

Design Bid Build vs. Design Build Best Value

• Design Bid Build
  • Contract information Book
  • Plans
  • INDOT Specifications
  • Low Bid Award

INDIANA DEPARTMENT OF TRANSPORTATION

CONTRACT INFORMATION BOOK (CIB)

PART I

CONTRACT NO: RS-39968-A

LETTER DUE: JANUARY 15, 2018

Certified by:

Date: December 15, 2017

Covering plans in Table of Contents, PART I
For reference in bidding purposes
Design Bid Build vs. Design Build Best Value

- Design Build Best Value
  - Public Private Agreement
  - Technical Provisions
  - Plans
  - INDOT Specifications
  - 2 Step Selection
    - RFQ to Shortlist
    - RFP to Submittal of Technical and Price Proposal
      - 60% price & 40% technical
Design Bid Build vs. Design Build Best Value

• Design Bid Build Procurement Schedule
  • Typically 4 Weeks
  • Contractors only

• Design Build Best Value Procurement Schedule
  • Varies
  • I-65 Project
    • RFQ Issues December 15th, 2015
    • 4 SOQs submitted January 19th, 2016
    • Shortlist in February
    • Draft RFP issues in March 2016
      • Contractor and Designer input into RFP
    • RFP issued in May 2016
    • Alternative Technical Concepts
    • Technical and Price Proposals submitted in September 2016
    • Contract Execution in November 2016
Design Bid Build vs. Design Build Best Value

• Design Build
  • Walsh/Parsons DBT submitted ~30% plans with their Technical Proposal.
    • Design commenced in December 2016 after acceptance of Project Management Plan and Design Quality Management Plans
    • Walsh/Parsons DBT split up design/construction into Buildable Units
      • Design Submittals were reviewed by INDOT and HNTB staff, including construction personnel.
    • Technical Provisions versus INDOT Design Manual
    • Design was substantially complete in June of 2017
    • Construction commenced in March 2017
“Best Value” – moves construction cost decisions and plan development decisions from INDOT’s domain to the DBBV Team’s Domain.

“Best Value” - Contract specifies required attributes of the End Product – not the end product itself.

- Process creates an environment for innovation.
- Allows competing teams to leverage their team’s experience, particular design strengths, particular construction strengths and creativity
- Win-Win Scenario – INDOT gets more bang for the $ and the DBBV team wins a contract by their team’s strengths and not just low bid.
“Best Value” – INDOT Team Reviews the DBBV Team’s proposed Product for conformity with the Contract Requirements

“Best Value” – Best Value contract includes not only the requirements common to each Proposer, but also Commitments made by the individual DBBV Team.

INDOT reviews the DBBV submittals for conformity to DBBV Team’s commitments.
Conventional Design Bid Build typical Submissions by Contractor

- Working Drawings/Shop Drawings
  - False Work, Cofferdam, Demolition, Sign, Guardrail, Pile Driving, Precast Structures, Lighting ...
- QC Plans
- Schedule
- Storm Water QC Plan
• Design Build Best Value Submissions
  • Design Stage Document Submittals – Same as Conventional INDOT Plan Development Stage Documents
    • Stage 1, Stage 3 and RFC packages were submitted by the DBBV Team for INDOT’s Review.
  • Unique Submittals included MOT and Pavement design submittals pre-selection of the proposers.
    • The submittals allowed for potential innovation and counted in the scoring of the Proposers
Design Build Best Value Submissions – Key Management Submission

- Project Management Plan
  - Project Administration
  - Quality Management Plan
  - Environmental Management Plan
  - Safety Plan
  - Communication Plan

- Living Document
  - Includes Quality Procedures to encourage continuous improvement
  - Includes Self Auditing Procedures

1.3.3 Project Management Plan

Design-Build Contractor shall prepare a Project Management Plan (PMP), which is an umbrella document that describes Design-Build Contractor’s managerial approach, strategy, and quality procedures to design and build the Project and achieve all requirements of the PPA Documents.
• Design Build Best Value submissions – Key Management Submission
  • Project-Wide Traffic Management Plan
    • Incident Management Plan
    • Traffic Operations Plan TOP
    • Temporary Traffic Control Plan TTCP
    • Public Involvement Plan PIP
  • Required Organizational Positions related to traffic and PIP plans and implementation

11.2.1 Project-Wide Transportation Management Plan

Design-Build Contractor shall prepare, implement, and maintain a Transportation Management Plan (TMP). The TMP shall include a Traffic Operations Plan (TOP), a Temporary Traffic Control Plan (TTCP), and a coordination process with the Public Involvement Plan (PIP), described in Section 5 (Public Involvement), and must be approved before initiation of any Construction Work. INDOT will provide Design-Build Contractor with a list of INDOT representatives for the Project traffic management team to be included in Design-Build Contractor's TMP. The TMP shall be developed in coordination with, and include procedures to communicate, all MOT phase installations and changes with emergency service providers, school transportation officials, and all affected local public agencies.
Design & Construction Management under the PPA

- Design Build Best Value Submissions – Key Management Submission
  - CPM Schedule
    - Baseline – Before Design Work Starts
    - Includes Plan Development and Management Plan Submissions
    - Plan Development Submissions reflected in Critical Path
    - Time Impact Analysis required for Schedule Delays
    - Recovery Schedule required if Delay > 30 days or >5% of Remaining Days
    - Includes requirements of CPM RSP 108-C-215
Design & Construction Management under the PPA

- Design Build Best Value submissions – Key Management Submission
- CPM Schedule - Continued
  - The Project Schedule shall be used by the Parties for...
    - the basis for determining the amount of monthly progress payments to be made to Design-Build Contractor
    - Correlates with the Schedule of Values
Design & Construction Management under the PPA

- Design Build Best Value Submissions – Key Management Submission
  - CPM Schedule - Continued

- CPM Monthly Update Analysis
  - HNTB and INDOT performs a thorough check of the schedule against all contract CPM specification requirements each month.
  - The CPM schedule contains approximately 800 activities with 1400 network logic connections
  - The CPM Schedule is one of the most important tools in the project’s management tool box. The schedule allows both the DBBV Team and the INDOT Team to assess risk, communicate planned work, communicate delays and most importantly make informed decisions to manage risk and change.

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   a. "Approved" No start-to-finish activity relationships shall be used. Activity finish relationships shall include no lags. Finish-to-finish or start-to-start activity relationships shall include lags that include fewer days than the original duration of the predecessor activity.
   i. The schedule as submitted contains 29 Start-to-Start relationships with fewer days than the original duration of the predecessor activity.

b. "Approved with Comments" Network Logic Changes:
   i. Two (2) activity relationships were removed over the update period (see removed activity SB2.KRB.02 from the longest path. It is recommended that the Engineer review the logic changes presented to verify they reflect the current work. The Engineer did not find any issues with the logic changes.

Table 2 - Modified Relationships

<table>
<thead>
<tr>
<th>Pred ID</th>
<th>Pred Name</th>
<th>Succ ID</th>
<th>Succ Name</th>
<th>Rela</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB2.KRB.02</td>
<td>Install Erosion Control Measures (KRB Phase 2 Outside)</td>
<td>KRB.F2.20016</td>
<td>Demo existing Bridge Structure (KRB Structures P2)</td>
<td>Finishes</td>
</tr>
<tr>
<td>SB2.KRB.02</td>
<td>Install Erosion Control Measures (KRB Phase 2 Outside)</td>
<td>SB2.KRB.03</td>
<td>Grubbing (KRB Phase 2 Outside)</td>
<td>Finishes</td>
</tr>
</tbody>
</table>

14. "Approved" The use of lags with a negative value shall not be used for any activity relationship.
Design & Construction Management under the PPA

• Design Build Best Value Submissions – Key Management Submission
  • CPM Monthly Update Analysis – Continued
    • HNTB’s monthly analysis is approximately 30 pages and so only some highlights of the checks are presented below:
      • Identify Changes in Activity duration and logic
      • Review of each change explained narratively by the DBBV Team
      • Best Practices - Risk Analysis to Longest Path
        • Critical and Near Critical Analysis
        • Longest Path Identification
        • Near Critical Activity Analysis – Sensitivity
        • Total Float Analysis
        • Schedule Performance Metrics – Baseline Comparison

<table>
<thead>
<tr>
<th>Industry Best Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “Approved” Critical and Near-Critical Activities</td>
</tr>
<tr>
<td>a. 41 of 199 total unfinished project task activities are on the critical path</td>
</tr>
<tr>
<td>b. 63 of 199 total unfinished project task activities are near-critical and have at least 7 days Total Float (31.7%). Of these 63 activities, 32 are part of the longest path (Kankakee River Bridge)</td>
</tr>
<tr>
<td>c. This means 72 of 199 unfinished project task activities are critical</td>
</tr>
<tr>
<td>2. “Approved” Longest Path</td>
</tr>
<tr>
<td>a. The longest path of the project is the Kankakee River Bridge</td>
</tr>
<tr>
<td>3. “Approved” Near-Critical Activities Analysis</td>
</tr>
<tr>
<td>a. During this update cycle the percentage of near-critical tasks decreased from 33.0% (66 of 200) in Update 7 Rev1 to 31.8% (63 of 198) planned during this update cycle</td>
</tr>
<tr>
<td>4. “Approved” Total Float Analysis</td>
</tr>
<tr>
<td>a. One check that is normally performed as part of the total float is checking for activities with over 40-days total float. Activities with over 40-days total float may be missing successor logic.</td>
</tr>
</tbody>
</table>

I-65 Northwest Indiana Major Moves 2020, R37450
Design & Construction Management under the PPA
Design & Construction Management under the PPA

• Design Build Best Value Submissions – Changes to Work
  • Directive Letter – INDOT may, at any time and for any reason, issue a Directive Letter to Design-Build Contractor in the event of any desired change in the Work or in the event of any dispute regarding the scope of Work.
    • The letter may or may not result in a change order or dispute

13.1.1.2 Issuance of Directive Letter

INDOT may, at any time and for any reason, issue a Directive Letter to Design-Build Contractor in the event of any desired change in the Work or in the event of any dispute regarding the scope of Work. The Directive Letter will state that it is issued under this Section 13.1.1.2, will describe the Work in question and will state the basis for determining compensation, if any. Design-Build Contractor shall proceed immediately as directed in the letter, pending the execution of a formal Change Order.
Design & Construction Management under the PPA

- **Design Build Best Value Submissions – Changes Orders**
  - **INDOT Initiated Change Orders**
    - <$10,000 - Design-Build Contractor shall not be entitled to an increase in the Contract Price for any INDOT-Directed Changes involving less than $10,000
    - Change Notice will be issued by INDOT
  - **Design Build Contractor Initiated Change** - …shall deliver to INDOT a written Notice (“DCR Notice”) stating that an event or situation has occurred ...
  - Procedures and time frames for change order and Disputes are dictated in the PPA. (Different than Standard INDOT Project)
• INDOT contract with Walsh Construction Company II, LLC to design and build the I-65 Northwest Indiana Expansion Project.

• The $62 million contract includes constructing additional travel lane along I-65 from SR 2 north to US 30.

• Replacement of the Kankakee River Bridges

• Proposal innovations resulted in 22% savings when compared to original project estimates and substantial completion 6 weeks earlier than anticipated.
Segment A: Added Travel Lanes

From the US 231 interchange at RP 247+90 and ends south of the US 30 bridge over I-65 at RP 251+08.

Adding a new PCCP shoulder and turning existing shoulder into an added travel lane.

Eight bridge rehabilitation projects.
• Segment B: Kankakee River Bridge

Reconstruction of the I-65 NB and SB bridges over the Kankakee River.

New bridges will replace the existing three span bridge with a new single span structure.

The MSE walls feature large box culverts to enable park roads to cross beneath I-65.
• **Segment C: Added Travel Lanes**

From just south of the SR2 interchange with I-65 at RP 239+00 and ends at the US 231 interchange with I-65.

Includes the addition of a third HMA lane in the median.

Six bridge rehabilitation projects.
Progress Estimates

- Estimates are created once per month in accordance with the PPA documents.
- Contract only has design/build contact lump sum pay items.
- Tracking progress with “dummy” items in SiteManager.
- To review the estimate, we use the “dummy” items recorded material quantities to track and monitor percent complete.
- The material quantities are used to review the schedule of values that were established at the start of the contract for each lump sum item.
# Progress Estimate

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Item No.</th>
<th>Description</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Quantity</th>
<th>Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

| TOTAL: | | | | | | |
• The policy for change orders is outlined in the PPA documents in section 13.

• Approvals on Change Orders are completed with forms provided in PPA. They are processed in e-builder.

• SiteManager is only used as an accounting software.

• Approvers of change orders are different INDOT staff.

**Approvers**

- INDOT Project Manager
- INDOT Area Engineer
- INDOT P3 Director & Authorized Representative
Contract Documentation and References

Design Build Best Value (DBBV)
• Public-Private Agreement (PPA)
• Technical Provisions
• Technical Provisions Attachments
• Special Provisions
• Plans
• Standard Specifications

Design Bid Build (DBB)
• Special Provisions
• Plans
• Standard Specifications
Graphical View

e-Builder
Material Records

• The PPA documents require the contractor to submit all material records to INDOT electronically.

• We are using a Sharepoint site setup by the Design Build Team (DBT)
  • The DBT submits information into Sharepoint which includes all the necessary information associated with that material. (Item no, project number, quantity, etc...)
  • These items are placed in the pending status.
  • INDOT then reviews the material entries from the DBT. The files are either moved to accepted after they have been input into SiteManager or they are placed in the rejected status with comments. The rejected submissions are then sent back to the DBT to resubmit. Files such as steel invoices, which do not get directly submitted into SiteManager, are reviewed and placed in e-builder. These files are also then moved into the either the accepted or rejected status in Sharepoint.
Material Records
### Material Records

#### MRR Log for HNTB Review

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Quantity</th>
<th>Type</th>
<th>Status</th>
<th>Approved By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloth/ TAR (Concrete)</td>
<td>25</td>
<td>EA</td>
<td>Permanent</td>
<td>Seminski, Jonathan</td>
</tr>
<tr>
<td>Structural Expansion Joint Sealer</td>
<td>59</td>
<td>LF</td>
<td>Permanent</td>
<td>Seminski, Jonathan</td>
</tr>
<tr>
<td>Steel Angle</td>
<td>4</td>
<td>EA</td>
<td>Approved</td>
<td>Seminski, Jonathan</td>
</tr>
<tr>
<td>Steel Angle</td>
<td>1</td>
<td>EA</td>
<td>Approved</td>
<td>Seminski, Jonathan</td>
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<tr>
<td>Reinforcing Bars</td>
<td>14,139</td>
<td>LB</td>
<td>Permanent</td>
<td>Seminski, Jonathan</td>
</tr>
<tr>
<td>Reinforcing Bars 2</td>
<td>3,883</td>
<td>LB</td>
<td>Permanent</td>
<td>Seminski, Jonathan</td>
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<tr>
<td>Reinforcing Bars 2</td>
<td>14,139</td>
<td>LB</td>
<td>Permanent</td>
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<tr>
<td>Concrete</td>
<td>5,000</td>
<td>EA</td>
<td>Approved</td>
<td>Seminski, Jonathan</td>
</tr>
<tr>
<td>Concrete</td>
<td>207,000</td>
<td>LB</td>
<td>Permanent</td>
<td>Seminski, Jonathan</td>
</tr>
</tbody>
</table>
### Material Records

**QC Auditor:** Donwal, Jonathan  
**QC Audit Status:** Approved  
**INOTT Report #:** 4184254734701, 4184254734704, 4184254734705  
**INOTT Auditor:** P. O. Ouley  
**INOTT Audit Status:**  
**Reason Why Material Submission is Being Requested:**  
**Description of Material:** Tapered, Grade F21, 2" diameter - Enamel coated steel, 9B Superstructure  
**Attachments:**  
- [Material Report](https://wallingroup.sharepoint.com/sites/ISNOWA/external/A)  
- [Material Sample](https://wallingroup.sharepoint.com/sites/ISNOWA/external/A)  
- [Material Specifications](https://wallingroup.sharepoint.com/sites/ISNOWA/external/A)  
- [Material Certificate](https://wallingroup.sharepoint.com/sites/ISNOWA/external/A)  
- [Material Analysis](https://wallingroup.sharepoint.com/sites/ISNOWA/external/A)  

**Date Received:** 4/3/2017  
**Project Number:** 030310 - 1515 Erskine River Bridge  
**Item Description:** Replacement steel, epoxy coated  
**SAS Number:** SAS-12345  
**SAS Name:** John Doe  
**SAS Status:**  
**Vendor:** OVC Rail/ABC Coating Company of Illinois  
**Purchased By:** L&H  
**Manufacturer:** OVC Rail/ABC Coating Company of Illinois  
**Box of Shipping:** 10123456  
**Quantity:** 2750 lbs  
**Unit of Measure:** Lbs
Non Conformance Reports

- Reports are sent to DBT at time of nonconforming work.
- DBT logs these reports with their response on a tracking sheet in e-builder.
- Tracking sheet is reviewed regularly at Quality Management Meetings.
- INDOT updates the tracking sheets with closeout comments for each nonconformance report.
Standard DBB Inspection vs. DBBV Inspection

• Questions?
• Presenters
  • Chris Reynolds, P.E.
    • INDOT LaPorte District Area Engineer
  • Tom Stryzinski
    • INDOT LaPorte District Project Supervisor
  • Brad Miller
    • HNTB I-65 Project Manager
  • Michael Stair
    • HNTB I-65 Resident Engineer