Technology Trends and Workload Forecast

Presented to the Atlanta Chapters of:
Society of American Military Engineers (SAME)
American Society of Civil Engineers (ASCE)

Brian Kimsey, AIA
Regional Chief Architect
Presentation Outline

- Technology Trends at GSA
  - Building Information Modeling (BIM)
    - Conceptualization / Visualization
    - Studies
    - Circulation / Security Validation / Phasing
    - Design
    - Coordination / Clash Detection
    - Fabrication
    - Scheduling
    - Cost Estimating
    - Spatial Data Management
    - Facility Management
  - Laser Scanning
    - Limited Scope Scanning
    - Full Scope - Laser Scanning Plan
    - Steps
    - Results
Presentation Outline

• GSA A-E and Construction Services and Workload Forecast
  – Locating Opportunities for GSA Services
  – Design and Construction Services Used in PBS
    • Small Projects
    • Large (Capital) Projects
    • Lease-Construct Projects
  – GSA Region 4 Workload Trends
  – Locating Opportunities for GSA Services
  – Five-Year Courthouse Project Plan
  – Federal Business Opportunities (FedBizOpps)
  – GSA Project Subcontracting Opportunities
  – My Prognostications
BIM for Conceptualization / Visualization

Able to provide easily understandable solutions for space recapturing.

Enticing options provided to customers to promote movement back into federal buildings from leased spaces.
BIM for Structural and PV Studies

Able to determine the number of panels the parking deck could handle. Performed structural analysis to establish the PV system could be supported.

Created a sunlight analysis to determine the amount of energy that could be produced with a PV canopy system.
BIM for Feasibility Studies

Internally able to work out issues with the design and feasibility of the structure before beginning the conceptual designs.

Provided options to the clients so they could gather a better understanding of the requirements before sending out to bid for conceptual design.
BIM for Feasibility Studies

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BIM for Feasibility Study / Visualization
BIM for Feasibility Studies – Charlotte, NC
BIM for Feasibility Studies – Charlotte, NC
BIM for Circulation/Security Validation - Solibri

27,000 routes were tested using 302 circulation rules in approximately 20 seconds.
BIM for Phasing / Swing Space Coordination
BIM in Design – Complex Geometry
BIM in Design – Complex Geometry

Using 3D models and BIM technology, the designer is able to accurately convey design intent.

Complex structural, architectural, and mechanical elements can be accurately coordinated within the model.
BIM in Design - Rendering from 3D model
BIM in Design – Final photos
BIM in Design – Final photos
BIM for Coordination - Navisworks
BIM for Coordination - Navisworks
BIM for Fabrication

Steel Fabrication Model

Steel Construction
BIM for Scheduling – Navisworks & Synchro
BIM for Cost Estimating - Innovaya
BIM for Spatial Data Management
BIM for Facility Management
BIM for Facility Management
Laser Scanning for Verifying Existing Model
Laser Scanning for As-Built Verification

Laser scans are used to verify design models during renovations.

This scan shows that the existing conditions in the design model were slightly off from actual conditions. Scanning prevented multiple field conflicts and change orders.
Laser Scanning Plan

Scan Locations are laid out on existing CAD plans. Further verification of scan locations is done in Google Earth, and on-site.
Laser Scanning - Leica - TruView

Laser Scan and Total Station survey equipment is used to accurately survey and scan existing conditions.

Laser scanning collects color data during the scan which produces photo-like scans. Measurements, mark-ups and visual verification are possible within the scan.
Laser Scanning - Leica - Cyclone
Atlanta Federal Campus - Revit Model
Atlanta Federal Campus - Revit Model
Atlanta Federal Campus - Revit Model
Atlanta Federal Campus - Revit Model
“Big Room” Collaboration

All players together in one room collaborating. Live model review and coordination meetings.

Possible to use VTC, WEBEX, etc.. as an alternative ,or in addition to, the “Big Room”.

Paperless Construction Site

Digital drawing sets loaded on portable projectors for use on site.

Drawings can be loaded as often as needed to reflect current revisions. Reduces printing.
Design and Construction Services used in PBS

- **Projects under the Prospectus Limit**
  - Prospectus threshold for 2013 is $2.79 million
  - Design services via Brooks Act IDIQ contracts
  - Construction contracts via sealed bid, IDIQ or Source Selection

- **Major (above Prospectus Limit) Contracts**
  - Above $2.79 million, and up to $200 million +
  - Design services via Brooks Act “Design Excellence” program
  - Construction contracts typically via Source Selection

- **Lease-Construct Contracts**
  - These are in essence Developer-lead Design-Build
  - Designers and contractors are part of team submitted by Developer
A: A GSA Workload Forecast

Carnac the Magnificent
Q: What changes faster than Atlanta Weather?
GSA Region 4 Small Project Trend

Non-Prospectus Workload

includes in design, construction, closeout, and in pre-planning

<table>
<thead>
<tr>
<th>Year</th>
<th># of all projects</th>
<th>$</th>
</tr>
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<tbody>
<tr>
<td>FY10</td>
<td>119</td>
<td>48</td>
</tr>
<tr>
<td>FY11</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td>FY12</td>
<td>123</td>
<td>60</td>
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### Capital Project Growth in billions

<table>
<thead>
<tr>
<th>Year</th>
<th># proj.</th>
<th>$ Value Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY11</td>
<td>13</td>
<td>$1.02</td>
</tr>
<tr>
<td>FY12</td>
<td>13</td>
<td>$0.95</td>
</tr>
<tr>
<td>FY13</td>
<td>16</td>
<td>$0.87</td>
</tr>
<tr>
<td>FY14</td>
<td>14</td>
<td>$0.99</td>
</tr>
<tr>
<td>FY15</td>
<td>14</td>
<td>$1.00</td>
</tr>
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</table>

### Capital Project Growth

<table>
<thead>
<tr>
<th>Year</th>
<th># proj.</th>
<th>% over prev yr</th>
<th>$ Value Billions</th>
<th>% over prev yr</th>
<th>Capital Program</th>
</tr>
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<tbody>
<tr>
<td>2011</td>
<td>13</td>
<td>0%</td>
<td>$1.02</td>
<td>0%</td>
<td>$1,022</td>
</tr>
<tr>
<td>2012</td>
<td>13</td>
<td>0%</td>
<td>$0.95</td>
<td>-7%</td>
<td>$953</td>
</tr>
<tr>
<td>2013</td>
<td>16</td>
<td>23%</td>
<td>$0.87</td>
<td>-8%</td>
<td>$866</td>
</tr>
<tr>
<td>2014</td>
<td>14</td>
<td>-13%</td>
<td>$0.99</td>
<td>14%</td>
<td>$988</td>
</tr>
<tr>
<td>2015</td>
<td>14</td>
<td>0%</td>
<td>$1.00</td>
<td>1%</td>
<td>$1,006</td>
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<table>
<thead>
<tr>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.02</td>
<td>$0.95</td>
<td>$0.87</td>
<td>$0.99</td>
<td>$1.00</td>
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</table>
GSA Region 4 Leasing Support Trend

Leasing Support (as known today)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Leasing Support (in $000)</th>
<th># of Projects Known Today</th>
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<tbody>
<tr>
<td>FY11</td>
<td>$58</td>
<td>1</td>
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<tr>
<td>FY12</td>
<td>$114</td>
<td>197</td>
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<tr>
<td>FY13</td>
<td>$115</td>
<td>168</td>
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<tr>
<td>FY14</td>
<td>$126</td>
<td>197</td>
</tr>
<tr>
<td>FY15</td>
<td>$103</td>
<td>170</td>
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</tbody>
</table>

FY11: Fiscal Year 2011
FY12: Fiscal Year 2012
FY13: Fiscal Year 2013
FY14: Fiscal Year 2014
FY15: Fiscal Year 2015
Region 4 PBS Total Project Cost Trend

Total Program Breakdown in D & C using Total Project Cost (Billions)

- FY 11: $1,717
- FY 12: $1,755
- FY 13: $1,894
- FY 14: $1,889

- BA 54 Des+Form.
- BA 54 Constr+Comple.
- ARRA SmProj
- BA 04 Design/Build Des
- ARRA SmProj
- BA 04 Design/Build Constr
- BA 80 not incl AFRH Des
- BA 80 not incl AFRH Constr
- BA 51 Des incl. Pre-Des
- BA 51 Constr
- BA 55 Des incl. Pre-Des
- BA 55 Constr
- ARRA Mod & Limited Scope BA 03 Des
### Locating Opportunities for GSA Services

- **GSA Forecast of Contracting Opportunities**
  
  [Link to GSA Forecast](http://www.gsa.gov/portal/category/25544)

## GSA Forecast of Contracting Opportunities

**FY 2013**

<table>
<thead>
<tr>
<th>Region</th>
<th>City</th>
<th>Service</th>
<th>Product Classification Code</th>
<th>Procurement Classification Code</th>
<th>Place of Performance</th>
<th>Contract Type</th>
<th>Socioeconomic and Acquisition Strategy Rationale</th>
<th>Contracting Category</th>
<th>Place of Performance (State)</th>
<th>Place of Performance (City)</th>
<th>Place of Performance (City)</th>
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</thead>
<tbody>
<tr>
<td>Southeast Sunbelt Region</td>
<td>Atlanta</td>
<td>Public Buildings</td>
<td>236220</td>
<td>Section 8(a)</td>
<td>GA</td>
<td>Firm Fixed Price</td>
<td>Negotiated</td>
<td>Small Business</td>
<td>GA</td>
<td>Atlanta</td>
<td></td>
</tr>
<tr>
<td>Southeast Sunbelt Region</td>
<td>Columbus</td>
<td>Public Buildings</td>
<td>236220</td>
<td>Firm Fixed Price</td>
<td>GA</td>
<td>Firm Fixed Price</td>
<td>To Be Determined</td>
<td>Small Business</td>
<td>GA</td>
<td>Columbus</td>
<td></td>
</tr>
<tr>
<td>Southeast Sunbelt Region</td>
<td>Dublin</td>
<td>Public Buildings</td>
<td>236220</td>
<td>Firm Fixed Price</td>
<td>GA</td>
<td>Firm Fixed Price</td>
<td>To Be Determined</td>
<td>Small Business</td>
<td>GA</td>
<td>Dublin</td>
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<tr>
<td>Southeast Sunbelt Region</td>
<td>Statesboro</td>
<td>Public Buildings</td>
<td>236220</td>
<td>Firm Fixed Price</td>
<td>GA</td>
<td>Firm Fixed Price</td>
<td>To Be Determined</td>
<td>Small Business</td>
<td>GA</td>
<td>Statesboro</td>
<td></td>
</tr>
<tr>
<td>Southeast Sunbelt Region</td>
<td>Savannah</td>
<td>Public Buildings</td>
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<td>Firm Fixed Price</td>
<td>GA</td>
<td>Firm Fixed Price</td>
<td>To Be Determined</td>
<td>Small Business</td>
<td>GA</td>
<td>Savannah</td>
<td></td>
</tr>
<tr>
<td>Various Cities</td>
<td>Savannah</td>
<td>Public Buildings</td>
<td>561110</td>
<td>Small Business</td>
<td>GA</td>
<td>Firm Fixed Price</td>
<td>To Be Determined</td>
<td>Small Business</td>
<td>GA</td>
<td>Savannah</td>
<td></td>
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<tr>
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<td>Public Buildings</td>
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<td>GA</td>
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<td>To Be Determined</td>
<td>Small Business</td>
<td>GA</td>
<td>Savannah</td>
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<td>GA</td>
<td>Firm Fixed Price</td>
<td>To Be Determined</td>
<td>Small Business</td>
<td>GA</td>
<td>Savannah</td>
<td></td>
</tr>
</tbody>
</table>

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**Note:**

- **GSA Public Buildings Region**
- **GSA Organization Region**
- **GSA Forecast of Contracting Opportunities**
- **Firm Fixed Price**
- **Small Business**
- **To Be Determined**

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**MARCH 1, 2013**
Five-Year Courthouse Project Plan


<table>
<thead>
<tr>
<th>FY 2013</th>
<th>Cost</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Mobile, AL*</td>
<td>Add'l. C</td>
<td>$140.30</td>
</tr>
<tr>
<td>2 Nashville, TN</td>
<td>Add'l, S&amp;D/C</td>
<td>$142.00</td>
</tr>
<tr>
<td>3 Savannah, GA</td>
<td>Add'l C</td>
<td>$95.50</td>
</tr>
<tr>
<td>Total</td>
<td>$377.80</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>FY 2014</th>
<th>Cost</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 San Antonio, TX</td>
<td>C</td>
<td>$112.00</td>
</tr>
<tr>
<td>2 Charlotte, NC</td>
<td>C</td>
<td>$126.40</td>
</tr>
<tr>
<td>3 Greenville, SC</td>
<td>C</td>
<td>$80.00</td>
</tr>
<tr>
<td>4 Harrisburg, PA</td>
<td>C</td>
<td>$76.50</td>
</tr>
<tr>
<td>Total</td>
<td>$394.90</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FY 2015</th>
<th>Cost</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Norfolk, VA</td>
<td>C</td>
<td>$104.70</td>
</tr>
<tr>
<td>2 Anniston, AL</td>
<td>Add'l D/C</td>
<td>$41.00</td>
</tr>
<tr>
<td>3 Toledo, OH</td>
<td>C</td>
<td>$109.30</td>
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<tr>
<td>Total</td>
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</table>

<table>
<thead>
<tr>
<th>FY 2016</th>
<th>Cost</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>1 Chattanooga, TN</td>
<td>S&amp;D</td>
<td>$21.50</td>
</tr>
<tr>
<td>2 Des Moines, IA</td>
<td>S&amp;D</td>
<td>$43.00</td>
</tr>
<tr>
<td>Total</td>
<td>$64.50</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>FY 2017</th>
<th>Cost</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$0.00</td>
<td></td>
</tr>
</tbody>
</table>

Approved by Executive Committee on Behalf of the Judicial Conference 2/1/2012

(estimated dollars in millions)

*S= Site; D = Design; C = Construction; Addl. = Additional
All Cost estimates subject to final verification with GSA

*Congress provided $50.00 out of $190.3 million needed for Mobile, AL in December 2009
Federal Business Opportunities (FedBizOpps)

https://www.fbo.gov/

Search more than 23,700* active federal opportunities.

ATTENTION: Agency users are responsible for properly uploading controlled, unclassified materials to FBO using the access control procedures for document packages and attachments detailed in the FBO Buyers Guide. Do not upload ANY classified materials to FBO.
GSA Project Subcontracting Opportunities

- Subcontracting Directory for Small Businesses

http://www.gsa.gov/portal/service/SubContractDir/category/102831/hostUri/portal

The GSA Subcontracting Directory lists large prime contractors who, by law, are required to establish plans and goals for subcontracting with small business firms. Download the Subcontracting Directory (Excel file) *Updated 02/16/2012*

**3M COMPANY**

- COMPANY ADDRESS: 3M CENTER BLDG 220 11W 02, SAINT PAUL, MINNESOTA, 55144-1001
- PERFORMANCE PLACE: LOS ANGELES, CA
- PRODUCT OR SERVICE CODE: 5120
- NAICS CODE: 444110
- DATE SIGNED: 10/07/2010
- ACTION OBLIGATION: $372,000.00
- VENDOR PHONE: (866) 556-5712
- PIID: GS21F0075X
- P/S DESCRIPTION: HAND TOOLS, NONEDGED, NONPOWERED
- NAICS DESCRIPTION: HOME CENTERS
- EFFECTIVE DATE: 10/07/2010
- EST. COMPLETION: 08/02/2011

**3M COMPANY**

- COMPANY ADDRESS: 3M CENTER BLDG 220 11W 02, SAINT PAUL, MINNESOTA, 55144-1001
- PERFORMANCE PLACE: CHICAGO, IL
- PRODUCT OR SERVICE CODE: 5120
- NAICS CODE: 444110
- DATE SIGNED: 09/14/2011
- ACTION OBLIGATION: $364,495.00
- VENDOR PHONE: (866) 556-5712
- PIID: GS21F0075X
- P/S DESCRIPTION: HAND TOOLS, NONEDGED, NONPOWERED
- NAICS DESCRIPTION: HOME CENTERS
- EFFECTIVE DATE: 09/14/2011
- EST. COMPLETION: 12/31/2014
My Prognostications

- New Federal building starts will decline
- Annexes to existing Federal buildings will increase
- Total space occupied by GSA agencies will decrease
- Occupant density in Federal buildings will increase
- GSA leased space percentage will decrease
- Telework in Federal agencies will increase
- Agency consolidations will require space build-outs
- Major renovations to existing FBs will have to increase
Contact:

John Brian Kimsey, AIA
Regional Chief Architect
Design and Construction Division
GSA Public Buildings Service
Southeast Sunbelt Region

U.S. General Services Administration
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Atlanta, GA 30303
brian.kimsey@gsa.gov
404.331.5330
Questions?