Alternative Delivery at ARDOT:

Selection and Preconstruction Involvement

Colton Cowles, P.E.

Alternative Delivery Models

Project Selection

Alternative Delivery Implementation

Arkansas Department of Transportation

FULL STEAM AHEAD

Safety • Trust • Excellence • Accountability • Modern

Purpose Statement

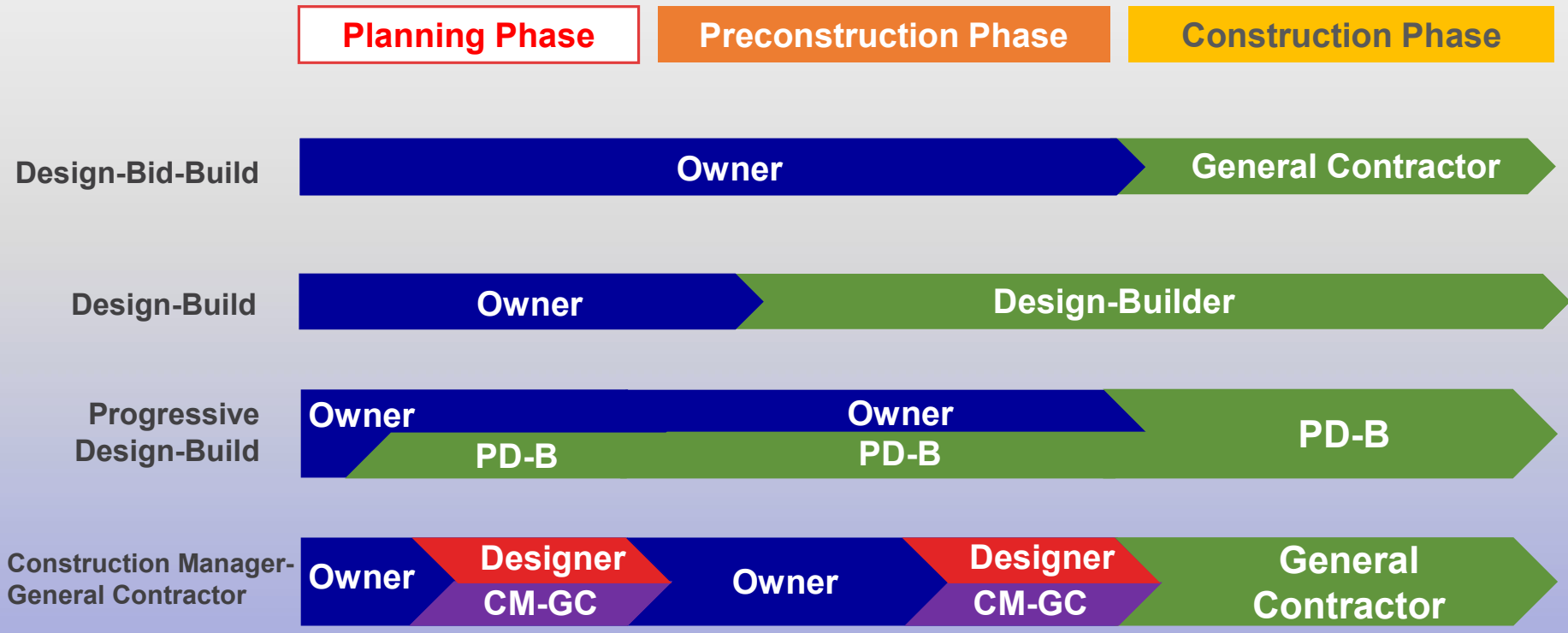
To deliver a modern transportation system to enhance safety and quality of life in Arkansas

Alternative Delivery Division

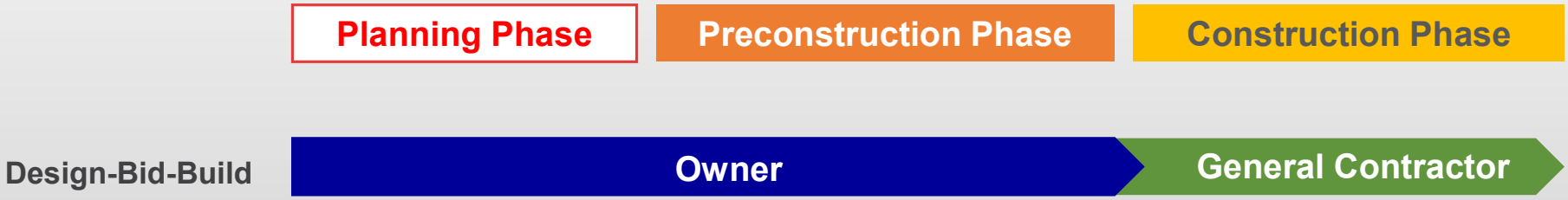
Alternative Delivery's mission is to develop, implement, administer, and manage alternative contract delivery methods by collaborating with the State's general contractors, consultant engineer partners, and Department staff in an effort to provide value by improving quality and cost certainty while expediting overall project delivery.

Alternative Delivery Models

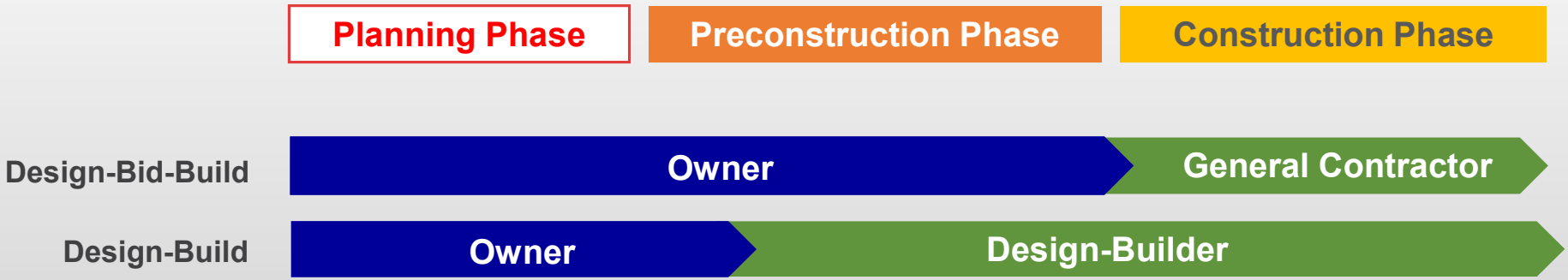
Project Delivery Models Comparison



Project Delivery Model Comparison



Project Delivery Model Comparison



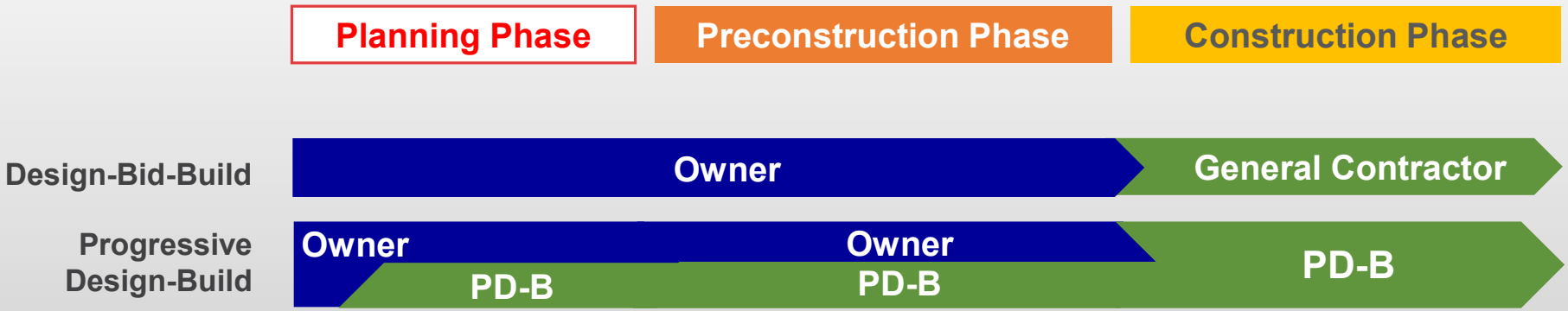
Opportunities:

- Single point of responsibility reduces owner coordination
- Design-Build can streamline delivery by overlapping design and construction, often leading to faster project completion and improved collaboration between designers and builders.

Challenges:

- It requires a well-prepared procurement process and clear project scope to avoid risks, since much of the responsibility is shifted to the design-build team.
- Less direct control over design details for the owner

Project Delivery Model Comparison



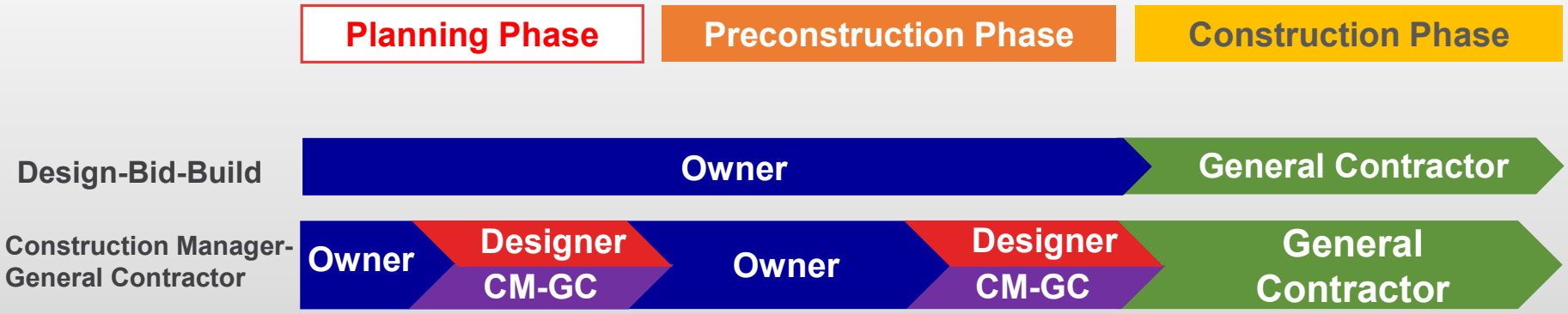
Opportunities:

- Early collaboration between owner, designer, and contractor improves alignment
- Open-book cost estimating provides transparency and builds trust
- Reduced risk of major change orders since scope is developed jointly
- Ability to fast-track portions of construction while design progresses (Work Packages)

Challenges:

- Requires significant owner involvement and expertise to manage effectively
- Final project cost is not known until later in the process
- Relies heavily on collaboration and trust among all parties

Project Delivery Model Comparison



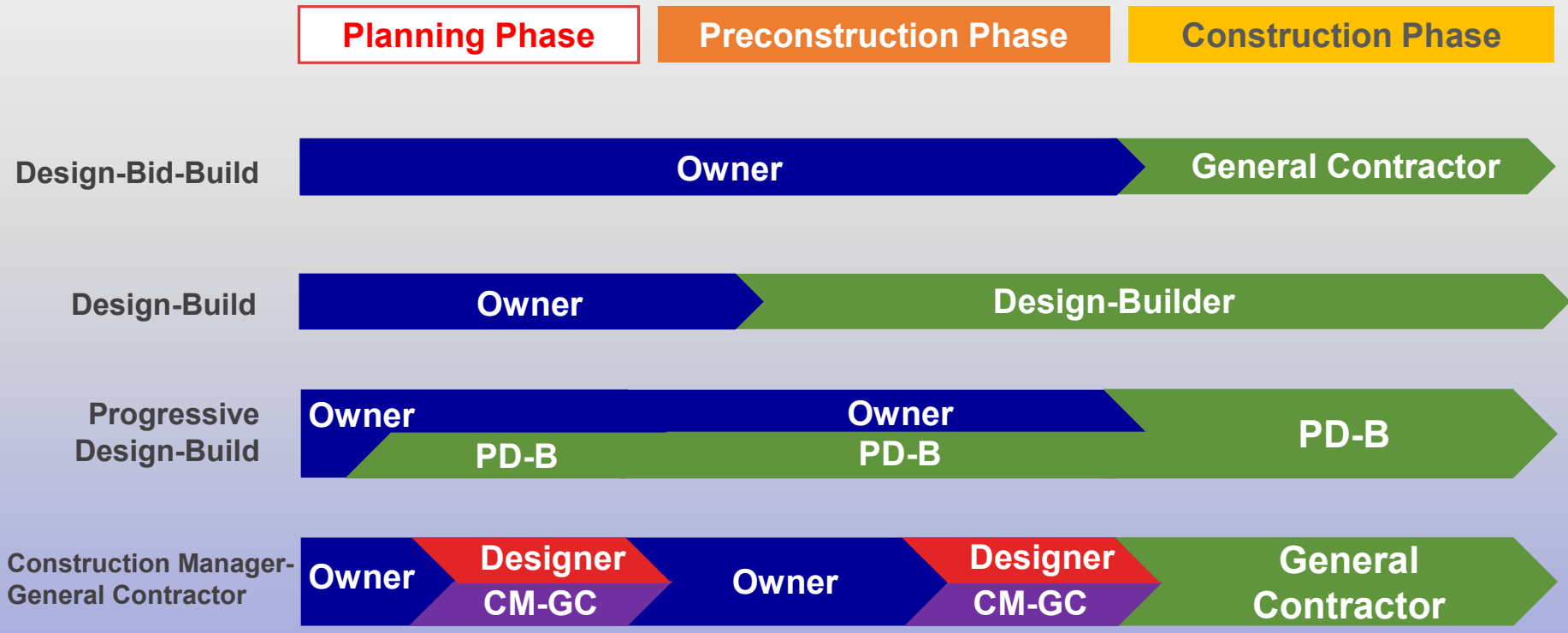
Opportunities:

- Early contractor involvement improves constructability and cost input during design
- Flexibility to adjust scope, methods, and phasing before construction starts
- Open-book pricing which provides cost transparency
- Shared risk and collaborative decision-making between owner, designer, and contractor
- CM team can provide Right-of-Way acquisition and utility relocation services, helping manage the critical path to start construction

Challenges:

- Requires strong collaboration and trust between all parties
- Industry education on the CM-GC delivery method is needed for broader understanding and effective participation
- Coordinating with the Independent Cost Estimator (ICE) can add complexity and requires additional alignment

Project Delivery Models Comparison

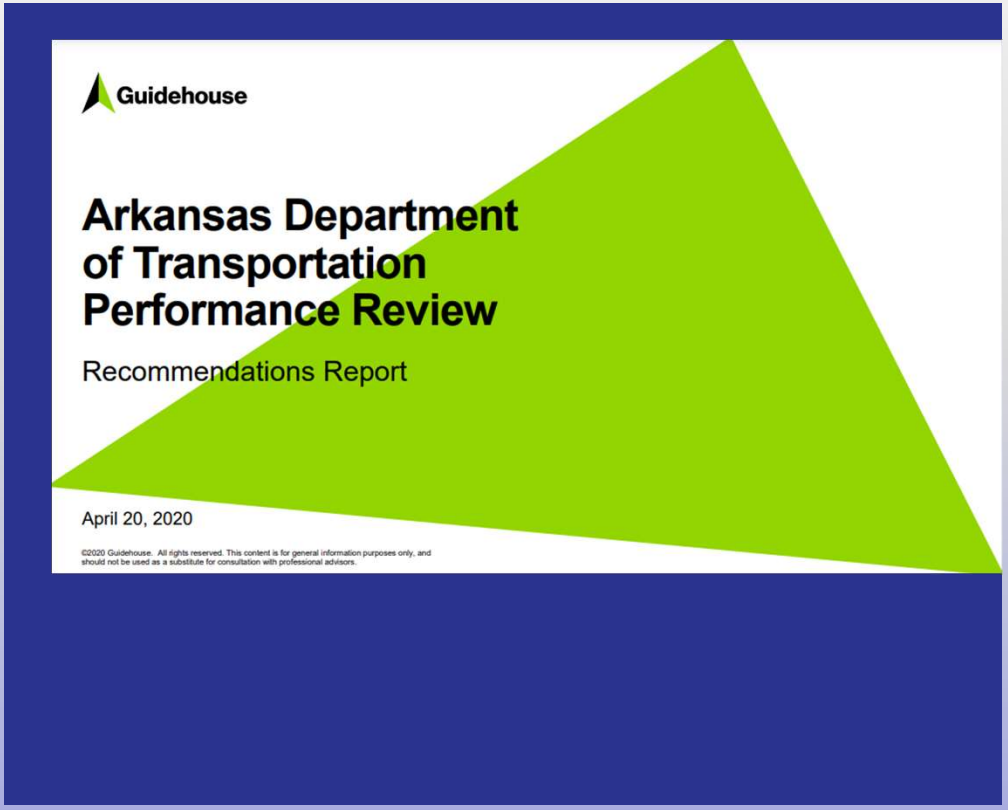


Project Selection

Project Delivery Selection Tool

Purpose:

The PDS Tool is meant to "…allow ARDOT to integrate their own analysis and priorities alongside generally accepted industry standards to yield a roadmap of when alternative strategies should be used to achieve desired outcomes."



Project Delivery Selection Tool

- Pre-Screening Questionnaire to refine projects considered for alternative delivery
- In-person, facilitated Workshops for completion of delivery option analysis
- Goals and Risks used in the analysis that are specific to the project

Project Delivery Selection Tool

➢ Initial Screening

- ❑ Excludes Pavement Preservation Projects
- ❑ NO projects under $10M
- ❑ Cost & Schedule
- ❑ Key Risks
- ❑ Phasing & MOT
- ❑ Project Development

Alternative Project Delivery Division
Project Delivery Selection Tool

Instructions

For projects that (i) are not a pavement or structure preservation project and (ii) have an estimated construction cost greater than $10 million, a representative from each of the Planning, Alternative Delivery, and Design departments, plus a Construction representative from the relevant District, will consider the questions below and determine a collective response of "Yes" or "No" to each.

If the response to four or more questions is "Yes", the project should proceed with a full evaluation of potential delivery methods using the remaining tabs of the PDS Tool.

Initial Screening		Panel Response
Cost	Does the project present a level of design uncertainty or technical risk that may present challenges to ARDOT's ability to estimate and manage costs?	No
Schedule	Does the project present a level of schedule uncertainty or complexity that may present challenges to ARDOT ability to manage schedule?	No
Risk	Are the project's risks hard to define or challenging to manage, or has ARDOT struggled to managing similar project risks in the past?	Yes
Phasing/ Packaging	Does the project offer opportunities for phasing and/or packaging that may help ARDOT or the contractor manage cost, schedule, or risk?	Yes
Third Party/ ROW / MOT	Are there significant challenges or uncertainties in obtaining third party approvals, securing the necessary ROW, or managing traffic during construction?	Yes
Innovation	Would innovations in design and/or construction means and methods be likely to benefit the project?	Yes
Industry Interest	Would alternative delivery increase industry interest in the project?	Yes
Agency Capacity	Does ARDOT lack sufficient internal capacity at this time to manage alternative delivery, such as technical resources for reviews, oversight, management, and/or coordination?	No
Contractor Involvement	Is the project early enough in the design development process to have meaningful benefits or value from contractor input?	Yes
	Total "Yes" Responses:	6

Project Delivery Selection Tool

➢ Inputs

- ❑ Decision Objective
- ❑ Delivery Methods
- ❑ Constraints
- ❑ Goals and Objectives
- ❑ Key Risks
- ❑ Weighting

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Project Delivery Selection Tool

Decision Objective
Determine the most suitable delivery method for the I-40/Hwy 365 interchange improvement and major widening project.

Project Constraints
Project Funding Obligation Deadline
Anticipated Project Cost

Delivery Methods Considered	
Design-Bid-Build	DBB
Design-Build	DB
Construction Mgr. - Gen. Contractor	CM-GC
Progressive Design-Build	PDB

Project Delivery Goals, Objectives, or Opportunities	Weight	
Schedule Certainty at Selection	Medium	2
Cost Certainty at Selection	Medium	2
Control over planning and design	High	3
Maintain a high level of influence over project design	Low	1
Proactive accommodation of stakeholder inputs, including betterment requests	High	3

Key Risks	Weight	
Archaeological discovery during construction results in delays	Medium	2
Long duration utility relocations	High	3
Timeliness of railroad coordination and approval on the design	High	3
Minimize impacts to telephone duct bank & 20" watermain	High	3
Price fluctuations over the project timeline	Medium	2

Project Delivery Selection Tool

Weighting Scales

		Extent to which achievement of goal / objective is dependent on delivery method	
		Somewhat dependent	Critically dependent
Importance of goal or objective	Secondary importance to project delivery success	**Low**	**Medium**
	Critical to project delivery success	**Medium**	**High**

		Extent to which effective management of risk is dependent on delivery method	
		Independent	Highly dependent
Impact of risk on project delivery success	Managing risk has moderate or minimal impact on project delivery success	**Low**	**Medium**
	Managing risk is critical to project delivery success	**Medium**	**High**

Weight	
Medium	2
Medium	2
High	3
Low	1
High	3

Weight	
Medium	2
High	3
High	3
High	3
Medium	2

Project Delivery Selection Tool

Qualitative Assessment Scales

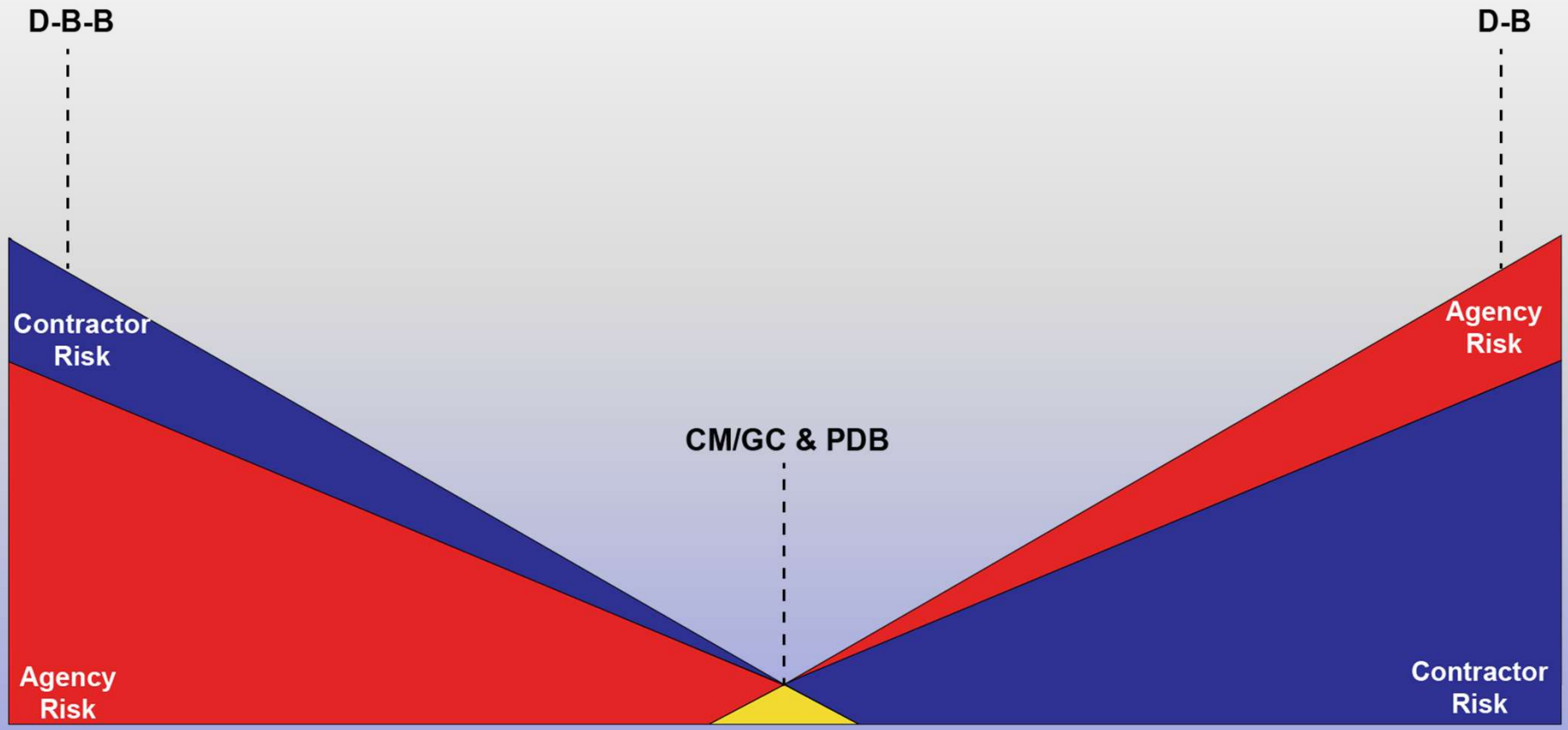
- ❑ Goals and Objectives
- ❑ Key Risks

Project Delivery Goals, Objectives, or Opportunities	Base Case DBB	Option 1 DB	Option 2 CM-GC	Option 3 PDB
Achieve cost certainty at selection				
Cost management during design				
Cost management during construction				
Ability to secure railroad design input, approval as early as practical				
Maximize bidder interest / competition				
Ability to self-perform certain design aspects and maintain control over design				

Score	Delivery Method's Effect on Stated Risk
Least favorable	Significantly increases the probability or consequence of the risk, or may substantially hinder mitigation of the risk
Somewhat unfavorable	Increases the probability or consequence of the risk, or makes mitigation of the risk more difficult
Neutral	Has no effect on the risk
Somewhat positive	Reduces the probability or consequence of the risk, or contributes towards mitigation of the risk
Most positive	Significantly reduces the probability or consequence of the risk, or helps mitigate the risk based on evidence from similar projects

Score	Delivery Method's Effect on Stated Objective, Goal, or Opportunity
Least favorable	Has significantly unfavorable effect(s) or may prevent achievement
Somewhat unfavorable	Does not support the achievement of the goal and may have an unfavorable impact
Neutral	Is neither adverse nor supportive
Somewhat positive	Supports the achievement of the goal
Most positive	Noticeably improves chance of achieving goal based on evidence from similar projects

Risk & Opportunity Allocation



Project Delivery Selection Tool

Project Delivery Goals, Objectives, or Opportunities	Rater 1				
	Base Case	Option 1	Option 2	Option 3	
	DBB	DB	CM-GC	PDB	Comments
Schedule Certainty at Selection	Somewhat positive	Most positive	Somewhat unfavorable	Somewhat unfavorable	- DB provides a completion date at the time of letting, with significant control and responsibility transferred to the DB team for meeting the required milestone dates. -A DBB bid is based on a certain schedule in the contract, but there is more likelihood of schedule change using a DBB method. - CMGC and PDB will not determine the final schedule until the final price negotiations.
Cost Certainty at Selection	Somewhat positive	Most positive	Somewhat unfavorable	Somewhat unfavorable	- DB provides a lump sum price at the time of letting, with significant control and responsibility on the DB team. - DBB provides a bid, but total final cost will vary based on final quantities. - CMGC and PDB will not provide pricing until certain design milestones are achieved during the design process, and not at the time a contractor is selected.
Control over planning and design	Most positive	Somewhat unfavorable	Most positive	Somewhat positive	- Owner has the most control over design using CMGC and DBB, and has influence and input in a PDB contract. Prescriptive direction on a DB and PDB can increase cost and transfer risk back to the owner.
Maintain a high level of influence over project design	Most positive	Least Favorable	Most positive	Neutral	- in DBB and CMGC, the owner has full control over the designer. - In PDB, the owner has more input into the design then on DB projects.
Proactive accommodation of stakeholder inputs, including betterment requests	Most positive	Somewhat unfavorable	Most positive	Somewhat positive	Stakeholder feedback is best incorporated during design and when ARDOT retains high control over the design.

Project Delivery Selection Tool

Figure 1. Example Results

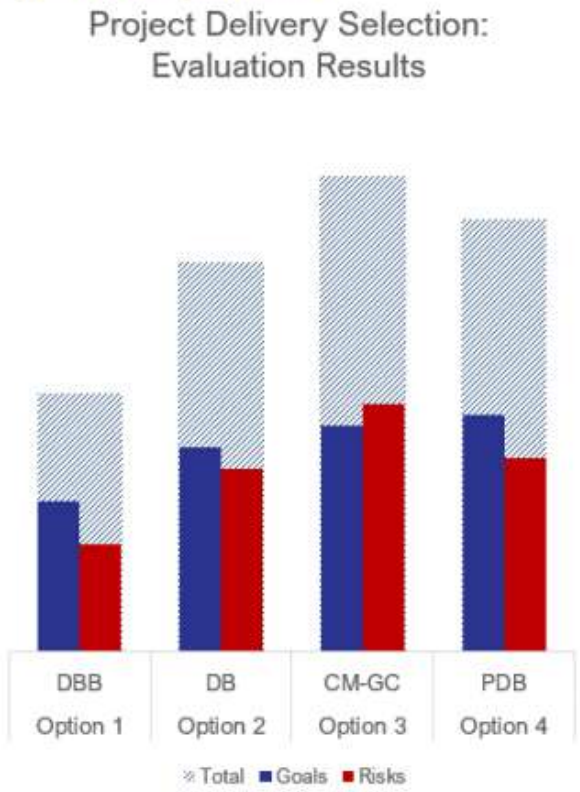


Figure 2. Ranking with Rater Agreement

Rank	Delivery Method	Rater Agreement
1	CM-GC	Very Good
2	PDB	Very Good
3	DB	Very Good
4	DBB	Very Good

Figure 3. Summary Table of Goal and Risk Score by Delivery Method

Item #	Description	Option 1 DBB	Option 2 DB	Option 3 CM-GC	Option 4 PDB
Goal 1	Example - cost goal	Least Favorable	Somewhat unfavorable	Most positive	Somewhat unfavorable
Goal 2	Example - schedule goal	Somewhat unfavorable	Somewhat positive	Somewhat unfavorable	Somewhat positive
Goal 3	Example - innovation goal	Neutral	Neutral	Somewhat positive	Somewhat positive
Risk 1	Example - maintaining traffic	Least Favorable	Somewhat unfavorable	Most positive	Somewhat unfavorable
Risk 2	Example - constructability concerns risk	Somewhat unfavorable	Somewhat positive	Somewhat unfavorable	Somewhat positive
Risk 3	Example - errors & omissions risk	Neutral	Neutral	Somewhat positive	Somewhat positive

Alternative Delivery Implementation

The Alternative Delivery Process

Select most qualified teams using a **qualifications-based** process

Establish a process to escalate and **resolve issues rapidly**

Establish a **fair pricing** approach via open book pricing, verified by **ICE**

Obtain **maximum efficiencies** from the collaborative environment

Alignment between team members on approach to pricing early in process leads to **cost certainty**

Establish a process to facilitate rapid Department **decision making**

Hold regular **collaborative meetings** to review project status and issues

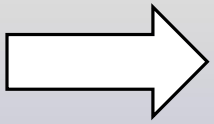
Manage the **risk register** and **innovation log** throughout project development

Identifying Potential Risk

- ✓ Utility relocation delays
- ✓ “As Directed” quantities
- ✓ Unforeseen site conditions
- ✓ Inflation
- ✓ Supply chain issues/delays
- ✓ Price escalations
- ✓ Labor shortages
- ✓ Traffic delays
- ✓ Weather

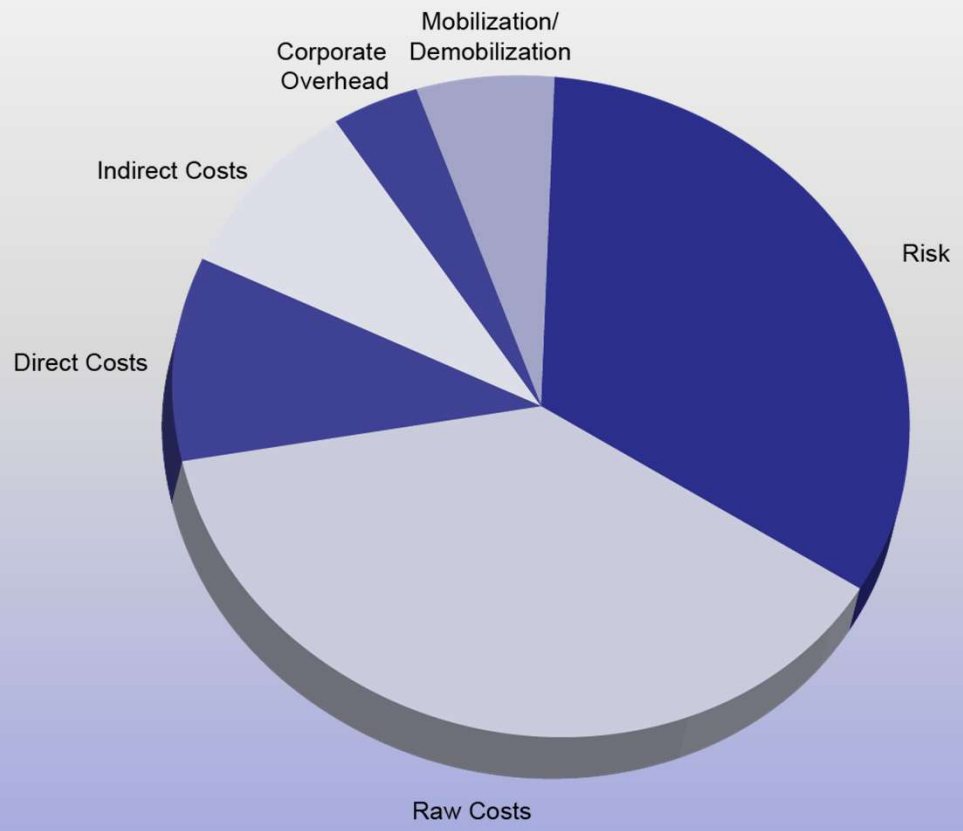
Identifying Potential Innovation

- ✓ Utility relocation delays
- ✓ “As Directed” quantities
- ✓ Unforeseen site conditions
- ✓ Inflation
- ✓ Supply chain issues/delays
- ✓ Price escalations
- ✓ Labor shortages
- ✓ Traffic delays
- ✓ Weather

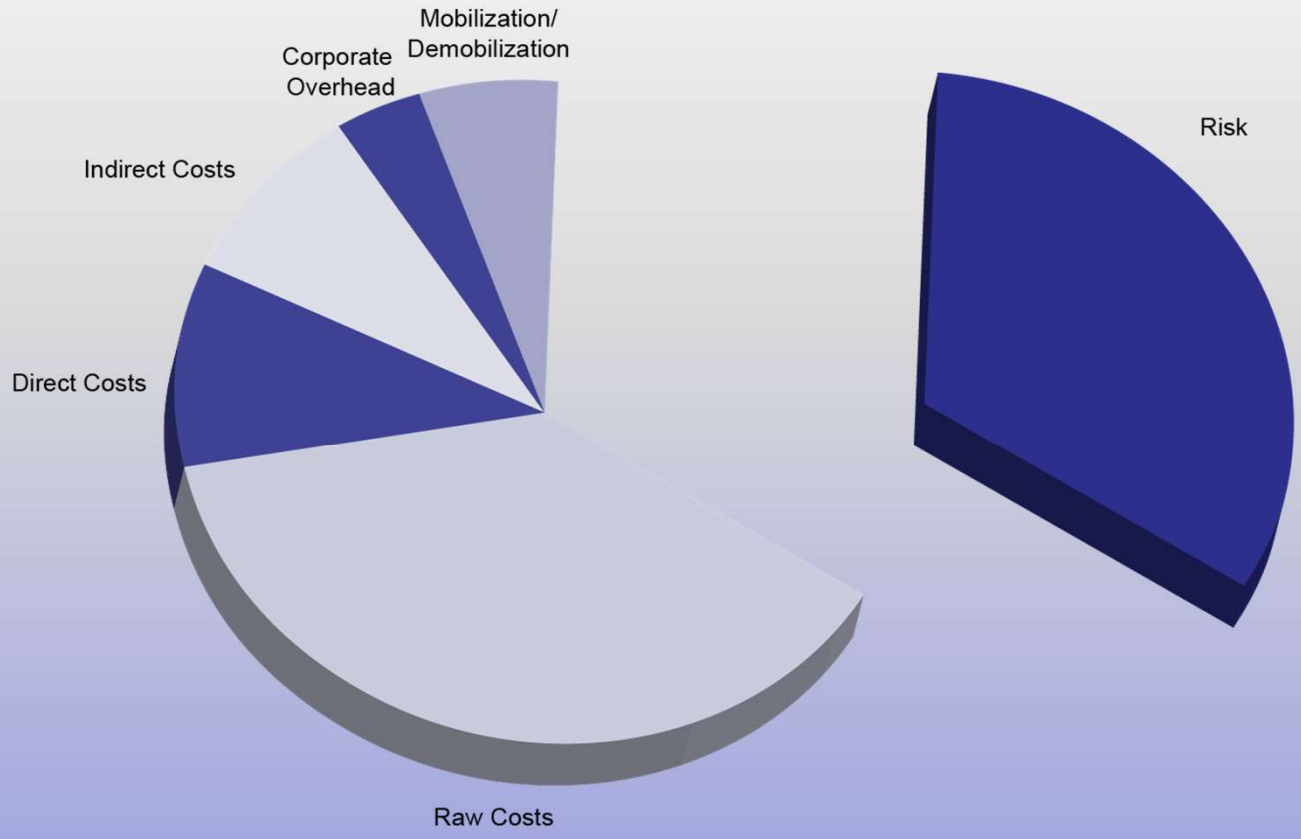


- ✓ Utility relocation planning and potholing
- ✓ “As Directed” quantity placed in Risk Register
- ✓ Constructability reviews to identify “common” issues
- ✓ Construction-driven design decisions
- ✓ Traffic phasing strategies
- ✓ Supply chain planning
- ✓ Schedule optimization

Fixed Price Approach on Design-Bid-Build



Transparent Cost Through Collaborative Pricing



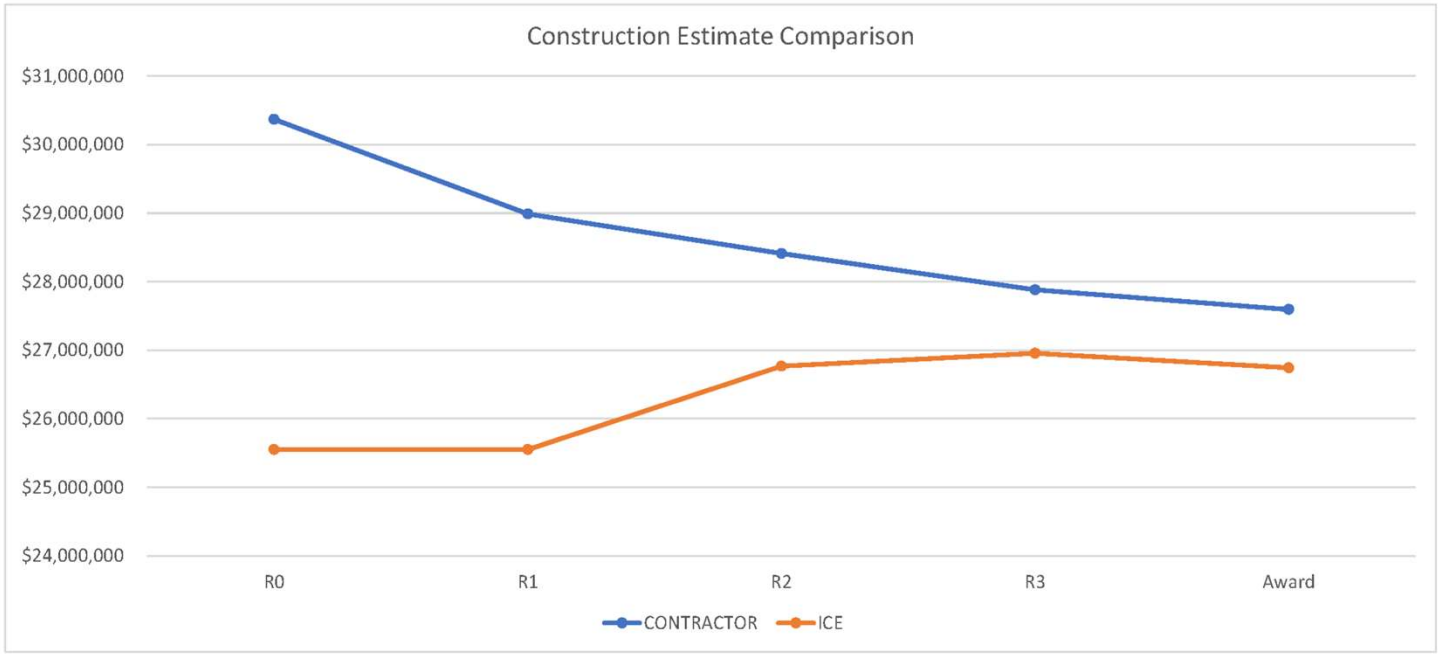
Independent Cost Estimator (ICE)

Independent Cost Estimator

- Independent cost estimating is critical
  - **Cost certainty**
  - Cost transparency
- Helps establish a **Guaranteed Maximum Price (GMP)**
- Provides a contractor-style, production-based estimate
- Blind pricing, i.e., pricing is not shared with contractor team
- Should **NOT** rely on historical bid pricing
- Experience with similar projects required
- Arkansas CM-GC legislation requires ICE to be within 10% of contractor estimate to award the construction contract

Independent Cost Estimator (ICE)

	R0	R1	R2	R3	Award	R0 to Award Change	
Contractor	$ 30,368,506	$ 28,989,037	$ 28,410,827	$ 27,881,678	$ 27,593,317		$ (2,775,189)
ICE	$ 25,550,436	$ 25,550,436	$ 26,767,393	$ 26,955,644	$ 26,742,422		$ 1,191,986
Variance	17.2%	12.6%	6.0%	3.4%	3.1%		



Alternative Delivery Value – The Power of Collaboration

Innovation

- Innovation can potentially address project **complexities**
- Contractor input during the design phase can **maximize innovation** and reduce constructability issues
- Transfer of **knowledge**

Design

- Design can be tailored to accommodate the Contractor's preferred **means and methods**
- Potentially **reduce delays** on projects with tight corridors, extensive third-party involvement, complex maintenance of traffic components

Cost

- Improve **cost certainty** or cost control
- **Open book** pricing
- **Fair Market Value** rather than low bid
- Built in **Value Engineering**

Schedule

- Schedules can be **optimized**
- Impacts on the **traveling public** may be minimized
- Schedule informed from **contractor early involvement** on means and methods

Questions


30
CROSSING


C3
CONWAY CORRIDOR CONNECTION


40
77
55
DELTA
77


JACK-STONE 10
10


DIAMOND
49
FORTY-NINE
62


CONNECT
5
HIGHWAY FIVE