Design-Build: the National Perspective

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Traditional vs. Non-Traditional

- **Traditional Delivery Systems**
  - Design- Bid- Build
    - Firm Fixed Price
    - Unit Price
    - Cost Plus
  - Negotiated – private sector
  - Competitively Bid – public sector

- **Non-Traditional**
  - Everything else
Delivery Method Selection

- Past Experience
- Risk Tolerance
- Required Delivery Date
- Budget Constraints
- Need for Innovative Design Solution
- Industry Capability
- Regulatory Environment
Integrated Project Delivery Contract Types

• Best Value Design-Bid-Build
• Design-Build
• Variations on Post-Construction Options
• Construction Manager-at-Risk (CM/GC)
• Public-Private Partnerships (CDA)

** NOTE: Semantics Vary Across the Nation
D-B Use by State
SEP-14 + Keston Study

Map showing D-B use by state with color coding:
- > 10 DB projects: green
- 5-9 DB Projects: yellow
- 1-4 DB Projects: blue
- No DB Projects: red
DBB vs DB Schedule

**Design-Bid-Build**

- Planning & Programming
- Preliminary Engineering
- Final Engineering
- Contractor Selection
- Construction

- Minimal Contractor Input
- Extensive Contractor Input

**Design-Build**

- Planning & Programming
- Preliminary Engineering
- Design-Build Selection
- Final Engineering
- Construction

- Minimal Contractor Input
- Extensive Contractor Input
- Design-Build Time Savings
DBIA Projections

Non-Residential Design and Construction in the United States

- Design-build
- "Traditional" Design-bid-build
- Construction management (at risk)

Design-Build Institute of America 2005
50% of all non-residential construction projects are forecasted to utilize Design-Build by 2006.
Procurement Methods

Fixed-Price
Sealed Bidding

• Historically Public Sector
• Typically Fixed-Price
• Open Bidding

Price Considerations

Best-Value

Price and Other Key Considerations

Historically Private Sector
Typically Negotiated
Prequalification Processes

Sole Source Selection

Qualification Considerations

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Best-Value Definition

A procurement process where price and other key factors are considered in the evaluation and selection process to enhance the long-term performance and value of construction.
DBB/BV

Use in Highway Industry

• NCHRP 10-61, Best Value Contracting for Highway Construction
• 41 transportation agencies surveyed
• 27 had experience with best-value procurement
• 2 planning to use it
Perceived Best-Value Advantages

- Reduction in cost growth
- Lower life-cycle costs
- Time savings
- Create an opportunity for innovation
- Enhanced quality
- Reduced procurement risk
Best-Value Concepts

Project Goals

- Best-Value Parameters

Evaluation Plan

- Best-Value Evaluation Criteria
- Best-Value Evaluation Rating Systems
- Best-Value Award Algorithms

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Best-Value Award Algorithms

Price Considerations

- Fixed-Price Sealed Bidding
- A+B Bidding
  - Meets Technical Criteria - Low Bid
- A+B+C Bidding
  - Adjusted Bid
- Adjusted Score

Best-Value

- Price and Other Key Considerations
  - Weighted Criteria
  - Adjusted Bid
  - Adjusted Score

Sole Source Selection

- Qualification Considerations
  - Fixed Price - Best Proposal
  - Cost - Technical Tradeoffs
  - Quantitative Qualitative
DB Contract Model

Request for Proposal

Technical Proposal

Price Proposal

Contract

Plans

Specs

Shop Drwgs

Construction

As-Buils
Post Construction Variations on DBB & DB

- **Build-Operate-Transfer**
  - Contractor Financing
  - Revenue Sharing
  - Fixed Period
- **Build-Operate-Own**
  - Contractor Financing
  - Lease-back
- **DBOM**
  - Maintenance incentive
  - Efficient operation
- **DBOT**
  - Contractor Financing
  - Revenue Stream
  - Amortize investment by transfer date.
- **RBOT**
  - Redesign/VE owner provided design
- **DB with Incentive/Disincentive**
Integrated Project Delivery Strategy

• Memphis International Airport: $200 million project to move the Tennessee Air Guard away from Fedex.
  – CM-Agent: Program manager
  – DBB-BV: Paving, taxiways, aprons, utilities
  – CM-at-Risk: New C-5A Hangars & POL facility
  – DB: Base support buildings

• Great example of using all the tools in the project delivery toolbox
Public Private Partnerships

• Motivation:
  – Public agencies are “land-rich & cash-poor”
  – Private industry is “cash-rich & land-poor”
  – Why not leverage the real estate and market assets of the public transportation agency in a manner that allows private industry to amortize its capital investment through fees for transportation services.
  – “The benefits of public-private partnerships are not limited to cost savings. By providing access to alternative financing sources, public-private partnerships can facilitate the construction of projects that might otherwise have been delayed or not built at all. In addition, the same efficiencies that produce cost savings often enable projects to be constructed faster.” FHWA
Public Private Partnerships

• World Bank uses DBOT-Finance to deliver transportation assets in developing countries.
• The Canada, UK, New Zealand, and others are privatizing transportation networks.
• Opportunities exist in the US to do the same.
• Existing toll roads and bridges have established a precedent for success.
Texas:

- Texas Turnpike Authority can accept unsolicited offers to develop “Comprehensive Development Agreements” for toll roads and bridges.
- SH 130 project currently under construction: $1.3 billion green-field toll road in Austin.
- Project delivery method included life cycle cost analysis as a part of the award algorithm via a 15 year maintenance agreement.
P3 in the US

• Virginia:
  – Pocahontas Parkway: $324 million design-build-finance.
  – Dulles Greenway

• Colorado: E-470 Toll Road $408 million that was estimated to cost $597 million if delivered using DBB.

• South Carolina: Southern Connector $218 million

• Many others across the country
Conclusions

• Best Value-DBB, CM-Agent, CM-at-Risk & DB being used successfully on both large and small projects in the US.

• Alternative project delivery methods merely furnish different “tools” for a public owner’s procurement “toolbox”.

• Requires a “culture shift” from DBB/Low-bid mentality…both Owner & Industry

• Public owners should match the delivery method with specific requirements of the given project & use all 3 as appropriate.