Construction Management-at-Risk (CMAR)

March 2, 2016
Agenda

- CMAR Overview
- Setting the Stage for Success
  - CMAR in LADOTD
  - Consultant Approach
  - DOTD CMAR Workshop Results
  - CMAR Lessons Learned and Best Practices
  - DOTD Definition for Success (Goals)
- Draft Document Development
- Stakeholder Workshop
- BETA Test
- Next Steps
Definition of CMAR

- “A project delivery system that entails a commitment by the construction manager to deliver the project within a guaranteed maximum price (GMP), in most cases. The construction manager acts as consultant to the owner in the development and design phases and as the equivalent of a general contractor during the construction phase.” (Leahy et al. Transportation Research Circular E-C137, TRB, 2009).
Terminology Sidebar

- Construction Management at Risk (CMAR)
- Construction Manager at Risk (CMAR)
- Construction Manager/General Contractor (CM/GC)
- General Contractor/Construction Manager (GC/CM)
- Construction Manager at Risk (CMR)
- Early Contractor Involvement (ECI)

Huh?

- Similar…but not exactly the same…
- Often used interchangeably…
- Differences relate to selection methods, requirements, and opportunities to self-perform during construction
Owner Relationships - Project Delivery Methods

Design-Bid-Build
- Traditional delivery system
- Owner contracts separately for design and construction services
- Bid based on complete (100%) plans and specifications
- Owner retains high level of control and risk
- Traditionally a unit priced contract

CMAR CM/GC
- Owner engages a construction manager (CM) to act as a construction advisor during the pre-construction phase and general contractor (GC) during construction
- Selection criteria include qualifications, experience, strategic approach, and cost elements

Design-Build
- Combines design and construction under a single contract
- Traditionally a lump sum contract
- Two phase procurement
  1. Qualifications
  2. Technical/Price

Contractor Involvement
- Design
- Construction
- Maintenance

Contractor Involvement
- Design
- Construction
- Maintenance

Design-Build Firm Involvement
- Design
- Construction
- Maintenance
Risk Allocation
Setting the Stage for Success

- Review CMAR Basics
  - NCHRP Synthesis 402
  - FHWA EDC

- Review CMAR Framework in Louisiana
  - Overview Act 782 and Act 163

- Simplified CMAR Work Flow

- Lessons Learned from National Experiences

- LA DOTD Measures of Success for CMAR
NCHRP Synthesis 402 Overview

- Summary
- Introduction
- Literature, Methodology and Case Studies
- Procedures
- Construction Manager at Risk Selection Methods
- Preconstruction Services
- Procedures for Establishing the Guaranteed Maximum Price
- Quality Management Procedures
- Barriers to Implementation
- Conclusions
CMAR project delivery’s major benefit to the agency is derived from contractor input to the preconstruction design process.

CMAR services furnished during the preconstruction phase reduce design costs by diminishing the amount of design detail that is required and focusing the early design efforts on constructable solutions.

Select CMAR at a point in time where it can influence fundamental design decisions.

Protests of CMAR selections are rare; all documented were unsuccessful.
Use of early work packages is reported to mitigate risks by locking in the cost of materials and services.

Limiting the CMAR’s ability to self-perform and constraining its freedom to prequalify and select subcontractors does not ensure competitive pricing – 8 of 10 case study projects did not limit CMR.
NCHRP Synthesis 402 - Major Conclusions

- CMAR personnel qualifications and past project experience are the aspects that have the greatest perceived impact on project quality.

- Incorporating shared savings clauses does not appear to create a significant incentive for the CMAR.

- CMAR project delivery is a less radical shift in procurement culture than design-build because the owner retains control of the design by holding the design contract.
Barriers to Implementation

- Legislative-Level Barriers
- Organizational-Level Barriers
- Project-Level Barriers
FHWA interest in CM/GC [CMAR]

Projects with sensitive schedules and potential constructability challenges that require special qualifications and extraordinary contractor cooperation, CMAR method provides many benefits.
Benefits of CM/GC [CMAR] Per FHWA

- Foster innovation
- Reduce risk
- Improve design quality
- Improve cost control
- Optimize construction schedules
CMAR Framework in Louisiana

- Enabling Legislation – Act 782 and Act 163
- Definitions
- Limitations – CMAR Projects = $25 million or Greater (except $3 million for pilot projects)
- Prescriptive Direction
  - Selection Review Committee
  - Request for Qualifications (RFQ)
  - Content & Timelines
  - Opinion of Probable Cost
  - Guaranteed Maximum Price
  - Re-advertisement if no Agreement
Why CMAR?

- From Act 782
  - **Purpose/Uses:**
    - Collaboration & Cost Control
    - Concurrent execution of design & construction
    - Complex project with tight schedule
    - Mutual project goals (owner, designer, & contractor)
    - Risk identification controlled by owner
    - Minimizes risk of construction & design disputes by using collaborative process
Consultant Approach

- HNTB Corporation and Volkert working together under contract to DOTD
- Insure compliance with Act 782 and 163
- Client workshop
- Use DB manual as a guide for consistency in organizing and presenting the information (volumes of a set) for alternative delivery
- Extensive research/collection of best practices from other state DOTs; develop draft document utilizing “best of the best”
- Sophisticated document controls in place
- Stakeholder workshop
- BETA test
- Final revisions and publication
DOTD CMAR Workshop

- Conducted on 11-12 Feb 2015
- DOTD staff only and senior leadership (30 attendees)
- Comprehensive discussion of the enabling legislation
- Consultant team included Subject Matter Experts and examples of successful implementation in other state DOTs
- Focus was on owner responsibilities in establishing policies and procedures for a state CMAR program including:
  - Selecting the projects
  - Selecting the partners (designer, CMAR contractor, ICE)
  - Negotiating price
  - Administering and delivering the work
  - Stakeholder outreach and input
- DOTD established goals for the program
DOTD Definition of Success

- CMAR helps improve the public’s perception of DOTD
- Projects delivered with CMAR
  - Bring awesome innovation
  - Meets or beats schedule and budget targets
  - Have high quality
  - Make a difference by accomplishing important projects that provide real benefits
  - Build industry and partner/stakeholder support
  - Minimize impacts to travelers, businesses and neighborhoods
Simplified LADOTD CMAR Workflow

1. Selecting the Project
2. Selecting Your Partners
3. Negotiating the Price
4. Administering and Delivering the Work
5. Process Development Coordination

(Louisiana Department of Transportation & Development logo)
Stakeholder CMAR Workshop

- Conducted on 30 Jul 2015
- Representatives included members from: DOTD, FHWA, AGC, ACEC, AIA, Legislative staff, LSU (31 attendees)
- Comprehensive discussion outlining development of the draft document
- Specific focus areas for input
- Excellent collaboration and valuable feedback obtained
- Incorporation of feedback and revision of draft document
Focus Areas for Feedback

- RFQ scoring form/procedures
- Preconstruction services pay structure
- Contractor fee/margin on construction contract
- GMP allowances
- CMAR contractor excluded from DBB if GMP rejected
- Change orders
- Acceptable GMP variance
- Pre-construction services contract
- Construction contract
Beta Test

- Concept to test the procedures contained in the manual for feasibility by conducting a simulated advertisement, scoring and selection
- Using DOTD staff and mock selection panels
- Using actual project information (project already bid)
- Two contractors volunteered to participate
- Test is underway
Next Steps

- Complete Beta test using version 12.2 of the draft document
- Make revisions based on analysis of beta test outcomes
- Produce final document for DOTD publication
- Assist with DOTD implementation/education