VRE OPERATIONS BOARD MEETING

Construction Manager / General Contractor (CM/GC) Presentation

April 16, 2021

Meeting materials are available at vre.org/about/board/board-agenda-minutes/2021/April
Construction Contract Mechanisms

• Design-Bid-Build (D-B-B)
  ▪ Most Common / Traditional Method
  ▪ Smaller / Less Complex Projects

• Construction Management / General Contractor (CM/GC)
  ▪ Relatively New Delivery Method
  ▪ Various Size Projects / Greater Complexity

• Design-Build (D-B)
  ▪ Most common ‘alternate delivery’ method
  ▪ Very large / complex projects
Construction Contract Mechanisms

<table>
<thead>
<tr>
<th></th>
<th>D-B-B</th>
<th>CM/GC</th>
<th>D-B</th>
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<tbody>
<tr>
<td>PRE-CONSTRUCTION</td>
<td>OWNER</td>
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<tr>
<td></td>
<td>Designer</td>
<td>Contractor</td>
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What Is Construction Manager/General Contractor (CM/GC) Alternative Delivery Method?

CM/GC = CMR = CMAR
Contract with Designer and Contractor

Two-Phase Contract with Contractor:

- **Phase I:**
  Construction Management

- **Phase II:**
  General Contracting
Two-Phase Contracting

**PRE-CONSTRUCTION**
- Construction Manager

**CONSTRUCTION**
- General Contractor
  - Price Agreement: TMP or GMP

**Professional Services**

**Construction Contract 2**

*Source: Texas Transportation Institute, Virginia Railway Express Congestion Relief Contribution; 2014 Information Item 8B*
CM/GC Collaboration

- Owner/PM
- Designer
- Contractor
Why Owners Use CM/GC

- Manage inherent project risks
- Opportunities for innovation
- Need for specialized qualifications
- Benefits from early procurement
- Limited or fixed budget
Owner Benefits

- Risk Reduction and Allocation
- Improved Cost Control
- Improved Design Quality
- Schedule Optimization
- Collaboration
CM/GC Risk Management

**Analyze** risk impacts and cost *before* the final schedule and cost of the project is determined.

**Jointly** analyze, allocate, and mitigate risk earlier in the project.

**Manage** risk that can adversely impact schedule and budget.
Other Transportation Owners / Agencies

- Commuter Railroads
- Transit Agencies
- State DOTs
## Construction Manager/General Contractor Method

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<tr>
<th>Project Traits</th>
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<tr>
<td>Risk Management</td>
<td>Very limited</td>
<td>Very effective</td>
<td>Best for risk shifting</td>
</tr>
<tr>
<td>Collaboration w/Designer &amp; Contractor</td>
<td>Very limited</td>
<td>Very collaborative</td>
<td>Moderate collaboration, contractual limitations</td>
</tr>
<tr>
<td>Price Certainty</td>
<td>None, subject to over-runs and change orders</td>
<td>Very effective, early price certainty during project development</td>
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</tr>
<tr>
<td>Schedule Acceleration/Compression</td>
<td>No ability to overlap design &amp; construction, can accelerate construction with A+B</td>
<td>Ability to overlap design &amp; construction, ability to optimize schedule not just accelerate</td>
<td>Ability to overlap design &amp; construction, very effective for accelerating project delivery</td>
</tr>
<tr>
<td>Construction Quality</td>
<td>Low bid can compromise quality</td>
<td>Very beneficial to building a quality project</td>
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<td><strong>Innovation</strong></td>
<td>Design innovation only, very limited opportunities for contractor innovation</td>
<td>Very effective for capturing design and construction innovation</td>
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<td><strong>Constructability</strong></td>
<td>Very difficult to obtain construction input during design</td>
<td>Optimal delivery method for obtaining construction input before design is complete</td>
<td>Effective delivery method for obtaining construction input before design is complete</td>
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<tr>
<td><strong>Owner Control</strong></td>
<td>High level control</td>
<td>Optimal level of owner control</td>
<td>Somewhat limited owner control, more performance-based outcome</td>
</tr>
<tr>
<td><strong>Competitive Pricing</strong></td>
<td>High level</td>
<td>Somewhat limited, competitive markup not final project cost</td>
<td>Good competition, but usually limited to short-listed teams</td>
</tr>
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</table>
CM/GC Method Additional Resources

Federal Highway Administration (FHWA)
FHWA CM/GC Description and Fact Sheet

Minnesota DOT – Benefits of CM/GC
MnDOT Benefits

Construction Management Association of America (CMAA)
CMAA Owner's Guide to Delivery Methods
VRE OPERATIONS BOARD MEETING

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Dallas Richards, PE
Chief Engineer

Adeel Mysorewala, PE
Project Manager

Kristin Nutter
Manager of Procurement