



***A Design Build
Conversation:
2:45 – 4:15***

*ACEC Conference
April 15, 2008*



Workshop Outline





***Bob Pappé,
Contract Administration Engineer
ODOT's Design-Build History***

- **7 Completed Projects**
- **5 Active Projects**
- **2 Projects under procurement**
- **1 Project currently scheduled to go to procurement Fall 2008**



Current DB Projects List

<u>Project</u>	<u>Award</u>	<u>Value</u>	<u>Status</u>
1. Coast Fork	May 02	\$5.7m	Complete
2. Lower Perry	May 02	\$8.2m	Complete
3. Quarry Bridges	Jan 03	\$18.7m	Complete
4. COHB	Mar 04	\$25.6m	Complete
5. MHC	Apr 04	\$30.6m	Complete
6. SRS	Nov 04	\$37.7m	Complete
7. CBT	Mar 05	\$34.8m	Complete
8. PME	Jul 05	\$129.9m	In Const. (susp.)
9. WHI	Apr 06	\$23m	In Const.
10. MRG	May 06	\$59.7m	In Const.
11. I-5 Weaver	Oct 06	\$51.3m	In Const.
12. Elk-Hardscrabble	Dec 06	\$45m	In Const.
13. US395 – B414	April 08	\$37.5m	NTP 04/30/08
14. OR126 – B508	Dec 08	\$43m	Future
15. OR6 – B507	Nov 09	\$25m	Future
16. I-5 Comstock	Nov 07	\$34m	Changed to DBB*
17. US30 – B415	Jun 08	\$17m	Changed to DBB*



Lessons Learned

Why Use Design-Build? Selling points are:

- Deliver the project faster!
- Give the risk to the DB Contractor!
- Reduce cost of the project!
- Equal or enhanced quality of product!
- Best Value selection of the DB team!
- Opportunity for Innovation!
- Reduced procurement risks!
- Risk and opportunity for both Agency and Contractor



Lessons Learned

Why use Design-Build?

- Deliver the project faster!
 - yes
- Give the risk to the DB Contractor!
 - not happening from agency point of view
- Reduce cost of the project!
 - Faster delivery saves money, otherwise same
- Equal or enhanced quality of product!
 - Expect that agency personnel would say no
- Best Value selection of DB team assures quality!
 - See above, key personnel involvement
- Opportunity for Innovation!
 - Innovation to lower cost
- Reduced procurement risks!
 - Contractors: Agency can't seem to find correct approach



Lessons Learned

What Still Needs Work:

- Do a better job of selecting projects – is speed the only criteria? Maybe
- “Project Records” includes everything the DB team produces – notes, emails, pre-work product, work product, everything!
- Escrow – Why is this important? To understand the assumptions, quantity takeoffs, production rates, planned approach of the Team selected as Best Value. It’s very important with changes in DB projects.



Lessons Learned

What Still Needs Work:

- If Project Records and Escrow is a problem, don't propose!
- RFQ-RFP still too complicated, for Agency and Proposers!
- Agency Evaluation process – Objective vs. Subjective, those who earn stipends think its flawed!



Lessons Learned

What Still Needs Work:

- With objective scoring, our evaluations have resulted in very close scores. When tech quality and price are scored equal, price still determines the winner. So, does our objective scoring get us the best value?
- Have we resolved the design reviews, final plans with live electronic files?
- Are we making the proper progress payments?
- Some people still think Design-Build means only one thing, regardless of what the individual contract says.



Steve Drahota, OBDP

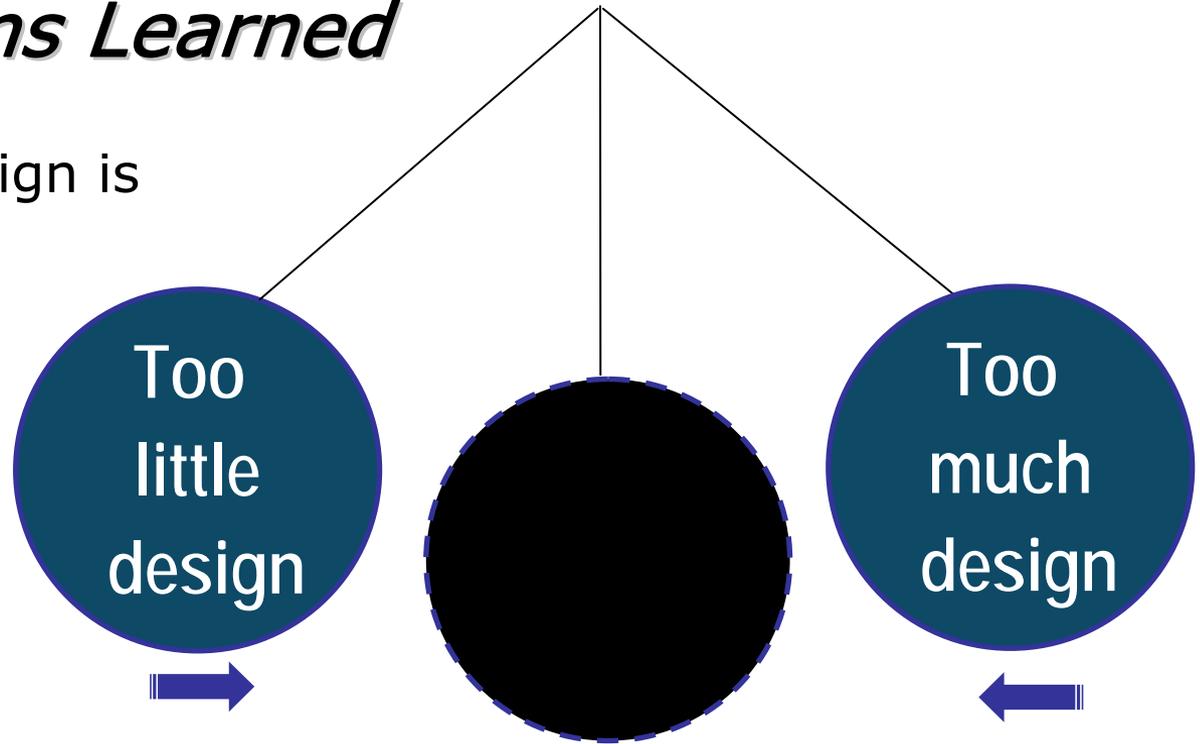
Lessons Learned:

- Concept Design*
- Risk Management*



Lessons Learned

How much design is enough for procurement?



- Strike the balance between too much design versus too little, using a risk based approach
- If all proposers need design information, provide it.
- Proposers should spend time on design solutions, not gathering base data.



Lessons Learned with Previous Procurements

Too Little Design

- Too much risk shifted to design-builder, therefore, higher costs
- Unanticipated results (i.e. piers in channel, pump stations)
- Unknown Agency risks that could impact scope, schedule & budget
- Added proposal costs for base engineering data

Too
little
design





Lessons Learned: Previous Procurements

- Too little design:
 - *Risks to Design-Builder (\$'s to Agency):*
 - Geotechnical
 - Utilities
 - Survey & Base maps
 - Hydraulics
 - Environmental



Bundle 401



Lessons Learned: Previous Procurements

Risks to Design-Builder =\$'s to Agency:

Excessive proposal costs
(\$500k per project)

Longer proposal Preparation

Increased risk in bids for
unforeseen risks

- Example: Bundle 401
substructure 140%
over engineer's
estimate.





Lessons Learned: Previous Procurements

– Too little design:

- *Risks (\$) to Agency*

- Undefined risk items adds contingency \$'s to bids
 - » Ex. ROW, utilities, environmental, railroad
- Lack of common engineering data
 - » Increases bid costs to Design-Builders thus Agency
- Poor scope
 - » Creates uncertainty in end product and misunderstandings with Agency technical staff



Lessons Learned: Previous Procurements

Too Much Design

- Higher design costs for Agency
- “Throw away” design work
- Restricts innovation
- Requires more time by Design-Builder to review and verify Agency’s work products.





Biggest Lessons Learned

- Past RFP's did not clearly identify minimums and put risks of design exception approvals on proposers
- Minimum Design Criteria must be established and Design Exceptions identified and "Pre-approved"!

Most innovations come from:

- Bridge type selection
- Staging/means and methods

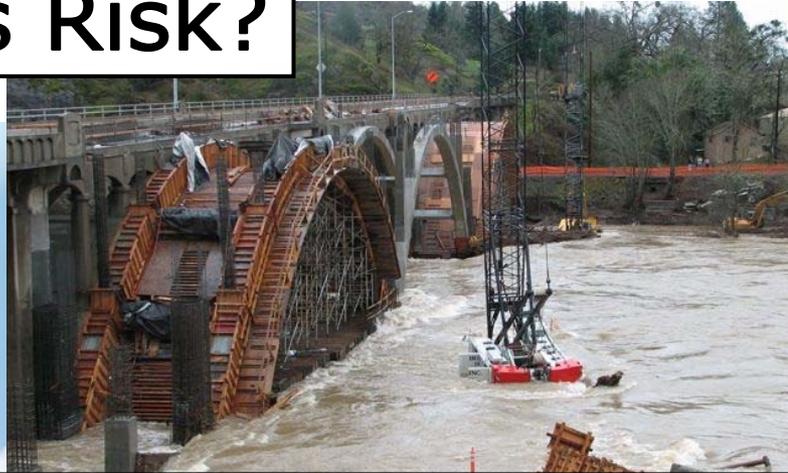


Rapid Reconstruction
at Bundle 401



What is Risk?

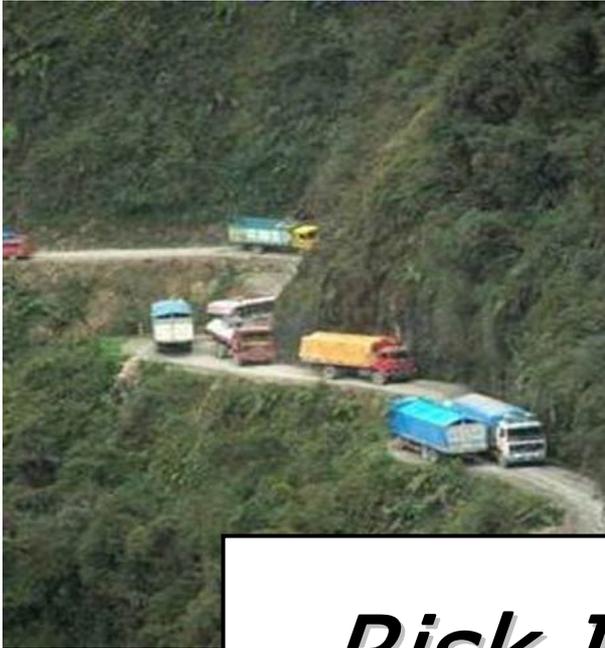
The combination of the probability of an uncertain event and its consequences.





Why Risk Management?

- Maximizing the probability and consequences of positive risk events (opportunities).
- Minimizing the probability and consequences of negative risk events (threats).



Risk Identification





Qualitative Analysis

- Qualitative risk analysis assesses the impact and likelihood of the identified risks and develops prioritized lists of these risks for further analysis or direct mitigation.
- The team assesses each identified risk for its probability of occurrence and its impact on project objectives.



Risk Response Strategy



Denial



Risk Response Strategy

A plan developed to handle or deal with the risk/threat.

Four Basic Strategies:

- Avoidance
- Mitigate (reduce)
- Transfer
- Accept



Project Example

Bundle 414 – Goose Rock Bridge





Conceptual Design/ Procurement Approach

Investigation:

Some risks identified in Initial
Risk Management Plan:

Water Rights Facility under
bridge.



In-water Work Window

ROW John Day Fossil
Beds National Monument



Deficient existing bridge





Conceptual Design/ Procurement Approach

Investigation:

- ROW - Identified project ROW was adjacent to John Day Fossil Beds National Monument
 - 4(f) impact (1 to 2 year schedule delay and requirement for no other reasonable, feasible alternative)
 - Constraint





Risk Management Plan

Risk Identification

PROJECT RISK								
Priority	Risk Identification							
	Status	ID #	Date Identified Project Phase	Risk Event (threat/opportunity)	SMART Column	Risk Trigger	Impact Area	Affected Process
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Active	1	11/1/2006 Risk Assessment	ROW - Permanent Section 4f requirements (Threat)	Nation Park Service (NPS), John Day Fossil Beds, is adjacent to ROW on the East side of bridge. Additional ROW requires significant time and studies to obtain land from the NPS.	Additional ROW to the east. Permits.	Scope Schedule Budget	Environmental Permits ROW



Risk Management Plan

Qualitative Analysis

RISK MANAGEMENT PLAN

		Qualitative Analysis								
Probability	Impact	Risk Matrix								
(10)	(11)	(12)								
High	High	Probability	VH	Green		Yellow		Red		De St
			H	Green		Yellow		Red		
			M	Green		Yellow		Red		
			L	Green		Yellow		Red		
			VL	Green		Yellow		Red		
				VL	L	M	H	VH		
				Impact						



Conceptual Design/ Procurement Approach

Speculation:

Owner's risk response strategy was to AVOID impacts

- Evaluated retaining walls that could be used to stay within ROW

- Studied alternate alignments to avoid rock cut
 - Staged construction
 - Detour bridge
 - Full road closure





Conceptual Design/ Procurement Approach

Evaluation:

Owner determined the following:

Acceptable Alternatives:

- Retaining walls to stay 10' from ROW
- Alternate alignments (Agency acquired additional ROW on opposite side of roadway for such purpose)
- Staged construction
- Detour bridge

Unacceptable Alternatives:

- Acquiring ROW from National Parks Service (including environmental clearance)
- Full road closure
- Closing National Parks Service – access road beyond dates specified



Risk Management Plan

Monitoring & Control

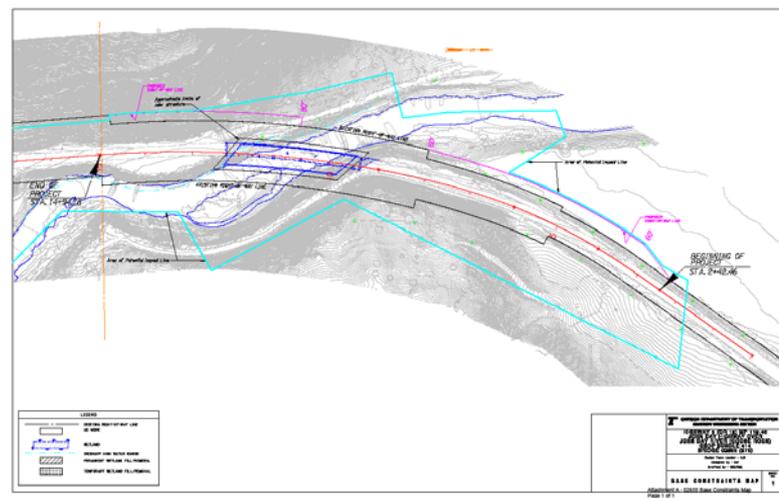
Monitoring and Control	
Status Interval or Milestone Check	Date, Status and Review Comments
(16)	(17)
Completion of Preliminary Roadway Design Expected Spring '07.	04-25-07 - Soil/Rock Nails will keep retaining wall inside ODOT's ROW. Constructability may be an issue?



Conceptual Design/ Procurement Approach

Development:

- Prepared "Base Constraints Map" showing ROW footprint including new ROW ("the Box").
- Prepared RFP performance specifications to capture evaluation items that were not acceptable or conditionally approved.





Risk Management Plan

RFP Location and Required Changes

RFP Location and Required Changes						
RFP Content Provider and Due Date	Contract Section	Engineering Data	Reference Data	ACTION TO BE TAKEN (include specific RFP reference)	Date Checked	By
(13)			(14)	(15)		
Leigh Enger/ Jock Elliot	DB 174.20	Base Map and CADD	Geotechnical Slope Study Memo	DB 174 was revised to require the DBer to stay within the established ROW. Provide ROW information in the Base Constraints Map.	9/4/2007	WJL
	DB 141.12(c)(13)				Complete	



Why This Approach?

Identify Risks During Conceptual Design

- Why?
- Risk to Agency by not identifying project risks?

To assist scoping and budgeting for the project and make decisions on risk.

Unanticipated scope and unexpected bid & construction costs.



Bundle 215 – Utility conflict



Bundle 215 – Pier in River Channel



Why This Approach?

- Conceptual Designs Prepared
- Why? To establish "the box" or constraints in the RFP for Design-Builder to work within.
- Risk to Agency Higher costs and delays
Agency needs to determine major risks and items it does and does **NOT** want in order to adequately scope the project and craft the RFP.



Why This Approach?

- Provide common engineering and reference data to all proposers in RFP
- Why? Reduce proposal costs and redundancy
- Why? "Engineering Data" must be accurate, Agency stands behind. "Reference data" proposers must verify before using.



Questions?



Offering new ways to Deliver Projects

- DESIGN-BUILD "LITE" –

A more streamlined delivery than D-B Basic

Agency assumes responsibility and risk for:

- Right-of-Way

- Environmental Permitting / clearance

- Third Party conflict resolution / agreements

Use on less complex projects < \$20 million

Provides flexibility and potential for "fast-tracking"



Two Avenues for DB Lite

- Design-Build Lite Best Value (DB Lite BV)
 - o Contractor and Design Engineer (A&E) chosen in Single-Step process of RFQ & RFP
 - o Both under same contract to complete the design and the on-site construction
- Design-Build Lite Low Bid – (DB Lite LB)
 - o Contractor and Engineer selected on one competitive, publicly opened bid.
 - o Contract contains a design element



Design-Build Lite Candidates

- Single Bridge Replacement
- Traffic Signal Replacement
- Sign Replacement
- Less complex "one discipline" project



Design-Build Lite Features

- Contracts void of these elements:
 - Right-of-Way acquisition
 - Environmental Permitting
 - Railroad modifications or impact
 - Unresolved Third Party conflicts
 - Reimbursable Utility work

*These items would slow the project
...reducing benefit of concurrent
design/construction.*



Possible Benefits of DB Lite

- Industry feedback suggests DB Lite is much simpler and less expensive to bid, thus more attractive to industry.
- Agency participation in CE oversight
- Agency may provide PM & inspection
- Better fit Region needs and better control of Bid Let date and staffing



Additional Potential Advantages

- Allows more versatility and flexibility to Agency for project procurement
- Better control of total project budget and schedule from inception to final
- More expeditious means of utilizing the outsource environment
- Time / money saved by one contract for both design and construction



Questions?



Jane Lee,
Advanced Contracting Unit Manager

What's Next for Design Build?

- Version 2 Design-Build Base Documents were published 12/17/07
- Version 3 is now *open for comments*
- Design Build "Lite" procedures developed, now available for use by regions



Design-Build Conversation...

Questions?

Thank you for your attention!