



Progressive Design Build Workshop

- John Pavsek, MDT Alternative Contracting
- Brandon Graff, MDT Alternative Contracting
- Steve Noble, DOWL
- Cody Salo, DOWL

November 27, 2023



MONTANA

Department of Transportation

- Please mute your phone or microphone
- Hold Q&A until after the presentation
- Put written questions in chat box during presentation or raise your hand after the presentation for verbal questions
- This meeting is being recorded for future reference and will be posted to MDT's Alternative Contracting WEB link
- Presentation will be available via MDT WEB link
- PDH: Send request for PDH credit to ehinshaw@mt.gov



John Pavsek



Steve Noble



Brandon Graff



Cody Salo

Why are we here?

- *Provide Contractors, Engineers, & MDT Staff Information on MDT's newest Alternative Delivery Method,*
- *Present an overview of the basic elements of Progressive Design-Build (PDB) delivery,*
- *Share tips to help future PDB teams to be successful,*
- *Outline key elements of the new PDB Guidance Doc.*

Workshop Outline

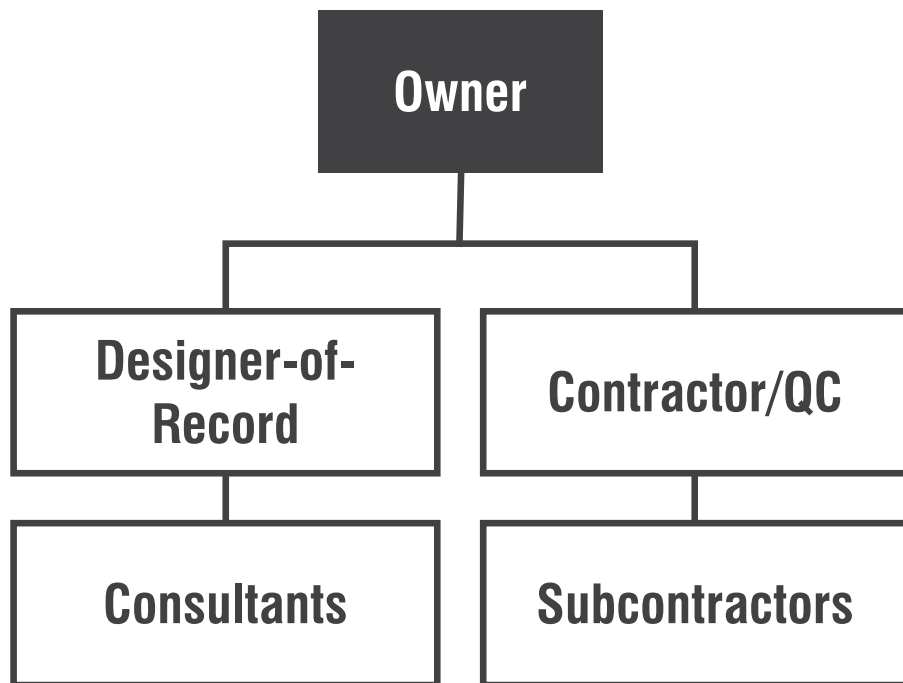
- Alternative Delivery Fundamentals
- ACM Project Delivery Selection Process
- PDB Procurement Process
- Elements of a Good SOQ, Proposal & Interview
- Roles and Responsibilities
- Design Decision-Making Process
- Risk Identification and Management
- Cost Estimating & Reconciliation – The ICE
- PDB Guidance Document Summary
- Future of Alternative Contracting at MDT



Alternative Contracting Fundamentals

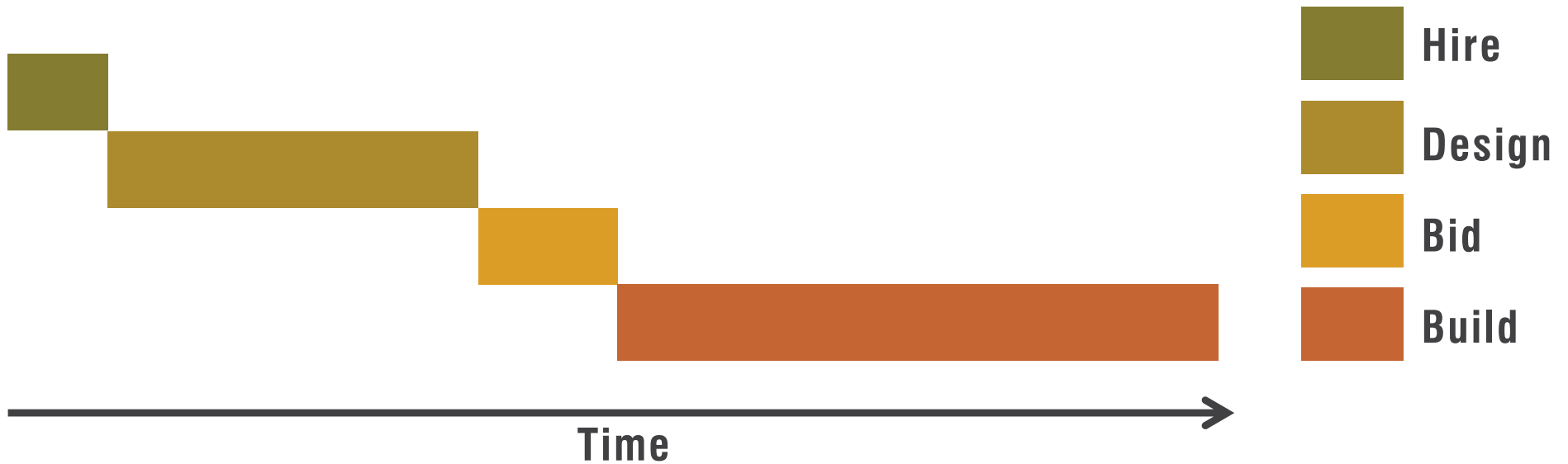
Project Delivery Overview

Design Bid Build



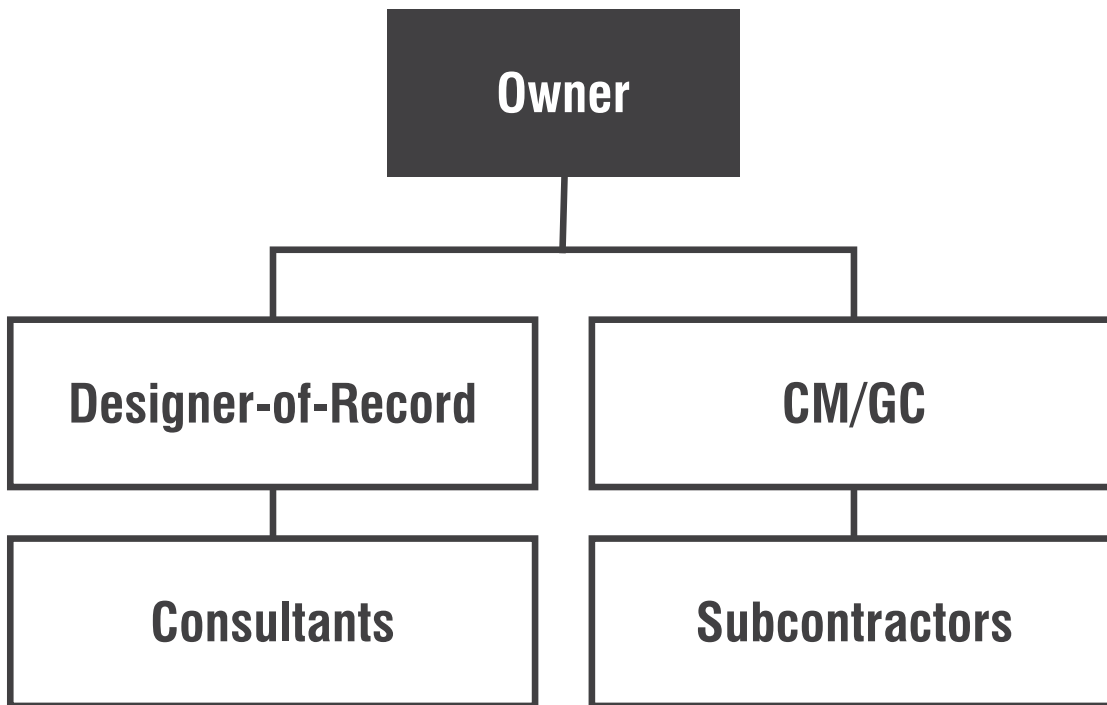
Project Delivery Overview

Design Bid Build



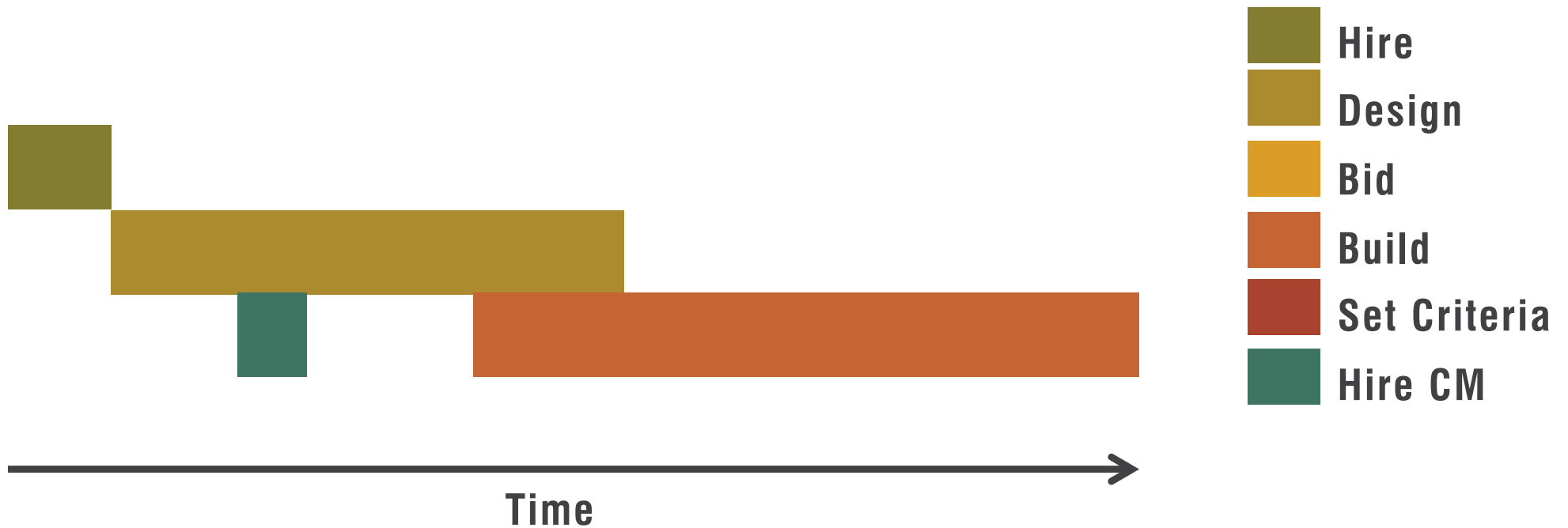
Project Delivery Overview

CMGC



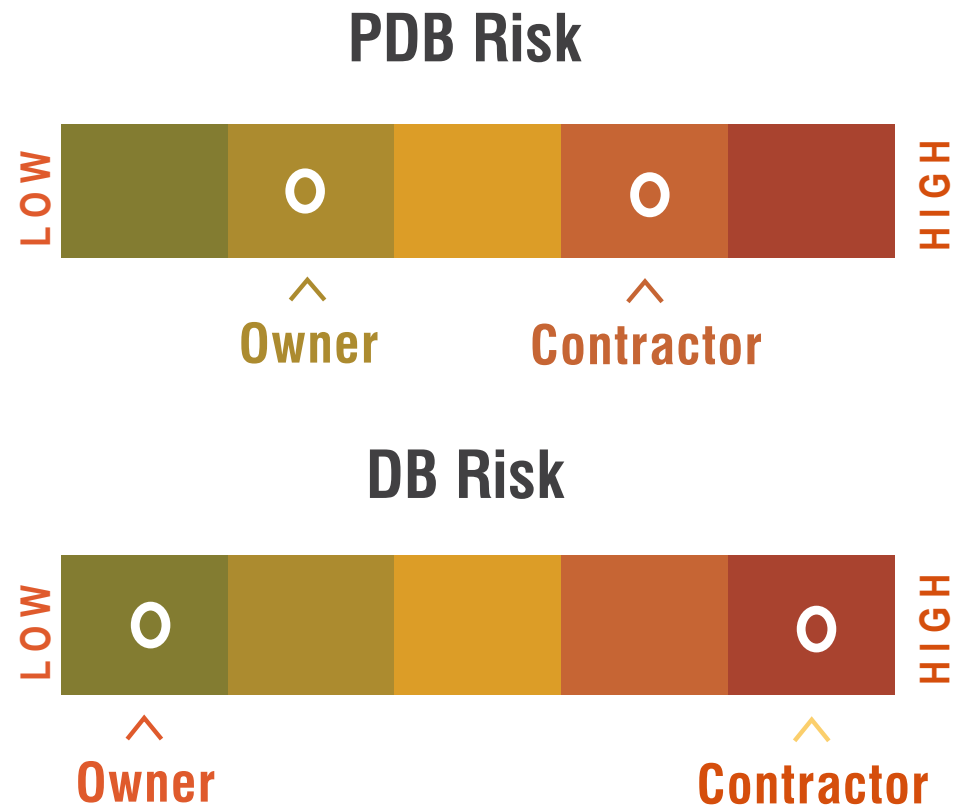
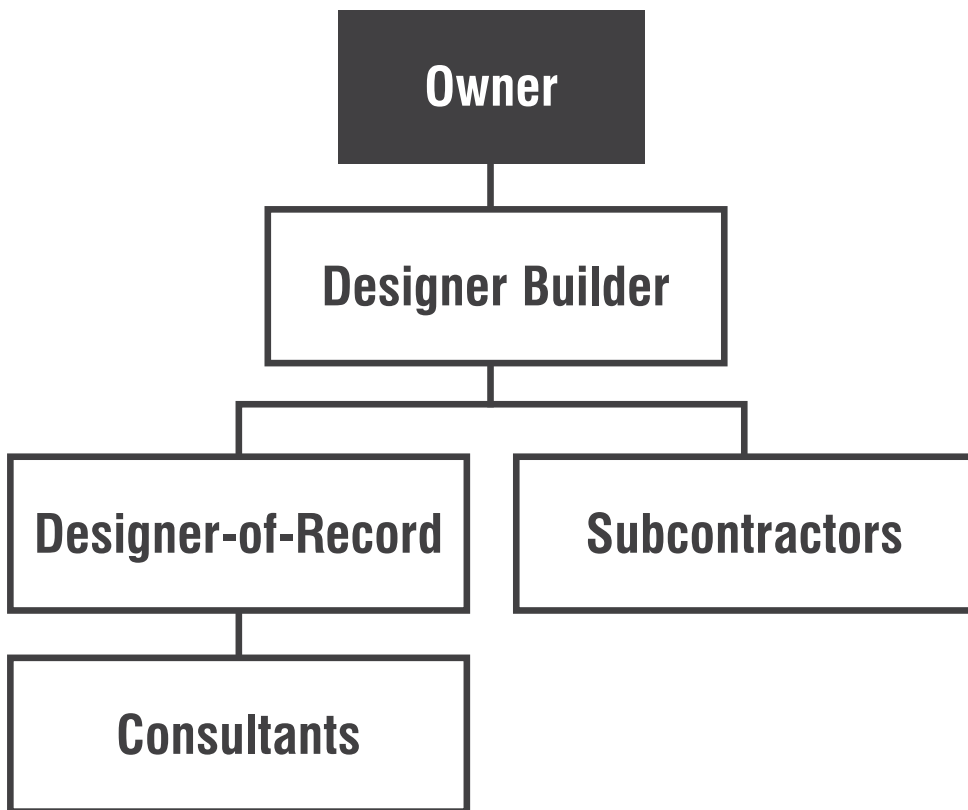
Project Delivery Overview

CMGC



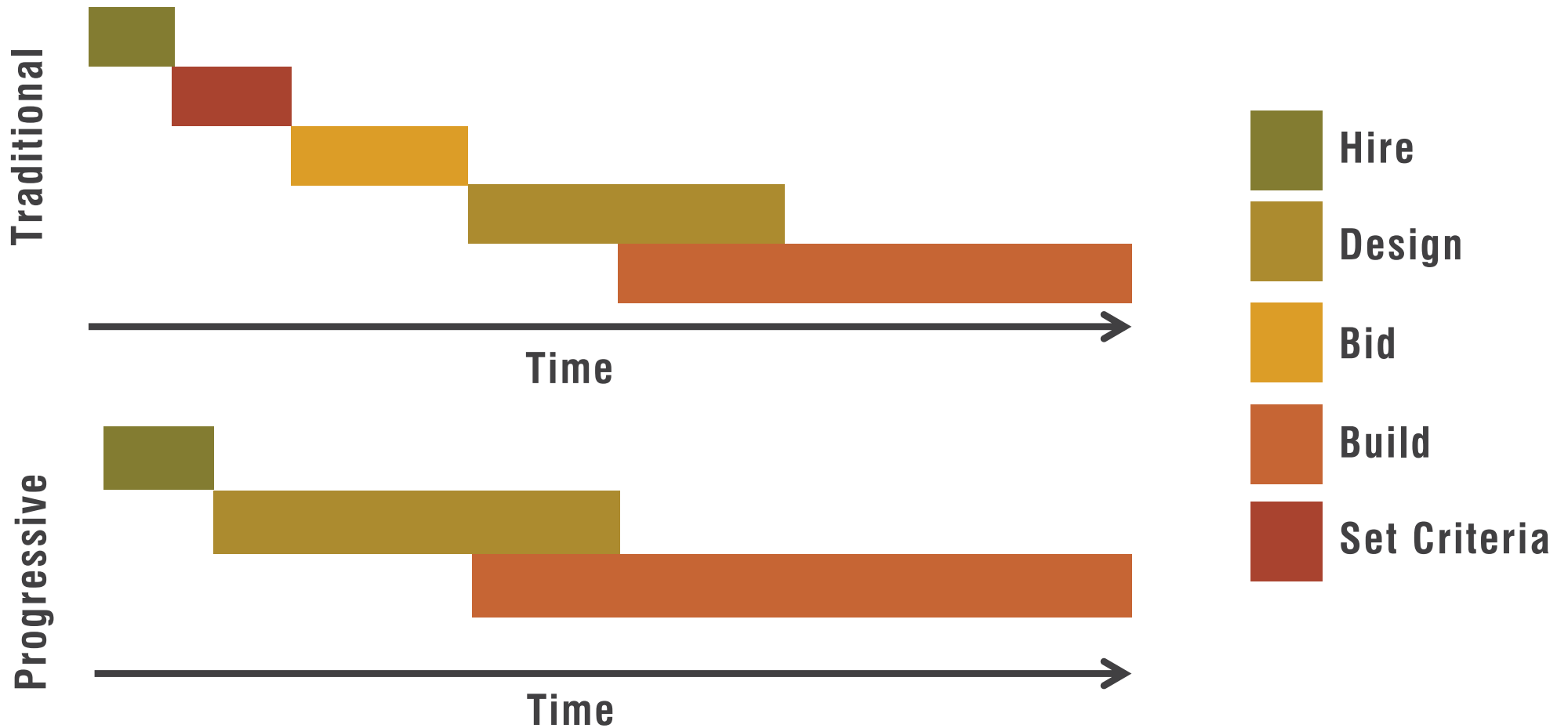
Project Delivery Overview

Traditional/Progressive Design Build

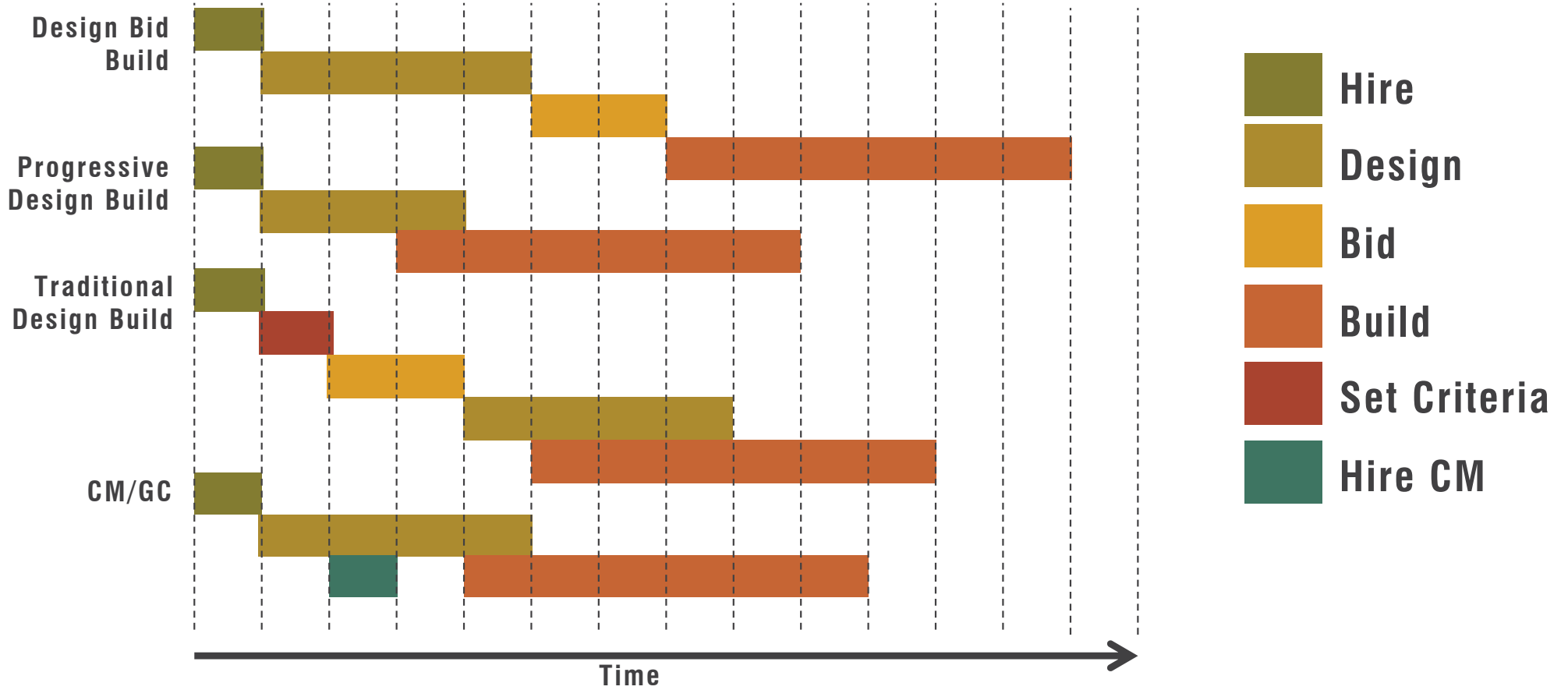


Project Delivery Overview

Traditional/Progressive Design Build



Schedule Comparison



Advantages Comparison Summary

DBB	CM/GC	PDB	Design-Build
Industry familiarity	Owner control of contractor and design team selection	Single entity responsibility	Single entity responsibility
Owner controls design	Transparent cost accounting	Owner control maintained through substantial design	Earliest cost certainty
Legally proven	Equip. and subs are bid competitively	Equip. and subs are bid competitively	High level of innovation
Permitting agencies familiar with it	Reduces delivery time	Shortest schedule for procurement and construction, no stipend or lengthy proposal	Reduces Delivery Time
Public familiarity	Early discussion & mitigation of risks	Early discussion & mitigation of risks	
	Off-ramp maintained throughout	Off-ramp prior to Bid Price approval	
		Early Obligation	Early Obligation

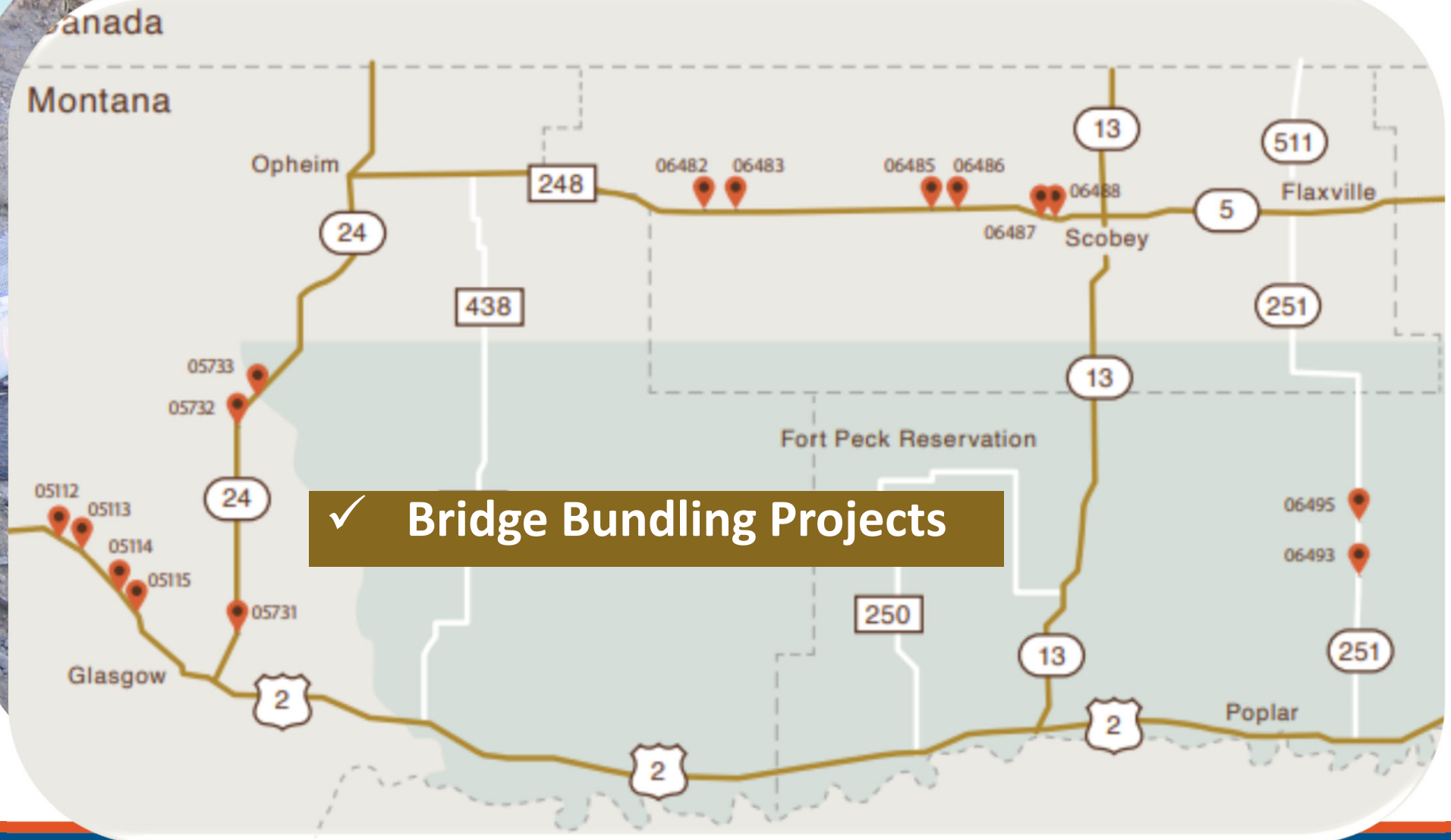


Project Delivery Selection Process

Formal Project Delivery Decision (PDSP)

- Conduct PDSP workshop with key stakeholders
- Review Criteria:
 - *Opportunity to manage risk*
 - *Schedule impacts*
 - *Cost impacts*
 - *Project complexity*
 - *Opportunity for innovation*
 - *Complexity of Coordination*
- Commission approval of recommendation
- Applies to all Alternative Delivery projects
- Consultant Selection Committee pre-screen

Typical Progressive D-B Projects

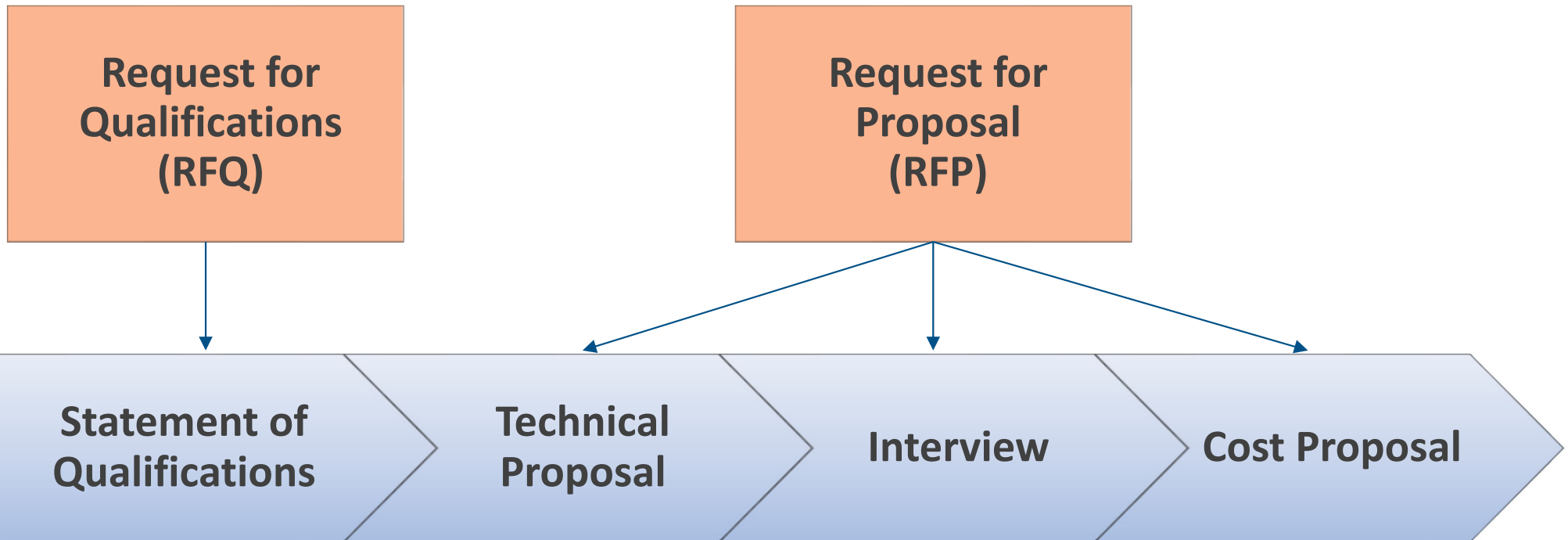




PDB Procurement Process

Hiring the Firm

2 Phase Process



4 “Deliverables” from Firm

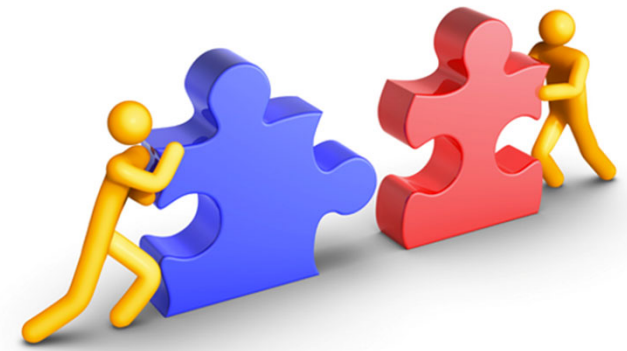
Statement of
Qualifications

Technical
Proposal

Interview

Cost Proposal

- Staffing and Coordination Plan
 - Score carriers forward to Technical Proposal
- Experience
- Project Approach (Optional)



We are looking for a Team to Partner with on the project

**Statement of
Qualifications**

**Technical
Proposal**

Interview

Cost Proposal

- **Staffing and Coordination Plan**
 - Score carriers forward to Technical Proposal
- **Strategic Project Approach**
 - Preconstruction Phase Approach
 - Construction Phase Approach
- **Approach to PDB Delivery Process**
 - Collaboration
 - Risk Management
 - Decision Analysis and Resolution
- **Project Innovations and Resources**
 - Innovations
 - Unique Resources and Capabilities



Statement of
Qualifications

Technical
Proposal

Interview

Cost Proposal

- Interview process will be described in RFP
 - Project specific questions
 - Delivery Method questions
- Weighting of Interview
 - Administrative Rules of Montana (ARM)

[Printer Friendly Version](#)

18.4.201 ALTERNATIVE CONTRACT PROJECT DELIVERY METHODS

(1) Construction manager general contractor experience will not be a required scoring criteria for highway construction projects.

(2) The department must weight the in-person interview of each shortlisted proposer as at least half of the technical score. The technical proposal will account for the balance of the technical score.

History: [60-2-201](#), [60-3-101](#), MCA; [IMP](#), [60-2-111](#), [60-2-112](#), [60-2-134](#), [60-2-201](#), MCA; Ch. 145, L. 2023, Section 1; [NEW](#), 2023 MAR p. 705, Eff. 7/22/23.

- <https://rules.mt.gov/gateway/RuleNo.asp?RN=18%2E4%2E201>

Statement of
Qualifications

Technical
Proposal

Interview

Cost Proposal

- By law, MDT must consider project costs when awarding project.
 - Challenge: Very limited design information available at time of RFQ/RFP
- Construction Phase Multiplier is requested for Cost Proposal
 - Multiplier includes profit and home office overhead (G&A) allocated to the project.
- Weighting of cost proposal in Best Value Score must be approved by Transportation Commission

Statement of
Qualifications

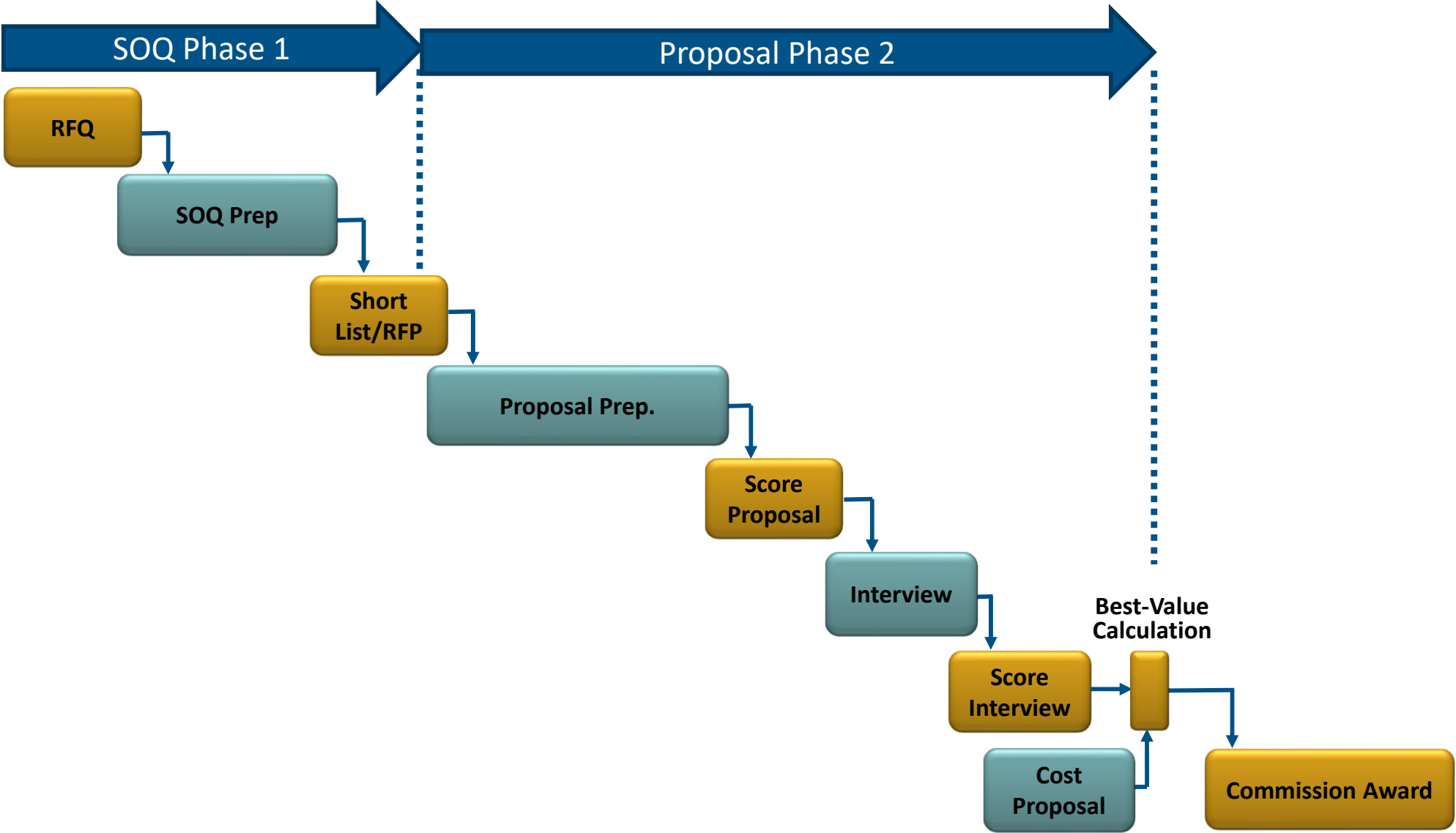
Technical
Proposal

Interview

Cost Proposal

- Scoring of Cost Proposal has changed from CM/GC Pilot Projects
 - CM/GC used closest to average for calculation
 - Main reason for change – Closest to average does not work with 2 bidders.
- Scoring of Cost Proposal will be interpolation between high and low limit of Multiplier
 - Calculation will be provided in RFPs

Recap of the Hiring Process

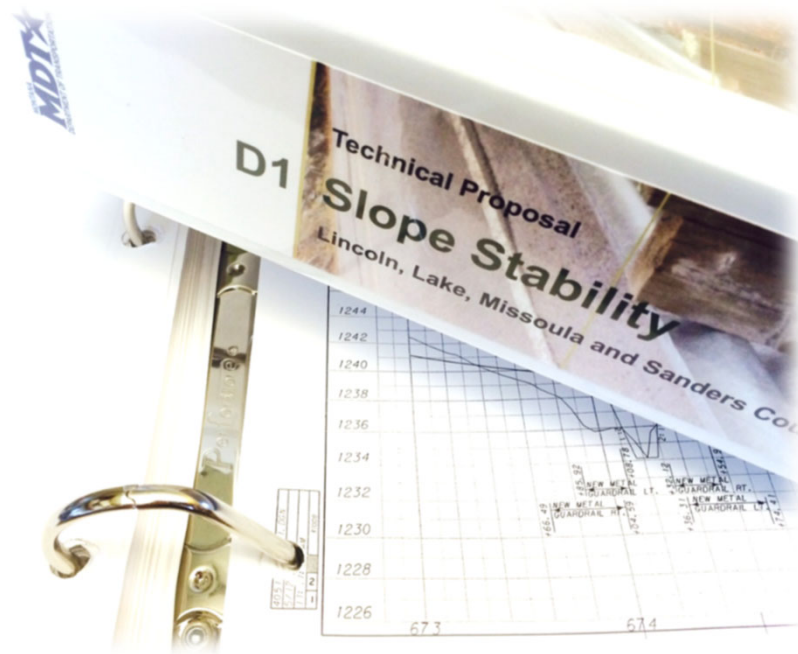


Month 1	Month 2	Month 3	Month 4
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Elements of a Good SOQ, Proposal & Interview

THE SOQ AND TECHNICAL PROPOSAL



THE STATEMENT OF QUALIFICATIONS

- The parts of the SOQ:
 - Transmittal Letter
 - The Team/Key Members
 - Related Projects – 50%
 - Understanding and Approach
- MDT shortlists up to 5 firms
- Request for Proposals sent to short listed firms
- Preproposal meeting set up immediately after RFP distributed



THE STATEMENT OF QUALIFICATIONS

- Staffing – Use tables, simple org charts, staff interface
- What are the team members contribution to the project
- Follow the RFQ and RFP
- Draw off similar experience
- Know who you will be working with
- Use photos/matrices/graphs



PROPOSAL SECTION I – PROJECT TEAM

- Work from an outline
- Avoid being wordy – “Just the Facts”
- Matrices can be very useful
- Be consistent within and across proposal sections
- Pick good projects – tie to team
- Section I weighted at *10% to 25%* of the written proposal



PROPOSAL SECTION II – STRATEGIC PROJECT APPROACH

- Follow the RFP layout
- Address what is important to MDT - the Silver Bullet
- Tables and graphics can be very useful
- Clearly address the project goals and challenges
- It is helpful to illustrate
- Tie approach to objectives
- How are you going to
- Be creative with ideas
- Discuss collaboration

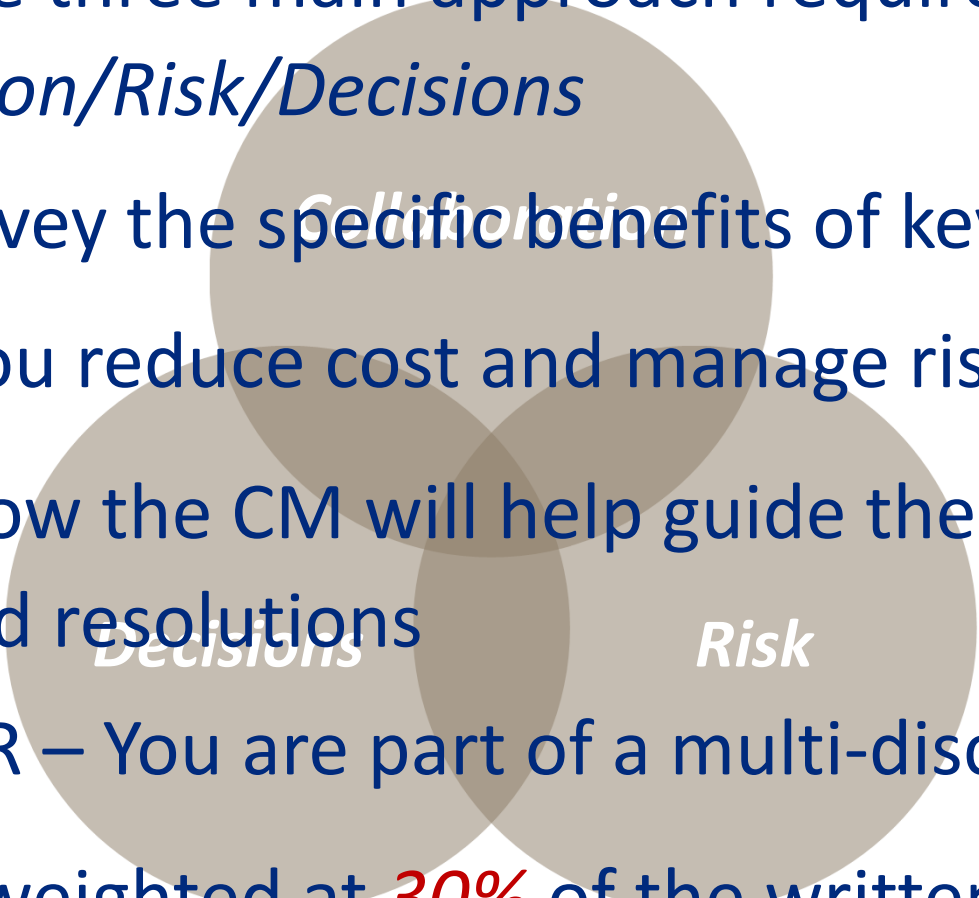


PROPOSAL SECTION II – STRATEGIC PROJECT APPROACH (CONT)

- Consider how you will address construction phase packages
- Can you provide value added services or tools?
- Do not neglect safety
- MDT is interested in how you manage quality
- Typical cross sections/graphics/designs are valuable if done right
- Section II weighted at **40%** of the written proposal



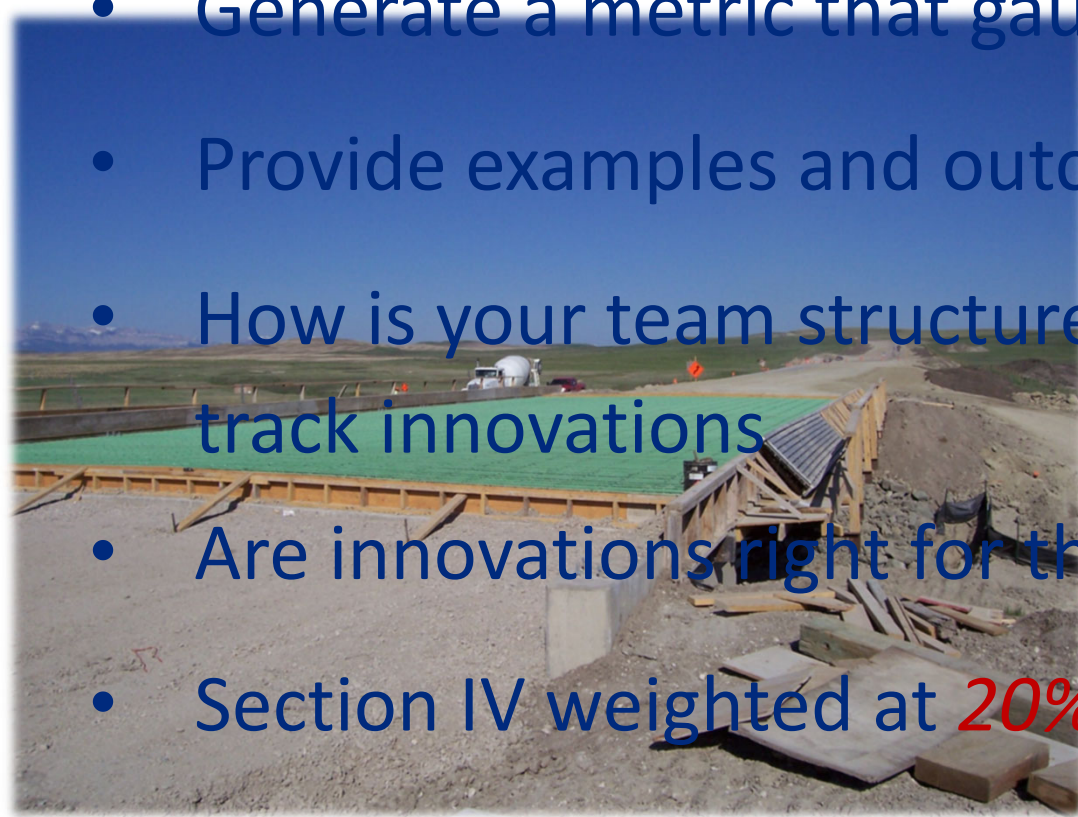
PROPOSAL SECTION III – APPROACH TO PDB PROJECT DELIVERY PROCESS

- Address the three main approach requirements:
Collaboration/Risk/Decisions
 - Clearly convey the specific benefits of key staff
 - How will you reduce cost and manage risk? Explain
 - Describe how the CM will help guide the decision analysis and resolutions
 - REMEMBER – You are part of a multi-disciplined team
 - Section III weighted at **30%** of the written proposal
- 
- A Venn diagram consisting of three overlapping circles. The top circle is labeled 'Collaboration', the bottom-left circle is labeled 'Decisions', and the bottom-right circle is labeled 'Risk'. The circles overlap in the center and at the intersections between two circles.

PROPOSAL SECTION IV – PROJECT INNOVATIONS AND RESOURCES



- Be creative and open minded
- Generate a metric that gauges impacts of the innovation
- Provide examples and outcomes if possible
- How is your team structured to brainstorm/ evaluate/ track innovations
- Are innovations right for this site and conditions?
- Section IV weighted at **20%** of the written proposal



ELEMENTS OF A GOOD INTERVIEW

THE INTERVIEW

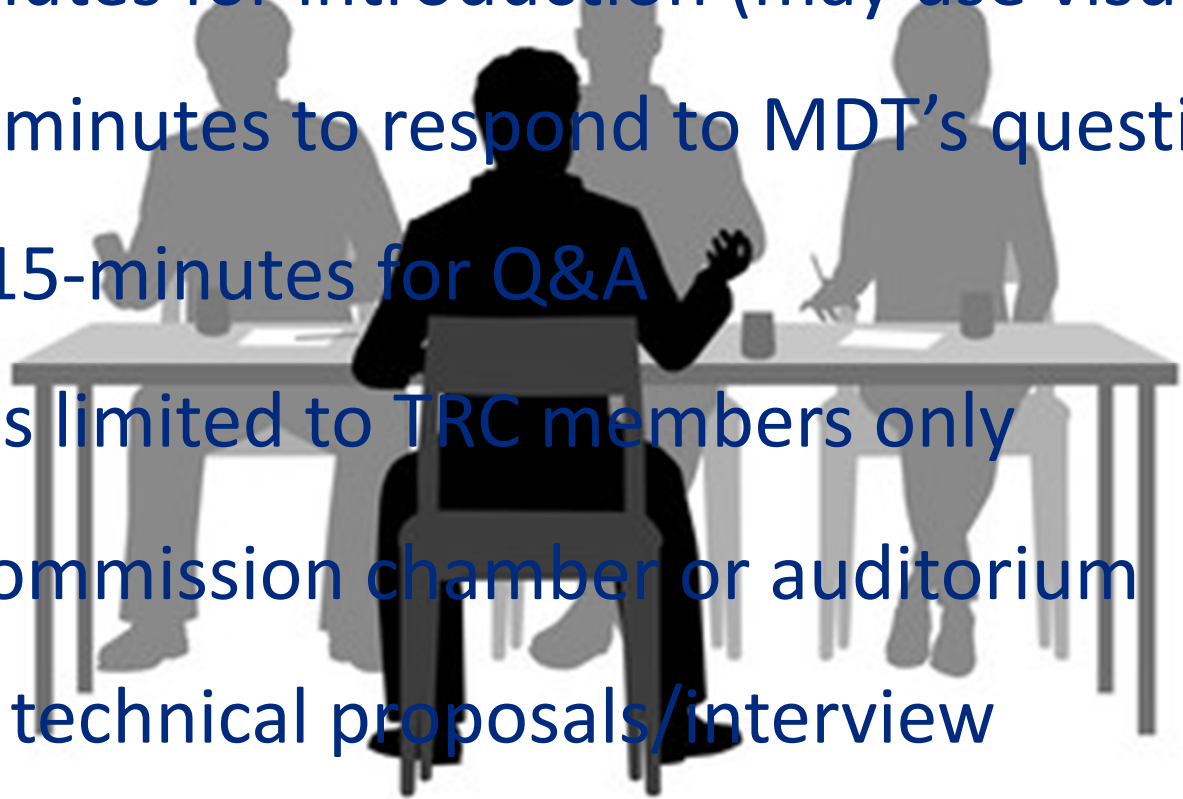
- Know the interview format
- Be relaxed: Practice - Practice - Practice
- You will be our partner –
- Avoid one person dominating
- Clean handoffs – don't interrupt
- Be cognizant of your body
- Be intentional with graphs
- Consider value-added participants



Glossophobia

THE INTERVIEW (CONT)

- MDT will provide from 6-8 questions before presentation
- Team has 30-minutes in private to prepare response
- Team has 15 minutes for introduction (may use visuals)
- Team has 45-60 minutes to respond to MDT's questions
- MDT/Team has 15-minutes for Q&A
- MDT participants limited to TRC members only
- Room setup – Commission chamber or auditorium
- Confidentiality - technical proposals/interview





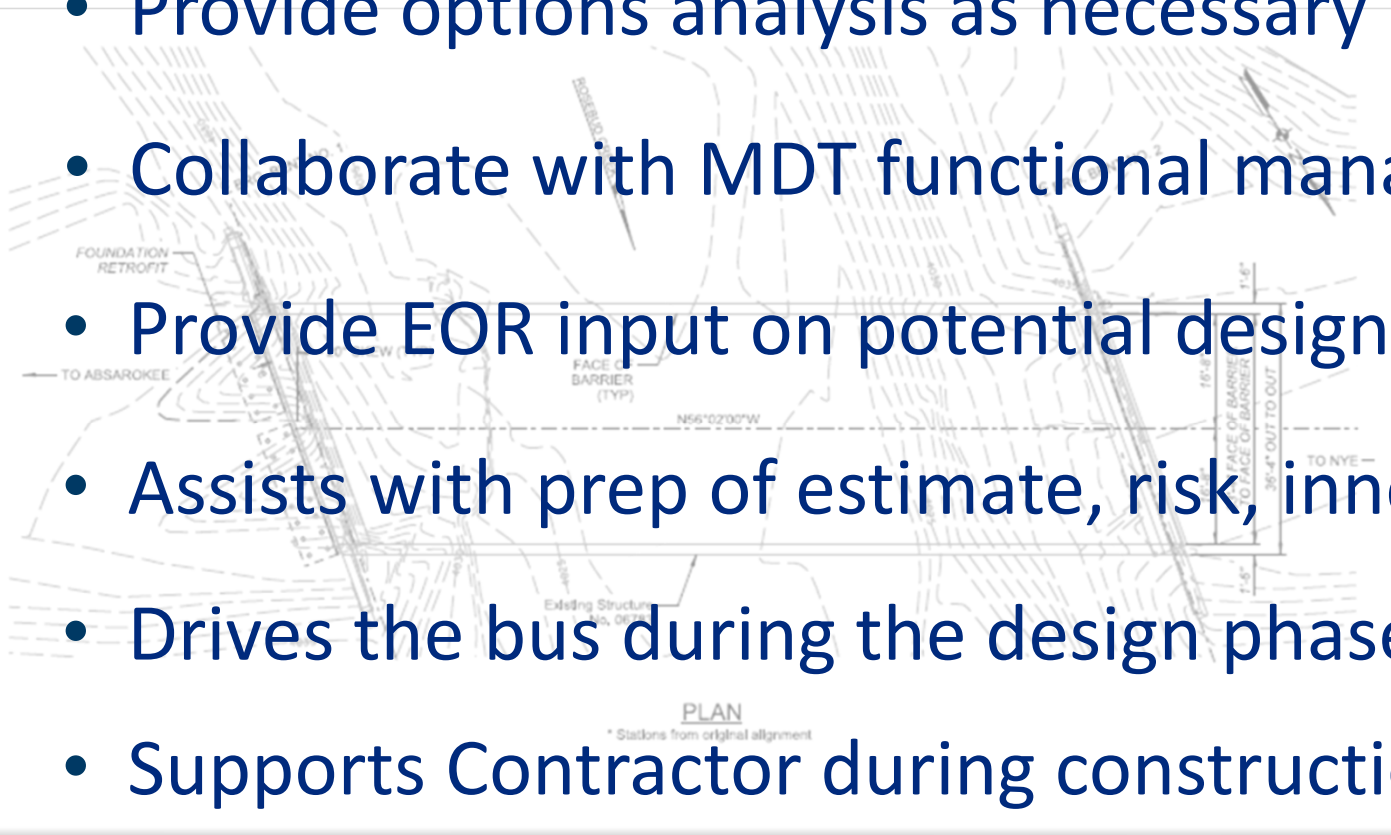
Roles and Responsibilities

Team Roles & Responsibilities

- MDT (or AC-GEC) Project Leader
- PDB Team Project Principal
- Contractor Project Manager
- Design Engineer
- Independent Cost Estimator (ICE)
- MDT Functional Managers
- MDT Construction Manager (EPM)

Engineer Preconstruction and Construction Services

- Early data collection/investigations
- Facilitate design development meetings (bi-weekly)
- Provide options analysis as necessary
- Collaborate with MDT functional managers
- Provide EOR input on potential design conflicts
- Assists with prep of estimate, risk, innovation tasks
- Drives the bus during the design phase
- Supports Contractor during construction



Contractor Design Related Preconstruction Services

- Assist Agency / Engineer with design solutions
- Formal design reviews
- Constructability reviews
- Market research/Cost analysis for design decision
- Assist shaping project scope of work
- Options analysis and innovation development



Contractor Schedule Related Preconstruction Services

- Review Agency / ICE design schedules

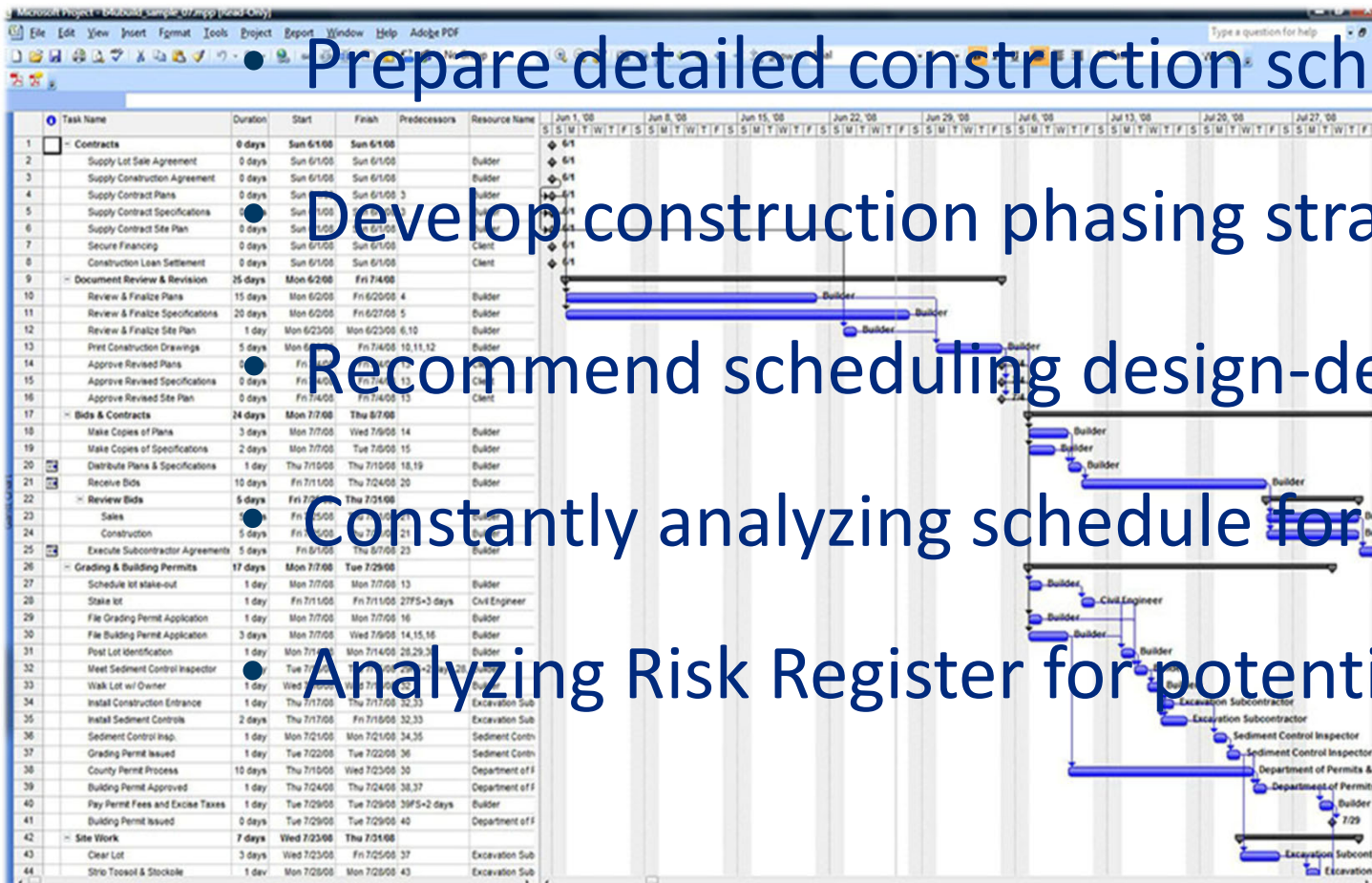
- Prepare detailed construction schedule

• Develop construction phasing strategy

• Recommend scheduling design-development mtgs

• Constantly analyzing schedule for risk impact

- Analyzing Risk Register for potential schedule impacts



Contractor Cost Related Preconstruction Services

- Coordinate with MDT/Engineer regarding bid items
- Prepare production-based construction estimates
- Assist with life-cycle cost analysis
- Costing of design options
- Material cost forecasting
- Determine Cost and probability of risk items

COST ESTIMATE

Itemize projected costs under each of the following categories	A Unit Number (e.g., # of hours)	B Unit Cost (e.g., hourly rate)	C In-Kind Match	D Cash Match Funds	F Match Source	G SRFB Funds	H Total Costs (add columns C, D, G)
CONSTRUCTION COSTS: specific costs directly related to the execution and construction/implementation of the project, including permits (detailed description on back)							
Permit (3)	1.00	\$18,000.00	\$18,000	\$0	Yakama Nation	\$0	\$18,000
Permit (3)	1.00	\$175,000.00	\$0	\$0		\$175,000	\$175,000
GIS Services	1.00	\$3,000.00	\$3,000	\$0	WTRW	\$3,000	\$3,000
Truck	1.00	\$5,000.00	\$10,000	\$0	WNXOT, WTRW	\$0	\$15,000
Field Gear (boots, gloves, raingear etc.)	3.00	\$150.00	\$0	\$0		\$450	\$450
Chairs/mats	2.00	\$337.50	\$0	\$0		\$675	\$675
rat traps	100.00	\$2.50	\$0	\$0		\$250	\$250
trout cages	6.00	\$75.00	\$0	\$0		\$450	\$450
Truck	2.00	\$350.00	\$0	\$0		\$700	\$700
Review	1.00	0.00	\$3,000	\$0		\$0	\$3,000
Construction Insurance (for 3 years)	3.00	\$20,000.00	\$0	\$0		\$180,000	\$180,000
SUBTOTAL			\$34,000	\$0		\$187,025	\$221,025
ARE AND ADMINISTRATIVE COSTS: direct costs (including staff time) that support construction/implementation of the project (detailed description on back)							
Supervision	1.00	0.00	\$6,000	\$0		\$0	\$6,000
	0.00	0.00	\$0	\$0		\$0	\$0
	0.00	0.00	\$0	\$0		\$0	\$0
	0.00	0.00	\$0	\$0		\$0	\$0
	0.00	0.00	\$0	\$0		\$0	\$0
	0.00	0.00	\$0	\$0		\$0	\$0
SUBTOTAL			\$6,000	\$0		\$0	\$6,000
STATE & LOCAL SALES TAX			\$0	\$0		\$0	\$0
PRISM BUDGET TOTAL			\$40,000	\$0		\$187,025	\$227,025
MATCH NOT INCLUDED IN PRISM BUDGET: Any match over 15% not included in the PRISM budget for easier bookkeeping and reimbursement.							
	0.00	0.00	\$0	\$0		\$0	\$0
	0.00	0.00	\$0	\$0		\$0	\$0
	0.00	0.00	\$0	\$0		\$0	\$0
	0.00	0.00	\$0	\$0		\$0	\$0
SUBTOTAL			\$0	\$0		\$0	\$0
TOTAL PROJECT BUDGET			\$40,000	\$0		\$187,025	\$227,025

Contractor Administrative Related Preconstruction Services

- Coordinate contract documents
- Assist with 3rd party stakeholder coordination
- Assist with public relations/attend public meetings
- Subcontractor bid packages
- Study labor conditions
- Partnering





Design Decision Making Process

Challenges with PDB Design Decision Making

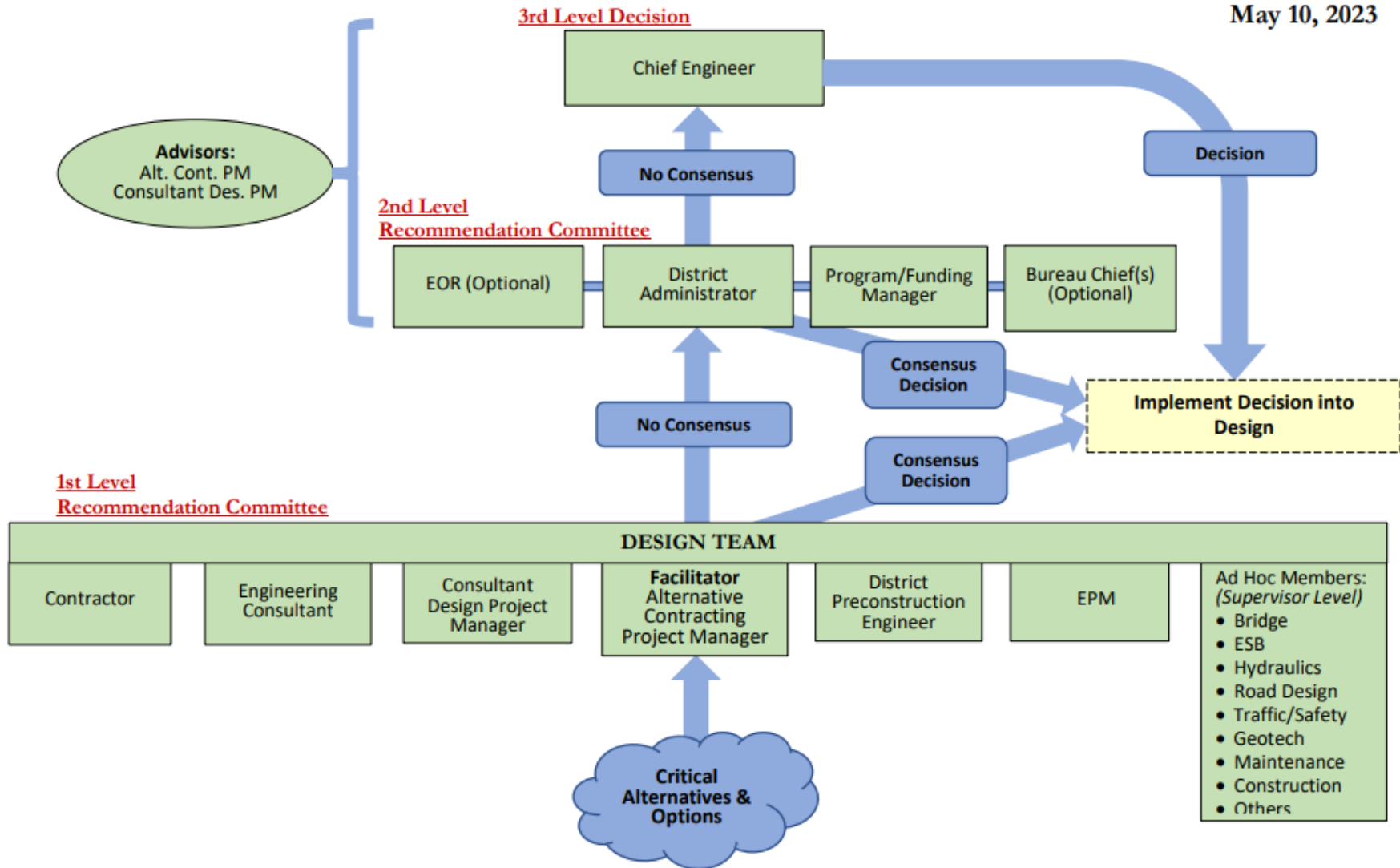
- More parties involved in Design
 - Different goals and perspectives
- Design is on expedited schedule
- MDT has more control of design
 - Firms typically work within performance specifications on DB projects



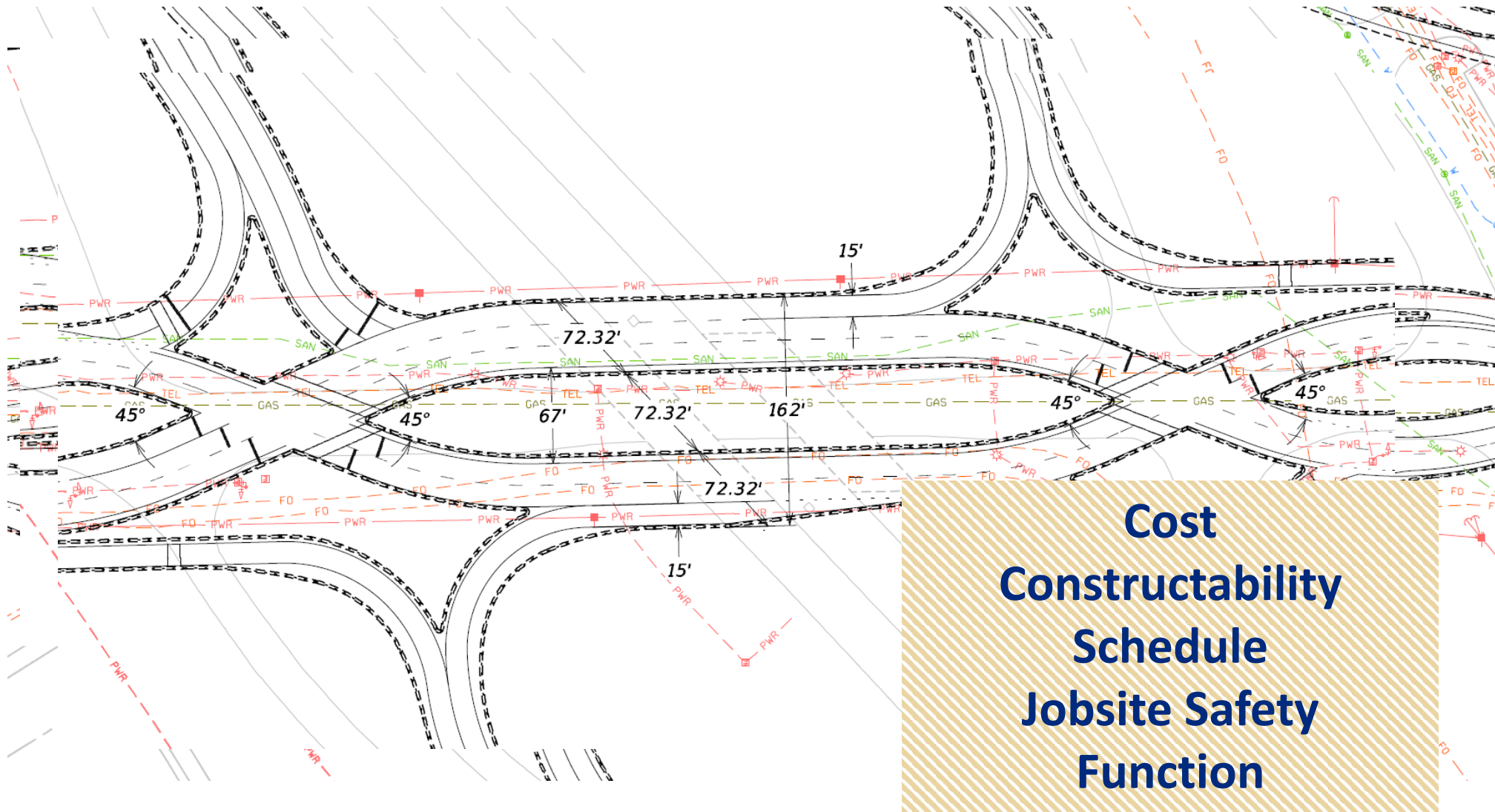
MDT implemented a Design Decision Flowchart

ALTERNATIVE CONTRACTING - DECISION MAKING PROCESS FLOWCHART
APPLIES TO DESIGN-BUILD PHASE 1 ANALYSIS, PROGRESSIVE DESIGN-BUILD AND CONSTRUCTION
MANAGER/GENERAL CONTRACTOR PROJECT DELIVERY

May 10, 2023



DECISION PROCESS EXAMPLE





Risk Identification and Management

Risk Management: WHY??

- Contractual misallocation of risk has been found to be the leading cause of construction disputes in the US

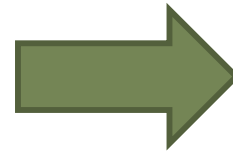
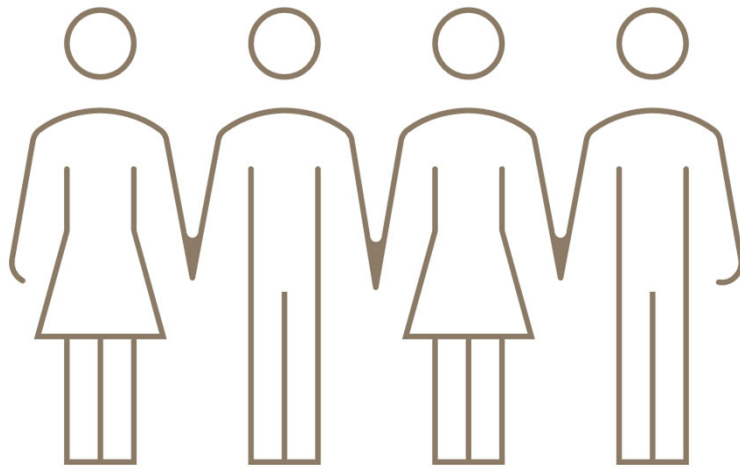
(2006 publication by FHWA)

- In general, project risks are on the rise...
 - Increased traffic volumes
 - Need to minimize traffic disruptions
 - More stringent environmental, community, and safety requirements
 - Increased material costs/availability/lead times

(as identified by Executive Director of NCHRP)

Risk Management: WHO??

- The Owner, Engineer, Contractor and ICE all actively participate in the risk management process



Risk Management: WHAT??

- Risk Management Process
 - Detailed effort that encompasses all phases and aspects of project
 - Goal is to keep the risk management process as tangible and scientific as possible
 - Varying level of complexity when it comes to risk analysis methods
 - MDT is currently using a simplified approach

Identification

Assess &
Analyze

Develop
Mitigation
Plan

Monitor &
Implement

Measure &
Control

Risk Management Process

Identification

Assess & Analyze

Develop Mitigation Plan

Monitor & Implement

Measure & Control

Risk Register																			12-01	
ID	Rev	Category	Risk Description	Cause & Impact	Severity	Control	Residual	Priority	Start	End	Responsible	Mitigation Strategy	Est. Cost	Actual Cost	YTD Cost	Actual Cost	Est. Cost	Actual Cost		
00		Riskless	Real time output of Culture Survey	Complete Risk assessment report	CRITICAL	CRITICAL	None	3	3	4	HR MGR, 4 new users to launch of survey	HR 4 user to the team to ensure survey results are shared with all	MGR (01-01-2022)	IRM (03-wk)	000,000	033,434	033,434	00	033,434	
01		Info Mal	Info Malware/Malware used to access the network	Network access for malware used to access the network	CRITICAL	CRITICAL	None	3	1	3	All HRPMs general access	For Person of 15 to HR general	MGR (01-01-2022)	IRM (03-wk)	070,000	043,000	043,000	00	043,000	
02		Malware	Pen B-Wing and change per a malware	Change user and mail	MT	MPT/EMP	None	1	3	3		The user will not be able to access the system	RICK (01-01-2022)	IRM (03-wk)	010,000	033,000	033,000	00	033,000	
03		Malware	Do approval for user on feed	Some problems in printing, login, and access to the system	CRITICAL	CRITICAL	None	3	1	3	More malware in the system and access to the system	HR will not be able to access the system	IRM (03-wk)	IRM (03-wk)	010,000	010,000	010,000	00	010,000	
04		Performance	Performance going up	For person for	CRITICAL	CRITICAL	None	1	3	3		HR will not be able to access the system	MGR (01-01-2022)	IRM (03-wk)	030,000	050,000	050,000	00	050,000	
05		Info Mal	Network access report user will not be able to access the system	More malware in the system	CRITICAL	CRITICAL	None	3	3	4		HR will not be able to access the system	MGR (01-01-2022)	IRM (03-wk)	043,000	017,000	017,000	00	017,000	
MGR (01-01-2022) (not used in cost center)																				
26	20	Malware Impact	Personal account infection from malware	Confidential data is exposed	CRITICAL	CRITICAL	Info	1	3	3	user on 20 - user not	Person on user not in Personalization and MPT	IRM (03-wk)	RICK (0-4-wk)						
1		BI Resources	Business succession process a malware	Personalization Phase a threat	MT	CRITICAL	Info	3	4	8			IRM (03-wk)	IRM (03-wk)						
2		BI Resources	HR a not access control and not access Personalization	Personalization Phase a threat	MT	CRITICAL	Info	2	4	8			IRM (03-wk)	IRM (03-wk)						
3		BI Resources	Business of BMP for personal access a malware	Personal phase not not access in the system	MT	CRITICAL	Info	1	2	3			IRM (03-wk)	RICK (0-4-wk)						
5	14	Malware	Malware access in the system	For all of malware a malware	MT	CRITICAL	Info	4	1	4			IRM (03-wk)	MGR (2-4-wk)						
11		Business	Business of Personalization a malware	The personal a threat	MT	CRITICAL	Info	1	2	3	CR MGR for approval and access to the system	Personalization approval and access to the system	IRM (03-wk)	IRM (03-wk)	040,000	00,000	00,000	00	00,000	
12		Business	Cost feed user a malware	Confidential data is exposed from Personalization Phase	CRITICAL	CRITICAL	Info	1	0	0			MGR (01-01-2022)	RICK (0-4-wk)	010,000	030,000	030,000	00	00,000	
21		Performance	Performance going up	For person for	CRITICAL	CRITICAL	Info	3	4	13			IRM (03-wk)	RICK (0-4-wk)						
28		Malware Impact	Personal account infection from malware	Confidential data is exposed, access to the system	CRITICAL	CRITICAL	Info	3	3	5			IRM (03-wk)	IRM (03-wk)						
31	8	Performance	Performance going up	For person for	CRITICAL	CRITICAL	Info	3	0	10			RICK (01-01-2022)	RICK (0-4-wk)						
32		Info Mal	Network access report user will not be able to access the system	More malware in the system	CRITICAL	CRITICAL	Info	1	1	1			MGR (01-01-2022)	IRM (03-wk)	000,000	010,000	010,000	00	00,000	
32		Malware	Business of Personalization a malware	Confidential data is exposed	CRITICAL	CRITICAL	Info	1	1	1			IRM (03-wk)	IRM (03-wk)						
38		Malware	Malware access in the system	For all of malware a malware	CRITICAL	CRITICAL	Info	3	3	5			MGR (01-01-2022)	MGR (2-4-wk)						
34		Malware	Malware access in the system	For all of malware a malware	CRITICAL	CRITICAL	Info	3	3	5			MGR (01-01-2022)	MGR (2-4-wk)						
41		Malware	Malware access in the system	For all of malware a malware	CRITICAL	CRITICAL	Info	3	3	5			MGR (01-01-2022)	MGR (2-4-wk)						
41		Malware	Malware access in the system	For all of malware a malware	CRITICAL	CRITICAL	Info	3	3	5			MGR (01-01-2022)	MGR (2-4-wk)						
42		Malware	Malware access in the system	For all of malware a malware	CRITICAL	CRITICAL	Info	3	3	5			MGR (01-01-2022)	MGR (2-4-wk)						
43		Malware	Malware access in the system	For all of malware a malware	CRITICAL	CRITICAL	Info	3	3	5			MGR (01-01-2022)	MGR (2-4-wk)						
44		Mal Performance	Performance going up	For person for	CRITICAL	CRITICAL	Info	3	4	8			IRM (03-wk)	IRM (03-wk)						
48		Crash	Crash access in the system	For all of malware a malware	MT	MPT/EMP	Info	3	4	8			MGR (01-01-2022)	MGR (2-4-wk)						
47		Crash	Crash access in the system	For all of malware a malware	MT	MPT/EMP	Info	3	3	4			IRM (03-wk)	IRM (03-wk)						
49		Crash	Crash access in the system	For all of malware a malware	MT	MPT/EMP	Info	4	1	4			IRM (03-wk)	MGR (2-4-wk)						
00	00	Crash	Crash access in the system	For all of malware a malware	MT	MPT/EMP	Info	3	4	8			MGR (01-01-2022)	MGR (2-4-wk)						
04		Performance	Performance going up	For person for	CRITICAL	CRITICAL	Info	1	4	4			RICK (01-01-2022)	RICK (0-4-wk)						
MGR (01-01-2022) (not used in cost center)																				
6		Malware	Malware access in the system	For all of malware a malware	MT	MPT/EMP	Info	1	4	4			MGR (01-01-2022)	MGR (2-4-wk)						
8		Malware	Malware access in the system	For all of malware a malware	CRITICAL	CRITICAL	Info	4	4	16			IRM (03-wk)	IRM (03-wk)	030,000	030,000	00	00,000		
9		Malware	Malware access in the system	For all of malware a malware	CRITICAL	CRITICAL	Info	4	4	16			RICK (01-01-2022)	RICK (0-4-wk)						
10		Malware	Malware access in the system	For all of malware a malware	MT	MPT/EMP	Info	3	4	8			RICK (01-01-2022)	RICK (0-4-wk)	040,000	030,000	00	00,000		
12		Business	Business of Personalization a malware	Confidential data is exposed	MT	CRITICAL	Info	1	0	0			RICK (01-01-2022)	RICK (0-4-wk)						
18		Performance	Performance going up	For person for	CRITICAL	CRITICAL	Info	3	3	4			IRM (03-wk)	IRM (03-wk)						
16		Performance	Performance going up	For person for	CRITICAL	CRITICAL	Info	3	3	5			IRM (03-wk)	IRM (03-wk)						

Risk Management Process



Example Risk Statement:

- Detailed project-specific risks that identify “if-then” scenarios

Risk Description	Cause / Impact
Structural steel repairs are more extensive than anticipated	Construction time is extended, and repair costs are increased

Risk Management Process

Identification

Assess &
Analyze

Develop
Mitigation
Plan

Monitor &
Implement

Measure &
Control

Example Risk Assessment / Analyze:

- Determine the probability and impact of risk
- Utilize the probability and impact to determine the resulting risk score
- Risk score can help prioritize risk mitigation efforts
- Who is best suited to manage this risk?

Risk <u>P</u> robability (0-5)	Risk <u>I</u> mpact (0-5)	Risk Score = P x I
2	5	10 moderate

Risk Management Process

Identification

Assess &
Analyze

Develop
Mitigation
Plan

Monitor &
Implement

Measure &
Control

Example Mitigation Plan:

- To better-determine condition of existing structural steel, perform additional site investigation and testing
AND/OR...
- Define an allowance to cover the cost, if this risk should occur:

Pay Item	Amount	Description
MDT Contingency	\$125,908	Refer to special provision for conditions on when this fund can be accessed, payment is administered like Misc. Work

Risk Management Process

Identification

Assess &
Analyze

Develop
Mitigation
Plan

Monitor &
Implement

Measure &
Control

Example Risk Follow-up:

- Continue to evaluate and update risk assessment and mitigation plan throughout the life of the project (design and construction)
 - Deck coring and top flange inspection provides more information and allows you to reduce probability of risk
- Continue to update and revise contingency cost estimate
 - Updated material pricing, detailed plan for steel rehab/replacement documented in special provision

How is PDB Risk Management Different?

- Traditional DB – Most of Risk is transferred to Firm
- CM/GC – Risk is shared and mostly should be mitigated
- PDB – Risk is shared but final Bid Price could be established before final design.
 - Early establishment of final Bid Price will require more focus on Risk Management earlier in design process.



Cost Estimating and Reconciliation

Estimating Overview

Estimating Milestones



```
graph TD; A[Estimating Milestones] --> B[Estimate Activities For Milestones]; B --> C[Role of the ICE]; C --> D[Production Based Estimating];
```

Estimate Activities For Milestones

Role of the ICE

Production Based Estimating

Estimating Milestones

- 10-30% = Rough Order of Magnitude (ROM)
- 30% = Alignment and Grade Review (AGR)
- 60% = Plan-in-Hand (PIH)
 - Bid Price submittal if Risks are identified, mitigated and/or assigned
- 90% = Final Plans
 - Bid Price submittal if Risks are identified, mitigated and/or assigned
- 100% = Plans, Specs, and Estimate (PS&E)
 - Bid Price submittal & negotiations
 - Unsuccessful negotiations will result in discontinuing work

Estimate Activities For Milestones





- First look at full plan set
- MDT and PDB firm will review construction phasing and impacts
 - Make suggestions to enhance constructability



- Purpose of Meeting is to make sure ICE and PDB Firm are on the same estimating grounds.
- Cost Estimate Narrative/Instructions
 - Where do I carry Indirect, Risk, Contingency, etc.?
- Information Sharing
- Means and Methods for Construction
 - Opportunity to Innovate!



- Estimate development duration will depend on project schedule.
- PDB and ICE will submit estimates.
 - ICE and MDT will have opportunity to review all estimates.
 - ICE and PDB firm will have open book estimates.



- Occurs before Estimate Reconciliation meeting(s)
- First look at comparison spreadsheet
- Identify Work Groups (or D groups) where Estimate Reconciliation will need to be focused.
- ICE and PDB firm will have opportunity to modify estimates and resubmit.



- Open book pricing for PDB firm and ICE
- Comparison Spreadsheet and Meeting Discussion Example (next slide)



CM/GC Project
60% Estimate Reconciliation

DATE:

BID ITEM #	ITEM DESCRIPTION	QTY	UNIT	CONTRACTOR ESTIMATE								CON vs. ICE COMPARISON	
				MH	Labor Cost Total	Construction Equipment Cost Total	Supplies Total Cost	Materials Total Cost	Subcontract Total Cost	Unit Price	Total Price		
AGGREGATES / EMBANKMENT ITEMS				1	LS								
301020252	BRIDGE END BACKFILL-TYPE 1	19,000.00	CY								\$10.00	\$190,000.00	greater than 15%
301020340	CRUSHED AGGREGATE COURSE	43,371.00	CY								\$20.00	\$867,420.00	less than 5%
301020625	AGGREGATE TREATMENT	157,592.00	SY								\$30.00	\$4,727,760.00	5-15%
203020310	SPECIAL BORROW-NEAT LINE	24,446.00	CY								\$40.00	\$977,840.00	5-15%
AGGREGATES / EMBANKMENT ITEMS TOTALS											\$6,763,341.07	less than 5%	
PLANT MIX BITUMINOUS SURFACE ITEMS				1	LS								
401020300	HYDRATED LIME	748.00	TN								\$10.00	\$7,480.00	less than 5%
402020368	EMULSIFIED ASPHALT CRS-2P	281.00	TN								\$20.00	\$5,620.00	less than 5%
409000000	FINAL SWEEP AND BROOM	7.00	MILE								\$30.00	\$210.00	less than 5%
409000020	COVER-TYPE 2	157,592.00	SY								\$40.00	\$6,303,680.00	less than 5%
401020045	PLANT MIX SURF GR S-3/4 IN	53,414.00	TN								\$40.00	\$2,136,560.00	greater than 15%
402020092	ASPHALT CEMENT PG 64-28	2,884.00	TN								\$30.00	\$86,520.00	less than 5%
402020315	EMULSIFIED ASPHALT-TACK COAT	31,518.00	GAL								\$20.00	\$630,360.00	greater than 15%
402020320	EMULSIFIED ASPHALT-FOG SEAL	11,819.00	GAL								\$10.00	\$118,190.00	greater than 15%
PLANT MIX BITUMINOUS SURFACE ITEMS TOTALS											\$9,288,620.00	5-15%	
WALL ITEMS				1	LS								
209010125	STRUCTURE EXC TYPE 2	33,305.00	CY								\$10.00	\$333,050.00	less than 5%
209010165	TEMPORARY SHORING	7,500.00	SF								\$20.00	\$150,000.00	less than 5%
614010010	RETAINING WALL - J2 WALL	690.00	LF								\$30.00	\$20,700.00	less than 5%
614010011	DESIGN, CONSTRUCT MSE WALLS	1,886.00	SY								\$40.00	\$75,440.00	less than 5%
614010046	DSGN & CNST MSE WALL-MODULAR BLOCK	150.00	SY								\$30.00	\$4,500.00	5-15%
	REMOVE CONCRETE RETAINING WALL	220.00	LF								\$20.00	\$4,400.00	less than 5%
WALL ITEM TOTALS											\$588,090.00	less than 5%	
CONCRETE BARRIER ITEMS				1	LS								
605000000	CONCRETE BARRIER RAIL TRANSITION	9.00	EA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00	\$0.00	greater than 15%
606000000	PAV CONCRETE BARRIER RAIL		EA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00	\$0.00	greater than 15%

Comparison Percent Change ICE Estimate (BLIND) +



- **Submit Post Post-Reconciliation Estimate**
 - Modifications to Estimate based on Estimate Reconciliation Discussion
 - Identify differences in construction methodology, vendor/subconsultant/supplier assumptions, local labor, equipment/means, etc.
- **Agreement on Bid Price and Award of Project**
 - Threshold criteria based on variance between Firm and ICE

Role of the Independent Cost Estimator (ICE)

- Foster Team Environment
- Fair Market Pricing



Production Based Estimating

File Edit Setup Estimate Query Reports Summary Subsystems Exchange Tools Help What's New

New Open Recent Backup Restore Delete Estimate Archive Manage System Estimate Checklists Compare Print Estimates Ctrl-P

Estimate Entry - Tree View

View of Estimate

- 1: D1 MOBILIZATION/MOT
- 2: D2- REMOVALS & RECONSTRUCTS
- 3: D3 - EARTHWORK, GRADING, GRANULAR & BASES
 - 103020: STRIP & SPREAD TOPSOIL
 - 103040: CLEARING & GRUBBING
 - 103080: BORROW
 - 103100: GRANULAR BORROW
 - 103120: ROADWAY EXCAVATION
 - 103125: MSE WALL - EXCAVATION
 - 103126: UNSUITABLE - OVER EXCAVATION & REPLACEMENT
 - 110 - Exc.
 - 120 - Haul Off
 - 130 - Dump Fee
 - 140 - Buy & Place BF
- 103128: MSE WALL OVEREX & REPLACEMENT
- 103129: BOR PIPELINE OVEREX & REPLACEMENT
- 103135: POND EXCAVATION
- 103140: UNTREATED BASE COURSE
- 103145: MAINTENANCE ACCESS ROAD UTBC
- 103160: SURFACE DITCH
- 103200: LOOSE RIPRAP
- 103240: EMBANKMENT FOR BRIDGE
- 103260: GEOTEXTILES - SEPARATION
- 103280: GEOTEXTILES - STABILIZATION
- 4: D4- PAVING
- 5: D5- CONCRETE FLATWORK
- 6: D6- STRUCTURES
- 7: D7- RETAINING WALLS
- 8: D8- NOISEWALLS
- 9: D9- STORM DRAIN
- 10: D10- LIGHTING, SIGNALS, ATMS
- 11: D11- GUARDRAIL & BARRIER
- 12: D12- SIGNAGE
- 13: D13- PAVEMENT MESSAGES
- 14: D14- EROSION CONTROL, LANDSCAPING & SEEDING
- 15: D15- FENCING, WILDLIFE RAMPS
- 16: D16- UTILITIES

Biditem Information

Biditem Description Takeoff Quantity Unit Cost
 103126 UNSUITABLE - OVER EXCAVATION & REPLACEMENT 32,170.000 CY \$1,624,895.27

Client# Est. Init. Type D Bid Quan 32,170.000 U. Cost \$50.510

Note Review Required

Activity Information

Activity Description Quantity Unit Cost
 110 Exc. 32,170.000 CY \$134,571.08

Note U. Cost \$4,183

Activity Main Note Report Groups Misc Schedule Analysis

Crew EXSTR Desc (Modified) EXCAVATION STRUCTURES Cal 510 WC CIVIL
 Prod UH Rate 120.0000 Crew Hrs 268.0833 Hrs/Shift 10.00 Days 27

Activity Productivity Information and Options

Manhours 1,072.320 Units/Hr 120.0000 MH/Unit 0.0333 Crew Labor 4.00 Unreviewed
 Unit/MH 30.0004 Crew\$/Unit 4.1831 Shifts 26.8083 Crew Equip 3.00 Non-Add
 Marine

Resource Detail	Misc	Crew	Customize	Quantity	Unit	Unit Cost	Tax/OT %	Pcs/Wste	Total
8BHLG			Trackhoe Large Cat 330 (or S)	268.08	HR	126.1900	100.00	1.00	\$33,829.02
8PU150			1/2 ton Pickup	268.08	HR	14.0500	100.00	1.00	\$3,766.52
8TRKDMP17			Truck 17 Ton Dump	268.08	HR	99.7500	100.00	1.00	\$26,740.98
FORMAN			FORMAN	268.08	MH	36.0000	110.00	1.00	\$24,881.04
LABOR SKILL			SKILLED LABORER	268.08	MH	25.9600	110.00	1.00	\$13,426.33
OPERATOR 1			EXC.GRADE, PAVE	268.08	MH	34.0900	110.00	1.00	\$17,695.96
TEAMSTER			TEAMSTER	268.08	MH	25.2800	110.00	1.00	\$14,231.23

Display Options Add Activities Filters



PDB Guidance Document Summary

Guidance Document Highlights

- FHWA Requirement for Stand-Alone Guidance Doc
- Modified Pre-Construction markup on labor (Contractor)
- Establish payment methods for engineers
- Modified bid price threshold
- Target scope, bid price, and schedule certainty at PIH
- Option to enter D-B contract delivery
- Flexible method of payment – UP, LS, CPFF, & GMP
- Expedited design decision process
- RFQ and RFP will include project specific requirements



Future of Alternative Contracting

MDT's Vision For Alternative Contracting

- Recent Legislation SB-57
- Ever Increasing Infrastructure Deterioration
- Establish Healthy Balance Between D-B-B and Alternative Contracting Methods
- Depleting MDT Resources
- AC-General Engineering Consultant

Goal is for increased alternative delivery to 25% of MDT's construction program

DAR STRUCTURES – LEWISTOWN AREA

- MDT's 1st Progressive Design Build Project
- 11 structure replacements north of Lewistown (MT-81)
- Dept. of Defense funding to expedite project
- Wildlife Accommodation/Staging challenges
- \$25-30M Construction Estimate
- GEC management and participation
- Projected advertisement in February 2024



PDB SUMMARY

- Reduced project pursuit effort & costs
- Local knowledge effects team selection
- Contractor/Engineer collaboration promotes efficiency
- Improved Owner/Contractor collaboration
- Improved risk management/reduced project costs
- Expedite scope and maximize innovations
- Process allows for early work packages
- Early scope, schedule and cost certainty
- Finally – provide the option to deliver using D-B



MONTANA

Department of Transportation



QUESTIONS

MDT Alternative Contracting

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