

CMGC Interim Pricing (OPCC) Milestone Process

Introduction and Purpose of this Document

The purpose of this document is to outline MnDOT's process for validating CMGC pricing submitted by the CMGC Contractor at formal pricing milestones. One of the most critical steps in successfully validating the final bid on a CMGC contract is to require the CMGC Contractor to submit their estimate for the cost of the work at logical milestones as design progresses. This allows the owner to compare the CMGC Contractor's estimate for the work with the cost estimated by the Independent Cost Estimator (ICE) and MnDOT Estimating Engineer. Pricing milestones allow the owner to review and resolve pricing disagreements early in the CMGC process, rather than wait until the end when the bid is submitted. The number of pricing milestones varies based on several factors such as: the level of design at the time the CMGC Contractor is procured, the complexity of the project, and whether severable work packages (i.e., contracts) will be issued for the project (see Severable Work Package process). Logical pricing milestones; however, can be performed as part of 30%, 60%, and 90% design review processes. Estimates provided by the CMGC Contractor during pricing milestones are submitted to the owner as a non-binding "Opinion of Probable Construction Cost" or OPCC. Although non-binding, an OPCC bid is considered a good-faith estimate of construction costs and assumes that prices for items of work may not vary dramatically between pricing milestones, unless the change is substantiated by documentable changes in bidding assumptions or significant changes in the scope of work. The processes outlined in this document reflect successful CMGC practices used by highway agencies throughout the country combined with input from local FHWA, MnDOT, and Minnesota AGC/ACEC representatives. This document will be updated periodically and may evolve over time based on lessons learned in delivering CMGC projects.

Task 1: Build Cost Model/Document Assumptions

Successful price justification in CMGC relies on thoroughly documenting the assumptions that were used by the CMGC Contractor to price the work. Documentation is maintained to capture a history of how this changes at each pricing milestone. To this end, the CMGC Contractor will be expected to be open and transparent about how they estimate/bid the work, and will utilize open book cost estimating to prepare their cost estimate for construction. The CMGC Contractor will be required to develop a cost model and narrative that is provided to the PM, CMGC PM, ICE, and Estimating Engineer. The purpose of the cost model is to link the bottom-up, production-based cost estimate to how the project will ultimately be bid and awarded, such as unit price or lump sum bid items typical of those used on DBB projects. The cost model narrative clarifies means, methods, risks and key assumptions used to price the work at each OPCC milestone, such as: type of equipment proposed to perform the work, crew sizes, shifts per day, hours per shift, risk assumptions, assignment of risks, assumed weather

delays, and supporting subcontractor quotes. Pricing specific data that is considered proprietary (but may not ultimately be proprietary) by the CMGC Contractor should be omitted from the cost model narrative that is submitted to MnDOT in writing, but is still expected to be available to MnDOT for “over the shoulder” or open book reviews during price reconciliation meetings. It should be noted that although the CMGC Contractor is responsible for the development of their cost model, the intent is to have the ICE and Estimating Engineer concur with the CMGC Contractor’s cost model.

Task 1A: Estimating Instructions

The CMGC Contractor will be responsible for drafting estimating instructions for all the estimating teams, which will outline how the CMGC Contractor’s estimates will be produced. These instructions are not intended to dictate to the ICE or the Estimating Engineer how the estimating is to be done, but rather to provide a thorough knowledge of the CMGC Contractor’s estimating practices, rules or guidelines, and estimating software. These instructions should facilitate comparisons between the multiple estimating parties. The estimating instructions should, at a minimum, address the following:

- equipment – a list of equipment with rates
- labor rates
- cost breakdown structure
- subcontract quotes
- permanent materials
- STS – small tools and consumables
- plug prices
- field indirect cost items

Task 2: Prepare OPCC Package

The Design Engineer prepares an OPCC Package for each pricing milestone and provides this to the MnDOT Project Manager, hereafter referred to as the PM, for distribution to the CMGC Contractor, the ICE, the Estimating Engineer, and the FHWA (if the project has federal oversight). Each OPCC Package should include plans, quantity take-offs, proposed pay items, measurement/payment definitions, and any specifications appropriate for the level of design. Plans should be labeled as “OPCC Package #” where # corresponds with the pricing milestone iteration (e.g., 30%, 60%, 90%). Plans should be prepared at typical design review milestones used in a design-bid-build (DBB) process, but can be adjusted, including more or less milestones, in CMGC depending on the complexity and/or specific needs of the project. Also, in CMGC the plans prepared by the Design Engineer may be customized based on requests from the CMGC Contractor to help them prepare

their OPCC. The PM should discuss any plan customization with the MnDOT PreLetting Engineer before doing so. No formal MnDOT Central Office (CO) review of the OPCC Package is required.

Task 3: Hold Design Review Workshop

The PM schedules a Design Review Workshop with the Design Engineer, CMGC Contractor, Estimating Engineer and ICE. For projects with federal oversight, the PM will invite the FHWA to attend. The Design Review Workshop should take place following the issuance of the OPCC Package. Prior to the workshop, each party must be allowed sufficient time to review the OPCC Package with the following objectives: (1) allow all parties to understand the work that is being estimated, (2) allow all parties to provide feedback on the constructability of the plans, (3) discuss assumptions on means and methods, and construction staging or sequencing of work that affects how the project will be estimated and ultimately bid, (4) define and agree upon the scope of work in a bid item, (5) reconcile quantities between the designers and the estimators, and (6) allow all parties to identify any errors, omissions, ambiguities, or other items that need to be corrected in the OPCC Package. No estimating or pricing information is shared during the Design Review Workshop.

Task 4: Hold Risk Workshop

The PM schedules a formal risk workshop that includes, at a minimum, the following parties: Design Engineer, CMGC Contractor, Estimating Engineer, ICE, and technical experts who have insight into project risks (e.g., geotechnical, bridge, construction, environmental, etc.). For projects with federal oversight, the PM will invite the FHWA to attend. The Risk Workshop may be scheduled in conjunction with the Design Review Workshop or soon thereafter. During this meeting, the PM and CMGC Contractor agree on how risks and contingencies are quantified and assigned, and how risk is influencing the estimate. The Estimating Engineer and the ICE participate in this discussion to understand risk and contingency assignment and provide feedback to the PM regarding these matters. Adjustments to the OPCC Package may be needed based on discussion at the risk workshop. During early risk workshops, a significant amount of time may be spent identifying risks and assigning time and cost impacts for each risk. During later workshops, the focus of the meeting will be to identify any new risks that have been encountered and update the risk register for risks that have been retired or where the time and cost impact has changed. It should be noted that an early risk workshop may precede the interim pricing milestones if the estimating parties, including the CMGC Contractor, are procured prior to beginning final design.

Task 5: Preparation of OPCC and Estimates

At each pricing milestone the Design Engineer updates the OPCC Package (if necessary) based on input from the design and risk workshops. The following cost estimates are then independently prepared by the CMGC Contractor, ICE, and Estimating Engineer:

- A) Contractor OPCC: The CMGC Contractor prepares their “opinion of probable construction cost”, or OPCC, at each pricing milestone. The Contractor’s OPCC is made available to all estimating parties (ICE and Estimating Engineer), the PM and CMGC PM.
- B) Independent Cost Estimate: The ICE prepares their estimate for the work at each pricing milestone. By statute, MnDOT is required to perform an independent cost estimate for the work. The purpose of the ICE is to validate that the CMGC Contractor’s cost for the work is reasonable and fair and to help support the Project Team in developing a design that is cost effective. The ICE reports to, and receives oversight from, the CMGC PM. The ICE is made available to all parties, including the CMGC Contractor, and will be used in comparison to the CMGC Contractor’s OPCC to reconcile estimates.
- C) Owner’s Estimate: The Owner’s Estimate is prepared at each pricing milestone. The Estimating Engineer, or a consultant working under their direction, will be responsible for the Owner’s Estimate and the subsequent Engineer’s Estimate to be performed for the bid. The Owner’s Estimate is not made available to the other estimating parties (ICE and CMGC Contractor) but is made available to the PM and the CMGC PM.

Estimates prepared by the ICE, CMGC Contractor and Estimating Engineer should be a “bottom up”, production-based, contractor-style estimate prepared using typical contractor-style estimating software. Although the estimates are prepared using a “bottom up” approach, costs provided to MnDOT should be rolled up into unit costs or lump sum items. These items are similar to those used on MnDOT DBB projects; however, for the purpose of the OPCC and Estimates, the field indirect costs and profit and home office overhead are not included in the items. OPCC cost estimate comparisons will be made by evaluating direct cost, indirect cost, and mark-up (construction services fee) separately. Standard bid items should still be utilized but unit cost should reflect direct costs only. Close coordination with the MnDOT Pre-Letting Unit is required to ensure the proper item numbers, descriptions, units and “roll-ups” are utilized. The field indirect costs are rolled into one “Field Indirect Cost” item. The profit and home office overhead, represented as a percentage of the construction cost, will then be applied to the total cost of construction. Prior to the first OPCC, MnDOT will attempt to reach agreement with the CMGC Contractor on an acceptable profit and home office overhead fee, in accordance with the Construction Services Fee process.

Subcontracted Work

At or prior to the 60% OPCC, “plug” prices or estimated costs based on past relevant experience, may be utilized for subcontracted work. Between the 60% and 90% OPCC, the estimates should be

de-plugged to include actual quotes for subcontracted work. In some instances, receiving actual quotes for subcontracted work at or before the 60% design may be desired for major (large cost) contract items. To ensure competitive pricing for the subcontracted work, the CMGC Contractor will be required to attempt to solicit at least three quotes for all subcontracted work. If obtaining three quotes for any subcontracted work is not possible, the CMGC Contractor will be required to provide documentation to the PM with justification as to why three quotes are not obtainable. The PM may also request that the CMGC Contractor look at self-performing the work, if possible, in order to help ensure competitive pricing. The subcontractor quotes received by the CMGC Contractor shall be shared with the Estimating Engineer, ICE, and PM. The ICE may solicit quotes for subcontracted work in order to independently validate the cost of subcontracted work. Prior to the ICE soliciting any quotes, the CMGC Contractor and PM should contact subcontractors to notify them that they may be contacted by the ICE, and strongly encourage them to work with the ICE. The ICE will share all quotes with the PM and Estimating Engineer, and any lesser quotes with the CMGC Contractor. Ultimately, the CMGC Contractor is responsible for selecting the subcontractors they use to perform the subcontracted work.

Disadvantaged Business Enterprise (DBE)/Veteran/Targeted Group Business (TGB)

The PM will contact the MnDOT Office of Civil Rights (OCR) prior to the 60% design in order to inform them about the project and, if applicable, any severable work packages being proposed. On or before the 60% design, the PM will then provide the OCR with a Plan Package containing the information necessary to clearly understand the scope of work, including bid items and quantities. The OCR will establish DBE, Veteran, or TGB goals as applicable prior to the 90% OPCC Plan Package so that all estimating parties know the goals and have accounted for them in their 90% pricing milestone estimate.

Preparation for Bid

At the 90% OPCC, the CMGC Contractor, ICE, and Estimating Engineer will each provide their OPCC/estimate with all costs, including field indirect costs, profit and home office overhead, rolled-up into the bid items specified in the contract. This OPCC must represent how the CMGC Contractor intends to bid the work and must be done in accordance with the contract requirements and their cost model and narrative. The CMGC Contractor, ICE, and Estimating Engineer will also provide an OPCC/estimate without the field indirect costs, profit and home office overhead rolled-up into the unit price contract bid items, as is done with the earlier OPCCs. The Estimating Engineer and ICE will each perform a 90% OPCC analysis and notify the PM and CMGC PM of the findings. If the findings indicate that the bid may not be acceptable, the PM may elect to conduct additional interim pricing milestones (e.g., 95% OPCC), as needed, in order to try to further reconcile prices before having the CMGC Contractor submit their formal bid.

Task 6: Submit Estimates and OPCC

The ICE, Estimating Engineer, and CMGC Contractor each submit their estimate for the work by email directly to the CMGC PM.

Task 7: Preparation of Variance Report

During each interim pricing milestone, the CMGC Contractor's OPCC will be compared with the ICE and the Owner's Estimate. The CMGC PM performs a variance report for use by the PM, ICE, and Estimating Engineer. The variance report shows the CMGC Contractor's OPCC and the ICE. The variance report **does not** show the Owner's Estimate but it does note whether the CMGC Contractor's OPCC is within 10% of the Owner's Estimate for each bid item and the overall cost of the work. The FHWA will receive a copy of the variance report for projects with federal oversight.

Task 8: Pricing Reconciliation Meeting

The PM schedules a pricing reconciliation meeting with the CMGC Contractor, Estimating Engineer, ICE, and CMGC PM at each pricing milestone. For projects with federal oversight, the PM will invite the FHWA to attend. During these meetings, the PM and the CMGC Contractor attempt to reconcile pricing differences between the CMGC Contractor's OPCC and the ICE. The reconciliation process gives both the CMGC Contractor, MnDOT, and the ICE opportunities to understand each other's perspectives about pricing assumptions, risk assignment, and construction means and methods. The goal is to reconcile pricing differences between the CMGC Contractor's OPCC and the ICE throughout the CMGC preconstruction process so that the bid is determined to be fair and reasonable and MnDOT is able to award a construction contract(s) to the CMGC Contractor. The Estimating Engineer will participate in these meetings but will not disclose information about their estimate.

The ICE and Estimating Engineer will inform the PM of any potential cost savings opportunities. The PM may then share this information with the CMGC Contractor. It is the responsibility of the CMGC PM and PM to help ensure the ICE and the Estimating Engineer remain independent during reconciliation meetings.

Open Book Process: As part of the CMGC open book estimating environment during the reconciliation process, MnDOT may ask the CMGC Contractor to "share" or review with them certain materials containing information that clarifies how the proposed pricing was derived in order to help reconcile differences between the ICE, Owner's Estimate and the CMGC Contractor's OPCC. All materials of this nature will be reviewed in an over-the-shoulder or open-book format and remain in the possession of the CMGC Contractor unless the CMGC Contractor agrees to release it to MnDOT.

MnDOT may not retain a copy of these materials, either electronic or in hard copy. Price

reconciliation meetings will be scheduled by the PM and will be limited to key MnDOT project management staff and estimating staff that are directly reconciling differences between the ICE, Owner's Estimate and the CMGC Contractor's OPCC estimate. All participants in the price reconciliation meeting(s) will sign a non-disclosure form stating that they will not disclose any information from the meeting(s).

MnDOT and the CMGC Contractor may not be able to resolve all differences in pricing for certain bid items or for the overall price during OPCC reconciliation meetings. The PM and the CMGC Contractor will decide to (a) acknowledge differences, move forward with design, and attempt to continue reconciling differences during later OPCCs or at bid time, or (b) agree that reconciliation is not possible and terminate the P/T services contract to allow MnDOT to procure the construction of the project through some other method. If there are multiple work packages or contracts, the CMGC Contractor is allowed to continue work on any contracts that were previously awarded to the CMGC Contractor.

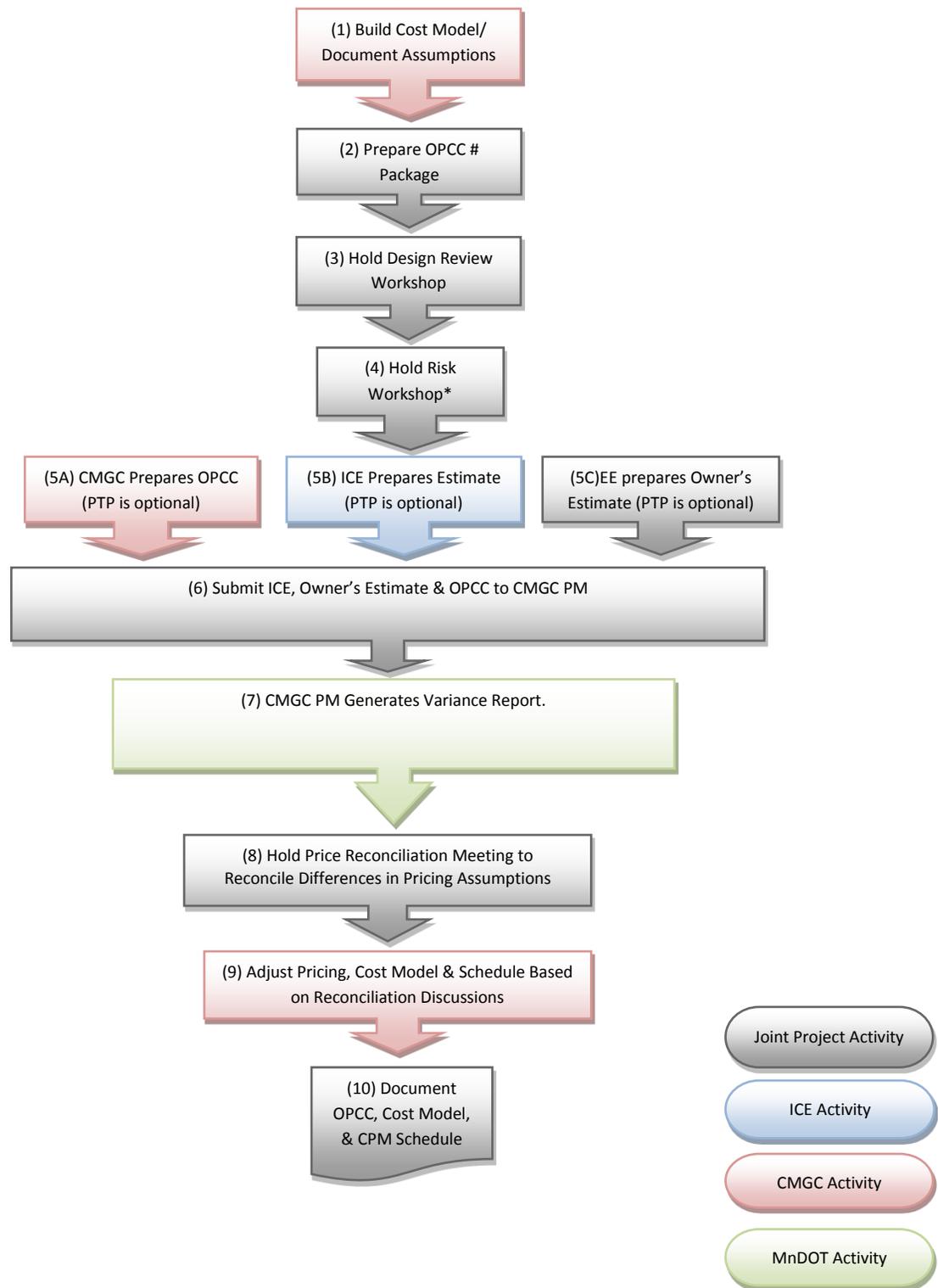
Task 9: Adjust Cost Model, Schedule & Pricing

The PM and the CMGC Contractor agree upon changes to the bidding assumptions that affect pricing. The CMGC Contractor makes adjustments to the cost model, narrative, and the schedule to reflect these changes and resubmits them to the PM, CMGC PM, ICE, and Estimating Engineer. This information is then documented in the project file. Any pricing changes will be carried forth to the next estimating milestone or bid. During the reconciliation process, the ICE and/or Estimating Engineer may believe it is necessary to adjust their bidding assumptions and estimate.

Task 10: Document OPCC, Cost Model and Schedule

The CMGC PM retains a copy of the OPCC, Owner's Estimate and ICE. The PM retains a copy of the OPCC Variance Report, the cost model and narrative, and the CPM schedule for each milestone.

Figure 1: CMGC Interim Pricing (OPCC) Milestone Process



* During early phases of the project, a full risk workshop is recommended. Subsequent risk workshops will focus on updating the risk model only based on any changes that have occurred between pricing milestones.