

CMAR/CMGC CONTRACTING

IS GOOD FOR SEGMENTAL BRIDGE DESIGN & CONSTRUCTION

TECHNICAL SESSION – PROJECT DEVELOPMENT
TUESDAY, NOVEMBER 9, 2021
SESSION 2 | 10:00 AM-11:00 AM

33rd ANNUAL CONVENTION



AMERICAN SEGMENTAL
BRIDGE INSTITUTE

Panelists:

R. Craig Finley, P.E., FINLEY Engineering Group

Scott Greenhaus, P.E., Structural Technologies

Patrick Malone, PCL Construction

Kevin Western, P.E., Minnesota Department of Transportation

AGENDA

- 1 – Purpose and Learning Objectives
- 2 – Panel Introductions & Experience
- 3 – Why are CMAR/CMGCs Gaining Popularity?
- 4 – What Type Of Segmental Project Makes A Good CMAR/CMGC?
- 5 – Future Of CMAR/CMGC
- 6 – Recommended Best Practices
- 7 – Panelists' Contact Information
- 8 – Questions & Answers
- 9 – ASBI Disclaimer

PURPOSE AND LEARNING OBJECTIVES

Purpose

The Convention provides an educational forum to learn new techniques used in successful projects, lessons learned from development projects, and showcases a case study allowing for discussion of the project.

Learning Objective

At the end of this presentation you will be able to better understand the CMAR/CMGC, Design-Build, and Progressive Design-Build Alternative Project Delivery Methods and how CMAR/CMGC delivery method can be advantageous for concrete segmental bridges.

PANEL INTRODUCTIONS & EXPERIENCE



Craig Finley, P.E.
Bridge Designer & Construction Engineer
FINLEY Engineering Group
Managing Principal

- ❖ 40+ years of Segmental Design & Construction Engineering Experience
- ❖ 5 CMGC Projects
- ❖ Past ASBI President



Patrick Malone
Contractor
PCL Construction
Director, Business Development

- ❖ 33 Years of Construction Experience
- ❖ 33 Years Segmental Bridge Experience
- ❖ Past ASBI President



Scott Greenhaus, P.E.
Specialty Supplier/Contractor
Structural Technologies
Executive Vice President

- ❖ 40+ years Repair, Strengthening, Protection Experience
- ❖ 20+ year PT Manufacture, Install and Repair Experience
- ❖ Past PTI President



Kevin Western, P.E.
Owner
Minnesota Department of Transportation
State Bridge Engineer

- ❖ 34 years bridge experience in design, construction and management
- ❖ AASHTO T-10 Concrete Committee Chair
- ❖ Design Director - CMGC and DB projects

PANEL INTRODUCTIONS & EXPERIENCE

- ❖ Alternate Project Delivery Methods – Most Common Types:
 - **Construction Manager at Risk/Construction Manager General Contractor (CMAR/CMGC)** – Allows an Owner to engage a Construction Manager during the design process to provide constructability input
 - **Design-Build (DB)** – Project owner contracts with a single entity, often the builder. Designer and builder work together, beginning in the procurement stages, to develop the best technical solutions at the best price to win the project. Awarded design-build team continues until project completion
 - **Progressive Design-Build** – Construction project design is developed by the Owner and the Design-Builder in a step-by-step process, collaborating early in project development
 - **Public-Private Partnership (PPP or P3)** – An arrangement between two or more public and private sectors, typically, a private capital finances government project and draws profits from taxpayers and/or users over the course of the PPP contract

PANEL INTRODUCTIONS & EXPERIENCE

- ❖ For the purpose of this presentation, we are defining the CMAR/CMGC process:
 - CMAR/CMGC – Owner owns the design
 - Progressive Design-Build – Contractor owns the design
 - CMAR/CMGC
 - Owner hires a Designer, Contractor, and Independent Cost Estimator
 - Contractor typically hires a Construction Engineer to support his activities
 - Owner directs Design & Contractor/Construction Engineer works with Owner's Team to identify risks, provide cost & schedule estimates, and refine the design for constructability
 - Independent Cost Estimator provides 3rd party check on cost and schedule
 - If all is acceptable, Contractor awarded an At-Risk construction contract

PANEL INTRODUCTIONS & EXPERIENCE

- ❖ Owner's Perspective
- ❖ Contractors' Perspectives

PANEL INTRODUCTIONS & EXPERIENCE

❖ Takeaways

- Fosters Innovation – Owner and Contractor teams must collaborate
- Mitigates Risk – Risks Identified & Cost Known to All
- Improves Design Quality – Means and methods introduced early
- Improved Cost Control – Pricing is part of decision process
- Optimized Schedule – Early planning and work packages
- Interactivity & Transparency – Leads to good decisions

WHY ARE CMAR/CMGCs GAINING POPULARITY?

- ❖ Owner's Perspective
- ❖ Contractors' Perspectives
- ❖ Designer/Construction Engineer's Perspective

WHY ARE CMAR/CMGCs GAINING POPULARITY?

❖ Takeaways

- Owner can maintain control of Design with Contractor inputs
- Better risk identification and mitigation
- Out-of-the-box thinking – team collaboration
- Saves time and money – shared accountability
- Better project development and understanding
- Process Allows O&M Decisions to be better weighed in the decisions
- Better value than design-build pursuit

WHAT TYPE OF SEGMENTAL PROJECT MAKES A GOOD CMAR/CMGC?

❖ Important to Understand

- Segmental bridges are based on construction techniques that have design implications
- *You must know how to build it before you design it*
- Applicable for new construction or rehabilitation

WHAT TYPE OF SEGMENTAL PROJECT MAKES A GOOD CMAR/CMGC?

- ❖ Owner's Perspective
- ❖ Contractors' Perspectives

WHAT TYPE OF SEGMENTAL PROJECT MAKES A GOOD CMAR/CMGC?

- ❖ Takeaways – When there are uncertainties and the process can be better managed
 - Better Cost Control and/or Reduced Contingencies
 - Schedule
 - Means & Methods
 - Higher Quality
 - Risk
 - Intellectual Power/Experience of Team
 - Control & Better End Product
 - Collaborative – Not Combative

FUTURE OF CMAR/CMGC

- ❖ Why is this Procurement Method Appealing?
- ❖ Pitfalls
- ❖ Opportunities
- ❖ Future is Bright

FUTURE OF CMAR/CMGC

❖ Takeaways

- CMAR/CMGC is commonplace in other construction markets
- More Transportation Owners & Contractors see advantages
- Input from the state, contractor, and designer ALL important to this process
- Design-Build is losing favor because of liability, cost of pursuit, risk, and disputes
- Schedule is key – start with basic knowledge and work from here
- Opportunities for early work packages; if prices come in high, do some work later
- CMAR/CMGC cost can be higher, but uncertainties are managed, schedule is superior, claims are reduced, and quality and life cycle are improved
- Hybrid approach brings a win-win scenario

RECOMMENDED BEST PRACTICES

- ❖ Introduce means and methods early for improved design quality
- ❖ Plan early for optimized schedule
 - Develop work packages to better align scope and timing to budget
- ❖ Owner and Contractor team to work collaboratively – this leads to:
 - Balance
 - Stronger intellectual power/experience, out-of-the-box thinking, and innovation
 - Better project development and understanding, control of design, and end product
 - Improved cost control and risk mitigation – pricing is part of decision process
 - Interactivity and transparency for good decisions in a non-combative environment
 - Shared accountability, saving time and money
 - Process allows for improved consideration of operations and maintenance decisions

PANELISTS' CONTACT INFORMATION



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Questions & Answers

Thank you for your time!

This concludes the educational content of this activity

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