COLORADO
Department of Transportation

CDOT Region 3 Program East
714 Grand Avenue
Eagle, CO 81631

DATE: July 29, 2025

TO: Keith Stefanik, P.E. Chief Engineer

FROM: Karen Berdoulay, P.E. R3 East Program Engineer

SUBJECT: Alternative Project Delivery Method Recommendation for Chief Engineer Approval

Project: 27145 US 24 Red Cliff Bridge Rehabilitation F-11-T

As stated in the Project Delivery Selection Guidelines, Chief Engineer approval is required for a project to be delivered using any Alternative Delivery Method.

On July 23, 2025, the US 24 Red Cliff Bridge Rehabilitation Project Team held a Project Delivery Selection Matrix (PDSM) workshop facilitated by Casey Valentinelli, to analyze the potential benefits of using an Alternative Delivery Method to deliver the US 24 Red Cliff Bridge Rehabilitation project.

The project scope includes rehabilitation of a historically significant steel arch bridge on the national registry of historic places located at US 24 MM 153.5 in Eagle County, CO. The bridge is structurally deficient due to deterioration in the super and substructure, affecting the strength of the bridge. Initial analysis of the structure has been completed which has led to overload restrictions and load posting. Initial rehabilitation alternatives have been evaluated, but it has been determined that significant additional analysis and design will need to be completed prior to defining the most effective rehabilitation method. The rehabilitation of this structure is a priority for Bridge and Tunnel Enterprise and funding has been programmed for design and construction of the rehabilitation to be completed as soon as possible to reduce the duration of the overload restrictions and load posting.

ANALYSIS:

Highlights from the PDSM

Project Complexity and Innovation

The team determined that CM/GC was the most appropriate method regarding Project Complexity and Innovation. The team agreed that the design of this unique bridge rehabilitation will be challenging to define the technical details in the contract. Specifically for this project some complexities identified include: unknowns with rehabilitation of an 80 year old historic unique steel arch structure that is 200 feet above ground, the as-builts may not fully capture all correct information on the structure, there is difficult access, and it is difficult to model and determine strength of this structure. Furthermore there are concerns that the repair work may not be able to be done with a live load requiring a shut down period to the traveling public or consideration of a detour. A detour is very complicated in this area since it would require travel over another load posted bridge, and travel through the Town of Red Cliff which has narrow roads with poor pavement and tight curves. Having feedback from the contractor in design on the method for rehabilitation, construction phasing, staging, temporary access and traffic control is critical to reach project goals.

Design-Build was deemed appropriate as a delivery method since that method also allows for innovation in design. However, the team was concerned that it is difficult to define the details of this contract well early enough in the process to take advantage of this delivery method. Design-Bid-Build was deemed least appropriate. Though this method allows

the most owner control, there was concern for the lack of contractor feedback in design for innovations, construction phasing, staging, temporary access and traffic control.

Delivery Schedule

The team deemed CM/GC the most appropriate delivery method regarding Delivery Schedule. The CM/GC delivery method opens the opportunity for long lead time procurement and ability to deliver an early construction package, potentially allowing acceleration of construction to meet the project goal of reducing the duration of overload restrictions and load posting. CM/GC also allows for more schedule certainty since the contractor will provide input during design on safety, phasing, traffic control and staging. As mentioned previously, there is concern that the rehabilitation work will be extensive and may not be able to be completed under live loads. Contractor input in design to minimize the overall schedule, minimize the duration of any potential shut down to the traveling public, evaluation of alternative rehabilitation methods, and evaluation of the detour will allow CDOT to meet project goals.

Design-Bid-Build was rated as least appropriate regarding delivery schedule since there is no contractor feedback in design which could lead to surprises in construction, potentially extending the schedule. Also, there is no ability to start construction early due to a linear delivery process. Design-Build was also rated least appropriate since a significant portion of the complex design and approvals must be completed before the scope is well-known enough to draft the RFP. Then the procurement process for Design-Build is an additional 9-12 months before moving forward with design and construction.

Project Cost

The team selected all three delivery methods, CM/GC, Design-Bid-Build and Design-Build as appropriate regarding Project Cost. The team noted that CM/GC has opportunities with innovation from the contractor and the owner can control scope to meet budget. However, there is not competitive bidding and there are additional design costs for re design based on input as well as the cost of the CM/GC contract and for the independent cost estimator. The team discussed that Design-Bid-Build has opportunities as well with a competitive bid and less design costs. However, Design-Bid-Build does not allow for innovations in design and this project will be challenging to estimate, increasing the potential for bids to come in higher than the engineer's estimate or budgeted amount. Finally, the team also noted the opportunities for Design-Build (D-B) which allows opportunities for innovation and competition since the D-B selection includes a price component. However, the team felt there is significant risk to project cost with D-B since the value of design-build is to have the contractor complete a portion of the design and there is significant risk in defining the scope until all 3rd party approvals, including SHPO, have been completed. This could lead to scope changes later in design that introduces cost risks.

Level of Design

The team determined CM/GC to be the most appropriate delivery method regarding Level of Design. CM/GC will allow contractor input during design, improving quality assurance of contract documents and allowing efficiency in design and construction for safety, access and phasing. Reducing the duration of load posting is a project goal. Having the CM/GC provide feedback in design may help to define options for an early package to achieve that goal more quickly while the rest of the design is completed.

Design-Bid-Build was determined to be appropriate for Level of Design given that there are less iterations with less feedback. However, there is potential for more design errors or changes in construction due to constructability issues, potentially leading to change orders or disputes. Design-Build allows for construction innovation from the D-B contractor, however there was concern that a significant level of design and approvals must be completed prior to fully understanding and defining the scope of work for an RFP which would reduce the value in this delivery method.

Risk Assessment *(After the first 4 factors, CM/GC was selected as most appropriate so Risk was evaluated as Pass/Fail for CM/GC per PDSM guidance document)*

The team rated CM/GC with a passing rating regarding Risk Assessment. The team highlighted that CM/GC allows the team to allocate risk appropriately between CDOT and the CM/GC contractor. The team anticipates that due to the nature of the rehabilitation work and age of the structure, there will be changes in construction that will be best handled with risk pools. CM/GC is the ideal delivery method for this scenario since risks can be quantified and tracked in a risk register to assign costs to risks and only pay for those costs if the risks become active.

Secondary Factor Assessment *(After the first 4 factors, CM/GC was selected as most appropriate so the secondary factors were evaluated as Pass/Fail for CM/GC per PDSM guidance document)*

The team rated CM/GC with a passing rating regarding Staff Experience and Availability. Region 3 Program East has experience with the CM/GC delivery method and with rehabilitation of bridges. This experience will allow CDOT to appropriately staff the project to overcome the challenge that the CM/GC delivery method requires more involvement from the owner.

The team rated CMGC with a passing rating for Level of Oversight and Control since CDOT can maintain control over the design process. The team rated CM/GC with a passing rating for Competition and Contractor Experience since qualified contractors are interested in this project. The team also noted that the scope and size of the project is likely to open up the contractor pool and incentivize out of state contractors.

RECOMMENDATION:

Based upon the findings of the Project Delivery Selection Matrix Workshop summarized above, and in consultation with the CDOT Alternative Delivery Program, it is recommended that the most appropriate delivery method for this project is **CM/GC.**

The CM/GC delivery method will support CDOT in meeting the project goals. Notably, contractor input on the feasibility of the rehabilitation method is critical due to the unique nature of this rehabilitation. Contractor input in design on phasing and traffic control will allow for opportunities to reduce impacts to the traveling public and early stakeholder outreach with actual impacts once they are determined. CM/GC will also allow for opportunities for removing the overload restrictions and load posting as soon as possible. Finally, CM/GC will allow feedback in design on access to the bridge work so the work can be completed as safely as possible.

The Project Management Team is requesting concurrence and approval to proceed with our recommendation to use **CM/GC** to deliver the US 24 Red Cliff Bridge Rehabilitation Project.

ATTACHMENTS:

- Completed Project Delivery Selection Matrix

Signed

Karen Berdoulay

Digitally signed by Karen Berdoulay
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Karen Berdoulay, P.E. R3 East Program Engineer

I concur:

Jason C. Smith

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Jason Smith, Region 3 Transportation Director

STATE OF COLORADO 1876

COLORADO
Department of Transportation

I concur:

Casey Valentinelli

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Casey Valentinelli, P.E.
Alternative Delivery Program Manager

I approve:

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Keith Stefanik, P.E. Chief Engineer

Cc: Karen Berdoulay, Program Engineer
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