Project Delivery Selection Workshop Summary (Volume 24 Issue1) Updated: January 2024

Workshop Summary	
Project Name:	Region 1 Signal Replacement Project
Workshop Date:	06/23/2025, 1pm to 5pm
Workshop Location:	CDOT Headquarters, room 218 (Hybrid)
Facilitator:	Casey Valentinelli
Delivery Method Selected:	

Workshop Participants	
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CTIO representative if necessary.	

Project Description

The following items should be considered in describing the specific project. Other items can be added to the bottom of the form if they influence the project delivery decision. Relevant documents can be added as appendices to the final summary report.

Project Attributes
Project Name: Region 1 Signal Replacement Project
Location: Region 1
Estimated Budget: $14M
Estimated Project Delivery Period:
Required Delivery Date (if applicable):
Source(s) of Project Funding: FASTER, SGA, SGN
Project Corridor: Varies
Major Features of Work – pavement, bridge, sound barriers, etc.: Signal replacement
Major Schedule Milestones: RFP dates, procurement dates, scoping, Ad, construction start and close out.
Major Project Stakeholders: CDOT traffic and maintenance, utilities (Xcel), local agencies
Major General Obstacles: Lead time of poles and traffic signal equipment, re-design of one-line diagrams, utilities causing re-design of signals in the field. Ask Brad's opinion and what he has change orders for.
Major Obstacles with Right of Way, Utilities, and/or Environmental Approvals: Acquiring the ROW, Railroad, relocation of utilities if needed, and environmental clearances if needed.
Major Obstacles during Construction Phase: Weather, lead time for the materials.
Safety Issues: Over head power lines, structural work (safety critical), utilities, traffic control
Sustainable Design and Construction Requirements: curb ramps, led signal heads,

Project Goals

An understanding of project goals is essential to selecting an appropriate project delivery method. Therefore, project goals should be set prior to using the project delivery selection matrix. Typically, the project goals can be defined in three to five items and need to be reviewed here. Example goals are provided below, but the report should include project-specific goals. These goals should remain consistent over the life of the project.

Project-Specific Goals
Goal #1: To minimize the amount of change orders and minimize project site condition changes.
Goal #2: Reduce procurement timeline.
Goal #3: Achieve high quality plans and construction through shared liability.
Goal #4: Meet or exceed project requirements
Goal #5: Accelerate the project timeline.

General Project Goals (For consideration)

Schedule

- Minimize project delivery time.
- Complete the project on schedule.
- Accelerate start of project revenue.

Cost

- Minimize project cost.
- Maximize project budget.
- Complete the project on budget.
- Maximize the project scope and improvements within the project budget.

Quality

- Meet or exceed project requirements.
- Select the best team.
- Provide a high-quality design and construction constraints.
- Provide an aesthetically pleasing project.

Functional

- Maximize the life cycle performance of the project.
- Maximize capacity and mobility improvements.
- Minimize inconvenience to the traveling public during construction.
- Maximize safety of workers and traveling public during construction.

Project Constraints

There are potential aspects of a project that can eliminate the need to evaluate one or more of the possible delivery methods. A list of general constraints can be found below the table and should be referred to after completing this worksheet. The first section below is for general constraints and the second section is for constraints specifically tied to project delivery selection.

General Constraints
Source of Funding: FASTER, SGA, SGN
Schedule constraints: ROW and procurement of materials
Federal, state, and local laws: State
Third party agreements with railroads, ROW, etc.: ROW, railroads
Project Financing
Does your project have any funding gaps that would require Financing*? No
Project Delivery Specific Constraints
Project delivery constraint #1: Maximize the budget allowing for more signals.
Project delivery constraint #2: Complete the project on schedule
Project delivery constraint #3: Minimal changes will be accepted.
Project delivery constraint #4: High quality design and construction constraints
Project delivery constraint #5:

General Project Constraints

Schedule

- Utilize federal funding by a certain date.
- Complete the project on schedule.
- Weather and/or environmental impact

Quality

- Must adhere to standards proposed by the Agency.
- High quality design and construction constraints
- Adhere to local and federal codes.

Function

- Traveling public must not be disrupted during construction.
- Hazardous site where safety is a concern.
- Return area surrounding project to existing conditions.

Cost

- Project must not exceed a specific amount.
- Minimal changes will be accepted.
- Some funding may be utilized for specific type of work (bridges, drainage, etc.)
- *If project financing is required before proceeding with the project delivery selection matrix, the project will need to coordinate with the Colorado High Performance Transportation Enterprise (HPTE). If financing is necessary, the project will need to work with the HPTE to determine the appropriate project delivery method that will accommodate the financing mechanism(s).

Project Risks

Identified Project Risks
Project Risk: Site conditions and investigations
Project Risk: Utilities
Project Risk: Railroads
Project Risk: Environmental
Project Risk: Right of way
Project Risk: Local agencies and their regional plans.
Project Risk: Development
Project Risk: Construction phasing and timeline
Project Risk:
Project Risk:

General Risk Categories to Consider

1. Site Conditions and Investigations
2. Utilities
3. Railroads
4. Drainage/Water Quality
5. Environmental
6. Third-party Involvement
7. Organizational
8. Design
9. Construction
10. Right-of-Way

Project Delivery Selection Summary

Determine the factors that should be considered in the project delivery selection, discuss the opportunities and obstacles related to each factor, and document the discussion on the following pages. Then complete the summary below.

PROJECT DELIVERY METHOD OPPORTUNITY/OBSTACLE SUMMARY			
	DBB	**CM/GC**	**DB**
Primary Selection Factors			
1. Project Complexity & Innovation	+	+++	+++
2. Project Delivery Schedule	+	+++	++
3. Project Cost Considerations	++	++	+++
4. Level of Design	+	+++	+++
5. Risk Assessment	+	+++	++
Secondary Selection Factors			
6. Staff Experience/Availability (Agency)		+++	+
7.Level of Oversight and Control		+++	++
8. Competition and Contractor Experience		+++	+

Rating Key	
+++	Most appropriate delivery method
++	Appropriate delivery method
+	Least appropriate delivery method
X	Fatal Flaw (discontinue evaluation of this method)
NA	Factor not applicable or not relevant to the selection

Project Delivery Selection Summary Conclusions and Comments

It was concluded that CMGC is the most appropriate method for the delivery of this project. This was decided based on CMGC allows:

- Contractors can suggest innovative construction techniques, alternative material, or equipment to improve efficiency or durability.
- Ability to avoid duplicate work in certain situations (one-line diagrams that are designed and then need to be updated/changed in construction).
- Timeline allows for more time to review the plan set in order to catch design errors.
- Constant collaboration helps control scope creep
- Balance of ideas and input on how something could be built. Value engineering is kind of built into the process.
- Construction management will be similar to what the project members are used to.
- Opportunity for signal contractors to gain experience with this method. Most RFP's look similar; this is an easier ask of the contractors as compared to the DB requirements.

1) Project Complexity and Innovation

DESIGN-BID-BUILD - Allows Agency to fully resolve complex design issues and evaluate designs before procurement of the general contractor. Innovation is provided by Agency/Consultant expertise and through traditional processes such as VE studies and contractor bid alternatives.

Opportunities	Obstacles	Rating
Design is fully complete prior to construction.	Introduces room for more change orders in the field.	+
Contractor is familiar with this method.	Redesign of one-line (Xcel) diagrams, curb ramps, general intersections	
Designer based on qualifications.	Often don't get the best value for the project due to the variability in contractor qualifications.	
	CDOT carries all the risk.	
	Unforeseen underground conditions (utilities aren't where they are recorded to be).	
	IMSA certifications for the contractors aren't verified until after award.	

CM/GC - Independent selection of designer and contractor based on qualifications to jointly address complex innovative designs through three party collaboration of Agency, designer, and Contractor. Allows for a qualitative (non-price oriented) design but requires agreement on CAP.

Opportunities	Obstacles	Rating
Contractors can suggest innovative construction techniques, alternative material, or equipment to improve efficiency or durability.	The contractors may lack alt. delivery experience. There will likely be a learning curve for the contractors.	+++
Contractor based on qualifications, certified IMSA contractor needed to wire the signals.	There are a few significant opportunities for the contractor to bring innovative ideas in the design of signals.	
Designer based on qualifications.		
Shared risk.		
Ability to avoid duplicate work in certain situations (one-line diagrams that are designed and then need to be updated/changed in construction).		
Opportunity for construction phasing coordination and suggestions from the contractor prior to construction.		

DESIGN-BUILD - Incorporates design-builder input into design process through best value selection and contractor proposed Alternate Technical Concepts (ATCs) – which are a cost-oriented approach to providing complex and innovative designs. Requires that desired solutions to complex projects be well defined through contract requirements

Opportunities	Obstacles	Rating
Contractor based on qualifications.	The contractors may lack alt. delivery experience. There will likely be a learning curve for the contractors.	+++
Designer based on qualifications.	Schedule constraints, the project is mainly based on milestones and CDOT responses are needed within a certain timeline. If the timelines aren't met CDOT could face LDs.	
Almost all risk falls on the contractor.	There are a few significant opportunities for the contractor to bring innovative ideas in the design of signals.	
Contractor based on qualifications, certified IMSA contractor needed to wire the signals.		
Ability to avoid duplicate work in certain situations (one-line diagrams that are designed and then need to be updated/changed in construction).		
Opportunity for construction phasing coordination and suggestions from the contractor prior to construction.		

2) Delivery Schedule

Delivery schedule is the overall project schedule from scoping through design, construction and opening to the public. Assess time considerations for starting the project or receiving dedicated funding and assess project completion importance.

DESIGN-BID-BUILD - Requires time to perform sequential design and procurement, but if design time is available has the shortest procurement time after the design is complete.

Opportunities	Obstacles	Rating
It's familiarity with the process, common issues have "easy" answers.	It takes a long time to get to and begin construction (material lead time).	+
Timeline allows for more time to review the plan set in order to catch design errors.		

CM/GC - Quickly gets contractor under contract and under construction to meet funding obligations before completing design. Parallel process of development of contract requirements, design, procurements, and construction can accelerate project schedule. However, schedule can be slowed down by coordinating design-related issues between the CM and designer and by the process of reaching a reasonable CAP.

Opportunities	Obstacles	Rating
Quick to construction – shortens the timeline.	Reaching a reasonable CAP might require three rounds of negotiations.	+++
Design and construction phases can overlap, allowing parts of the project to start construction before the entire design is completed.	Procurement packages need to be severable. Anything procured in the process needs to be owned by CDOT. Can be stored by a contractor but must be accessible by the owner	
Contractor input helps with traffic control phasing.		
Coordination between the CM and designer early on can avoid redesign down the road.		
Timeline allows for more time to review the plan set in order to catch design errors.		
Ability to overlap the procurement time with the design of the intersections.		
Ability to put out a long lead time procurement package.		

DESIGN-BUILD - Ability to get project under construction before completing design. Parallel process of design and construction can accelerate project delivery schedule; however, procurement time can be lengthy due to the time necessary to develop an adequate RFP, evaluate proposals and provide for a fair, transparent selection process.

Opportunities	Obstacles	Rating
It's good if you have a drop-dead date the project has to be complete by.	If a contractor does have a drop-dead date, it can encourage the contractor to cut corners, lowering the quality of work. Increasing the punch list items - extending the timeline anyway.	++
Takes fewer hours from CDOT team members in order to run a project.	Less time available to the CDOT team to review submittals/plans/etc.	
Ability to overlap the procurement time with the design of the intersections.	When items come in that need attention from the project team, they need to be top priority.	

3) Project Cost Considerations

Project cost is the financial process related to meeting budget restrictions, early and precise cost estimation, and control of project costs.

DESIGN-BID-BUILD - Competitive bidding provides a low-cost construction for a fully defined scope of work. Costs accuracy limited until design is completed. More likelihood of cost change orders due to contractor having no design responsibility.

Opportunities	Obstacles	Rating
Scope can increase but it increases design cost.	Field conditions may change significantly between design and construction.	++
	Doesn't allow for scope changes after Ad.	
	Cost accuracy is limited until the design is fully complete.	
	Unforeseen CMO's are generally higher price per unit costs than is seen in a bid.	

CM/GC - Agency/designer/contractor collaboration to reduce risk pricing can provide a low-cost project however, non-competitive negotiated CAP introduces price risk. Good flexibility to design to a budget.

Opportunities	Obstacles	Rating
Less potential change orders as issues are collaborated on between the CM and GC.	Doesn't handle scope creep well.	++
The contractor is involved during the design phase which allows them to provide constructability reviews, cost estimates, and schedule input.	Upfront costs including a CM fee is 0.5% to 1.5% of the construction budget as well as a Independent Cost Estimate.	
The accelerated timeline is good for any signals that pose safety risks.	Cost certainty comes once the final package is decided on.	
Cost control.		
Constant collaboration helps control scope creep.		
Opportunity to reduce the probability of designing something twice.		
Quick to begin.		
Including the contractor in the phasing discussions prior to construction.		

DESIGN-BUILD - Designer-builder collaboration and ATCs can provide a cost-efficient response to project goals. Costs are determined with design-build proposal, early in design process. Allows a variable scope bid to match a fixed budget. Poor risk allocation can result in high contingencies.

Opportunities	Obstacles	Rating
Good for a scope that might expand.	Slow to start.	+++
Opportunity to reduce the probability of designing something twice.	With timeline constraints there is more risk of cuts either in scope or quality.	
Good for projects that have a drop-dead end date (funding must be used within the fiscal year).		
Set budget and that is known up front.		

4) Level of Design

Level of design is the percentage of design completion at the time of the project delivery procurement.

DESIGN-BID-BUILD - 100% design by Agency or contracted design team, with Agency having complete control over the design.

Opportunities	Obstacles	Rating
Design is 100% complete by Ad.	No contractor collaboration for construction or phasing.	+

CM/GC - Can utilize a lower level of design prior to procurement of the CMGC and then collaboration of Agency, designer, and CMGC in the further development of the design. Iterative nature of design process risks extending the project schedule.

Opportunities	Obstacles	Rating
Design and construction phases can overlap, allowing parts of the project to start construction before the entire design is completed.		+++
Close coordination between Agency, Designer and contractor improves decision making, especially in urban environments with multiple stake holders.		
Only need defined scope prior to RFP.		
Balance of ideas and input on how something could be built. Value engineering is kind of built into the process.		

DESIGN-BUILD - Design advanced by Agency to the level necessary to precisely define contract requirements and properly allocate risk (typically 30% or less).

Opportunities	Obstacles	Rating
Design is only required to be at 30% or less before RFQ.		+++
Balance of ideas and input on how something could be built. Value engineering is kind of built into the process.		

5) Risk Assessment of Delivery Methods

Risk is an uncertain event or condition that, if it occurs, influences a project's objectives. Risk allocation is the assignment of unknown events or conditions to the party that can best manage them. An initial assessment of project risks is important to ensure the selection of the delivery method that can properly address them. An approach that focuses on a fair allocation of risk will be most successful.

DESIGN-BID-BUILD - Risk allocation for design-bid-build best is understood by the industry but requires that most design-related risks and third-party risks be resolved prior to procurement to avoid costly contractor contingency pricing, change orders, and potential claims.

Opportunities	Obstacles	Rating
CDOT is well versed in handling all of the risk with a lot of the projects.	CDOT still has to overcome the risks.	+
CDOT keeps roughly 100% of the control of the project.		

CMGC - Provides opportunity for Agency, designer, and contractor to collectively identify and minimize project risks, and allocate risk to appropriate party. Has potential to minimize contractor contingency pricing of risk but can lose the element of competition in pricing.

Opportunities	Obstacles	Rating
Shared risk between the contractor and CDOT. There is a risk register that assigns risk to each party best equipped to handle certain risks.		+++

DESIGN-BUILD - Provides opportunity to properly allocate risks to the party best able to manage them, but requires risks allocated to design-builder to be well defined to minimize contractor contingency pricing of risks.

Opportunities	Obstacles	Rating
Ability to keep certain risks in house if wanted which leads to low risk. Most risk is shifted to the contractor.	The contractors in the signal space would be a big learning leap for them.	++
	The signal contractor may not be best equipped to handle all of the risk that is put on them.	

6) Staff Experience and Availability

Agency staff experience and availability as it relates to the project delivery methods in question.

DESIGN-BID-BUILD - Technical and management resources necessary to perform the design and plan development. Resource needs can be more spread out.

Opportunities	Obstacles	Rating
Not Assessed	Not Assessed	NA

CMGC - Strong, committed Agency project management resources are important for success of the CMGC process. Resource needs are similar to DBB except Agency must coordinate CM's input with the project designer and be prepared for CAP negotiations.

Opportunities	Obstacles	Rating
Getting staff experience with alternative delivery projects.	Project staff doesn't have experience with this method, CMGC will be a learning curve.	+++
The design phase will be similar to what the SME's are used to.		
Construction management will be similar to what the project members are used to.		

DESIGN-BUILD - Technical and management resources and expertise necessary to develop the RFQ and RFP and administrate the procurement. Concurrent need for both design and construction resources to oversee the implementation.

Opportunities	Obstacles	Rating
Getting staff experience with alternative delivery projects.	Having both specialty and general staff available when needed.	+
	Project staff doesn't have experience with this method, DB is a steeper learning curve.	

7) Level of Oversight and Control

Level of oversight involves the amount of agency staff required to monitor the design or construction, and amount of agency control over the delivery process.

DESIGN-BID-BUILD - Full control over a linear design and construction process.

Opportunities	Obstacles	Rating
Not Assessed	Not Assessed	NA

CMGC - Most control by Agency over both the design, and construction, and control over a collaborative agency/designer/contractor project team

Opportunities	Obstacles	Rating
The knowledge of how to build signals is under one program allowing collaboration to be easier between design and construction groups.		+++

DESIGN-BUILD - Less control over the design (design desires must be written into the RFP contract requirements). Generally, less control over the construction process (design-builder often has QA responsibilities).

Opportunities	Obstacles	Rating
Less control over the design which could allow for innovation.	Need to leave enough room in the RFP that allows for innovation, which can be difficult with very specific standards (strict requirements on controllers, signal equipment, etc.).	++

8) Competition and Contractor Experience

Competition and availability refer to the level of competition, experience and availability in the marketplace and its capacity for the project.

DESIGN-BID-BUILD - High level of competition, but GC selection is based solely on low price. High level of marketplace experience.

Opportunities	Obstacles	Rating
Not Assessed	Not Assessed	NA

CMGC - Allows for the selection of the single most qualified contractor, but CAP can limit price competition. Low level of marketplace experience.

Opportunities	Obstacles	Rating
Opportunity for signal contractors to gain experience with this method. Most RFP's look similar; this is an easier ask of the contractors as compared to the DB requirements.	Not a lot of signal contractors have cmgc experience.	+++
Significant amount of scope that could lead to a few years of work.		

DESIGN-BUILD - Allows for a balance of price and non-price factors in the selection process. Medium level of marketplace experience.

Opportunities	Obstacles	Rating
	Signal Contractor might not see the benefit in going after a DB project, due to maybe the effort needed to put into the project to be awarded the project.	+
	Not a lot of signal contractors have design bid project experience.	