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Montana Department of Transportation

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Special Experimental Project No. 14 (SEP-14) Report

Montana Department of Transportation - Job Order Contracting

History

The Montana Department of Transportation (MDT) had a need to rapidly respond to a variety of project types that were limited in scope, repetitive in nature and had a minimal design component. Job order contracting (JOC) provides a way for MDT to deliver commonly encountered construction projects quickly and easily. JOC can reduce avoidable levels of engineering, design, contract procurement time, and construction project procurement costs by awarding long-term contracts for a wide variety of repair and construction projects. With the passage of MAP-21 in 2012 the Department saw an increase to the available Traffic and Safety Funds. In order to help meet the needs of the Traffic and Safety Bureau a Job Order Contracting process was developed. In May of 2013 MDT submitted a SEP -14 application to use Job Order Contracting on Federal Aid Projects.

MDT's initial set of JOC's were for Wrong Way Signing on Interstate Ramps. These were Safety projects to update the ramp treatments to help prevent drivers from entering the Interstate incorrectly. The first JOC was let in March of 2014. This was followed by a single JOC let in 2014 for each of the 5 MDT Districts.

The next set of projects was also for the Traffic and Safety Bureau. It was for Curve Delineation JOC's. These projects updated signage and pavement markings on curves identified through cost-benefit analysis. The first Curve Delineation JOC was let in July of 2014. Multiple JOC's have or will be let in each of the 5 Districts.

The other JOC the Department has let was for Concrete Bridge Deck Repair. In July of 2016 through routine inspection it was determined that a number of relatively new bridge decks were experiencing concrete failure. In December of 2016 a project was let to address 24 bridge decks in the Missoula District. Subsequent job orders under this JOC will be added as additional bridge decks are identified for repair.

Currently planned to be let in the fall of 2017 is a JOC for Timber Bridge Pile Repair. This will initially be a statewide JOC to address some higher risk structures, but will evolve into a

program that has a JOC for each district to address this aging and deteriorating component of our infrastructure.

The Department is also working on a set of JOC's for 2018 to better address compliance with the Migratory Bird Treaty Act (MBTA). MDT plans to advertise one JOC for bird nesting deterrents on structures and another for clearing of tress. The nesting deterrents will be set up with a JOC for the east and west half of the state. The tree clearing will be set up one per District. These two different contract structures are done to best fit with the contractors available to bid on this work.

The MBTA JOC's have been a challenge to implement for a couple of main reasons. The first challenge has been with timing. Normally, MDT addresses MBTA compliance with the project contract. This JOC was planned to quickly address the MBTA compliance if a project moved from its planned letting and now had conflicts with the timing restrictions associated with the Migratory Bird Treaty Act. Therefore, the window to initiate the JOC and get the required Environmental Documents and Right of Way Agreements is very limited. That leads into the second challenge, which is completion of the Environmental Document and Right of Way Agreements. These two items are required for a Federal Aid Contract and the timing issues described above make it difficult for staff to complete activities with standard project schedule flowcharts. In order to get a JOC in place for the Migratory Bird Treaty Act in 2018 the plan is to pick a project that includes MBTA compliance work and pull it from the contract to start a multiyear JOC.

Another project type that was listed in MDT's SEP-14 Application was Geotechnical Repairs. For some of the same reasons with Environmental Documents and Right of Way listed above, as well as difficulty in obtaining budget authority, this JOC has also been difficult to implement. MDT is continuing to work on developing a JOC for geotechnical work.

Methodology

As a new process was being used and there was a certain amount of skepticism it was important to make sure the initial projects were set up to be successful. This was done by first getting buy-in from high level staff. This was achieved through education and showing how JOC best fit with project requirements.

Once there was approval to use JOC, the methodology the Department used was to start off simple and gradually increase complexity of the JOC contracts. This was to try to ensure success and vet out any issues with the process before using all the features of JOC.

The first JOC for Wrong Way Signing on Interstate Ramps was very simple and there were known locations, a prescribed treatment, a limited scope, and a single job order per District. The next JOC for Curve Delineation was more complex and had unknown locations, unknown

quantities, varied treatments, a limited scope and a set number of job orders per District. The third JOC for Concrete Bridge Deck Repair is even a little more variable. It has unknown locations, unknown quantities, varied treatments, a limited scope and multiple job orders per District.

The approach of increasing complexity was beneficial to help not only the department staff, but also the contracting community to become familiar with the process.

MDT JOC Contract Structure

The key elements to the contract structure MDT has been using are:

- The Contractor will bid Unit Costs for a list of items in the bid documents.
- Award is based on the Low Bid. MDT calculates the low bid by multiplying the unit cost by the quantities associated with job order #1 for that JOC.
- The Contractors will have a Guaranteed Minimum amount of work. MDT has used the quantities associated with job order #1 as a guaranteed minimum. For the upcoming Timber Bridge Pile Repair, MDT will use a dollar amount that will be over the value of job order #1. The larger the guaranteed minimum amount of work is, the larger the possible volume discount from the Contractors. The JOC will hopefully be more enticing as a whole because the Contractor can rely on additional work beyond the initial job order.

Comparisons with Design Bid Build

JOC has a number of differences and similarities with the Design Bid Build (DBB) Contracting method. In the preconstruction phase the biggest difference is in the project development process. What is typically taking one to two years in the DBB method can be reduced to months based on plan development and advertising times. The number of plan sheets is also reduced compared with DBB. If MDT had used DBB for the JOC projects completed so far, the projects would have required multiple plan sets if not a unique plan set for every site. For the Concrete Bridge Deck Repair project, this could have been 24 different plan sets versus one. Some required activities that are not changed from DBB is the need for the required Environmental Documents and Right of Way Certification.

In terms of Contract Award, MDT uses a low bid process for JOC, so this is the same as DBB. The Contract Plans Bureau has had to answer questions from contractors due to the use of a new contracting method.

For Contract Administration, MDT uses the same tools that are used on a DBB project. The benefit of JOC is that there will be one contract to administer versus many individual projects. Each job order was handled as an individual contract for Contract Administration purposes.

During Construction, the inspection and quality assurance requirements are the same. The main difference is the larger number of sites for a JOC than most DBB projects. All the JOCs were completed on schedule. Subsequent job orders were added to the contracts by change order with no change in unit cost. An Engineering Project Manager, that worked on all three JOC types MDT has completed, said the projects all went well.

In the post-construction phase, there are no differences. As MDT develops its process for asset management JOC projects will be part of that effort.

MDT has tried, when feasible, to use as many standard practices as possible. This has been to reduce confusion and not reinvent the wheel for working systems.

JOC Benefits

MDT has realized a number of benefits through the use of JOC. Some of those benefits include:

- Increased competition - The average number of bidders on MDT contracts since 2012 has been 3.33. On the JOC's let the average number of bidders is 6.33.
- Bulk Discount – All the JOC's have come in under the Engineer's Estimate. The average cost reduction has been 26% below the engineer's estimate.
- Local Contractors – All the JOC's have been awarded to local Montana Contractors. The awarded contractors are the same ones that normally do this work for MDT but generally as subcontractors.
- Reduced Markup – Since the subcontractors from past projects are now the prime contractors on the JOC's, a layer of mark-up has been removed.
- Reduced Preconstruction vs. Design Bid Build – The amount of time it takes to put together a project and plan package for a JOC is reduced from an average of 1-2 years for similar projects, down to an average of 5 months for JOC's.
- Reduced Work on future JOC's – On the next JOC's for similar work the contract template is already written.
- Ability to Obligate Funds – There are a couple of reasons JOC can obligate funds more quickly than traditional contracting. One is the reduced preconstruction time discussed earlier. There is also the ability to add work with future job orders. Therefore, on the Curve Delineation JOC the Department was able to obligate funds before all the design was complete or even before all the sites were identified.
- Emergencies – MDT has been able to more rapidly respond to emergencies than using standard practices.
- Avoid Emergency Pricing – If a JOC is in place the work cost is based on a volume discount. This is different from an emergency-type project where the Department may pay a premium.

- Release as Ready – A full plan set does not need to be developed for the entire JOC at the time the first job order is issued. This provides flexibility for design units to complete their work.
- Multiyear Contract – The department can put in place contracts that are good for multiple years with renewal options. This reduces work versus a new contract for each job order.
- Quality – Based on the fact that the Contractor will be performing the same task more regularly the hope is the contractor will become more skilled and proficient at that work.
- Time – Similar to quality, as a contractor becomes more proficient at the work activities, the amount of time required to do the work will decrease and therefore reduce impacts to the public.
- Performance Incentive – Since the award of subsequent job orders is based on the performance on the previous job orders the contractor is incentivized to do quality work.
- JOC Pricing – Recently MDT had a bridge project. The project was located in the same area as the Concrete Bridge Deck Repair JOC. There was change order work on the project that fit with the JOC scope. MDT was able to negotiate costs that were similar to the reduced JOC costs versus the higher costs associated with the change order process.

JOC Challenges

MDT has also seen a number of challenges with the use of JOC. Some of those challenges include:

- ❖ Buy-in – It is important to get buy in from upper management, the project sponsor and anyone who would normally have input on that project type. This is especially true as the projects are being done for the first time and the special provisions and process are being developed.
- ❖ Education – To get buy in, the first step is education. This was done on a few different levels and forums. There were several internal sessions with MDT staff ranging from high level strategy meetings with a few staff to larger groups in a roundtable forum to discuss potential issues. In addition, smaller specialized groups developed the project special provisions and plan sets. There have also been meetings with the contracting community to gain input for future JOC's and get feedback on past JOC's.
- ❖ Initial Drafting of Special Provisions – The first drafting of the JOC special provisions takes some work. On normal projects the specials are written very specifically for that project. On a JOC the specials must be flexible enough to complete not only the first job order but also any subsequent job orders released under that JOC. Mobilization and Traffic Control can be challenging depending on the type of JOC project. MDT has

developed different techniques to handle these two items and can select the best fit for the project type.

- ❖ Determining the Guaranteed Minimum – Setting an amount for the guaranteed minimum is a challenge. There are many factors that go into the decision. The biggest challenge is the level of confidence in the amount of work that needs to be performed. If the project sponsor is very confident in the amount of work, or knows there may be excess funding, the guaranteed minimum can be extended beyond the initial job order quantity. The risk that must be evaluated is not spending guaranteed dollars. The reward for a larger guaranteed minimum is the unit cost decrease from volume discount. MDT has only used a guaranteed minimum so far, but in JOC there is also the ability to use a guaranteed maximum.
- ❖ Right of Way Certification – In order to issue a job order MDT must have Right of Way Certification in place. The available staff and timelines associated with this work are not fixed and are therefore a project risk.
- ❖ Environmental Document – Similar to the Right of Way Certification, MDT must have the required environmental documents in place. This means to issue a job order MDT Environmental Services Bureau must evaluate the project scope and sites. The available staff and timelines associated with this work are not fixed and are therefore a project risk.
- ❖ Work on Sovereign Indian Lands – Montana has seven Sovereign Indian Reservations. There are a few additional requirements when working on one of the Reservations. First, there is a Tribal Employment Rights Ordinance (TERO) fee that is added on to project cost. Secondly, there are two agreements that need to be in place. A Memorandum of Understanding (MOU) and a Project Specific Agreement (PSA). An MOU is normally in place with each Tribe but a PSA needs to be developed and signed for each project. To appropriately handle these challenges and their timelines MDT has issued a subsequent job order for work required on one of the Reservations. This has helped simplify things for MDT Accounting Staff and provided opportunity to get the required agreements in place.

Lessons Learned

The following are lessons learned from MDT's experience using JOC:

- Support – Gain support from management and project sponsors.
- Right Individuals – When possible select individuals who see the benefits and are open to the JOC process. Select individuals who are subject matter experts to draft contract language.
- Education – Work to educate internal staff and the contracting community.
- Start Simple – Select basic projects and add complexity as understanding increases.

- Use Normal Processes – When it fits with the project goals use standard practices whenever possible. This helps for familiarity within MDT and the contracting community. It also reduces work creating new practices.

Since the process has been successful, more areas in MDT are becoming interested in the benefits of using JOC. In summary, the benefits have far outweighed the challenges and MDT will continue to develop and grow its JOC process.