DESIGN-BUILD PROJECT MANAGEMENT

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<table>
<thead>
<tr>
<th></th>
<th>Table of Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
</tr>
<tr>
<td>2</td>
<td>Key Differences</td>
</tr>
<tr>
<td>3</td>
<td>Team Structure</td>
</tr>
<tr>
<td>4</td>
<td>Example: Horseshoe</td>
</tr>
<tr>
<td>5</td>
<td>Lessons Learned</td>
</tr>
</tbody>
</table>
Introduction

- TxDOT Design-Build History
  - Texas Turnpike Authority (TTA)
    - 1991 Legislation for Exclusive Development Agreements
      - Was not used
    - 1997 TTA transferred to TxDOT
      - Legislative authority came with it
  - 2003 HB 3588 renamed to Comprehensive Development Agreements (CDA’s)
    - an agreement with a private entity that, at a minimum, provides for the design and construction of a transportation project and may also provide for the financing, acquisition, maintenance or operation
    - CDA’s are at a minimum Design-Build or possibly more
Introduction

• Design-Build is simply a project delivery method
• DB has been intertwined with concessions and toll roads because of the history
  – 2011 SB 1420 authorizes TxDOT to use pure Design-Build
• Dallas Horseshoe Project first under new legislation
  – Example for discussion
Key Differences

- Three main differences between DB and DBB
  - Procurement Process
    - Not low bid, includes Engineering
  - Design
    - Reviews for contract compliance
  - Risk
    - More risk allocated to DB Contractor

- Otherwise, not drastically different from traditional projects
  - Working on Spec. Book
**Team Structure**

- Can change with project phases
  - Procurement
    - Project Manager
    - Division Support
    - District Support
  - Delivery
    - Design
    - Construction
Team Structure

- Staffing
  - Small but engaged TxDOT staff
    - Well rounded individuals (construction and design)
      - Utilize in multiple roles
  - Consultant support
    - Design Review
    - Inspection & Testing
    - Schedule Review
      - Payment based on schedule
Team Structure

- TxDOT Roles
  - Design Review
    - Concurrence/Approvals
      - Compliance with Contract
        » Not preferential
    - Approval of Lane Closures
  - Public Information
    - Coordination with DB Contractor PI
  - Construction
    - OV Testing and Inspection
Example: Horseshoe

- Dallas Horseshoe Project
  - Original PS&E scope for consultant
  - Design-Build Legislation
    - Decision to use DB
  - 30% Level Design due to Levees
  - Excess contract value used for review
  - OVT&I contract for construction tasks
    - OV Testing & Inspection
      - Supplemented TxDOT forces
      - 10% testing level and similar on inspection
      - QA firm responsible for Guide Schedule
    - Statistical Analysis
    - Schedule
    - Auditing
    - Document Control
Independent Quality Firm (IQF) is hired by DB Contractor and reports to both TxDOT and DB Contractor
- IQF develops a Construction Quality Management Plan (CQMP) that is reviewed and approved by TxDOT and FHWA.
- CQMP spells out testing, inspection, hold points, non conformance procedures, etc.

Owner Verification is oversight on the IQF
- OVT authors a quarterly report submitted to FHWA for review to show statistical analysis and consistency in IQF and OVT testing results

Independent Assurance verifies certifications and serves as referee during a dispute with IQF and OVT
- GEC served as extension of staff during Design phase
- OVT&I was a separate consultant contract
- IA is the District Lab/CSTM&P
Example: Horseshoe

- PM leads coordination with various groups:
  - District ROW
  - District Utility Section
    - Reviewed all utility agreements and submittals
  - District Traffic Ops
    - Reviewed pavement marking & signing plans, ITS plans, signal plans, illumination plans, overhead signing plans
  - District DBE Coordinator
    - Reviewed all DBE commitments, CUFs, monthly progress reports, and outreach activities
  - District Advanced Planning
    - Reviewed revisions to the schematic, environmental documents
  - Public Information Office
    - Reviews news releases and public involvement activities
  - Area Office
    - Coordinates adjacent project activities
  - Construction Division and Bridge Division
    - Specialty inspection items (Calatrava bridge)
  - FHWA
Lessons Learned

- Not that different from Design-Bid-Build projects
  - Still building the same types of bridges and pavement structures
  - Still use the spec book but in conjunction with the Design Build Agreement
Lessons Learned

- Important that the TxDOT project team is fully engaged
  - Engage the local municipalities early on during the schematic phase and keep them engaged through procurement and implementation
  - Closely manage GEC and OVT firms
    - Ensure design review is for contract requirements and not preferences
    - Ensure material testing is monitored closely and increase as needed to address non-validations
      - Determine quickly if there is a quality issue or a statistical analysis/validation issue
  - Although risk is transferred to Design-Build Contractor, the stakeholder involvement is not completely transferred.
  - At the end of the agreement, TxDOT retains ownership
Lessons Learned

- Keep moving during the procurement
  - Procurement typically takes 9 months to a year
  - Advance ROW during that time
  - Advance long lead time utilities during that time
  - Advance agreements with the local municipalities