

Progressive Design Build Workshop

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- 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.*

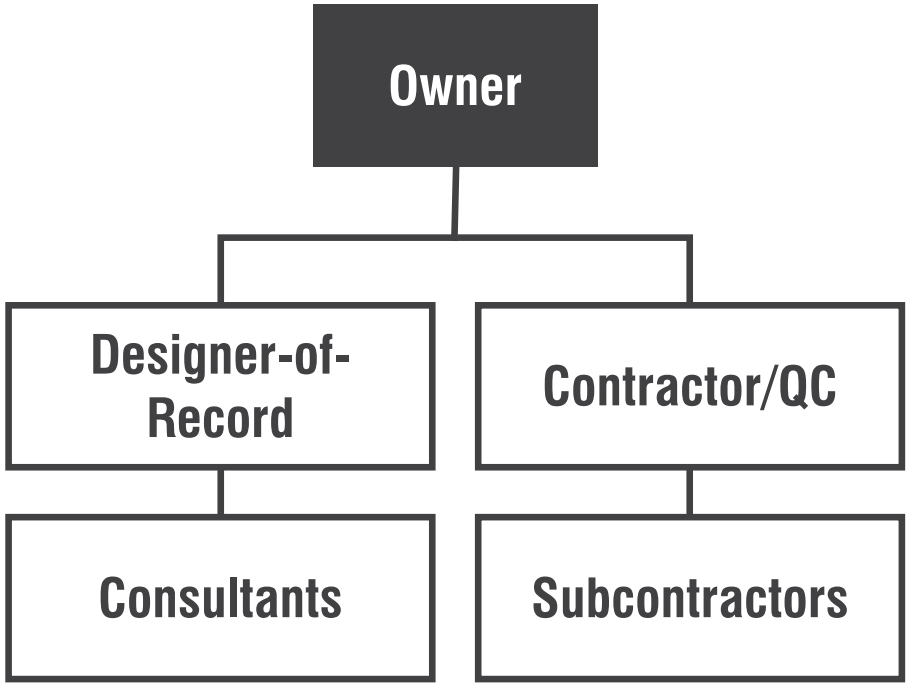
Workshop Outline

- 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



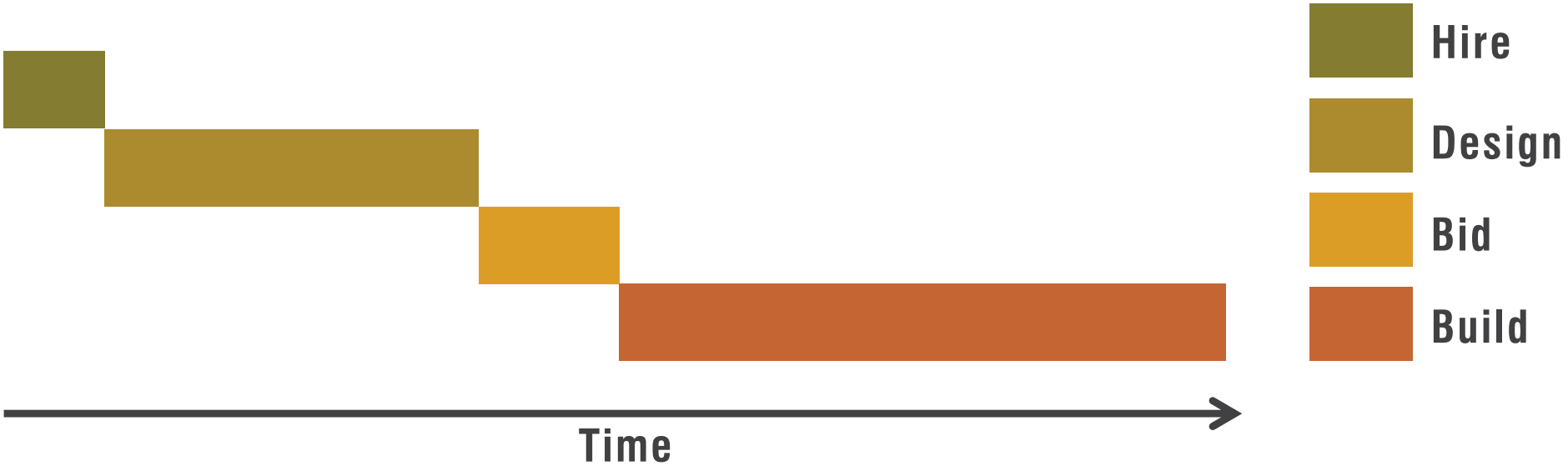
Alternative Contracting Fundamentals

Project Delivery Overview
Design Bid Build

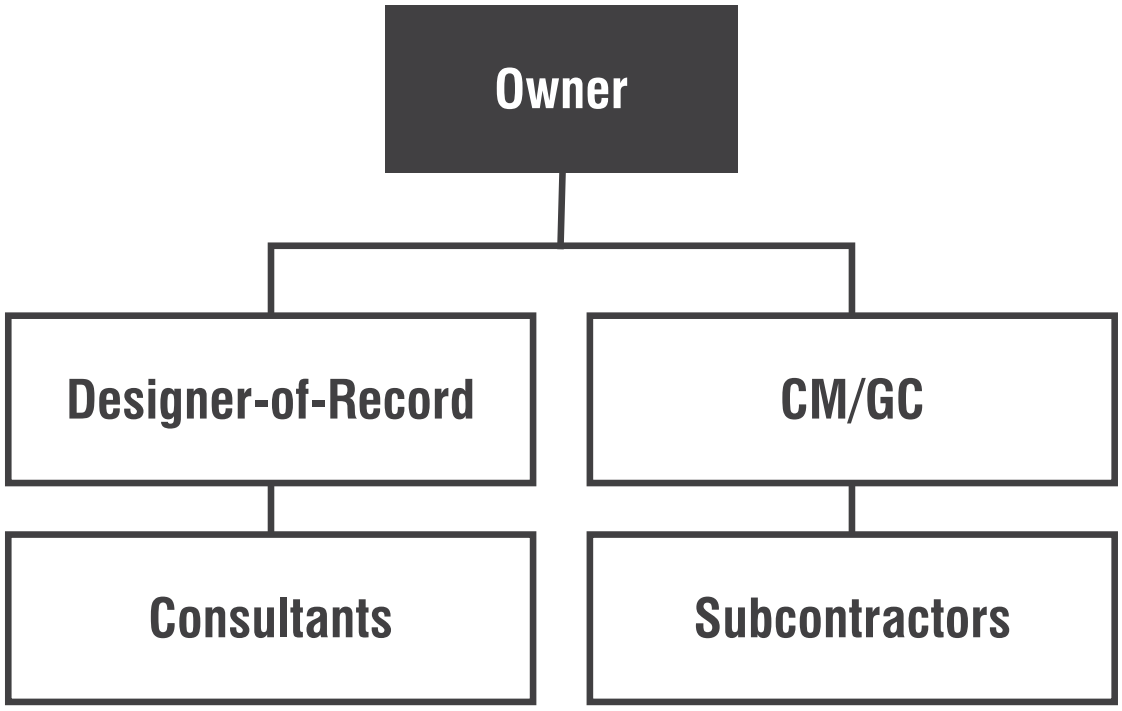




Project Delivery Overview
Design Bid Build

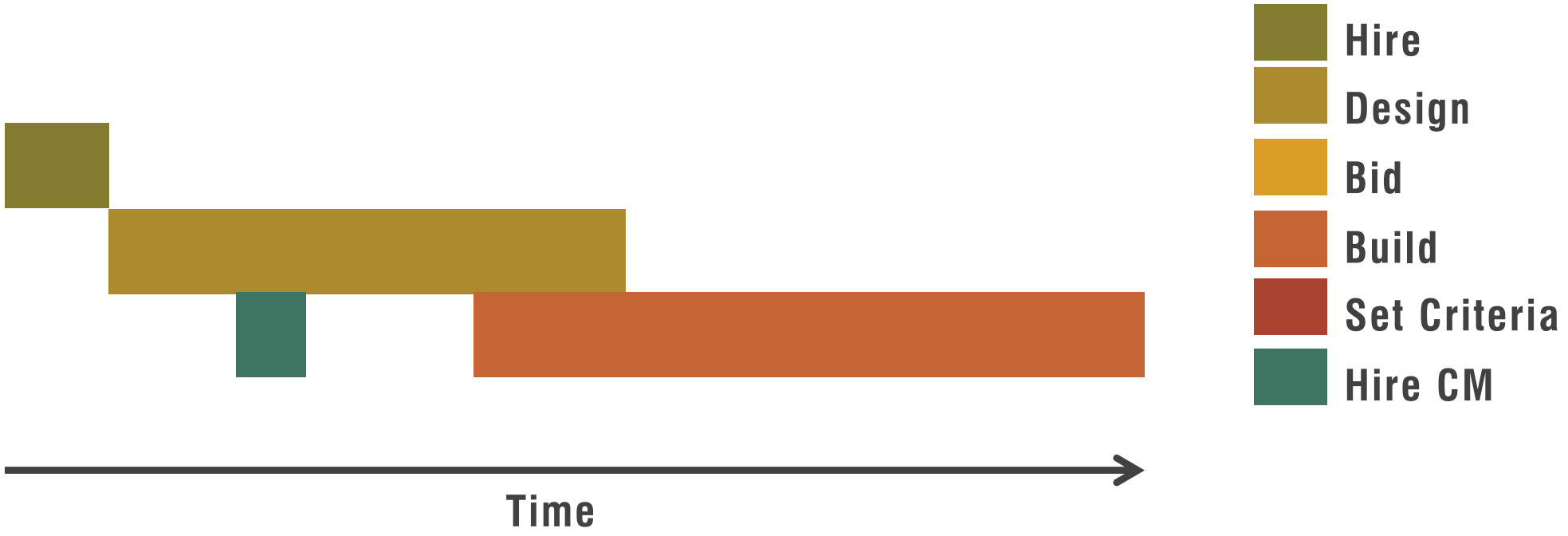


Project Delivery Overview
CMGC

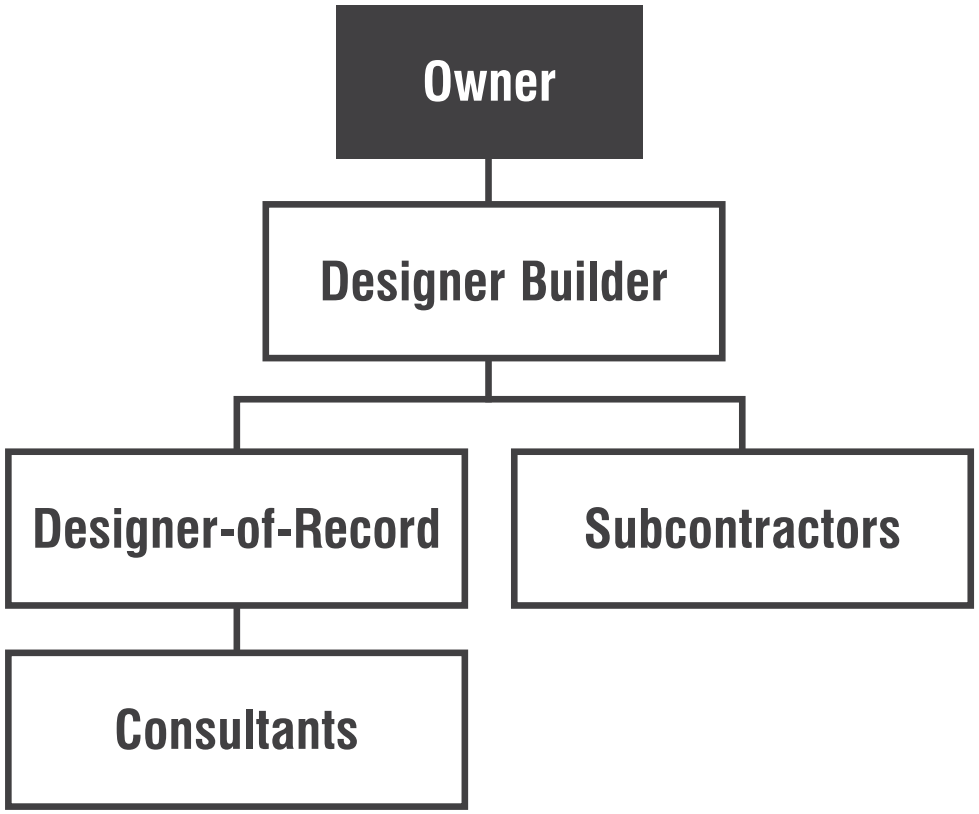


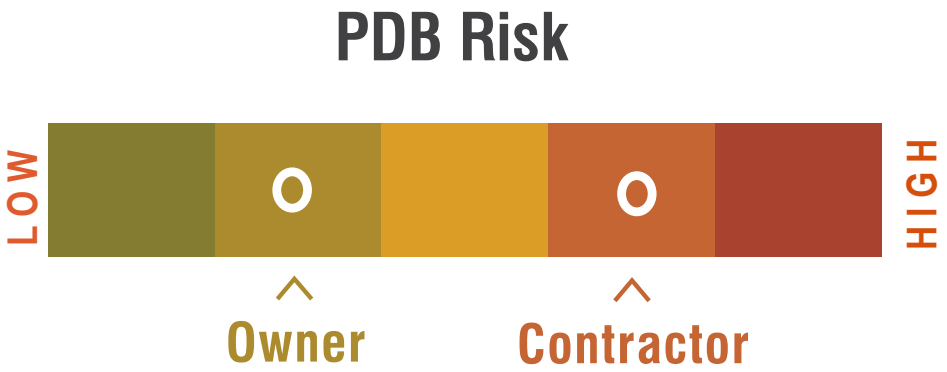


Project Delivery Overview
CMGC



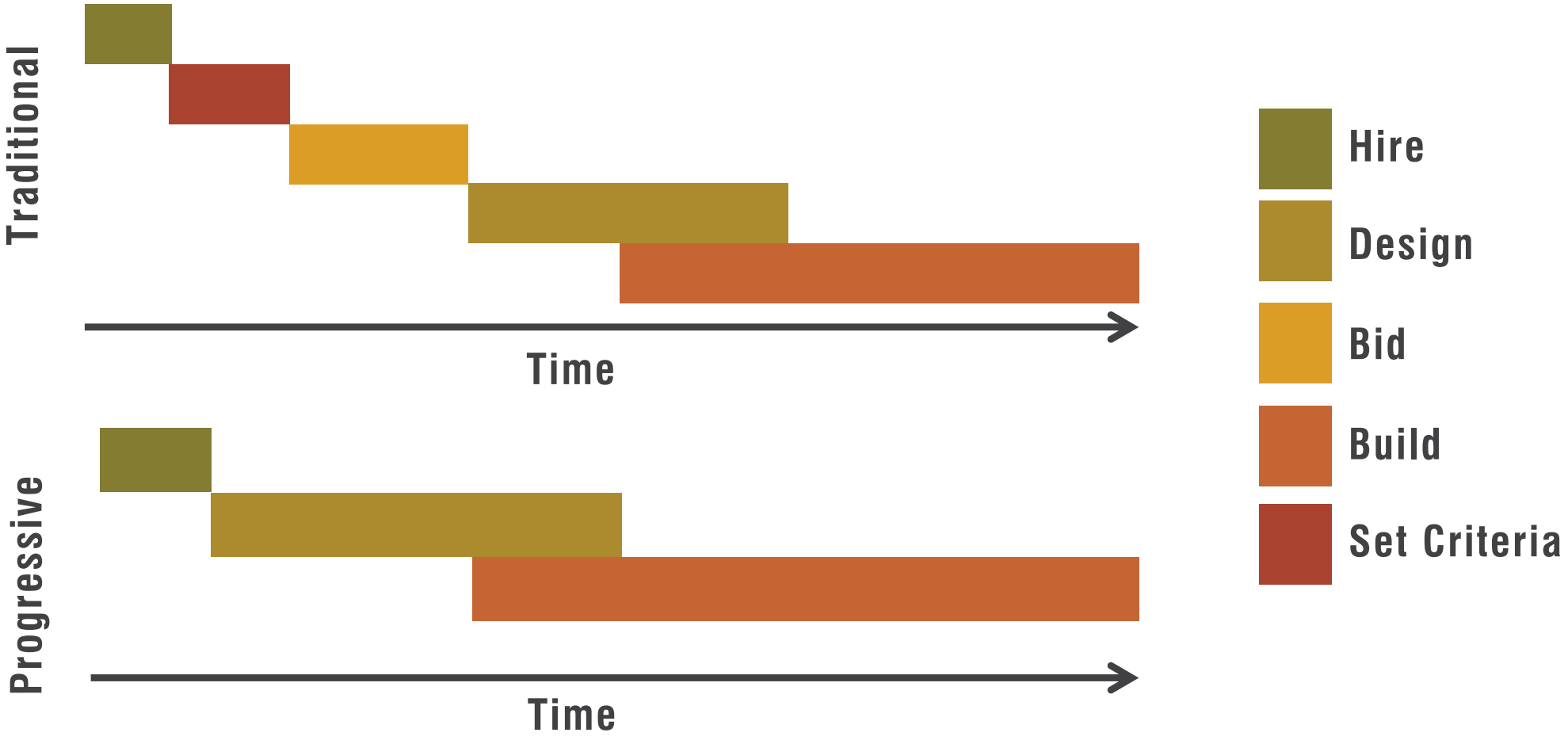
Project Delivery Overview
Traditional/Progressive Design Build



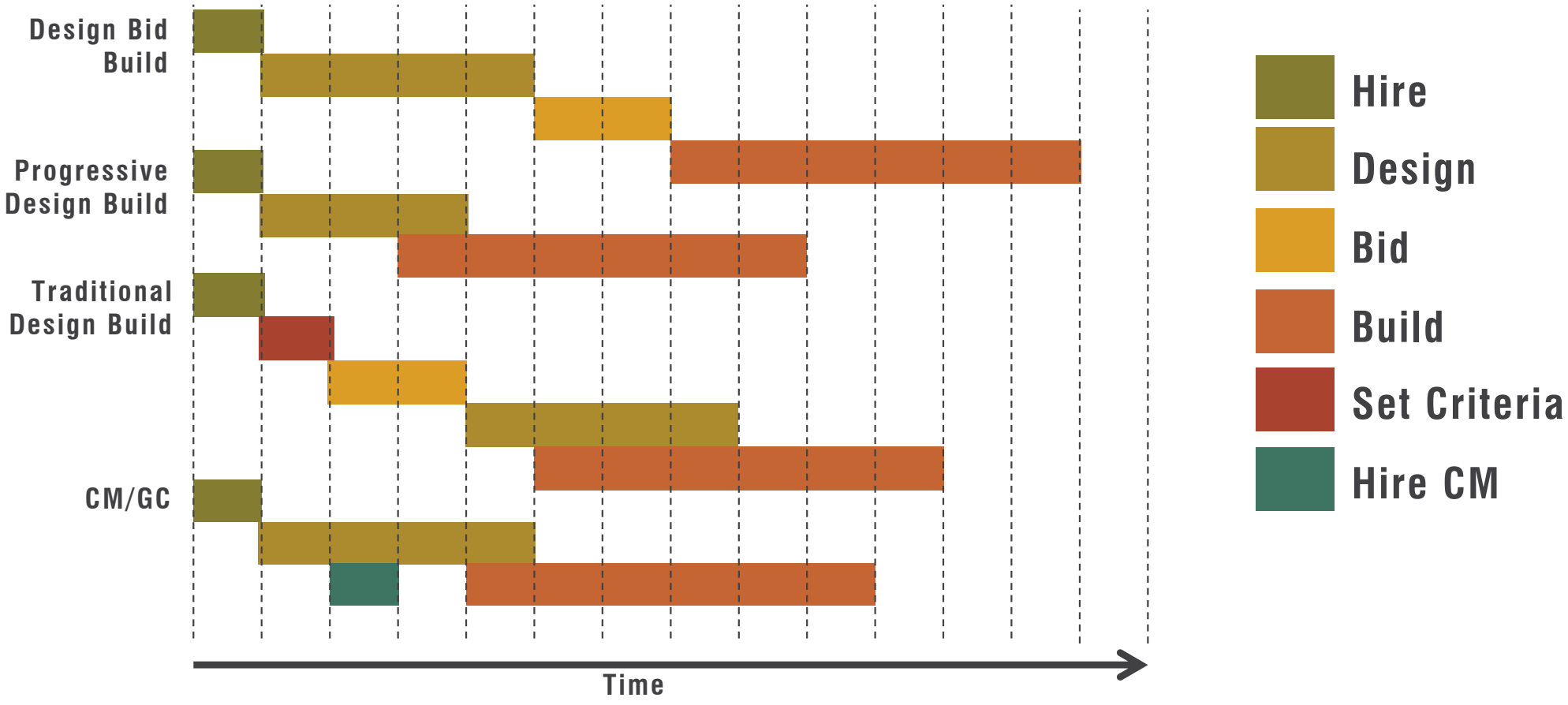




Project Delivery Overview
Traditional/Progressive Design Build



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

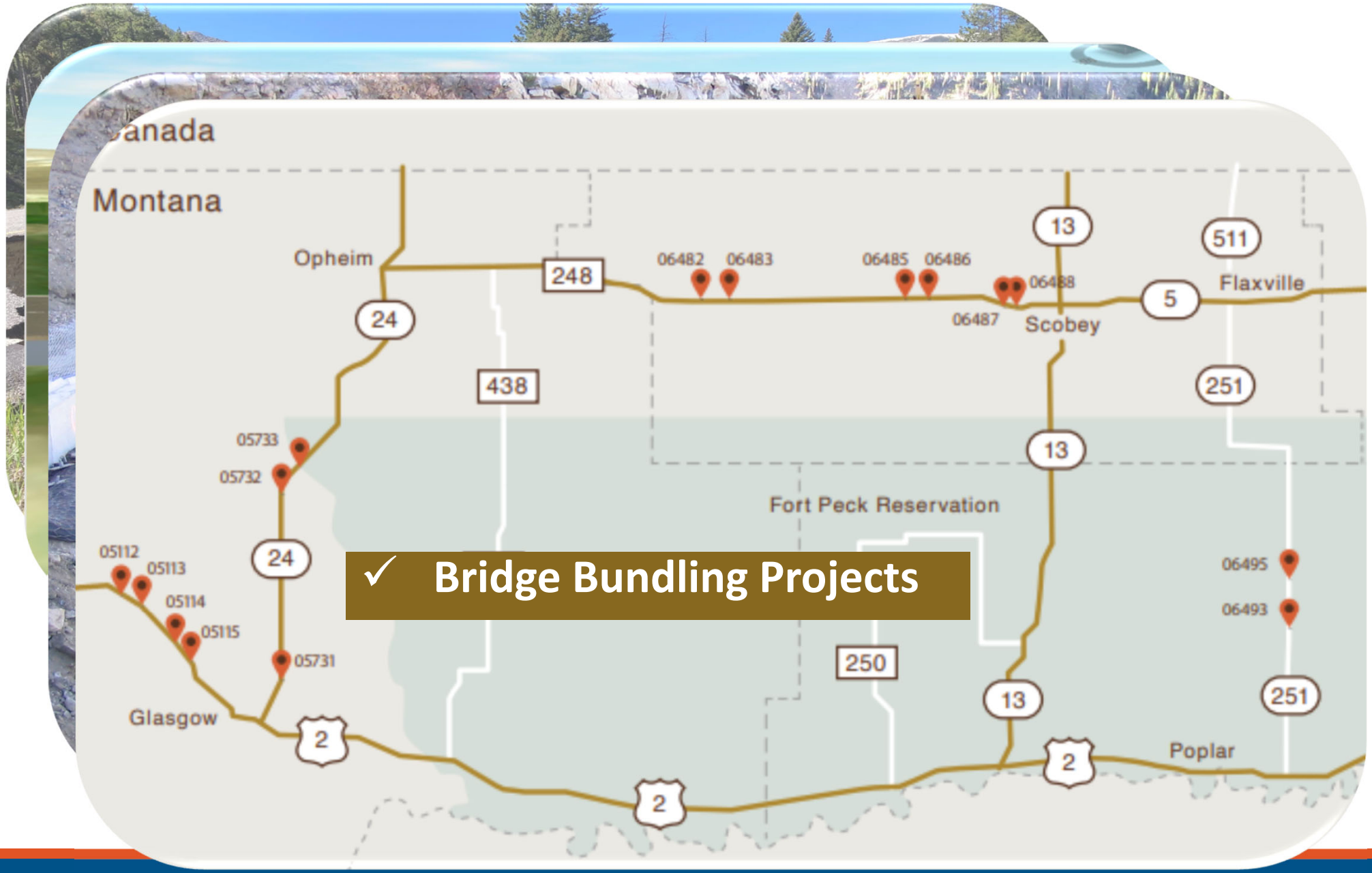


Project Delivery Selection Process

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

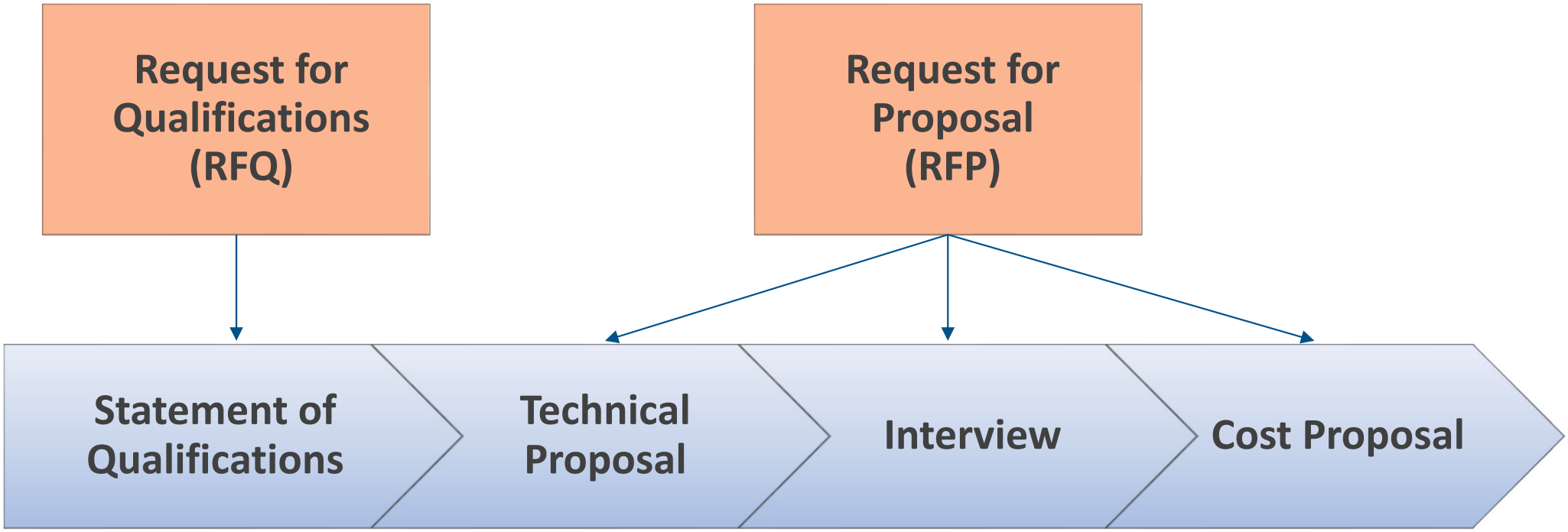




PDB Procurement Process

Hiring the Firm

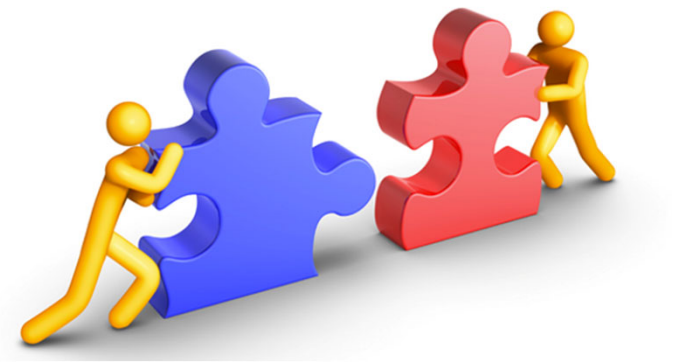
2 Phase Process



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

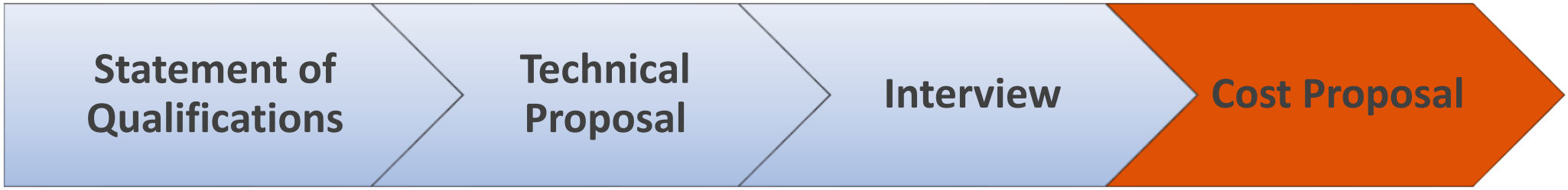
18.4.201 ALTERNATIVE CONTRACT PROJECT DELIVERY METHODS

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

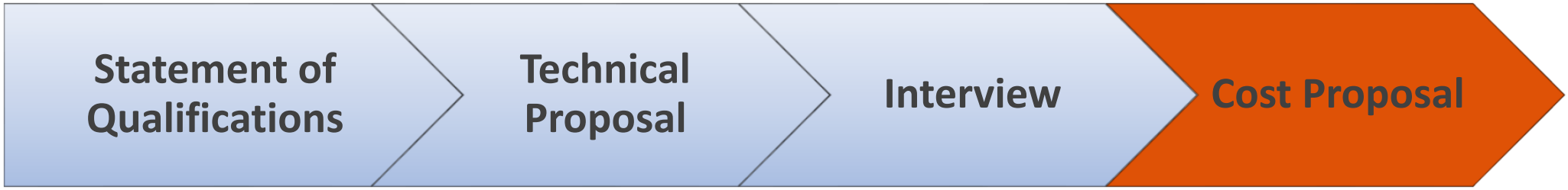
(2) The department must weight the in-person interview of each shortlisted proposer as at least half of the technical score. The technical proposal will account for the balance of the technical score.

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

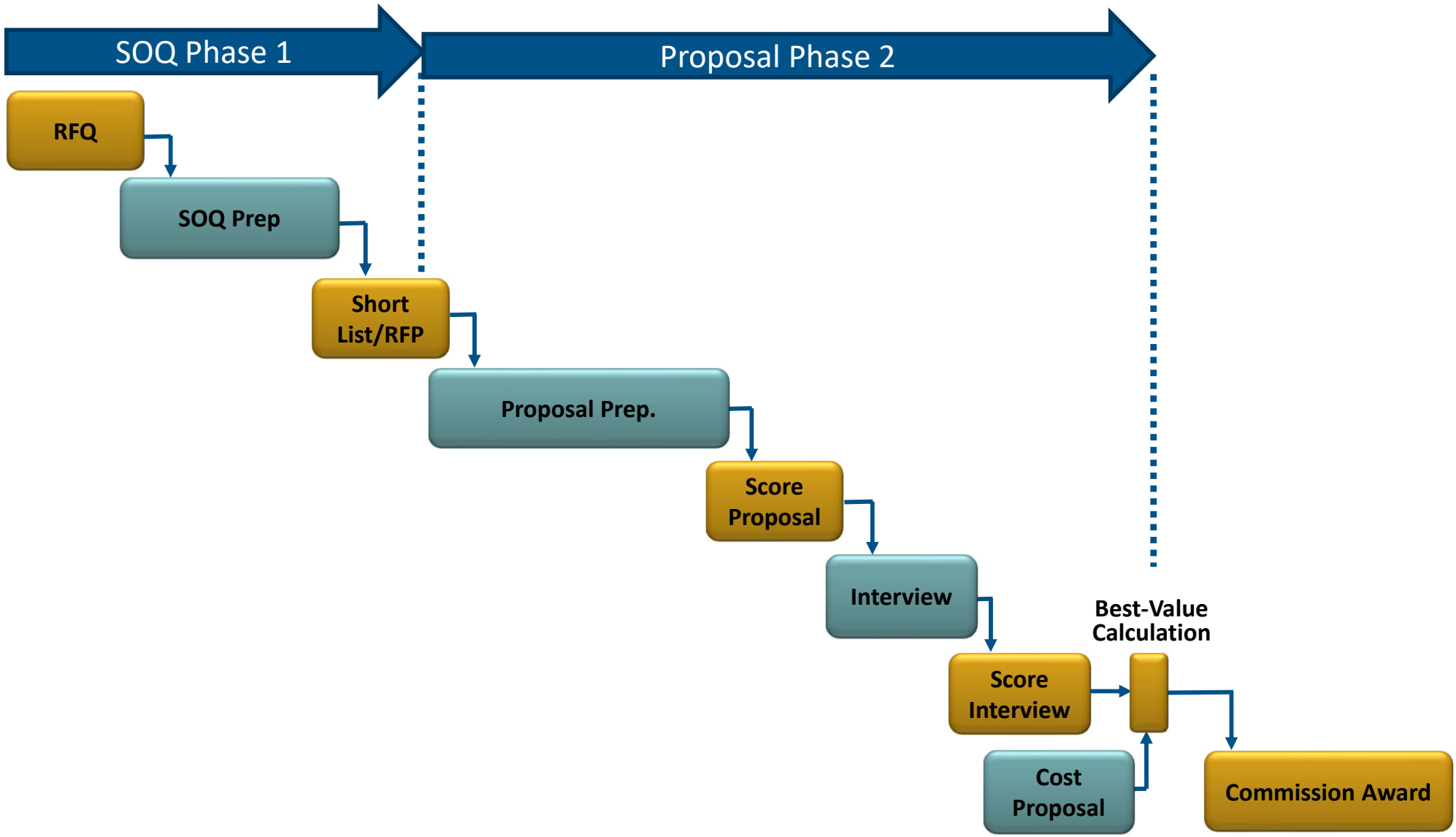


- By law, MDT must consider project costs when awarding project.
  - Challenge: Very limited design information available at time of RFQ/RFP
- Construction Phase Multiplier is requested for Cost Proposal
  - Multiplier includes profit and home office overhead (G&A) allocated to the project.
- Weighting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



- 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

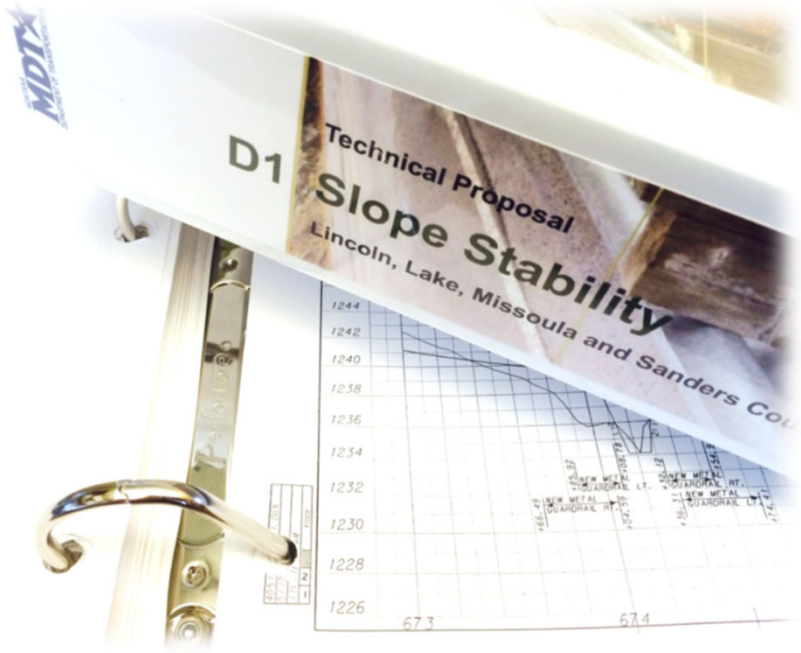


Month 1	Month 2	Month 3	Month 4



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 Memb
  - Related Projects – *50%*
  - Understanding and Appr
- MDT shortlists up to
- 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 experienc
- Know who you will be wor
- Use photos/matrices/grap



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 illu
- Tie approach to d
- How are you goin
- Be creative with i
- Discuss collabora



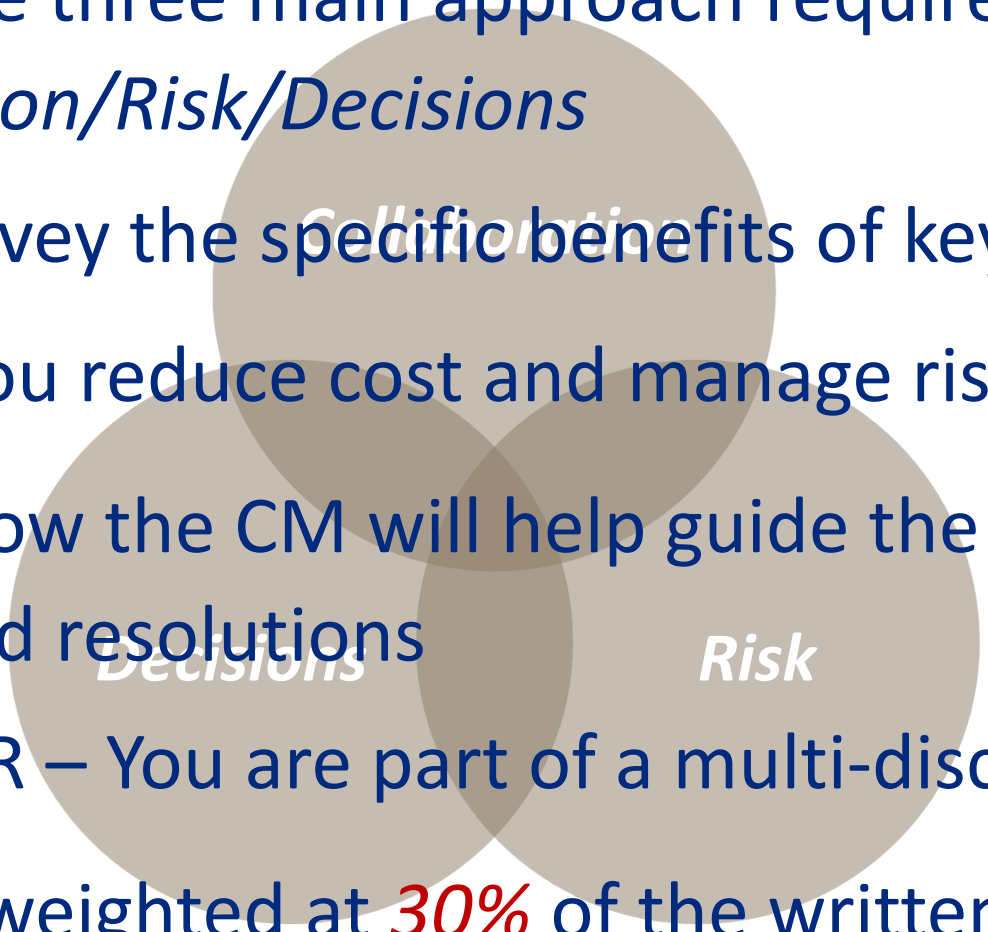
Proposal Section II – Strategic Project Approach (cont)

- 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

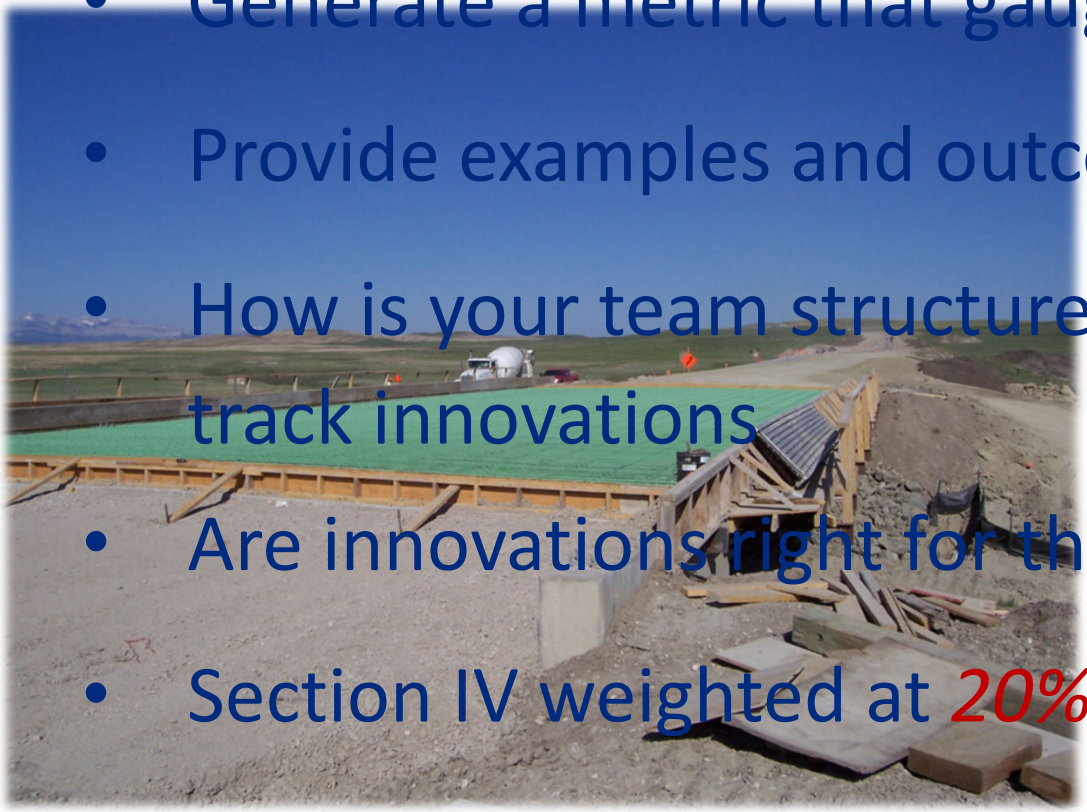
- Address the three main approach requirements: *Collaboration/Risk/Decisions*
- Clearly convey the specific benefits of key staff
- How will you reduce cost and manage risk? Explain
- Describe how the CM will help guide the decision analysis and resolutions
- REMEMBER – You are part of a multi-disciplined team
- Section III weighted at *30%* of the written proposal



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

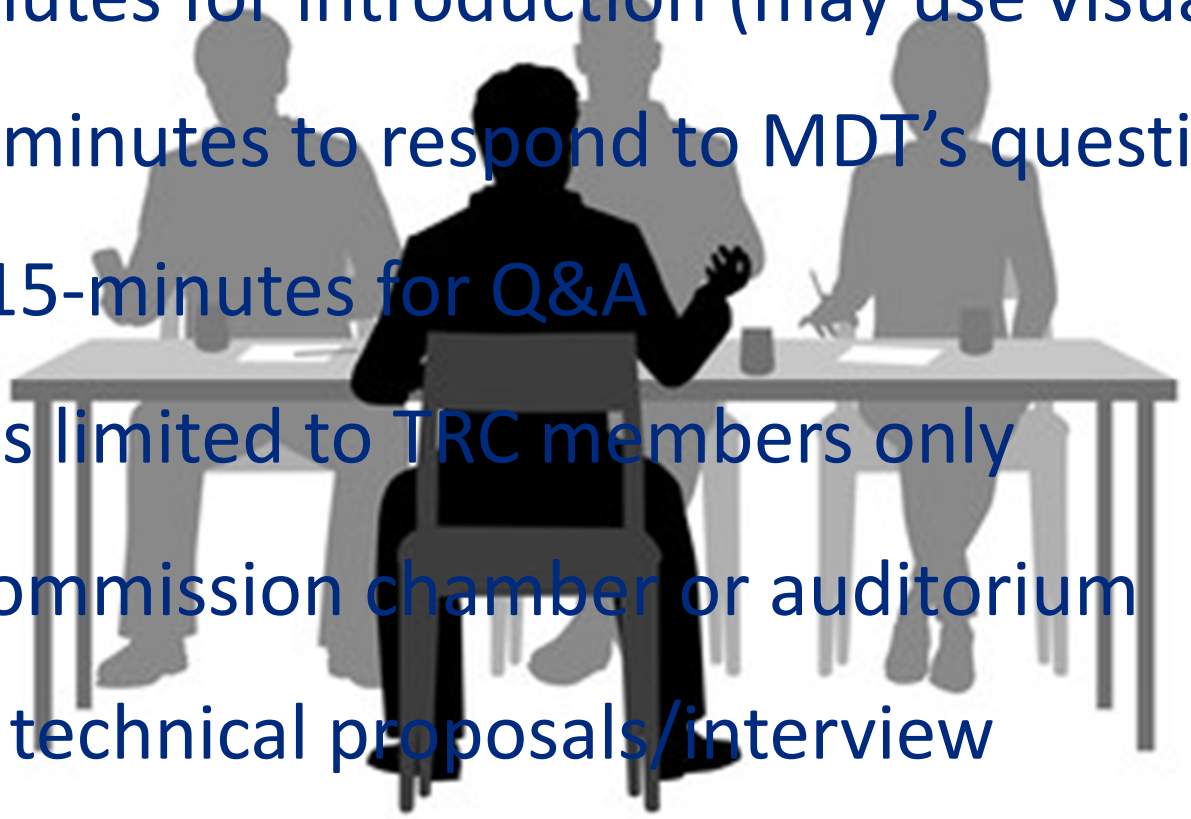
The Interview

- Know the interview format
- Be relaxed: Practice - Practice - Practice
- You will be our partner – s
- Avoid one person domina
- Clean handoffs – don't in
- Be cognizant of your body
- Be intentional with graphics/figur
- Consider value-added participants



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





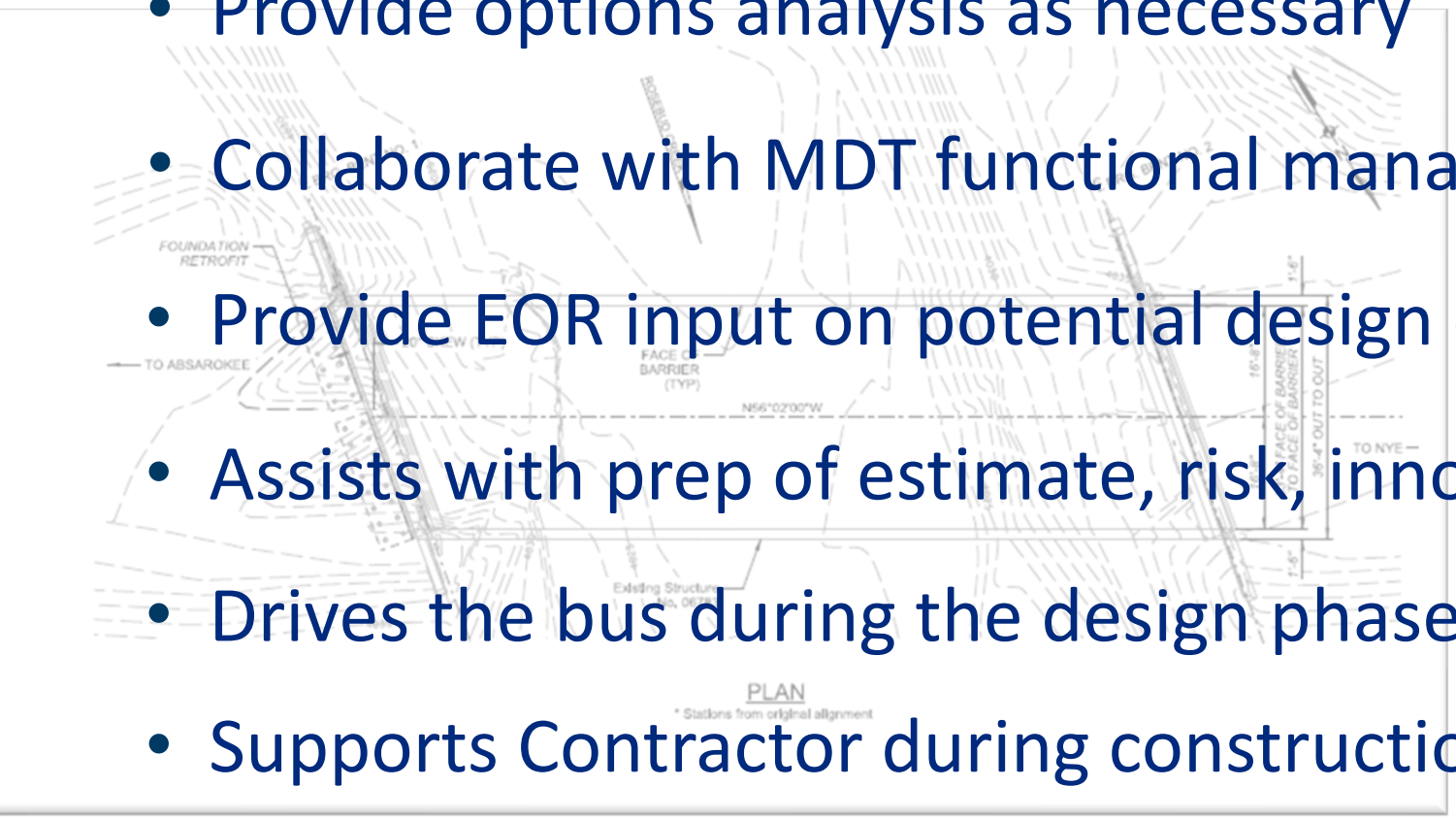
Roles and Responsibilities

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



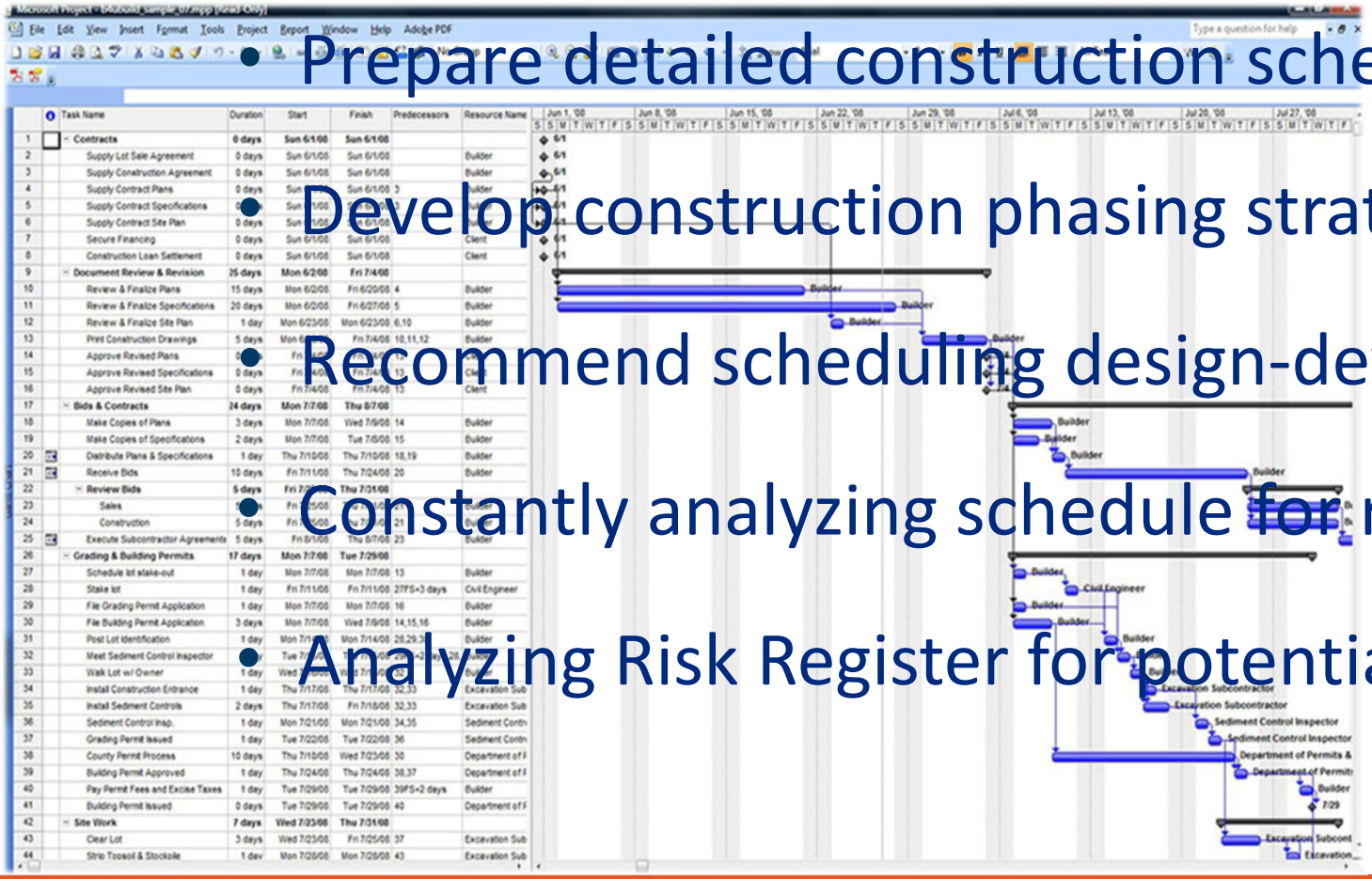
Contractor Design Related Preconstruction Services

- 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



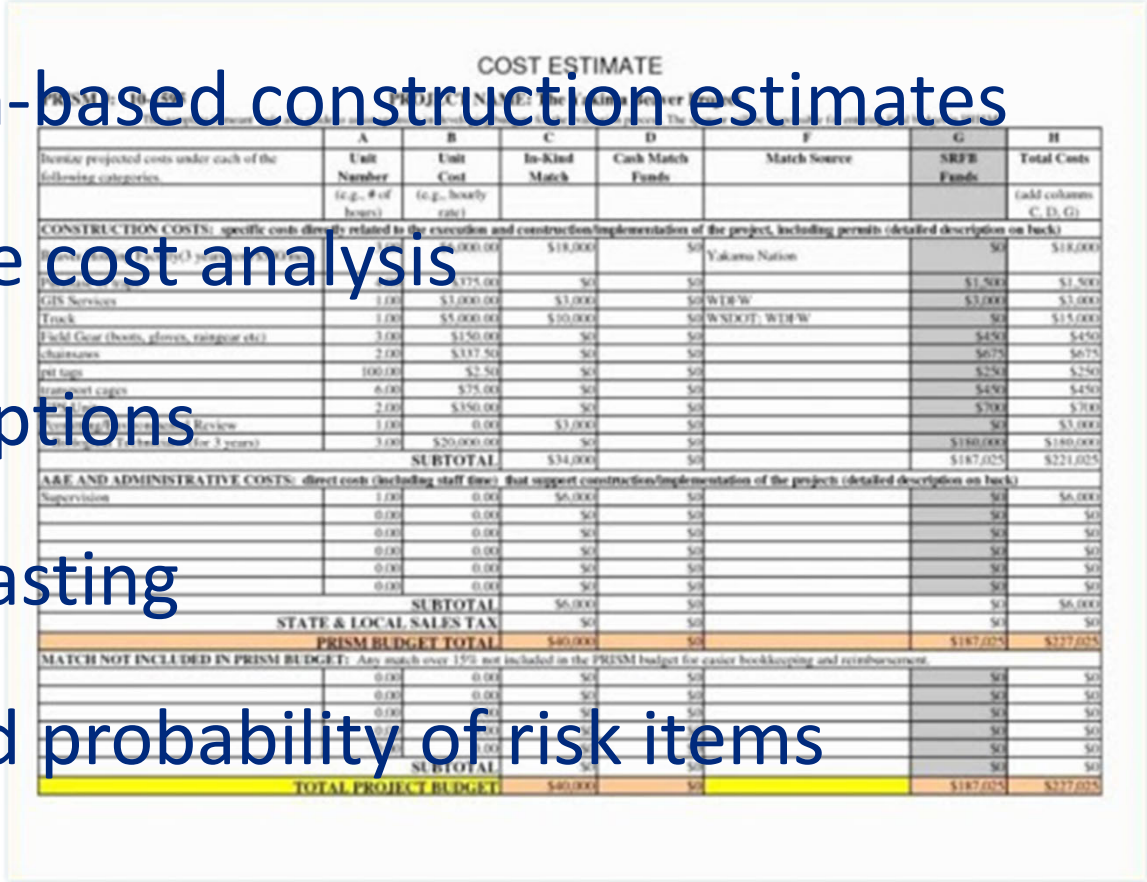
Contractor Schedule Related Preconstruction Services

- 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)							
		000.00	$18,000	$0	Yakama Nation	$0	$18,000
		$375.00	$0	$0		$1,500	$1,500
GIS Services	1.00	$3,000.00	$3,000	$0	WTBW	$3,000	$3,000
Truck	1.00	$5,000.00	$10,000	$0	WSDOT; WTBW	$0	$15,000
Field Gear (boots, gloves, raingear etc)	3.00	$150.00	$0	$0		$450	$450
chainsaws	2.00	$337.50	$0	$0		$675	$675
pit tags	100.00	$2.50	$0	$0		$250	$250
transport cages	6.00	$75.00	$0	$0		$450	$450
	2.00	$350.00	$0	$0		$700	$700
	1.00	0.00	$3,000	$0		$0	$3,000
	3.00	$20,000.00	$0	$0		$180,000	$180,000
		SUBTOTAL	$34,000	$0		$187,025	$221,025
A&E 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 35% 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



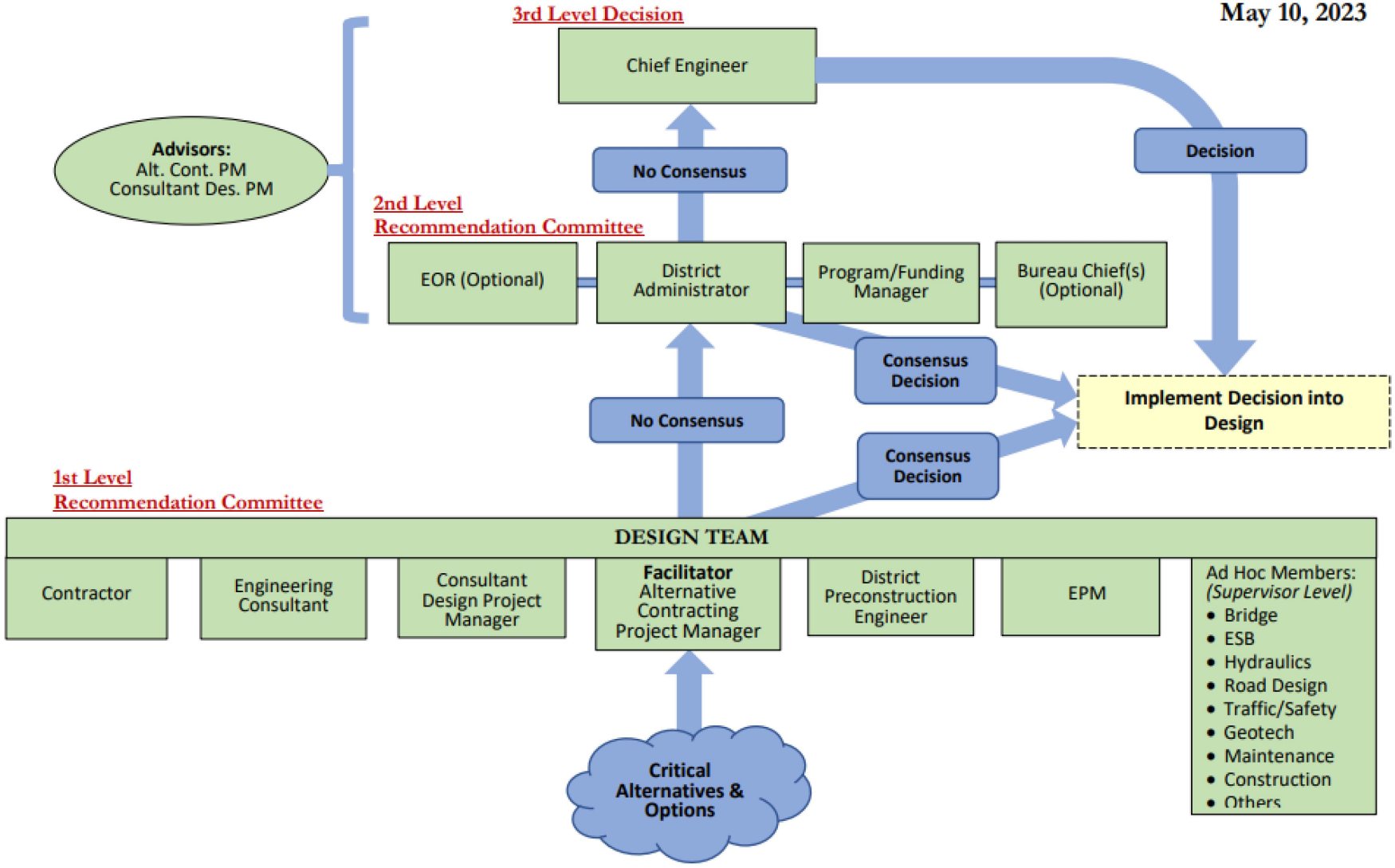
- More parties involved in Design
  - Different goals and perspectives
- Design is on expedited schedule
- MDT has more control of design
  - Firms typically work within performance specifications on DB projects

MDT implemented a Design Decision Flowchart

ALTERNATIVE CONTRACTING - DECISION MAKING PROCESS FLOWCHART

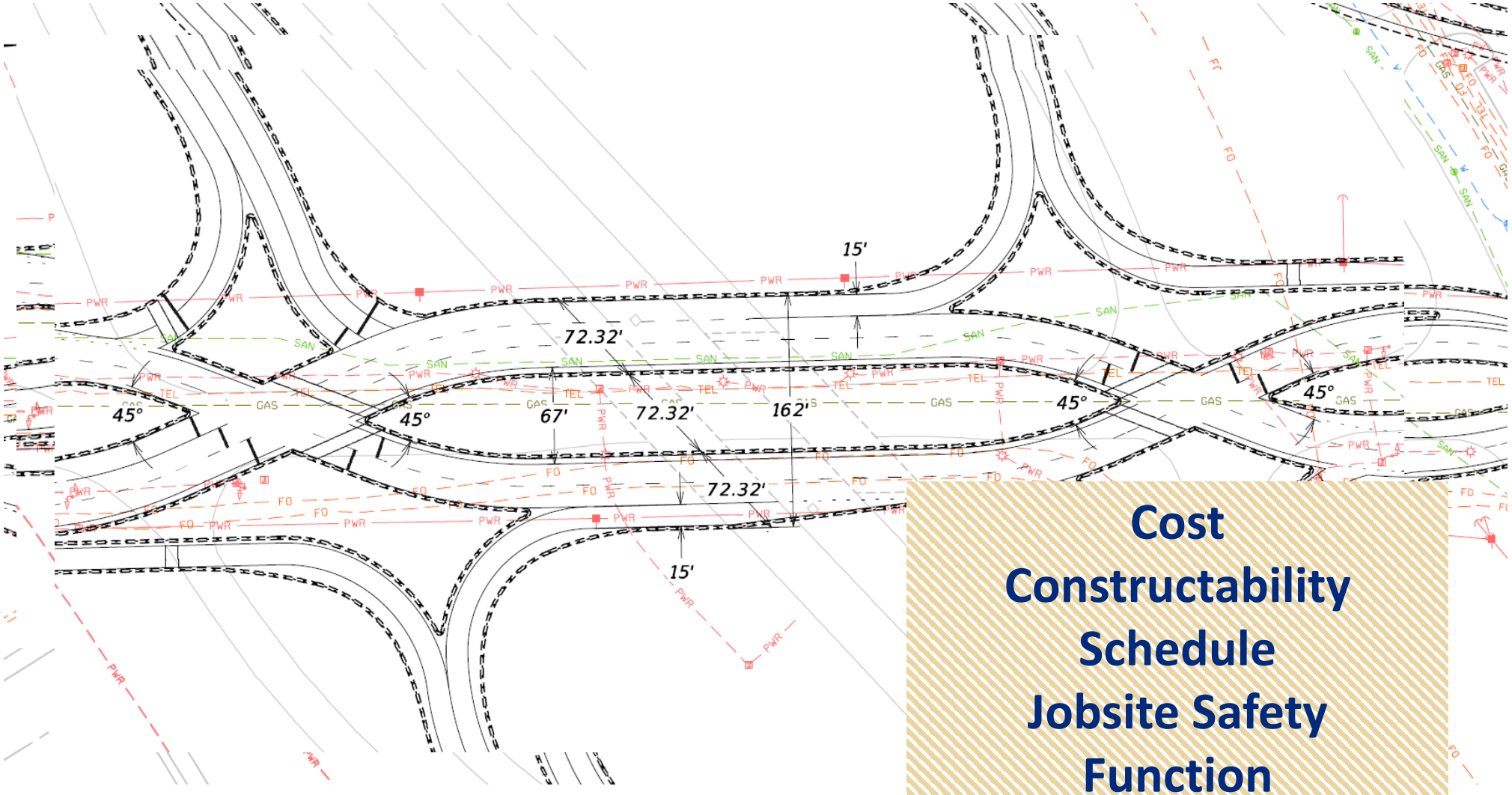
APLLIES TO DESIGN-BUILD PHASE 1 ANALYSIS, PROGRESSIVE DESIGN-BUILD AND CONSTRUCTION MANAGER/GENERAL CONTRACTOR PROJECT DELIVERY

May 10, 2023



Engineering Construction Contracting Bureau
Alternative Contracting Section

Decision Process Example



Cost
Constructability
Schedule
Jobsite Safety
Function



Risk Identification and Management

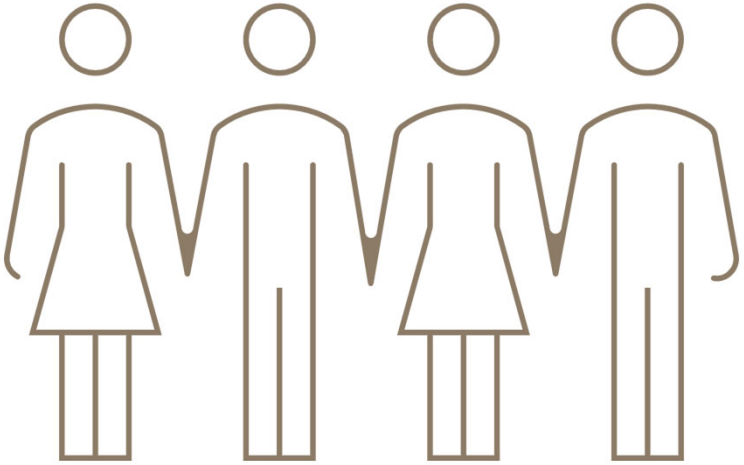
Risk Management: WHY??

- 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





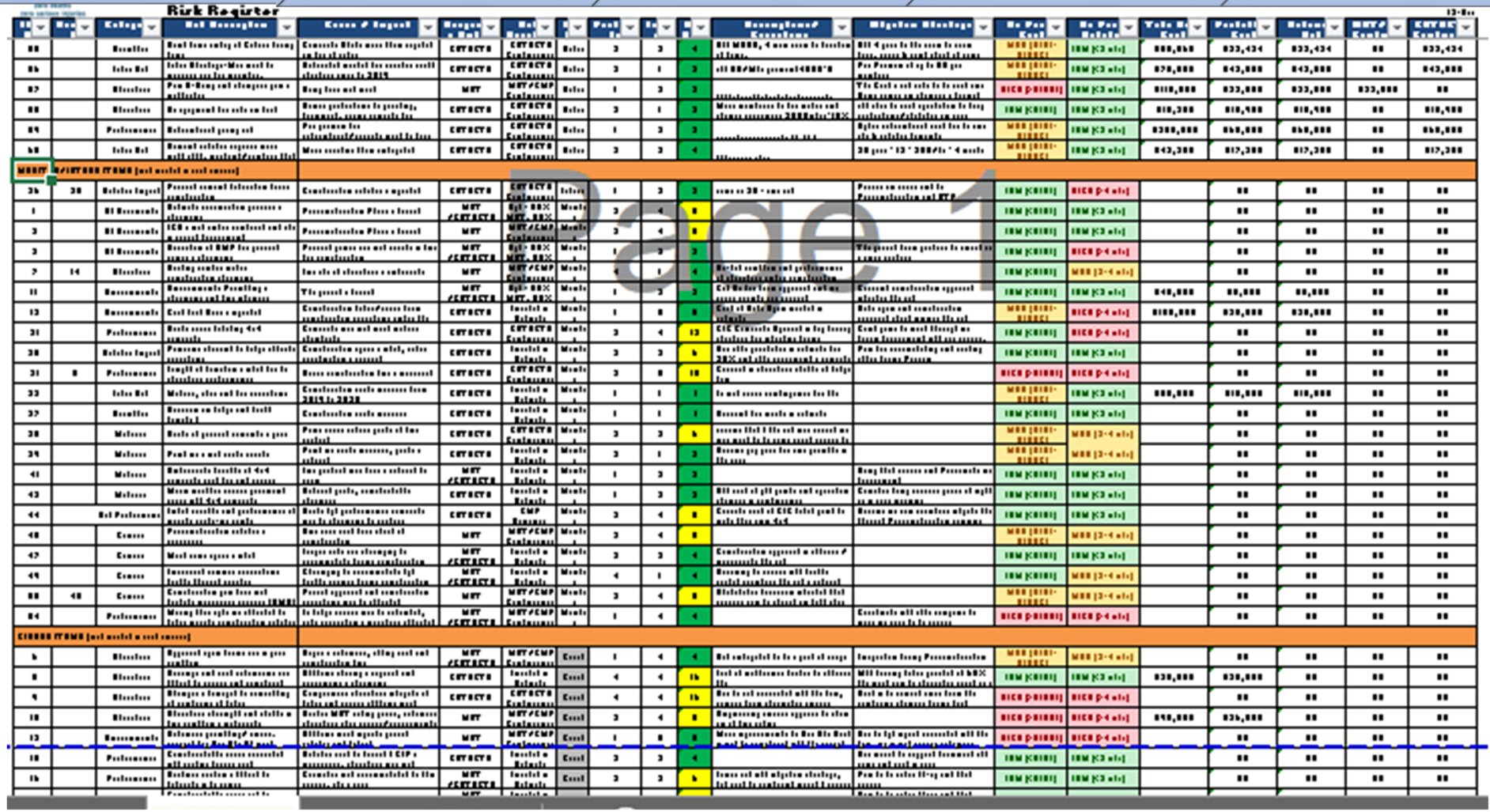
Risk Management: WHAT??

- 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



Risk Management Process

Identification → **Assess & Analyze** → **Develop Mitigation Plan** → **Monitor & Implement** → **Measure & Control**



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



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 Probability (0-5)	Risk Impact (0-5)	Risk Score = P x I

Risk Management Process



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



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

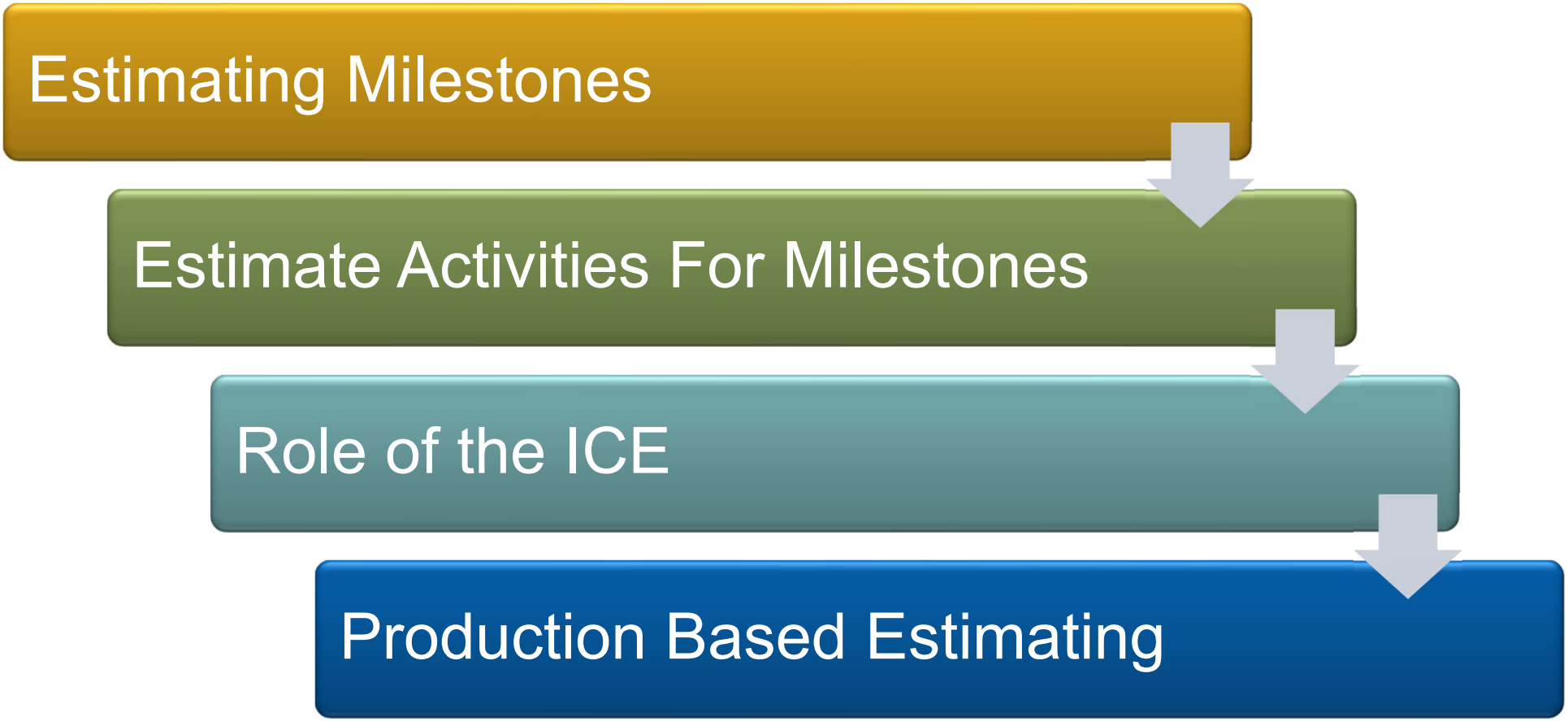
How is PDB Risk Management Different?

- 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

- 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)

Constructability Review | Approach to Price | Submit Estimate | Pre-Estimate Reconciliation | **Estimate Reconciliation** | Post Reconciliation Estimate

VISION ZERO
zero deaths
zero serious injuries

CM/GC Project
60% Estimate Reconcilliation

DATE:

				CONTRACTOR ESTIMATE								CON vs. ICE COMPARISON
BID ITEM #	ITEM DESCRIPTION	QTY	UNIT	MH	Labor Cost Total	Construction Equipment Cost Total	Supplies Total Cost	Materials Total Cost	Subcontract Total Cost	Unit Price	Total Price	
GGREGATES / 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%
LANT 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%
VALL 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%
ONCRETE 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	greater than 15%

Comparison | Percent Change | ICE Estimate (BLIND)



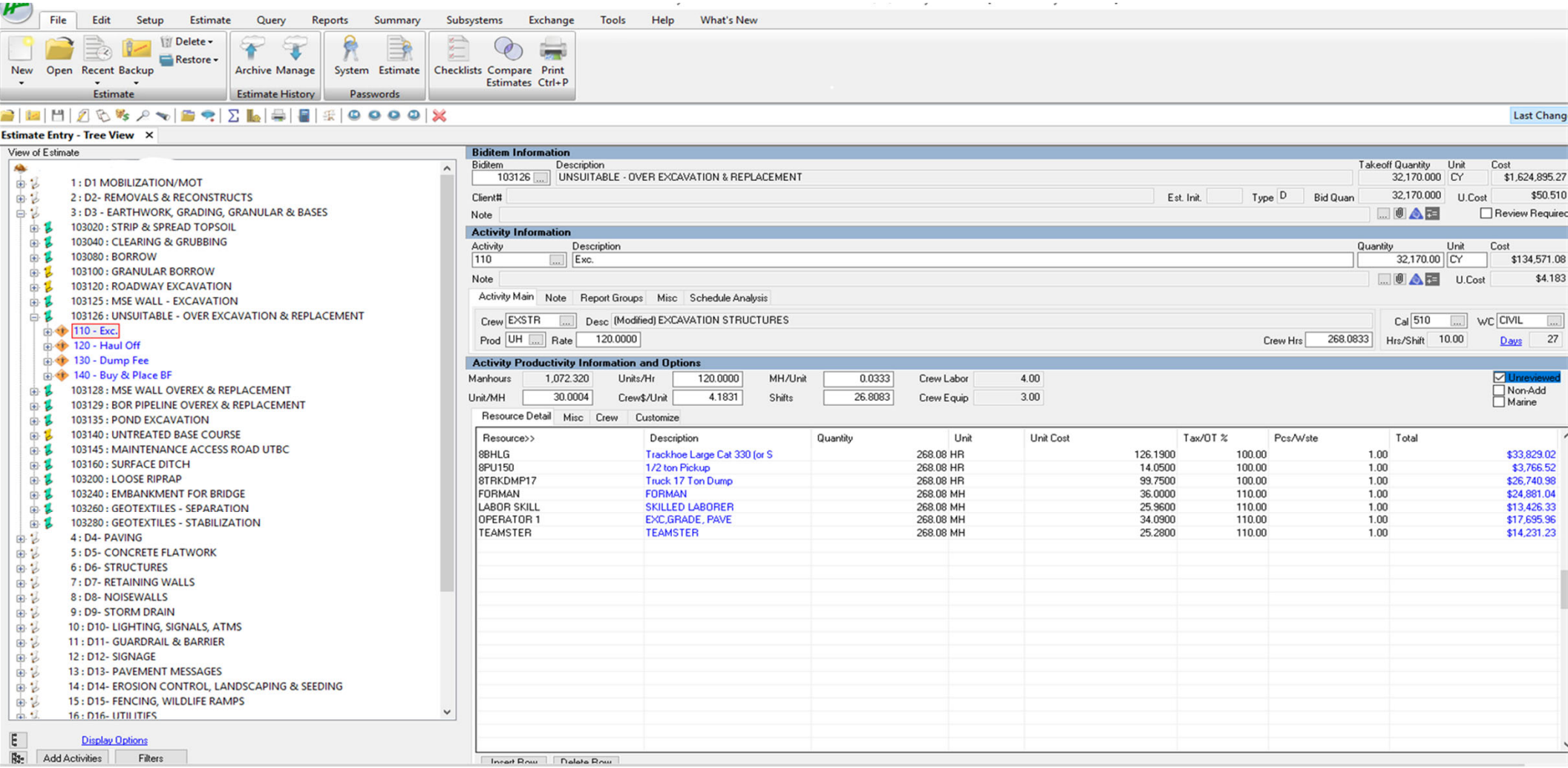
- Submit Post Post-Reconciliation Estimate
  - Modifications to Estimate based on Estimate Reconciliation Discussion
  - Identify differences in construction methodology, vendor/subconsultant/supplier assumptions, local labor, equipment/means, etc.
- Agreement on Bid Price and Award of Project
  - Threshold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

Role of the Independent Cost Estimator (ICE)

- Foster Team Environment
- Fair Market Pricing
- Bring additional experience to the project team
- Assist in risk mitigation
- Assist team in developing innovation
- Prepare independent Construction Schedule
- Help team accomplish goals



Production Based Estimating





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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