC.
Moderator: Robert Van Vonderen, P.E., Deputy, Range/Base Civil Engineer, 45th Civil Engineer Squadron

Speakers:

- Lance Marrano, Sustainment Management System Program Manager, ERDC-CERL
- Bil Hawkins, P.E., PMP, Manager, Sustainable Infrastructure Assessment Program, AFCEC
- Stacey Hirata, P.E., SES, Chief, Installation Support Division, HQ USACE
Sustainment Management Systems – BUILDER™

Lance Marrano
Program Manager, Sustainment Management Systems
USACE, Engineer Research & Development Center

21 May 2014
Facility Managers’ Need

Engineered Asset Lifecycle Management Tools

Provide investment guidance to:

- **Objectively** assess infrastructure across the enterprise
- **Consistently** analyze investment requirements and prioritize scarce resources
- **Track** investments to ensure key stakeholder requirements are addressed
- **Forecast** the investment requirements for budget defense and course of action analysis

**Assessment**
- Determine Condition of Asset Portfolio

**Analysis**
- Compare current condition against mission requirements

**Prioritization**
- Invest to ensure mission readiness and maximize ROI

**Execution**
- Based upon priorities and availability, fund and execute.

ERDC

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Process

Inventory
• Real Property Inventory
• Component Inventory

Assessment
• Condition Assessment
• Functionality Assessment

Prediction
• CI Prediction

Work Planning
• Work Generation
• Work Prioritization

Forecasting
• Course of Action (COA) Analysis
Inventory

- Performed once, with initial assessment
- Aligned with work actions DPW will perform (e.g. replace roof, repair doors, replace HVAC equipment, etc.)
- Group equipment based upon investment practices; reduces assessment requirements
- Immediately supports asset performance predictions

Example Building Hierarchy:

- Building
  - Facility
  - System
    - (B20) Exterior Closure
    - (D30) Services
  - Component
    - (B2010) Walls
    - (B2020) Doors
    - (D3020) Heating
  - Section
    - Masonry
    - Metal Panel
    - Curtain Wall
    - Boiler(s)
Condition Assessment

Capture the lifecycle rating of an asset

- Performance-level requirements may change, but measurement should be consistent
- Inspectors are “human sensor” and do not provide opinion/interpretation
- Software takes the observations and calculates life cycle rating based upon survey results from panel of experts
- Assessment frequency and level-of-detail are tailored to mission risk and lifecycle condition (Knowledge Based Inspections)

Traditional vs. SMS

<table>
<thead>
<tr>
<th>Traditional</th>
<th>VS.</th>
<th>SMS</th>
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<tbody>
<tr>
<td>Deficiency:</td>
<td>Re-point brick retaining wall</td>
<td>Distress Type(s):</td>
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<tr>
<td>Work Quantity:</td>
<td>Work is the input</td>
<td>Severity Level(s):</td>
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<tr>
<td>Scoping Estimate:</td>
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<td>Quantity/Density:</td>
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<tr>
<td>Scoping Estimate:</td>
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<tr>
<td>Urgency/Priority:</td>
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Condition Analysis & Prediction

Construction/Installation
Inspection 1
Inspection 2
Inspection 3
“Economic Sweet Spot”
Condition @ Failure

“Real” Service Life = 17 years
Design Life = 20 yrs.

Adaptive model predicts performance of each unique asset; identifies best time to invest
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Work Generation

Standards
Thresholds trigger investments for assets below performance requirements (CI)

Policies
Rules apply different standards to different assets

Work Plan
Generate work items for assets failing assigned standards. Costs estimated and ROI optimized.

Prioritization
Score each work item according to metrics for risk, impact, financial benefit, etc.

Budget
Identify funding sources and fund work items according to budget rules

Enterprise-defined rules generate consistent requirements Service-wide
Tactical Investment Guidance for Installation Action

Work is for specific assets; establishes transparency, traceability and accountability.

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Forecasting and Business Intelligence
Supports Analysis at Any Echelon of Organization

Impact on Portfolio of Funding at 90%, 70% and 50% of the Requirement

Impact on Systems of Funding 50% of Requirement

HVAC

Electrical

Roofing

ERDC

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More Information

Mr. Lance Marrano
Phone: (217) 373-4465
Email: lance.r.marrano@usace.army.mil

http://sms.cecer.army.mil
- SMS Resources

http://www.erdc.usace.army.mil
- Installation Operations (more products and expertise from the Engineer Research & Development Center)

http://sites.nationalacademies.org/DEPS/FFC/DEPS_047399
- In-Depth BUILDER™ presentation to FFC Operations & Maintenance Committee (MAR 2012)
Implementing BUILDER™ SMS Across the Air Force

Bil Hawkins, P.E., PMP
AFCEC-COAF
SAME JETC 2014
May 21, 2014
Organizational change
Initial development and roll out
Sustainable Infrastructure Assessments (SIA)
Training
  Innovative training
  Reach and teach
Migrate existing data
Organizational Change

The action of turning an organization into something different than before by taking a different position, status, course, or direction.

- John Kotter – Harvard Business School

Strategic Plan
Strategic Plan

1. Analysis of existing processes
2. Strategic plan formulation
3. Strategic plan execution
4. Strategic plan sustainment

Must allow flexibility and innovation
You have my permission to accomplish your tasks in the best way you see fit as long as what you do is not illegal, immoral or causes harm.

-- Joe Sciabica, Director AF Civil Engineer Center

Marines aim for the 70% solution because in the battlefield, speed and boldness is more important than perfection.

-- David Freedman “Corps Business”
2008 Initial development and beta test roll out

- Four MAJCOMs
- 8.5Msf
- Focus: High Mission Dependency Index (MDI)
Objective: Jumpstart the Strategic Plan
- Standardize assessment in BUILDER™

Focus:
- Facilities with MDI >60

Secondary priorities
- Housing
- Brand new or demolition projects
- Duplicative facilities
Sustainable Infrastructure Assessments (SIA)

- Sustainable Infrastructure Assessment - I
  - Fiscal Years 10 & 11
  - $27M ($13.5M toward BUILDER™)
  - 19 installations
  - Four Architectural Engineering firms
  - Managed by Air Force Civil Engineer Center
  - Increased Air Force BUILDER data to 75Msf
Sustainable Infrastructure Assessments (SIA)

- Sustainable Infrastructure Assessment - II
  - Fiscal Years 13 & 14
  - $80M ($28M toward BUILDER™)
  - 69 installations
  - Seven Architectural Engineering firms
  - Managed by USACE/Air Civil Engineer Center
  - Increase to Air Force BUILDER data to 200Msf
Failure to create a sense of urgency
Failure to form a guiding coalition
Failure to provide a strategic vision
Failure to sustain the strategic plan
  - Failure to navigate obstacles
  - Failure to provide short-term wins
  - Failure to adapt the plan as required

---John Kotter (Harvard Business School)
Strategic Plan

- Sense of urgency
  - Incorporated BUILDER into FY15 funding

- Failure to form a guiding coalition
  - SMS Integrated Workgroup

- Failure to provide a strategic vision
  - OSD 10 September 2013 memorandum
Failure to sustain the strategic plan

- Failure to navigate obstacles
- Failure to provide short-term wins
- Failure to adapt the plan as required

Involvement & Commitment
Implementation Involvement

- Needed to make BUILDER™ accessible
  - Procedures
    - Playbook development
  - Training
    - Simplify message
  - Migrate existing data
    - One MAJCOM complete
Facility Condition Assessment – High Level – Version: 08/05/2013

1.0 Manage FCA Program
2.0 Assess Resources

6.0 Report FCA Data

7.0 Sustain FCA Data

5.0 Conduct Post-Assessment Activities
4.0 Perform Assessment
3.0 Prepare to Collect FCA Data

Collect Facility Condition Assessment Data

Use Facility Condition Data

Sustain Facility Condition Data

Facility Condition Assessment Strategic Planning

Integrity - Service - Excellence

21 May 14
Air Force Civil Engineer Center
Take Ten for Training Series:
Asset Management
BUILDER™ SMS 101

“Introduction to BUILDER™”

U.S. AIR FORCE

AFCEC – COAF
December 2013
What do we have?

What condition is it in?

What do we need to do to make it last?
BUILDERTM SMS – Training
BUILDER™ SMS – Training

TIRES
CONTROLS
ELECTRONICS
ENGINE
PILOT PROTECTION
STEERING
BODY
Assess Components = Assess Whole
• Animal/Insect Damaged
• Blistered
• Broken
• Capability/Capacity Deficient
• Clogged
• Corroded
• Cracked
• Damaged
• Deteriorated
• Displaced
• Efflorescence
• Elect. Ground Inadequate

• Holes
• Leaks
• Loose
• Missing
• Moisture/Debris/Mold
• Noise/Vibration Excessive
• Operationally Impaired
• Overheated
• Patched
• Rotten
• Stained
G+ Fully Operational - Free of Known or Observable Defects
G  Fully Operational - Slight Deterioration or Minimal wear
G- Fully Operational - Normal wear and/or serviceability defects

A+ Reduced Operation - Minor wear and/or serviceability defects
A  Reduced Operation - Moderate wear and/or serviceability defects
A- Reduced Operation - Significant wear and/or serviceability defects

R+ Loss of Operation - Moderate wear and/or serviceability failure
R  Loss of Operation - Significant wear and/or serviceability failure
R- Loss of Operation - Complete wear and/or serviceability failure
Right “Work” at the Right Time
Existing inventory/assessment databases

- PACAF
  - eComet – Substantially complete
- ACC
  - MS Access inventory
- AETC
  - MS Excel inventory
US Air Force BUILDER Implementation

- MIGRATE PACAF DATA
- SIA – II FY13/FY14
- SIA – I FY10/FY11

INTEGRITY - SERVICE - EXCELLENCE
Closing Thoughts

- Organizational change is constant
- Requires Strategic Leadership and Vision
- Requires flexible Strategic Plan
- Establish ground rules and procedures
- Move out with a sense of urgency
- Look for opportunities to innovate
- Keep looking…
Thank You
Facility Asset Management Committee

by

Stacey K. Hirata, P.E., SES
FAM Committee Mission

Improve the efficient, effective, and sustainable stewardship of federal facilities through research and advocacy of facility asset management best practices, fostering facility management educational and professional development opportunities, and addressing current and future facility management issues.
2014-2015 Goals

• Goal 1: Foster facility management educational and professional development opportunities

• Goal 2: Address facility management issues
FAM Committee Organization

- **Chairman**: Stacey Hirata, P.E. (USACE)

- **Vice Chairs**:
  - Training & Education: Phil Smith, P.E., CEM (Honeywell)
  - Communications: Bob VanVonderen, P.E. (Air Force)
  - Professional Certification and Partnerships: Tom Mitchell, CFM, CFMJ (Booz Allen Hamilton)
  - Young Member Rep: Benjamin Matthews, P.E. (Atkins Global)

- **Major Conferences/Events Coordinators**:
  - SAME/IFMA Joint FM Workshop: Don LaRocque (CH2MILL)
  - SAME-JETC Installation Management Track Chair: Stuart Harrison, P.E., CFM (AECOM)
  - IFMA World Work Place (WWP) DoD Mil Services Panel Moderator: Dan Geldermann, P.E., CFM (CALIBRE)

- **Committee Members**: Approx. 700 on email list
Committee Meetings

- **Offer quarterly web-based meetings/conference calls**
  - 24 Jan 2013 - Green Building Initiative (Green Globes) by Erin Shaffer of the Green Building Initiative
  - 21 May 2013 - SAME JETC in San Diego (NAVFAC SW on SRM; USACE SPD on VA SRM; Committee Work Plan)
  - 17 Oct 2013 - "Facilities Capital Planning and Asset Management" by Lawrence Norve, Vice President, Professional Services – VFA.
  - 12 Dec 2013 – “Cybersecuring DoD Industrial Control Systems” by Daryl Haegley, PM ODUSD(I&E) Business Enterprise Integration Office & Michael Chipley, President The PMC Group LLC
  - 11 Mar 2014 – “Intergovernmental Support Agreements (IGSA): Public-Public Partnerships” by Ms Carla Coulson, Dir Installation Services, ACSIM

- **Planned**
  - 21 May 2014 – “BUILDER” as part of SAME JETC in Orlando
Support to Major SAME Events

• Supported Major SAME Events:
  – FAM Co-Hosted Webinar on Sustainability 15 Jan 2014: Paula Loomis organized
  – SAME/IFMA Joint FM Workshop 13-14 Feb 2014, San Antonio, TX

• Planned
  – SAME JETC 20-23 May 2014 in Orlando
  – FAM Hosted Webinar, August 2014
  – FAM Hosted Webinar, December 2014
FAM Communications

- SAME FAM Committee Web Site available 24/7
- Broadcast e-mail every 1-2 months
- Quarterly Committee Teleconference Meetings
- Annual face-to-face committee meeting at JETC
- Major Events/Conferences
  - FAM articles for publication – Sep/Oct The Military Engr
    - Proposals due 2 Jun; Manuscripts due 20 Jun
Questions/Discussion