

Managing the CM/GC Delivery Process

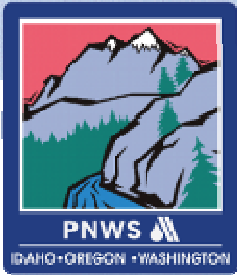
*Avoiding pitfalls that can take the “great”
out of a truly great delivery method*

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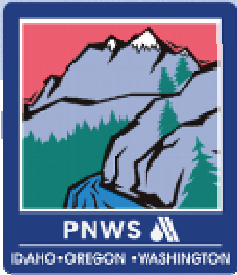


Bill Hawkins

Manager of Construction Services – CH2M HILL

- **27 years CM experience with multiple delivery methods**
 - 19 years – Construction Management Consulting
 - Water/Wastewater plants and conveyance (D-B-B, CM/GC)
 - Highway/Bridge (D-B-B, CM/GC)
 - Food Processing Facilities (D-B-B, CM-at-Risk, CM/GC)
 - Electronics Manufacturing Facilities (D-B-B, Cost Plus Fee)
 - 8 years Construction Management At Risk
 - Military/Aerospace Facilities (D-B)
 - Petrochemical Facilities (Cost Plus Fee with productivity incentives)
 - Highway/Civil (D-B-B)
 - Commercial/Municipal Buildings (D-B & D-B-B)

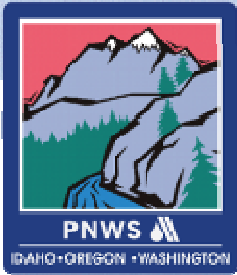




Outline

- **What is CM/GC?**
- **Advantages and disadvantages**
- **Requirements to implement**
- **What can go wrong / how to mitigate**
- **Contractor selection**
- **After selection**
- **Who is looking out for the Owner?**
- **Getting to price**

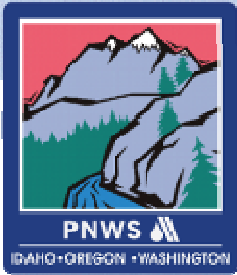




Delivery Methods

- **Design-Bid-Build**
 - You get the low bidder and are on your way - good luck!
- **CM/GC**
 - The best of both worlds (but there are some big risks here too!)
- **Design-Build**
 - You loose control and might not end up with what you wanted!

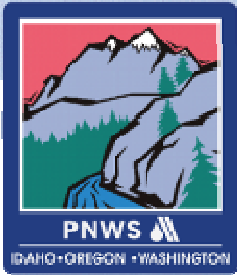




What is CM/GC ?

- CM/GC is a delivery method that allows selection of a contractor based upon qualifications prior to completion of the design to work under a professional services contract with the engineer and owner as a team to collaborate on design and providing constructibility input while developing incremental estimates as the design is completed. Upon agreement of a total price for construction, the CM/GC's professional services contract is terminated and replaced with a construction contract to complete the work.





CM/GC delivery method (Pros and Cons)

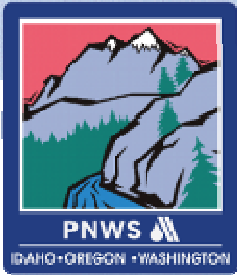
Advantages

- Allows selection based on qualifications
- Allows increased collaboration between engineer and contractor
- Allows for a less adversarial project team relationship

Disadvantages

- Reduces price competition
- No price knowledge prior to hiring contractor
- Requires declaration by governing body
- Can be politically damaging if supporting reasons do not pan out

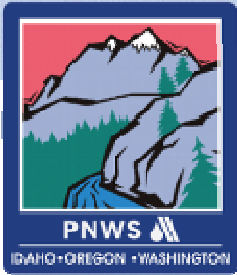




Requirements to implement

- **Reasons for not using D-B-B**
 - CM/GC does not comply with laws requiring public entities to select the lowest responsible bidder
 - Findings must be established to justify exemption from lowest bidder
- **Governing Body adopting & approving**
 - The public entity's governing body must agree with the findings and pass a vote approving exemption from lowest bid laws

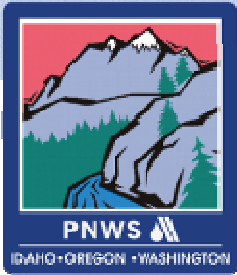




What can go wrong (and to often does!)

- **Too often, the contractor's first estimate (often at 60% design) is significantly higher than the engineer's estimate**
- **Reasons:**
- **Engineer's estimate too low**
 - How often does this happen?
- **CM/GC's estimate is too high**
 - They have no competition at this point!
- **CM/GC costs include markups and overhead that seem excessive**
 - What is the definition of reasonable
 - Does the owner have any control over this?

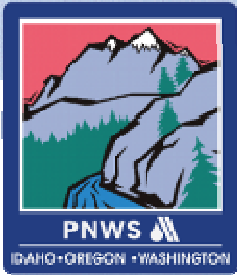




What can be done to mitigate these problems?

- **Engineer's estimate too low**
 - Our industry has struggled with finding ways to deliver accurate engineer's estimates for years
 - Choose an engineer with a good record of developing engineer's estimates
- **CM/GC's estimate is too high**
 - Even with reimbursable forms of payment, CM/GC estimates still often include significant costs (hidden contingencies) to cover risks
 - Shift risk associated with unknown or widely volatile materials prices to owner
 - Require CM/GC to outsource a higher percentage of the work (but be careful as even reasonable markups here add significantly to the bottom line)
- **CM/GC costs include markups and overhead that seem excessive**
 - Define limits for markups on subs
 - Define limits on other overhead costs
 - Define what is project overhead and what is home office overhead
- **Define an estimate structure that will allow clear understanding and compare costs in the CM/GC's estimate to other known typical or local costs**

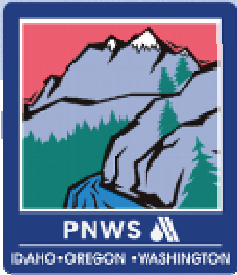




What should go into the RFQ

- **Firm Experience**
 - It is important that the firms have experience with the CM/GC delivery process
 - During the pre-construction phase, the integration of the contractor/engineer/owner team is critical and not what D-B-B contractors are used to
- **Staff Experience**
 - Require CM/GC staff experience to be included
 - Require cross reference (staff experience & firm experience)
- **Company resources**
 - Require information on CM/GC's proposed equipment & manpower available
 - Information on the CM/GC's financial condition
 - Information on what major subs do they bring to the game & prior experience with these subs

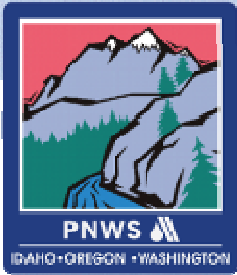




What should go in to the RFP

- **Staff**
 - Require the CM/GC to give project experience on proposed key staff (define key)
- **Project Approach**
 - Often, the proposing CM/GCs will have construction approaches that differ from what the engineering team envisioned.
- **Overhead, Profit, General & Administrative pricing structures**
 - Too often, a cost proposal pricing structure is not defined, making it difficult to compare CM/GC's overhead structures and pricing to competing proposers.
- **Labor , material, equipment and Subcontract pricing structures**
 - Knowing these costs allows the owner/engineer to plug CM/GC's proposed price structures into the engineer's estimate to project the ultimate project cost will be from each proposer.

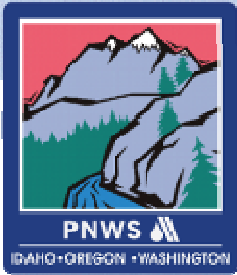




What should be learned in the interview

- **Staff attitudes**
 - Teamwork during completion of the design will be critical to project success
 - How the CM/GC team works together indicates how they are likely to work with the engineering team
- **Project Understanding**
 - The CM/GC team's understanding of the project will indicate their level of interest in working as a team
- **Communication skills**
 - CM/GCs will need to be able to communicate design change ideas to the engineering team, which is often challenging – their ability to communicate will be critical
- **Project Approach**
 - How the CM/GC team describes their approach further defines their interest and willingness to challenge approaches assumed in the current design

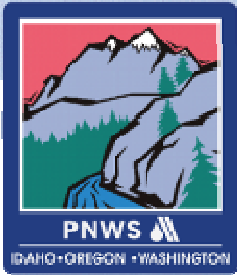




What can go wrong after the selection

- **Variance between Engineer's estimate and CM/GC's estimate**
 - Do not underestimate the probability of this happening, or the magnitude of the potential variance
 - Can be a show stopper and political nightmare
- **Lack of teamwork between engineer and CM/GC**
 - Contractors are not used to collaborating with engineers.
 - Contractors are not used to developing estimates for incomplete designs
 - The opportunity for
- **Negotiation of pre-construction phase services contract**
 - Contractors are not generally experienced in professional services contracts, and often are not local, so negotiation of terms and conditions of the professional services contract will be different than with consultants.
- **Negotiation of construction phase services contract**
 - Generally price is the greatest hurdle, but terms and conditions of the construction contract (usually being a reimbursable payment form of contract) will be different than typical D-B-B contracts.

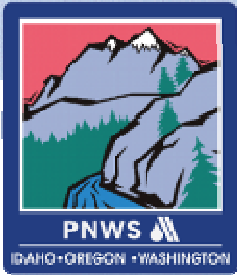




What the owner gets from a CM-GC contractor

- **Estimating – successive estimates as the design progresses**
 - Generally at 60% design, 90% design and 100% design (which usually defines the final construction price)
- **Value Engineering participation**
 - CM/GC evaluation of the design providing feedback to the engineer on ways to reduce project cost, while providing equal value, or ways to enhance value at the same cost.
- **Constructibility review participation**
 - CM/GC evaluation of how easy it will be to construct the work as designed, providing feedback on areas of the design that could be modified to reduce construction risk.
- **Project approach analysis**
 - CM/GC provides input to owner/engineer team to help them understand how the contractor will approach the work and how that may impact the design or ongoing plant operations, along as well as adjacent community and public outreach activities.

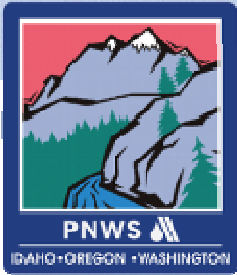




What the owner **DOES NOT** get from a CM-GC contractor

- **An agent representing and serving the Owner's interests during the pre-construction phase of the project**
 - A facilitator to help enhance communication between the engineer and CM/GC.
 - A resource to help evaluate and compare the CM/GC's proposals against other proposers and industry standards
 - A resource to evaluate the CM/GC's estimates and compare them against industry standards and local conditions
 - A resource to act in the owner's behalf during final price negotiations.
- **An agent representing and serving the Owner's interests during the construction phase of the project**
 - A professional manager experienced in the management of construction contract cost, schedule and quality to act in the owner's behalf after the CM-GC's professional services contract is converted to a construction contract.
 - Ongoing contract administration
 - Ongoing cost and schedule management and forecasting
 - Ongoing quality assurance program

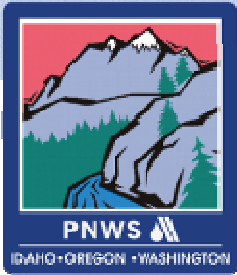




Is a CM/GC contractor really a CM?

- In spite of it's name, a CM/GC contract does not provide the Owner with a CM acting in the Owner's behalf.
- Even though during the pre-construction phase, the relationship is non-adversarial, the CM/GC is still working toward enhancing their profitability
- A Construction Management agent fills a role unbiased toward engineer or contractor, while representing the interests of the Owner
- For the CM/GC, it is still business!



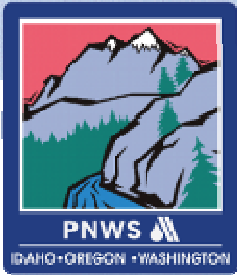


The difficult part - Getting to a Price

Incremental estimates

- **What is assumed and what is not**
 - With incomplete designs, defining what assumptions are made can make a huge difference
- **Indirect and overhead costs in estimate**
 - Staff and construction equipment costs, number of staff, staff hours and equipment hours
 - What costs should be in their standard overhead, what are indirect job costs
- **Minimizing Risk**
 - What assumptions (and what costs are included) for risk coverage in the estimate
- **Markups**
 - What markups are included for subs and material suppliers
- **Contingencies**
 - Who owns the contingencies, and what rules are established for deducting from the contingency
- **Engineer's estimates**
 - How accurate and comparable to the contractor's estimate are they

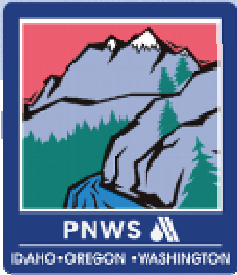




Managing the construction after the price is determined

- **Contract administration**
 - Although usually a cost plus fee form of payment type contract, administering the contract on the owner's behalf is still required
- **QA Inspection**
 - As with nearly all construction contracts. quality control is the contractor's responsibility, but assurance oversight on the owner's behalf is still required
- **Coordination with adjacent operations & properties**
 - Although usually the cost plus fee form of payment type contract does not put as much productivity pressure on the contractor, there may be fixed price subs, and profit motivation will still reduce the contractor's focus on non-direct work such as coordination with operations, adjacent properties and the public on the owner's behalf





Summary

- **CM/GC is probably the best option available in public contracting for many projects where a the qualifications and cooperation of the contractor are critical to the success of the project.**
- **There are pitfalls involved in the process that can cause significant setbacks or compete project failure if not properly dealt with in advance**
- **The very name CM/GC implies the owner's interests are protected by a CM, but that is not generally the case.**

