

**DATE:** June 15, 2022  
**PROJECT:** ER 0361-018 (20744) Site 17  
**SUBJECT:** SEP-14 Final Evaluation Report for Best Value Procurement, CDOT Project 20744

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## **A. Introduction**

The SEP-14 Final Evaluation Report will address all the measures in Paragraph F of the SEP-14 Workplan (**Attachment A**), compare the awarded bidder's proposal to project outcomes, then provide an overall evaluation of the project and give suggestions and recommendations for improving the Best Value Procurement Process.

The Colorado Department of Transportation (CDOT) received approval under the Federal Highway Administration (FHWA) SEP-14 to use an innovative contracting practice to solicit and award the US Highway 36 (US 36) Project ER 0361-118 subaccount 20744 (CDOT Engineer's Estimate \$8.9 Million). CDOT evaluated full and open competitive proposals to determine award of the contract based on a Best Value evaluation process.

The project advertisement for construction was in the fall of 2019. Flatiron Constructors won the contract (**Attachment B**). This was the first time CDOT had used Best Value Procurement on a federally funded project.

## **B. Project Location**

The project is located within the Roosevelt National Forest on US 36 from MP 7.7 to MP 8.0 in Larimer County in the State of Colorado.

## **C. Purpose**

CDOT solicited a full and open construction competition using a Request for Proposal (RFP). The RFP solicited responses to the following three items; answers to a series of questions in order to establish a final Best Value Score based on a technical proposal (blindly evaluated), schedule (blindly evaluated), and price submittal from each bidder (evaluated last). The RFP explained how heavily each category would be weighted. (**Attachment C**)

## **D. Best Value Proposal vs. Outcome**

The awarded bidder achieved the highest Best Value Score. The Best Value Score was based on:

**Best Value Score = 50% (Technical Score) + 35% (Construction Schedule) + 15% (Cost Evaluation)**

Below is a recap of CDOT's goals and selection criteria per Section F of the SEP-14 Workplan (**Attachment A**), the Bidder's Proposal, and the outcome.

## 1. Technical Proposal

As described in Part 2 of **20744 Request for Proposals (Attachment C)**, the bidders submitted a Technical Proposal that discussed the following:

- Risk
- Relevant Experience
- Safety
- Project First
- Quality and Budget Control

### a. Risk

**CDOT Goal:** Reduce overall risk to the project by selecting a bidder based on their complete and written understanding of the critical aspects of the project (qualifications, experience, schedule, price), rather than price alone. The Technical Proposal required bidders to identify the top three challenges to the project and describe how they would mitigate them. Only bidders that reviewed and understood the plans could be successful with Best Value.

**Proposal Risk A:** (Excerpt from Technical Proposal)  
*Tunneling Design Approval*  
*“In order to successfully complete the tunneling scope of work, we will need to develop and acquire approval for our approach to the work.”*

**Risk A Solution:** (Excerpt from Technical Proposal)

- *“We have added to our team a dedicated subcontractor specializing in tunneling/drilling with extensive experience working in a mountainous region.”*
- *“We will make the tunneling design and approach approval an early package for expedited review, so that we can begin that process earlier and get started working to stay on schedule.”*
- *“We will leverage our understanding of CDOT’s permitting/approvals process to accurately submit paperwork to avoid resubmittal.”*

**Outcome:** Best Value required bidders to have relevant tunneling experience themselves or through their subcontractor. This paid off for the project when the Contractor submitted a VECP (Value Engineering Change Proposal) package to install a series of canopy tubes the full length of the tunnel followed by conventional excavation methods. The VECP resulted in a net savings to the project of approximately \$104,000. Per CDOT Standard Specification 104.07 (d) “Value Engineering Change Proposals by the Contractor” (**Attachment J**), the Contractor earned a \$25,000 incentive plus half of the remaining \$79,000 in net savings. This would not have been possible without the technical expertise of the tunneling subcontractor.

**Proposal Risk B:** (Excerpt from Technical Proposal)  
*Schedule*  
*“We will need to complete the work within the allowable road closure, while addressing CDOT’s “peak time” for the season. In addition, using nighttime work will require close coordination with plants and other material suppliers to stay on schedule.”*

**Risk B Solution:** (Excerpt from Technical Proposal)

- *“We will pre-plan with CDOT to determine what work we can complete within the allowable closure time.”*
- *“We will find opportunities to expedite work to shorten the duration of the road closure, as much is feasible.”*
- *“We will identify long lead items and stockpile materials as needed to ensure we have what we need to begin and complete the work.”*

**Outcome:** In spite of a compressed schedule (due to a delay in receiving the Notice of Award that was not the Contractor’s fault), the Contractor was able to complete all the road closure work within the specified 3/9/20 – 4/7/20 closure window.

The Contractor achieved this by doing what they said they would do in their Technical Proposal, which initially helped them win the Best Value Contract:

- Pre-planning with CDOT:
  - i. Three of the four wingwalls at the West CBC were called out in the plans to be precast, but under the compressed schedule, they would not be ready in time for the road closure. Therefore, the Contractor came to CDOT and made the case for changing to cast-in-place wingwalls. CDOT agreed to the change.
  
- Identifying opportunities to expedite work:
  - i. The Contractor pulled staff from other nearby projects in order to run a 24/7 operation during the road closure.
  - ii. After the project was shut down for two weeks due to wildfires in the area, the Contractor made up for lost time by adjusting construction sequencing, such as accelerating construction of the culvert floor by loaning the tunneling subcontractor the Contractor's own steel crew.
  
- Identifying long lead items and stockpiling materials as needed:
  - i. The Contractor leveraged their working relationship with a precast concrete supplier to ensure the precast CBC sections would still be ready in time even under the compressed timeline.

**b. Relevant Experience**

**CDOT Goal:** Avoid repeating the mistakes of a previous CDOT project with similar subsurface perpendicular construction. The contractor on the previous project had limited experience in this type of work, and when the operation ran into obstacles, the contractor made several failed attempts to solve them, resulting in a delay of over a month and almost \$200,000 in change orders to the project. Therefore, the bidders were asked to describe their relevant experience.

**Bid Proposal:** (Excerpt from Technical Proposal)  
*“We have completed a significant amount of underground and confined space work for tunnel excavation. We will bring this*

*expertise, as well as work through our dedicated specialty subcontractors, to provide a successful project for the Colorado Department of Transportation (CDOT)."*

**Outcome:** By requiring bidders to show they had relevant experience in completing tunneling and CBC work, Best Value successfully ensured that time sensitive construction, such as the road closure work, was not slowed down by Contractor inexperience, and unforeseen challenges were efficiently and effectively resolved. For example:

- When the Contractor hit bedrock before reaching the bottom of the CBC excavation, they were immediately ready (with structure engineer's approval) to drill and epoxy into the bedrock and customize concrete forms to tie into the irregularly shaped rock.
- Large boulders and harder than expected bedrock were encountered during tunneling, but the highly experienced tunneling subcontractor resolved these issues by adjusting their excavation technique and having the necessary equipment on standby.

### c. Safety

**CDOT Goal:** Incorporate [Whole System Whole Safety](#) into the project. Bidders described how they would maintain safety during construction.

**Bid Proposal:** (Excerpt from Technical Proposal)  
*"Safety is our core value, and our zero-accidents safety goal is vigorously pursued every day. Our company's nationally recognized safety program focuses on developing engineered solutions to mitigate safety risks on a daily basis. Construction staff performs extensive pre-planning to identify and document potential safety risks and ways to mitigate those concerns prior to beginning construction."*

**Outcome:** The Contractor quickly and efficiently responded to safety challenges. They showed that safety was their core value in the following example:

- Incident and Emergency Management
  - i. Wildfire Safety: CDOT requested a wildfire safety plan from Flatiron 1 week before the Chief Engineer mandated it statewide. Flatiron delivered a robust safety plan (**Attachment D**) that had to be exercised to rapidly close and secure the construction site during active wildfires. Once for first responder rapid response, and then again a few days later to support the full evacuation of the Town of Estes Park. Both stand-downs were successfully executed with no disruption to services, no traffic interruption, and no onsite safety incidents.

These resources and outcomes were driven by the Best Value selection of a contractor with experience and resources outside the standard project need that could be executed efficiently and effectively and may not have been available from a less qualified contractor.

#### **d. Project First**

**CDOT Goal:** Resolve issues at the project level using Project First, CDOT’s Formal Partnering Process. Bidders were asked to describe how they had used Project First in the past to resolve a dispute.

**Bid Proposal:** (Excerpt from Technical Proposal)  
*“We have experience working with CDOT’s “Project First” partnering program, through which we draw on each other’s strengths to achieve the mutual goals of the project. Using “Project First,” we were able to mitigate an issue with utilities not being relocated in a timely manner on a recent project. Through proactive partnering and coordination, we re-phased the project to limit the overall impact of utilities on the project schedule and the traveling public.*

*Should a dispute over the same or similar issue arise, the written report (Issue Resolution Process) from the previous issue shall be used as a resource during the issue resolution process.”*

**Outcome:** Best Value assigned value to bidder’s prior experience with Project First. As a result, the awarded bidder was more likely to use Project

First to resolve issues. Not only were issues resolved at the project level, but the project also won the 2020 CCA (Colorado Contractor's Association) Project Management Award in the Emergency project category, and a 2022 International Partnering Institute Collaborative Project Award. Below is an example of how challenges were resolved using Project First:

- Accommodating Local Community
  - i. In the spirit of Project First, the Contractor worked with CDOT to provide a construction access road with morning and evening windows to allow locals through the project. This level of accommodation had not been part of the original plans and specifications and could have been a source of contention if Best Value had not driven the project to be awarded to a Contractor that demonstrated Project First experience and buy-in.

**e. Quality and Budget Control**

**CDOT Goal:** Bidders described their plan and approach to manage budget, quality, and durability under a compressed schedule.

**Bid Proposal:** (Excerpt from Technical Proposal)  
*“This project’s schedule will be built with quality and the overall project budget in mind. Additionally our experience in the area allows us to know what to expect at certain times during the year, which may include weather, increased traffic flows, or wildlife movements. Being able to plan for the unexpected, and also knowing what the crews onsite are capable of achieving for productions, will allow for the schedule to be achievable under the tightest of deadlines and allow the work to be performed in a safe, quality, and budget friendly manner.”*

**Outcome:** In contrast to Design/Bid/Build, Best Value required bidders to describe their plan and approach to manage budget, quality, and durability under a compressed schedule. A successful bidder would have to demonstrate their understanding of and ability to plan for the project’s specific challenges. The awarded Contractor innovatively reviewed the plans and identified ways to reduce project cost without sacrificing quality. For example:

- USFS and Channel Bedding
  - i. The Contractor kept one of their most skilled equipment operators on site to work with CDOT and USFS to obtain the right mix of onsite soil and aggregate to simulate natural occurring channel bottom material.
  
- Steel Inspection
  - i. The steel crew foreman paid close attention to detail and proactively came to CDOT if something did not seem correct, rather than waiting for an inspector to notice.
  
- Budget Conscious
  - i. By using the alternate accesses at the East Culvert, the Contractor did not need to use the historic Muggins Gulch Road. This eliminated the previously identified need to protect the historic road with over \$100,000 of geotextile and ABC (Class 6).

## 2. Schedule

**CDOT Goal:** Complete the road closure work on US 36 within a fixed 30 day window.

**Bid Proposal:** Best Value motivated the bidders to compress the road closure work schedule by giving the maximum score to the schedule with the least days. As a result, only bidders with significant resources at their disposal would be likely to achieve the highest Schedule Score. The awarded bidder committed to completing the US 36 road closure work within 26 days.

**Outcome:** The Contractor was able to not only meet, but beat, their proposed 26 day schedule by reopening US 36 in 20 days, 10 days sooner than the original time allotted. This was due in large part to the contractor having enough resources at their disposal to operate 24/7 during the road closure, which might not have been the case under a typical design/bid/build project.



### 3. Price

**CDOT Goal:** Complete the project under \$9 Million.

**Bid Proposal:** The awarded bid came in at \$8.8 Million. Although this was not a design/bid/build project, bid cost was still a key factor in the scoring process, which kept bid costs reasonable.

**Outcome:** The final cost was \$8.2 Million. With construction originally budgeted at almost \$8.9 million, the total savings was approximately \$700,000. Best Value promoted budget management and Project First in the Technical Proposal, which led to the Contractor and CDOT working together to implement several cost saving innovations.

### B. Overall Evaluation of Project

The Best Value contracting process set the project up for success by selecting a bidder based on technical skill and minimizing impact to the traveling public (i.e. duration of road closure) in addition to bid cost. CDOT required bidders to answer Technical Proposal questions, and this minimized the risk of awarding an uninformed bidder. The project was completed with zero safety recordables or reportables despite 20 days of 24/7 operation, a pandemic, and two wildfire safety stand-downs from federally declared disasters.

The results speak for themselves. The project won the 2020 CCA (Colorado Contractor's Association) Project Management Award in the Emergency Project Category (**Attachment F**), 2021 CDOT Environmental Project of Year Award (**Attachment G**), 2021 Runner-up in the ENR Best Projects Competition in the Small Projects Under \$10 Million Category (**Attachment H**), and a 2022 IPI (International Partnering Institute) Collaborative Project Award (**Attachment I**).

#### a. Public Relations

**CDOT Goal:** Provide excellent customer service to the local community and stakeholders along this key corridor to Estes Park and Rocky Mountain National Park.

**Outcome:** The project established and maintained a positive working relationship with the surrounding communities by holding three pre-construction open house events (one in Lyons, Pinewood Springs, and Estes Park), ongoing public outreach (e.g. daily dispatch emails), meeting and coordinating with essential services, providing locals and essential services passage through the road closure twice daily, and honoring the commitment to reopen US 36 within the 30 calendar days CDOT and the community had agreed upon.

**b. Innovation**

**CDOT Goal:** CDOT asked bidders to describe Project First examples and relevant experience in their Best Value Technical Proposal. This was in order to encourage teamwork and innovation in the field.

**Outcome:** VECP: The alternative tunneling method VECP is a good example of innovation on this project driven by Best Value.

**Pros:** Per the VECP, CDOT was projected to save \$42,375. The actual savings came to \$39,542. Large boulders were encountered during tunneling. However, this did not cause a major tunneling delay the way the originally advertised tunnel shield method may have.

**Cons:** Unfortunately, the canopy tubes themselves obstructed the vertical opening of the tunnel (shaft). Altering the design elevation of the tunnel was not an option, so the crew had to cut away sections of the canopy tubes before progress could be made. This resulted in many additional labor hours the Contractor likely had not budgeted for.

**Additional Examples:**

- **Culvert markings:** The project improved operations efficiency by marking elevation and contour lines of channel lining on the wall and floor of the culverts prior to placing channel lining.
- **Wildfire Evacuation Tracking:** The project improved safety and by taking daily snap shots of the wildfire evacuation map for future reference and to track changing conditions in real time from ICS and Federal resources.
- **Eliminating Haul-off Waste:** The project reduced vehicle miles traveled and enhanced the environment by using excess excavation material to restore part of a local mountainside.

See **Attachment E** for the full list of successful innovations on this project.

**c. Environmental**

**CDOT Goal:** Partner with USFS, minimize disturbance to the National Forest, and deliver the project with environmental integrity.

**Outcome:** Through the collaborative efforts of the Contractor, CDOT, USFS, and CPW (Colorado Parks and Wildlife), the project went beyond the environmental expectations of the plans and specifications to create several environmental wins. By requiring the Contractor and their team to have relevant experience in tunneling and CBC work, Best Value awarded a bidder who would be most equipped to recognize the potential for, and value in, minimizing environmental impacts. As discussed in the 2021 CDOT Environmental Project of Year Award Announcement (**Attachment I**), the project was able to:

- Eliminate production of 133 metric tons of CO2 emissions (total greenhouse gasses)
- Eliminate 54,000 heavy vehicle miles travelled (VMT).
- Eliminate 6,600 cubic yards of earth and rock going to a landfill disposal
- Reduce plan quantity tree removals by 50%

#### **E. Suggestion for Improving Best Value Procurement Process**

During the development of the advertisement schedule, go over potential procurement scenarios, how they will be resolved, and how much time it will take. Will more than the usual types of approval be needed from Executive Management before the project can be awarded? If so, give Executive Management advance warning and find the most efficient way possible to process the documentation.

#### **Attachments:**

- Attachment A:** SEP-14 Best Value Workplan  
**Attachment B:** 20744 Best Value Initial SEP-14 Analysis Report  
**Attachment C:** 20744 Request for Proposals  
**Attachment D:** 20744 Wildfire Safety Plan  
**Attachment E:** 20744 List of Innovations

## **Addendum to SEP-14 Final Report**

### **Constructability Meeting Determinations vs. Post Construction Report**

**Background:** The project was originally advertised as a design/bid/build, and all six bids came in over the DDIR (Detail Damage Inspection Report) dollar amount approved by FHWA. As a result, the project could not be awarded. A Constructability Meeting was held with the Contracting Community to determine why there was such a difference between CDOT's project cost estimate and the bidders'.

#### **Concerns and Issues expressed in the meeting:**

**Issue A:** It was difficult to predict the tunnel completion time because of the geological unknowns. Provide more geotechnical data. A significant change in rock size or hardness could significantly affect construction time.

**Resolution:** CDOT determined that no additional geotechnical investigation would be done. The existing geotechnical reports were available for the contractors' review.

**Outcome:** The tunneling subcontractor encountered sections of bedrock that was significantly harder (over 12,000 psi) than the 2,500 psi indicated in the Project Specials. This resulted in a change order for differing site conditions.

The Contractor encountered six boulders that were larger than indicated in the plans. This resulted in a change order for differing site conditions, but with the alternative tunnel method, there was not a significant impact to the schedule.

**Issue B:** Constructability-Consider allowing shotcrete for tunnel lining instead of contact grouting

**Resolution:** CDOT revised the plans to allow shotcrete for the tunnel lining.

**Outcome:** The subcontractor used shotcrete for the lining of the East Culvert.

**Issue C:** Clarification-Clarify earthwork calculations and show how excavation support, ground improvement, and shoring are broken out and paid for.

**Resolution:** The designed clarified earthwork calculations in the plans.

**Outcome:** The Contractor had no confusion during construction about how these items were broken out.

**Issue D:** Road Closure Time-As originally advertised the project would only have two weeks of road closure to excavate for and install the precast CBC, backfill and repave the road, blast rock, and install guardrail. Attendees stated they needed at least 4 weeks.

**Resolution:** After meeting with the public, CDOT and the local Stakeholders agreed to a 30-day road closure. After accounting for the local school district's break schedule, and town events, the ideal time for the closure was determined to be from 3/09/2020 to 4/07/2020.

**Outcome:** The Contractor completed the road closure work in 20 days within the specified dates.

**Issue E:** Access-The contractor needs more access to the construction site and staging area to remove rock above the highway.

**Resolution:** CDOT received permission from USFS for additional access routes through their property.

**Outcome:** The awarded Contractor was able to access the rockface from US 36 during the road closure and did not require the additional access routes discussed with USFS.