

Alternative Contracting Process – SEP 14  
Construction Manager At Risk (CMAR)

## **1. Background**

The Nevada Department of Transportation has received legislative authorization to use the Construction Manager at Risk (CMAR) delivery method on its transportation projects. This authorization has a July 2013 sunset. The use of this method is being encouraged by the Federal Highway Administration (FHWA), but it cannot be approved without a special request. (e.g. current federal highway law does not allow it otherwise). The experimental approach will follow that used previously for Design-Build contracting, which is now an approved method.

NDOT and the FHWA have developed a Special Experimental Project Number 14 (SEP-14) work plan for the use of CMAR delivery method on transportation projects prior to the July 2013 sunset.

Two distinct phases in the CMAR process have been identified in the approved work plan. Phase I (Pre-Construction Services) consists of selecting a contractor for CMAR services before or during the design phase through a Qualifications Based Selection (QBS) or a QBS with price component selection process. Selections are made through a “one-step” Request for Proposal (RFP) process. Phase II (Construction) begins during the final design phase. The contractor selected in Phase I will be given the opportunity to bid on Early Construction Packages or propose a Guaranteed Maximum Price (GMP) bid for construction of a final design package. If the proposed price is not acceptable, NDOT may advertise the project using a different delivery method (Design-Bid-Build or Design-Build). The original proposer can submit a bid if the project is advertised using a different delivery method.

There can be multiple construction and/or procurement packages in Phase II on a project as distinct phases or events are identified (such as early acquisition of long lead items or Early Construction Packages). For example, a large roadway project may have an earthwork and drainage construction phase concurrent with the design phase, and a second construction phase once the remainder of the design is completed. FHWA will concur on all Phase II construction and procurement packages in the final contract award for construction. Each construction or procurement package will be required to consist of complete Plans, Specifications, and Estimates package that could be advertised if an Early Construction Package bid or a GMP is not accepted.

In recognition of the 2-year sunset, NDOT and FHWA have developed a preliminary schedule (Figure 1) to implement and evaluate the program of projects taking into account both phases of CMAR delivery. The schedule assumes NDOT and FHWA will select projects for the work plan in three rounds over a three-year period. The first round of the project will be finalized in October 2011, and the second round will be completed by May 2012. If the 2-year sunset is lifted and/or extended, the work plan will go through a third round of the project selection process in July 2013.

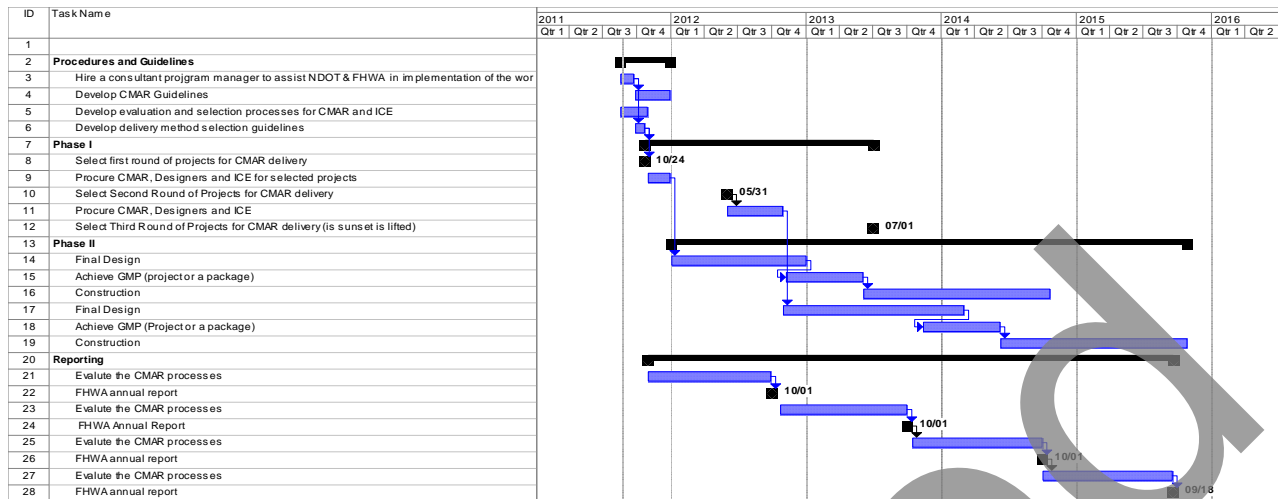


Figure 1.

## 2. Purpose

The objective of SEP-14 is to evaluate project-specific innovative contracting practices that have the potential to reduce life cycle costs of projects while maintaining product quality. While the design-bid-build or design-build methods of delivery are suitable delivery methods, the CMAR delivery process will give NDOT another tool to use in accelerating projects, managing risks, encouraging and enabling innovation, and providing taxpayers with the best return on their road construction dollars. It is NDOT and FHWA's intent to use this program of projects, develop and apply the best practices from other state's CMAR or CMGC experience to implement and complete construction of projects in Nevada. It is the intent of this application to allow for experimentation in the selection of project and project types, approaches and processes, with the goal of establishing the best approach for NDOT and Nevada's contracting environment.

NDOT and FHWA have identified five criteria for evaluating the applicability of a project for use of the CMAR delivery process:

- a) Opportunity for Innovation
- b) Opportunity to Manage Risk
- c) Cost Impacts
- d) Schedule Impacts
- e) Complexity of Design and Construction Phasing

It is NDOT and FHWA's goal to analyze the benefits provided by the CMAR process using these five criteria identified above and to document the NDOT process developed for the CMAR delivery method including project selection, contractor selection, design and advertisement.

### 3. Process

Considering the 2-year legislative sunset, NDOT and FHWA have developed a preliminary list of projects for CMAR Delivery (Attachment A). Additional projects will be added to this list over the next three years to further evaluate CMAR effectiveness. All projects will correspond with the Statewide Transportation Improvement Program (STIP). Selected projects will be identified through a collaborative process with NDOT and FHWA. The projects selected will be of sufficient complexity to warrant contractor participation in design and contribute to quantitative measures of the CMAR delivery method. FHWA will concur on pre-construction and construction contracts between NDOT and the CMAR Contractor.

#### 3.1 Stewardship

The NDOT Project Management Division administers the program with responsibilities for program/project development, implementation, and publication of reports.

#### 3.2 Federal Oversight

FHWA will monitor all CMAR projects in accordance with the current FHWA/NDOT Stewardship and Oversight agreement. FHWA will be an active participant in the entire process with concurrence or approval on items listed below:

- List of candidate CMAR projects
- RFP procedures
- Selection of contractor prior to Phase I
- Award of construction contracts with CMAR contractor in Phase II
- Final inspection and acceptance of construction during project closeout.

#### 3.3 Project Selection

A joint NDOT/FHWA selection process will be used to determine which projects will move forward for evaluation under the CMAR process. Candidate project selection will follow a four-step process that includes NDOT Project Selection Committee Recommendation, Project Screening & Evaluation, NDOT Recommendation, and FHWA approval. The process will generally consist of:

- *NDOT Project Selection Committee Recommendation* – NDOT will form a project selection committee that will consist of NDOT Division Heads including but not limited to: Project Management, Roadway Design, Structures, Environmental, Right-Of-Way, Hydraulics, Materials and Construction. The committee will develop a list of projects for consideration for contracting under the CMAR process by the end of October 2011, May 2012 and July 2013 (assuming the 2013 sunset is lifted). Each project identified will be accompanied by a justification that will, as a minimum, contain the following:
  - Work Plan: Individual project CMAR work plans consistent with the approved CMAR delivery process.
  - Project Justification: Project justifications in narrative format of the applicable selection criteria as established in Section 2 that justifies the use of the CMAR delivery process on the project. All five criteria do not have to be considered. In addition to any of the applicable criteria areas, NDOT will identify any additional

characteristics that make the project a good candidate for evaluation under the CMAR delivery process. The merit of using the CMAR delivery process on a project will be readily evident in the explanation(s) and highlight any unique characteristics such as innovative financing, complex construction phasing, and potential for the use of innovative technologies, or benefits to the public (e.g., accelerated construction). Projects that are recommended for approval, that do not have readily evident characteristics to use this alternative bidding technique should explain what NDOT is trying to achieve by using the CMAR delivery process over the traditional “design-bid-build” delivery format.

- *Project Screening & Evaluation* – It is NDOT’s and FHWA’s intent to collect data for a variety of project types. Each project will be evaluated and screened considering the relevant evaluation criteria described above, for characteristics that make it appropriate for CMAR project delivery method. As the overall CMAR analysis program yields data, this process may be refined and changed in the future to incorporate any new knowledge gained into the criteria evaluations.
- *NDOT Recommendation* – After the projects have been screened and evaluated, NDOT will submit a letter of recommendation for the proposed candidate projects to FHWA for approval. NDOT will indicate the characteristics for selection they feel were important in determining the recommendation for each project.
- *FHWA Approval* – Approval for the use of the CMAR delivery process on the projects will be provided in writing from the FHWA Nevada Division office.

#### **4. Measures and Reporting**

Performance measures and reporting requirements will be applied at both the project level and overall program level. An annual report will be submitted to FHWA in October of each year starting in 2012.

##### ***4.1 Project Measures and Reporting***

Each project requires an initial report prepared at the conclusion of Phase I and a final report at the conclusion of Phase II (final acceptance or initiation of a design-bid-build contract if a GMP bid cannot be negotiated). The initial report will contain a detailed comparison of the engineer’s estimate, Independent Cost Estimate, (ICE) and the negotiated price for construction with a summary of each of the evaluation criteria for Phase I of the CMAR process.

The final report will summarize the evaluation criteria applicable to the project and other factors deemed significant. It will also include a summary of any innovations used and analysis of the estimated cost and time savings provided by these innovations. NDOT will also provide a comparative analysis between the rejected bid price, the ICE, and the engineer’s estimate for any project that is not awarded and goes out to bid. The NDOT Project Management Division will be responsible for tracking, analyzing, and reporting on these measures.

#### **4.2 Program Measures and Reporting**

NDOT will submit an annual report to the FHWA Nevada Division in October of each year starting in 2012. The following items are to be included in the report:

- Introduction
- Summary of Projects (includes descriptions, locations, construction cost range and design cost range)
- Budget Analysis
- Change Orders Analysis
- Lessons Learned
- Innovations
- Analysis of Performance Measures

The performance measures to be included in the annual report at a minimum will include:

- a) Number of contract change orders issued for the CMAR project compared with the average number of change orders for the traditional design-bid-build projects of similar scope and complexity.
- b) The current total contract change order amounts expressed as a percent of the total construction contract award amounts.
- c) Construction contract cost overruns and under runs compared with the average contract cost overruns for traditional design-bid-build projects of similar scope and complexity.
- d) Comparison between ICE and GMP at letting vs. the final construction cost.
- e) Description of the innovations used and estimated savings.
- f) Comparison of estimated notice to proceed dates associated with traditional design-bid-build delivery vs. the actual NTP dates reached through the CMAR delivery process.

In addition to these programmatic measures to be included on the annual report, NDOT will identify any project-specific measures they would like included on each CMAR project delivery as well. The NDOT Project Management Division will be responsible for tracking, analyzing, and reporting on the measures.

#### **5. Summary**

This document details the process that NDOT and FHWA will use for implementing the CMAR project delivery method under SEP-14. It is expected that the evaluation will enhance our understanding of the CMAR project delivery method's strengths, weaknesses, and suitability of this delivery method to road building in Nevada. This document may need to be revised in the future and can as necessary to accommodate improvements identified through lessons learned. Such revisions will be made with the review and concurrence of the FHWA.

# FHWA – Nevada Division

## Attachment A – Preliminary Proposed CMAR Project List

Project Location	Project Description	Project Cost
US-93 Boulder City Bypass Phase 1, Packages 2 and 3	Construct New 4 Lane Controlled Access Freeway with Interchanges	\$70M to \$90M
SR 650, McCarran Blvd., From Mira Loma Drive to Greg Street, Package 2	Widen from 4 lanes to 6 lanes	\$25M to \$30M
US 50 Moundhouse, From CC/LY County Line to 1 Mile East of SR 341, MP LY 0.00 to 3.00	Widen US 50 to accommodate raised median islands, new interchange and frontage roads	\$22M to \$25M
I-80, Elko County at the Carlin Tunnels, MP EL 7.69 to 9.33	3R, Rehab approach bridges; Renovate drainage system and lighting within tunnel; Reconstruct approximately 2 miles of I-80	\$10M to \$12M
US 95 NW Corridor Phase III at MP 88 and CC-215 from Hualapai to Tenaya, MP 88 and CC-215 MP 37 to 39	Upgrade US 95 Interchange to System/System widen CC-215 to 6 lanes; construct local access interchange	\$220M to \$240M
I-15, from Tropicana to US-95 Spaghetti Bowl (also include Speedway Interchange ramps and Tropicana and Flamingo interchange approaches)	Grind and pave various ramps	To Be Determined
I-80, Washoe County, from CA/NV State line to WA/ST county line	Mill and fill ramps that were not addressed by recent projects	To Be Determined
Urban 3R project in Southern Nevada	To Be Determined	To Be Determined
I-15 downtown corridor Landscaping, Various Interchanges from SR 160 to Speedway Boulevard	Landscape and Aesthetic improvements	To Be Determined
I-15 Advanced Traffic Management System	Install ATM structures on I-15 from CC-215 to US-95	To Be Determined