GSA’s National BIM & GIS Program
Federal Facilities Council

March 5, 2013

Peggy Yee, Michael Hartung, Calvin Kam & Charles Matta
GSA’s BIM + GIS Program

Charles Matta, FAIA  
[charles.matta@gsa.gov]
Deputy Director
GSA – Office of Public Buildings Information Technology Services

Peggy Yee, PhD  
[peggy.yee@gsa.gov]
Program Expert
National 3D-4D-BIM Program
GSA – Office of Public Buildings Information Technology Services

Calvin Kam, PhD  
[calvin.kam@gsa.gov]
Senior Program Expert - contractor
National 3D-4D-BIM Program
GSA – Office of Public Buildings Information Technology Services

Michael Hartung  
[michael.hartung@gsa.gov]
Senior Project Manager - contractor
GSA – Office of Public Buildings Information Technology Services

Regional BIM Champions  
[http://www.gsa.gov/bim]
International Collaboration among Public Owners toward

Fostering open standards in the design & Construction Industry

• Joint statement in support of BIM, Smart Buildings, open standards and collaboration

• January 2008 - Public owners from United States, Finland, Norway, Denmark, and the Netherlands

• September 2011 - Expanded to 8 countries and included Smart Buildings technologies
Geographic Information Systems (GIS)

- Compile data layers from external and internal sources
  - Some examples:
    - REXUS
    - HSIP Gold
    - NOAA
    - DOI
- Provides context for decision making
GIS Users

Business Lines utilizing PBS CIO’s GIS Technologies
• American Recovery and Reinvestment Act PMO
• Office of Emergency Response and Recovery
• PBS Office of Design and Construction
• PBS Office of Portfolio Management

In addition, we are working on the following projects
• White House National Wireless Initiative
• GSA Sustainability Map
Surge in Construction Investment - ARRA

GIS Example

About

- PBS PMO requested map, specified specs and provided data
- ARRA Map

Capabilities

- Displays:
  - Funding
  - Photos
  - Individual project descriptions
  - LEED
Urban Development’s FlexViewer

GIS Example

About

• A query tool developed for Urban Development

• FlexViewer

Capabilities

• Displays:
  – Walk score
  – Client
  – Transportation buffers
  – Owned and leased buildings
Response to Threats and Current Events

GIS Example

About
- OERR requested
- Built in ArcGIS Desktop Explorer

Capabilities
- Displayed
  - Buildings
  - Occupy Locations
GSA PBS Urban Development Map
ARRA Map
Connecting BIM & GIS

The 3D-laser scanning: From Building Features to 3D model

- Building Features
- Point Cloud
- 2D Model
- 3D Model
Chicago Federal Center & Plaza

Laser Scanning provides accurate as-built conditions of the campus to created digital models.

Building data can be integrated with GIS for macro- and micro-level analysis.
St. Elizabeth’s Campus (NCR)
St. Elizabeth Campus
GSA BIM Guide Series

- Provides best practices and implementation guidance
- Industry-reviewed and used widely by practitioners
- Adopted by other owners (within US and internationally)
- Publicly available on gsa.gov/bim

Current BIM Guide Series

01 — Overview
02 — Spatial Program Validation
03 — 3D Imaging
04 — 4D Phasing
05 — Energy Performance and Operation
06 — Circulation and Security Validation
07 — Building Elements
08 — Facility Management
GSA BIM Guide Series 08: BIM and Facility Management

Section 1: BIM and Facility Management – Overall vision and objectives for using BIM during facility management.

Section 2: Implementation Guidance – Implementation guidance to GSA associates and consultants.

Section 3: Technology Assessment – Technology requirements for creating and using BIMs for facility management.

Section 4: Modeling Requirements – BIM object and attribute requirements for use during facility management.

Section 5: Pilot Projects – Description of GSA Pilot Projects for BIM and FM

Available at www.gsa.gov/bim
BIM-FM across GSA (Region 4 Prototype)
BIM / BAS / CMMS Integration
BIM Server

- Central, secure location to store all BIM models
- Allows users across GSA business lines to see what has changed in previous versions of BIMs
- Completed market analysis and looking at various procurement options
- Coordinating with Statsbygg (Norway) to share lessons learned
IDIQ Contracts

- 9 IDIQ Contracts for BIM Services
- 6 IDIQ Contracts for Laser Scanning

Task orders for:
- BIM Training
- Feasibility studies
- Sculpture Scanning
- Program Development
3D-4D Building Information Modeling

In 2003 the General Services Administration (GSA), through its Public Buildings Service (PBS) Office of Chief Architect (OCA), established the National 3D-4D-BIM Program. OCA has led over 30 projects in its capital program, and is assessing and supporting three dimensional (3D), four-dimensional (4D), and Building Information Modeling (BIM) applications in over 35 ongoing projects across the nation. The power of visualization, coordination, simulation, and optimization from 3D, 4D, and BIM computer technologies allow GSA to more effectively meet customer, design, construction, and program requirements. GSA is committed to a strategic and incremental adoption of 3D, 4D, and BIM technologies.

There is a progression from 2D to 3D, 4D, and BIM. While 3D models make valuable contributions to communications, not all 3D models qualify as BIM models since a 3D geometric representation is only part of the BIM concept.

Critical to successful integration of computer models into project coordination, simulation, and optimization is the inclusion of information—the "T" in BIM—to generate feedback. As a shared knowledge resource, BIM can serve as a reliable basis for decision making and reduce the need for re-gathering or re-formatting information. GSA is currently exploring the use of BIM technology throughout a project’s lifecycle in the following areas: spatial program validation, 4D phasing, laser scanning, energy and sustainability, circulation and security validation, and building elements.