

Construction Manager / General Contractor Manual



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Atlanta, GA 30308

This document was developed as part of the continuing effort to provide guidance within the Georgia Department of Transportation (the “Department”) in fulfilling its mission to provide a safe, efficient, and sustainable transportation system through dedicated teamwork and responsible leadership supporting economic development, environmental sensitivity, and improved quality of life. This document is not intended to establish policy within the Department, but to provide guidance in adhering to the policies of the Department.

Your comments, suggestions, and ideas for improvements are welcomed.

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Revision Summary

Revision Number	Revision Date	Revised Section	Revision Summary
0.0	8/1/2022	-	Initial Issue
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List of Effective Chapters

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Acronyms and Definitions

Acronyms

Acronym	Definition
ACEC	American Council of Engineering Companies
ACM	Alternative Contracting Method
CDA	Comprehensive Development Agreements
CFR	Code of Federal Regulations
CM/GC	Construction Manager/General Contractor
CPM	Critical Path Method
DB	Design-Build
DBB	Design-Bid-Build
DBE	Disadvantaged Business Enterprise
DOR	Designer of Record
FHWA	Federal Highway Administration
GDOT	Georgia Department of Transportation
ICE	Independent Cost Estimator / Estimate
LLTP	Long Lead Time Procurement
MOT	Maintenance Of Traffic
NCP	Negotiated Construction Price
OAD	Office of Alternative Delivery
OAD-OA	Office of Alternative Delivery Office Administrator
OCBA	Office of Construction Bidding Administration
OJT	On-the-Job Training
OPCC	Opinion of Probable Construction Cost
O.C.G.A.	Official Code of Georgia Annotated
P3	Public Private Partnership
PDA	Predevelopment Agreements
PMC	Program Manager Consultant
PNA	Public Notice Advertisement
PoDI	Project of Division Interest
PTC	Project Target Cost
QA	Quality Assurance
QC	Quality Control
RFC	Released for Construction
RFI	Request for Information
RFP	Request for Proposals
RFQ	Request for Qualifications
SAQ	Summary of Approximate Quantities
SOQ	Statement of Qualifications
STB	State Transportation Board
VAP	Value Analysis Proposals

Definitions

This chapter includes general definitions used within this Manual. These definitions are intended to be for quick reference and are not intended to be an all-inclusive list of terms used in CM/GC contracting. The terms will have the following definitions unless the context thereof indicates to the contrary.

Alternative Contracting Method (ACM): One of three contracting methods authorized by the ACM statute, specifically: (i) CM/GC Agreement, (ii) comprehensive development agreement and (iii) predevelopment agreement.

Amendment: An addition, deletion, or modification to the provisions of the Public Notice of Advertisement (PNA), Request for Qualifications (RFQ), or Request for Proposals (RFP) made during the procurement process.

Board: The State Transportation Board of the State of Georgia.

Clarifications: Non-binding written or oral exchanges of information that take place after the receipt of the Statement of Qualifications (SOQ) or the Proposal packages.

Comprehensive Development Agreement (CDA): An alternative contracting method consisting of a single, multiphase contract that allows for expedited project delivery through the concurrent design and construction of a project pursuant to which a developer shall (i) collaborate with the Department to advance development of the project concept, (ii) perform or provide for the design and construction services, and (iii) perform or provide any operations or maintenance services required for the project; provided, however, that the initial CDA may provide for negotiating and entering into future phases or segments of the project at the times that the Department considers advantageous to the Department.

Conflict of Interest: A situation where a person or entity who, because of other activities, secondary interests, or relationships with other persons or entities involved: (i) is unable or potentially unable to render impartial assistance or advice to GDOT; (ii) is or might be otherwise impaired in its objectivity in performing the contract work; or (iii) has an unfair competitive advantage. Refer to 23 CFR 636.116 regarding Design-Build organization conflict of interest.

Construction Management Agreement (CM/GC Agreement): An alternative contracting method consisting of a two-phase contract between the Department and a CM/GC, whereby: (i) in the first phase, the CM/GC performs specified Preconstruction Services for a project, in the capacity of a construction manager, in collaboration with the Designer of Record and the Department, and (ii) in the second phase – which is subject to the Department's acceptance of the CM/GC's proposed Negotiated Construction Price – the Department may authorize CM/GC to proceed, in the capacity of a general contractor, to complete the construction of the project.

Construction Manager/General Contractor (CM/GC): The entity the Department has initially selected to collaborate with the Department to advance the development of the project concept and if agreed between the parties to perform preconstruction services and construction services pursuant to Section 32-2-82. This entity will be counterparty to a Construction Management Agreement let by the Department in accordance with Rule 672-22-.04.

Critical Path Method: A scheduling method used to plan and control a project and that utilizes the precedence diagram method to calculate each activity's early dates, late dates, float values, and establishes the critical path through the activity network.

Department (GDOT): The Department of Transportation of the State of Georgia.

Design-Bid-Build: A traditional project delivery method where design and construction are sequential and separate steps with two contracts and two contractors.

Design-Build: Combining all or some portion(s) of the design and construction phases of a project into a single contract with one contractor.

Designer of Record (DOR): A licensed professional engineer under a separate contract with the Department that is responsible for delivering the design of a project using a CM/GC method. The DOR will assume limited professional liability for the design by either (1) recommending the design to GDOT for the Chief Engineer to stamp the Release for Construction plans or (2) stamping the Release for Construction plans, as will be set forth in the RFQ and/or RFP.

Engineer's Estimate: Construction cost estimate which is prepared by the DOR when that entity is under a separate contract with the Department for the delivery of the design of a project.

Independent Cost Estimator (ICE): A professional cost estimator under a separate contract with the Department that is responsible for providing construction cost estimating services.

Independent Estimate: Construction cost estimate prepared by the ICE.

Industry Forum: A presentation of the proposed project by the Department to the industry more specifically defined in Section 3.1.4 (Industry Forum).

Instruction to Proposers (ITP): The documents, including exhibits and forms, included in the Request for Proposals (RFP) that contain directions for the preparation and submittal of information by the Proposers in response to the RFP.

Negotiated Construction Price: The maximum price – that includes project direct costs, indirect costs, and profit – to which the CM/GC commits to deliver a construction project with a quantified and defined scope of work.

Negotiated Construction Price Proposal (NCP Proposal): In accordance with Chapter 672-22-05 of the Rules, this proposal is a result of the CM/GC progressing the estimates of probable construction costs and developing the price proposal for the construction of the project, to include the direct cost of construction, contingency, overhead, and profit. The timing of this proposal is based on the percentage of design completion, as determined by the Department on a project specific basis.

Notice to Contractors: Advertisement of the project by the Georgia Office of Construction Bidding Administration (OCBA) as stipulated in Section 3.1.3 (Notice to Contractors).

One-on-One Meeting: A meeting between GDOT and a Proposer conducted during the Request for Proposals (RFP) phase to discuss the RFP and/or scope of work. If one-on-one meetings are to be conducted on a project, then the Instruction to Proposers (ITP) section of the RFP will include one-on-one meeting instructions.

Opinion of Probable Construction Cost: A cost estimate provided by the CM/GC as defined in Section 5.2 (Opinion of Probable Construction Cost).

Preconstruction Services: The scope of services that a CM/GC or Developer may be requested to perform during the design phase of a project, which will be identified on a project-by-project basis in the solicitation issued by the Department for a CM/GC agreement.

Preconstruction Services Fee: The price component, expressed in a lump-sum amount or any other payment method permitted by law, covering the full scope of Preconstruction Services identified in a solicitation for a CM/GC procurement of a prospective CM/GC's proposal.

Predevelopment Agreement: An ACM that provides the framework for one or more developers to collaborate with the Department on one or more projects: (i) for the conceptual, preliminary, and final planning and project development work for such project(s), which may include, but is not limited to, predevelopment services, financial planning, environmental studies and mitigation, survey, conducting transportation and revenue studies, right of way acquisition, design and engineering, preliminary engineering, implementation planning, and assistance with public outreach; and (ii) to perform, at the Department's election, any aspect of the development of the transportation facility including the construction work for the project or projects, that the parties may deem appropriate, subject to agreement between the Department and the developer(s) as to the scope of such services, a reasonable price for that scope of services, and the basis of payment for those services.

Prequalification: The process under O.C.G.A. Section 32-2-81(d)(1) by which the contractors and professional consultants are required to be prequalified for the work they propose to perform on a project.

Program Manager Consultant: A professional program manager under a separate contract with the Department that is responsible for providing various program management and project management services.

Project of Division Interest (PoDI): A project FHWA identifies that has an elevated risk, contains elements of higher risk, or presents a meaningful opportunity for FHWA involvement to enhance meeting program or project objectives.

Project Target Cost: A cost estimate provided by the CM/GC and defined in Section 5.2.1 (Project Cost).

Project Team: The entities or organizations contracted to participate in a project following the conclusion of the procurement process, generally consisting of GDOT, CM/GC, DOR, and ICE.

Proposer(s): The contractors or professional consultants that submit information during the RFP phase of the procurement process initiated by GDOT.

Public Notice Advertisement (PNA): An announcement by the Department of its intention to initiate a procurement of a CM/GC for a project.

Reference Information Documents (RID or RIDs): The collection of information, data and documents included as part of the Request for Proposals (RFP) which may include, but is not limited to: preliminary design, planning documents, studies, reports and design files for the project. Notwithstanding the foregoing, the Department makes no representation or guarantee as to the accuracy, completeness, or suitability of the RID. Proposers are responsible for any conclusions they may draw from the RID.

Released for Construction: The design documents released for construction per the requirements in the contract.

Request for Proposals (RFP): All documents, whether attached or incorporated by reference, utilized for soliciting proposals.

Request for Qualifications (RFQ): All documents, whether attached or incorporated by reference, utilized by the Department for soliciting interested Respondents including instructions for submitting a Statement of Qualification (SOQ), evaluation criteria and minimum qualifications required of respondents to the RFQ.

Respondent: The contractors or professional consultants that submit information during the RFQ phase of the procurement process initiated by GDOT.

Right-of-Way (ROW): Generally, property is acquired in fee simple or in any lesser interest but not limited to easements and right of access, for or devoted to a public road or other project in which the Department is a participant under applicable provisions of State law.

Self-Perform: Includes the CM/GC's use of labor, material, equipment, and general conditions in the performance of construction activities to meet the self-perform percentage in compliance with Section § 32-2-82(a)(1)(B).

Shortlist: The narrowing or shortlisting of the field of Proposers through ranking the most highly qualified and responsive Proposers who have responded to an RFQ. Only Shortlisted Proposers will be invited to submit a Proposal package in response to a Request for Proposals (RFP). Utilized in the Two Phase Best Value selection method for the CM/GC.

State: The State of Georgia.

Statement of Qualifications (SOQ): Documentation that meets the requirements set forth in the Request for Qualifications (RFQ), which is submitted by Proposers and evaluated by GDOT in order to determine a list of qualified firms for the project. For each Proposer, the SOQ should include, at a minimum, documentation that the Proposer is capable of satisfying the scope of services of the project, as well as a copy of a Department-issued Certificate of Qualification.

Summary of Approximate Quantities (SAQ): A summary of construction materials quantities based on the current design documents and the scope of the work or work package to be estimated, which is then used in the development of a construction cost estimate.

Technical Proposal: A document provided by Proposers which contains design solutions and other qualitative factors that are provided in response to the RFP document.

Value Analysis Proposal: A proposal to make a change in the project, provided by the CM/GC, with the intent to improve the project. Further defined in Section 4.7 (Value Analysis Proposal).

Chapter 1. Introduction

1.1 Purpose of CM/GC Manual

This Construction Manager/General Contractor (CM/GC) Manual (Manual), developed pursuant to a collaboration between the Georgia Department of Transportation (GDOT) and industry partners, provides an overview of processes for identifying, selecting, procuring, and administering CM/GC projects as an Alternative Contracting Method or ACM. This Manual is designed to educate and inform all parties who may participate in a CM/GC project and will outline processes for key elements of the CM/GC procurement and delivery process. It is intended for GDOT staff, as well as the consultant and contracting industry.

The Office of Alternative Delivery (OAD) is responsible for maintaining and regularly updating this Manual. Updates to the Manual will occur, as needed, to capture any modifications or enhancements to processes resulting from lessons learned, evolving approaches, and/or updates to federal, state, and local laws, rules, regulations, and policies.

1.1.1 Comparison of GDOT Project Delivery Methods

1.1.1.1 Design-Bid-Build

The traditional Design-Bid-Build (DBB) procurement method remains the most used project delivery method. In DBB, the Department selects a design firm to design the project, who then progresses the design to 100%. After completion of the design phase, the project is released for bid and awarded to the lowest-bid contractor to construct.

1.1.1.2 Design-Build

In the Design-Build (DB) project delivery method, the Department progresses the design to 30% completion, after which the project is released for bid and awarded to a qualified Design-Builder (design consultant and contractor), who will be responsible for (a) bringing the project to 100% design completion and (b) construction of the project under one contract.

1.1.1.3 Construction Manager/General Contractor

In the CM/GC project delivery method, which occurs over two phases of delivery, the Department selects a CM/GC to perform as both a construction manager and general contractor. In the first phase, the selected CM/GC performs as the construction manager, who is responsible for providing construction management services, consisting of preconstruction services, input on the design, costs, constructability, staging, phasing, maintenance of traffic, risk assessment and risk mitigation. Also, as part of this phase, the Department selects an independent design firm to design the project, who serves as the Designer of Record (DOR), and another firm for cost estimating, who serves as the Independent Cost Estimator (ICE).

If the Department and the CM/GC reach an agreement on cost and payment terms for the construction, the project will proceed to the second phase of work. In the second phase, the selected CM/GC performs as the general contractor who is responsible (i.e., "at risk") for the final cost and all construction services (on the agreed upon schedule or timeline).

1.2 Statutory Authority and Rules

The use of the CM/GC project delivery method as an Alternative Contracting Method is regulated by [O.C.G.A.](#) (referred to herein as Section 32-2-82), the [State Transportation Rules Chapter 672-22](#) (referred to herein as Rules, Chapter 672-22 or Rule 672-22), and the Code of Federal Regulations (CFR).

1.2.1 Official Code of Georgia

In 2021, the Georgia General Assembly enacted Section 32-2-82, more expressly allowing the Department to procure projects using an Alternative Contracting Method (ACM), including CM/GC, Predevelopment Agreements (PDA) and Comprehensive Development Agreements (CDA).

1.2.2 State Transportation Rules

In 2022, the State Department of Transportation adopted the Rules, Chapter 672-22, which outlined procedures for governing Alternative Contracting Methods, including the administration of CM/GC contracts.

1.2.3 Code of Federal Regulations

All Federal Aid CM/GC projects will comply with the procedures set forth in all applicable CFR including, but not limited to, [Title 23 CFR Parts 627](#) (Value Engineering), [635](#) (Construction and Maintenance), [637](#) (Construction Inspection and Approval), [710](#) (Right-of-Way and Real Estate), [771](#) (Environmental and Related Procedures), and [Title 49 CFR Part 24](#).

1.3 Roles and Responsibilities

1.3.1 GDOT's Roles and Responsibilities

The Department's roles and responsibilities in a CM/GC contracting model are no different than in the DBB contracting model, with the exception of the need to coordinate the preconstruction process. In addition to the roles identified in Chapter 4 of this Manual, these responsibilities may include, but are not limited to:

- Establishing and communicating objectives for project success;
- Elaborating cost and performance objectives;
- Defining project function and appearance requirements;
- Verifying compliance with laws, mandates, regulations, and procurement policies;
- Receiving and disbursing cost appropriations;
- Defining roles for all parties in the project's contracts;
- Directing the DOR;
- Facilitating design and construction progress;
- Articulating the amount and types of innovation that will be allowed for design and construction means and methods;
- Tailoring the design and construction contracts to the project;

- Establishing the amount of negotiation that will be permitted on design and construction issues and costs;
- Obtaining the requisite level of competition;
- Leveraging available funding for the benefit of the project and the traveling public; and
- Distributing authority to make decisions among the parties to the contract as well as internally.

1.3.2 DOR's Roles and Responsibilities

Based on the requirements of the Project, the GDOT contract with a design consultant would take the form of an engagement of services of the DOR.

The DOR assumes limited engineering and design liability by developing the plans and then recommending them to GDOT for the Chief Engineer to stamp. The roles and responsibilities of the DOR in the CM/GC contracting model are similar to the DBB contracting model. GDOT will provide independent review of the design.

The DOR may assume engineering and design liability by stamping the plans and will continue involvement during construction to respond to RFI's and design changes. GDOT will contract with an independent design reviewer and independent CEI to provide inspection and testing during construction.

The DOR shall have the following roles and responsibilities associated with the CM/GC model which may include, but are not limited to:

- Collaborating with the CM/GC during preconstruction by:
 - Producing design deliverables in accordance with the agreed design schedule,
 - Considering and incorporating, where appropriate, suggestions for improving the design from the CM/GC, and
 - Responding to comments made by the CM/GC after its review of design deliverable;
- Coordinating the Department's design validation reviews and approvals;
- Responding to and considering CM/GC Value Analysis Proposals (VAP) during the preconstruction phase in a timely manner and jointly presenting to the Department for approval; and
- Preparing the Engineer's Estimate when requested by the Department.

1.3.3 CM/GC's Roles and Responsibilities

The CM/GC's roles and responsibilities in the construction phase are essentially the same as presented in a DBB. The major change is the CM/GC's roles and responsibilities is in the preconstruction design process. The roles and responsibilities of the CM/GC may include, but are not limited to:

- Preconstruction – Furnishing preconstruction services per Chapters 4 and 5 of this Manual and the preconstruction contract; and
- Construction – Fulfilling the obligations per Chapter 6 of this Manual and the contract requirements.

1.3.4 ICE's Roles and Responsibilities

The ICE is relatively unique to CM/GC and their roles and responsibilities may include, but are not limited to:

- Producing independent evaluations of each OPCC;
- Reconciling with the CM/GC developed project cost model; and
- Cooperating with the CM/GC during preconstruction by:
 - Producing Independent Cost Estimates in accordance with the agreed preconstruction schedule,
 - Ensuring that ICE estimates are based on the same construction means and methods used by CM/GC,
 - Conforming quantities of work and definitions for payment and measurement with the CM/GC,
 - Reviewing CM/GC subcontractor and vendor quotes and validating quote adjustment and selection,
 - Aligning the Independent Cost Estimate to the CM/GC's proposed (and later agreed to via the NCP) construction schedule,
 - Participating in project design and preconstruction meetings as required by GDOT,
 - Assisting in value analysis as required by GDOT,
 - Providing assistance during price negotiations, as needed, and
 - Reconciling the final NCP.

1.4 FHWA Oversight and Requirements

FHWA may provide project oversight if the CM/GC project includes federal funding. If FHWA determines the project to be a Project of Division Interest (PoDI), GDOT must meet with the FHWA to determine which project elements will have FHWA involvement by FHWA. The FHWA will then create a project-specific Stewardship & Oversight agreement that will detail FHWA's participation.

1.5 Yearly Reporting Requirements

The [Rule 672-22-.09](#) requires reporting ACM contracting activity as follows:

- (a) Fiscal Year Reports. Fiscal year reports are due no later than 90 days after the end of the fiscal year in which the Department has executed a contract to deliver a project using an ACM as approved by the Board. In such fiscal years, the Department, shall provide the Governor, Lieutenant Governor, Speaker of the House of Representatives, and chairpersons of the House and Senate Transportation Committees a summary containing all contracts that utilize an ACM. The report may include, but is not limited to, the inclusion of the project number, county, project description, name of CM/GC, selection method, and date of contract award. ACM agreements that are part of a separate Private Initiative or Public Private Partnerships are outside of this Rule and are not to be included in this summary. This report shall be made available for public information.

- (b) Reports Required Every Five Years. No later than five years after the effective date of O.C.G.A. Section 32-2-82(i) and then once every five years thereafter, the Department will submit a report to the Governor, Lieutenant Governor, Speaker of the House of Representatives, and members of the House and Senate Transportation Committees detailing all contracts delivered using an ACM, along with the benefits of using an ACM compared with other contracting methods for purposes of the executive's and legislature's review and consideration of the effectiveness of that Code section and any necessary amendments.

Chapter 2. CM/GC Project Identification and Selection

2.1 Project Identification and Selection

The Office of Alternative Delivery (OAD) administers the identification and screening of projects and participates in the selection process of CM/GC projects. In identifying projects that would be suitable for a CM/GC delivery method, the Department will consider at least the following factors: public interest, innovation, risk, design complexity, cost control, construction schedule optimization, expected benefits from phased project delivery or issuance of multiple work packages, and projects that present unique needs that would benefit from a construction manager or developer involvement early in the design process.

CM/GC candidate projects can be identified through a number of ways, such as:

- Through regular discussions between the OAD Office Administrator (OAD-OA) and the Department's Director of Public Private Partnerships (P3) as part of a routine process to identify and evaluate projects for CM/GC delivery; and
- The OAD-OA facilitating a meeting through the Department's Director of P3 with various GDOT personnel, which may include the Chief Engineer, Deputy Chief Engineer, Director of Engineering, Director of Construction, Director of Planning and other offices of the Department as necessary, to review the Construction Work Program (CWP) to identify candidate CM/GC projects.

Based on the OAD evaluation, the Department's P3 Director will provide a recommendation of CM/GC project(s) for internal review prior to submission to the Board for approval.

2.2 State Transportation Board Approval

The Department's P3 Director or designee, pursuant to Chapter 672-22-.01 of the Rules, will submit a written request to the Board to proceed with using the ACM to procure a project only when the factors identified in Chapter 2.1 of this Manual indicate the public interest is best served by doing so. The request will identify the statutes and rules that will apply for the solicitation and any resultant ACM agreement. The Department will not proceed with a project using an ACM method without prior Board approval. Upon favorable endorsement or approval by the Board to deliver the project through a CM/GC method, the project will be added to the approved CM/GC project list located on the Department's OAD webpage. After the project is approved by the Board, the OAD-OA will prepare a recommendation letter to the Chief Engineer. The letter should include the ACM delivery selection method in accordance with Rule 672-22-.03 and whether a pre-solicitation industry forum should be held.

Chapter 3. CM/GC Project Procurements

3.1 Initial Procurement Activities

Upon Board approval, pursuant to Section 32-2-82 of O.C.G.A., the Department is authorized to issue a written solicitation that identifies various aspects of the project to be delivered using the CM/GC method. The Department is authorized to use procurement procedures to competitively solicit proposals under either: (i) Section 32-2-80 of O.C.G.A., which is utilized when the project requires or is anticipated to require private financing; or (ii) Section 32-2-81(d) of O.C.G.A., which is utilized when the project does not or is anticipated not to require private financing. The Department is authorized to utilize the ACM method to deliver only two projects per single fiscal year and seven projects over a single ten-year period.

3.1.1 Procurement Timing

Prior to commencing an CM/GC procurement method for a particular project, the Designer of Record (DOR) should be placed under contract to prepare basis of design documents and base design criteria, and to organize the scope of work of the project.

The CM/GC can be placed under contract at any time during the design phase; however, selecting the CM/GC early in the process provides the CM/GC more opportunity to add value to the design process, work packages, and final design. If costs, such as preconstruction fees or construction fees, are included in the CM/GC selection process, then the design by the DOR must be advanced to a point where there is a clear scope of work and reasonable project cost estimates can be developed that minimize contingencies.

The Independent Cost Estimator (ICE) can be placed under contract at any time during the design phase; however, this should occur in parallel with the engagement of the CM/GC to allow the ICE to participate in all estimating and cost analyzing activities.

3.1.2 Public Notice Advertisement (PNA)

The Public Notice Advertisement (PNA) is an advanced notification of the Department's intention to initiate procurement for a planned CM/GC project. The PNA includes preliminary information that may include, but is not limited to the following:

- Preliminary scope and description of work;
- Selection methodology for DOR, CM/GC, and ICE;
- Anticipated procurement schedule;
- Consultant area classes that may be required for DOR;
- Any unique or special contractor(s) or consultant(s) qualification or experience requirements;
- List of contractor(s), consultant(s), or other entity known to have a Conflict of Interest who are, therefore, not eligible to participate as a proposer or a participant on this CM/GC project; and
- Relevant NIGP Codes for the scope of work and delivery method. Currently, the applicable NIGP Codes pertaining to expected work scopes include:
 - 91148 CIP, Preconstruction Services.
 - 91327 Construction, Highway and Road.

- 91831 Construction Consulting.
- 95826 Construction Management Services.

Unless the PNA includes specific instructions regarding a restriction on communications, interested contractors and/or consultants may contact the Department's OAD staff to obtain information on the upcoming CM/GC project.

3.1.3 Notice to Contractors (NTC)

Simultaneous with the advertisement of the PNA, a Notice to Contractors (NTC) is advertised by Office of Construction Bidding Administration (OCBA). OAD strives to coordinate the PNA advertisement date on the date that OCBA advertises the monthly NTC. In the event that the PNA does not advertise per the regular NTC advertising schedule, OAD will coordinate with OCBA to advertise a special notice.

3.1.4 Industry Forum

The purpose of the Industry Forum is to provide information about a proposed project's delivery goals, anticipated scope, schedule, DOR, CM/GC, and ICE procurement processes, potential risks, and to receive industry feedback. Industry forum sign-in sheets are published on the Department's webpage.

3.1.5 Industry One-on-One

One-on-one meetings are confidential meetings with key members of the prospective Proposer teams to discuss their observations, concerns, and recommendations regarding the commercial terms to be set forth in the RFQ and/or RFP. The general goal of these meetings is to allow prospective Proposers to discuss concerns to help gauge the need to modify and/or clarify the procurement documents. The number and frequency of one-on-one meetings will depend on the size and complexity of the project. One-on-one meetings may take place immediately after the Industry Forum and prior to the release of the RFQ or during the RFQ Phase. The Department will determine the number and frequency of one-on-one meetings.

3.2 Procurement of Consultant Services Contract (DOR)

3.2.1 Consultant Services Procurement

The Department may use an existing contract to obtain the DOR services or it may procure a DOR by soliciting Statement of Qualifications (SOQs) from qualified firm(s) in accordance with the [Procurement Manual for The Procurement, Management and Administration of Engineering and Design Related Consultant Services](#).

3.2.2 Synchronizing with the CM/GC Preconstruction Contract

The DOR contract should be modified, if current existing, or drafted, if newly procured, to facilitate preconstruction collaboration and give the DOR the opportunity to price appropriately the activities that occur in a CM/GC project. The following DOR contract modifications for a CM/GC project may be required:

- Coordination of design packages with construction work packages;
- Joint coordination with third parties during design;

- Facilitation of CM/GC design reviews;
- Joint value analysis with CM/GC; and
- Requirements to respond to CM/GC review comments and incorporate the same, as appropriate.

The following DOR contract modifications are the recommended revisions to an existing contract for a CM/GC project, provided that the list is not exhaustive nor are such revisions required in every instance:

- Design milestones specified to match preconstruction services;
- Mandatory budget review points/milestones;
- Requirement to notify CM/GC of major design changes;
- Allow the CM/GC to assist in material selection decisions based on market surveys;
- Collaboration with the CM/GC to accommodate appropriate construction means and methods into the design;
- Pass design changes through CM/GC for cost/schedule impact validation;
- Over-the-shoulder review of construction submittals with trade subcontractors;
- Expedited review of construction submittals at CM/GC's request;
- Collaboration with CM/GC and ICE on cost model development;
- Provide design documents to facilitate contractor-obtained permitting;
- Furnish graphic design support to CM/GC public relations effort; and
- Joint planning and participation in public outreach meetings.

3.3 CM/GC Best-Value Procurement

3.3.1 Procurement Method – Best Value

Unlike DBB which is always low bid and the DB delivery method, which allows the department to utilize either a low bid or best value selection, the CM/GC delivery method requires best-value selection of the CM/GC procurement. This procurement typically involves two phases – first, a Request for Qualifications (RFQ) will be advertised and, second, a Request for Proposals (RFP) will be issued.

3.3.2 Procurement Phase 1 – RFQ

Respondents will submit a Statement of Qualifications (SOQ) in response to a RFQ advertised by the Department. The RFQ communicates the project goals and key elements of the evaluation by outlining the minimum and desired qualifications for Proposers. The Department tailors the qualifications to each project based upon the delivery goal(s) and project risks. The typical SOQ submittal may include, but is not limited to, the following:

- Past project experience on projects of similar size and complexity;
- Required and/or key personnel and their qualifications; and

- Suitability to perform services for the project.

3.3.2.1 Evaluation of SOQs

Each SOQ is reviewed according to the RFQ criteria. During the evaluation of SOQs, the Department may terminate evaluations, and/or seek the assistance of outside technical experts and consultants.

3.3.3 Procurement Phase 2 – RFP

The RFP phase is the second phase of the typical two-phase procurement process for CM/GC delivery. This phase is initiated after selection of shortlisted RFQ Respondents. The RFP phase leads to the selection of the CM/GC for the project.

The RFP outlines the contract requirements, project scope, project standards, and instructions for responding to the RFP, including instructions regarding the Technical Proposal and the Preconstruction Services Fee. The RFP will indicate whether the interviews are included.

The following items should, at a minimum, be included in the Proposer's Technical Proposal:

- Project staffing approach;
- Construction quality management plan;
- Examples of innovative delivery solutions on similar projects;
- Conceptual VAP for the Project, if any; and
- Approach to developing the NCP.

Proposers will submit the Preconstruction Services Fee in accordance with the requirements set forth in the RFP.

3.3.3.1 Evaluation of Proposals

Evaluation of proposals will be completed in accordance with the requirements set forth in the RFP, which is based on, among other things (i) qualifications, key personnel, prior experience performing work under contracts for projects of a similar size, scope, complexity and magnitude, (ii) its Technical Proposal, and (iii) the Preconstruction Services Fee of the Proposer. The RFP will also identify whether it intends to conduct interviews with responsive Proposers, of which the interview may be a component of the evaluation. When the scope of work involves very specialized technical expertise, the evaluation of the proposal of the Shortlisted Proposers may also include the final evaluation score received in the RFQ phase. If the score from the RFQ phase will be used in the RFP phase, the Department will clearly state the same in the RFP documents.

3.4 Procurement of Consultant Services Contract (ICE)

Should the Department decide not to use a current on-call contract, the ICE will be procured using a vendor contract. For more on the Engineering Design Consultant Services procurement process please refer to the Department's [Procurement Manual for The Procurement, Management and Administration of Engineering and Design Related Consultant Services](#).

Chapter 4. CM/GC Preconstruction Services

4.1 Introduction to Preconstruction Services – Phase One

This chapter introduces the preconstruction services philosophy, which includes utilization of the CM/GC's knowledge of costs, schedule, means, and methods throughout the project design.

The CM/GC will consult with the rest of the Project Team (generally consisting of GDOT, DOR, and ICE) during the design phase in order to develop, implement and maintain a spirit of cooperation and open communication among the parties so that the goals and objectives of each are clearly understood, potential problems are resolved promptly, and the project is successful.

As part of the Project Team, the CM/GC will provide input on schedule, phasing, constructability, materials availability, cost, etc. throughout the design phase of the project. The CM/GC will provide the necessary staff to consult with, advise, assist, and provide recommendations to GDOT and the design team on all aspects of the planning, design, and proposed construction, as requested by the Department.

4.2 Project Team Kickoff

The Project Team will participate in a kickoff meeting that may include, but is not limited to, the following agenda items:

- Project Team introductions;
- Review of the project stakeholders;
- Project goals, status, objectives, and funding;
- Presentation of project scope and elements;
- Review and update project risks to develop a risk management plan;
- Discuss the planning schedule;
- CM/GC present conceptual sequence of work and critical design and preconstruction and construction milestones;
- Discuss potential work packages and long lead items;
- Development of initial construction/rehabilitation/repair strategies;
- Discuss CM/GC Value Analysis Proposals; and
- Discuss development of the project cost model by the CM/GC.

4.3 Risk Identification and Mitigation

The Department leverages the preconstruction process to identify and mitigate project risk. The primary objective of CM/GC is to jointly develop a system for pricing and assigning risk between the contractor and/or the Department so that the party with the greatest capability to manage the risk bears it. This knowledge can then be translated to lower the contingencies and allowances that are

part of the NCP or the total project cost. Prior to the onboarding of the CM/GC, the DOR will manage a project risk register. One of the major CM/GC tasks after award of the preconstruction services contract is to validate the risk register. GDOT may request that the CM/GC conduct risk assessment workshops. The CM/GC will be required to actively identify potential risks and work with GDOT to assign cost and schedule impacts to each identified risk in the risk register in order to better define pricing and contingency and create a risk management plan. Detailed development of the risk register will open the dialog for the open-book negotiations by furnishing the CM/GC's perspective of not only the completeness of the project risk register, but also of the probabilities of occurrence, strategy for mitigation, and magnitude of each potential risk.

The Project Team will actively manage the project risk register, cost and schedule risk assessment, modeling and analysis, and forecast material pricing, and use the information to establish contingencies to mitigate volatility and to develop work packages to lock down the cost of critical materials as early as possible.

4.4 Environmental Compliance and Third-Party Coordination

The CM/GC brings a different perspective to issues of coordinating with the public and impacted businesses, utilities, railroads, and resource agencies and a different set of contacts, connections, and relationships. The Department can consider engaging the CM/GC in any of the following:

- Validation of required right-of-way;
- Coordination with utility owners, including railroads;
- Identification of utility adjustments for early work packages;
- Assistance with permitting requirements and obtaining permits;
- Preparation of the Storm Water Pollution Prevention Plan (SWPPP);
- Identification of temporary construction or staging activities that may require environmental permits;
- Development of the project schedule to accommodate permitting durations;
- Preparation of constructability reviews to address environmental or third-party items;
- Participation in environmental reviews and scoping; and
- Coordination with stakeholders, potentially including aesthetic features.

4.5 Project Validation and Coordination Meetings

Shortly after award of the preconstruction services contract, the CM/GC will validate the current project budget and schedule. The CM/GC will evaluate the current design and compare the scope of work with both the required budget and schedule to determine if the scope can be executed within the project constraints.

The CM/GC will participate in project coordination meetings with the Department and the DOR when the project validation may be revisited as requested. Project coordination meetings are anticipated

to be held every two weeks. After the meetings, the CM/GC provides written recommendations, noted conflicts, and/or noted improvements to the design.

4.6 Constructability Reviews

The CM/GC's expertise in construction execution is invaluable in providing constructability reviews, and these reviews are a major advantage of including the CM/GC throughout the design process. The CM/GC applies its knowledge of the capability of the contracting and subcontracting industry to evaluate the required means, methods, techniques, and technology to provide the cost, schedule, and quality required by the Department.

Constructability reviews are active throughout the preconstruction period using over the shoulder reviews and discussions, as well as, at predetermined milestones. CM/GC engagement can include:

- Evaluating the availability of required construction materials, labor, equipment, and specialty subcontractors' ability to deliver the project on time and budget;
- Developing phasing and staging plans (including MOT) to reduce impact on the traveling public and optimize delivery of the project within budget and schedule;
- Making suggestions for substitutions to enhance cost and schedule certainty;
- Accurately estimating the cost of providing required quality by the contractor, subcontractors and suppliers;
- Identifying and mitigating the project risk due to constructability;
- Mitigating the project risk due to contractor, subcontractor or supplier misinterpretation of plans and specifications;
- Identifying design revisions to improve clarity for pricing, reduction of construction costs, and means to improve the time performance of the project; and
- Providing input on equipment staging, equipment storage, detour routes, storm water management, accelerated construction techniques, evaluation of bridge types, and materials that may be cost-effectively recycled during construction.

4.7 Value Analysis Proposal

Value Analysis Proposal (VAP) is an optional technique available to the Department to enhance the value to dollar ratio by seeking the CM/GC's perspective during preconstruction. The CM/GC's preconstruction phase VAPs should include the cost of the lost design effort, and these VAPs are typically the result of project validation by the CM/GC's preconstruction staff who find that the scope exceeded the budget. In this case, the CM/GC will prepare and offer one or more priced VAPs to revise the design and recover the budget. The other common VAP is the result of constructability reviews where the contractor's concept revises the design to accommodate a specific set of means and methods, such as accelerated bridge construction techniques or change of a fundamental design decision like replacing cast-in-place concrete bridge members with precast. No matter what the reason, VAPs can provide an efficient mechanism to enhance constructability and obtain both cost and schedule benefits.

4.7.1 Cost Modeling

Robust cost modeling drives design decisions and facilitates the VAP process. Additionally, it provides a foundation for controlling scope creep and assisting the DOR's understanding of the impact of design assumptions.

If the Department elects to use the VAP process, the Department will work with the CM/GC to use a cost model that is tailored to project-specific requirements for conducting open-book NCP negotiations. Early estimates completed by the Department, or its consultants will be developed in a manner that is scope-centric rather than price focused as found in DB. This permits the CM/GC and the ICE to take the estimated quantities of work and build them into the CM/GC's cost model without a loss of pre-award fidelity regarding design assumptions and decisions. This is further detailed in Chapter 5 (Project Cost and NCP).

4.8 Scheduling

The CM/GC will integrate the design (provided by the DOR), procurement (provided by the Department), and construction schedules, into a seamless product that identifies key relationships and accounts for both administrative and logistics tasks that must be completed to permit the production tasks to begin. Similar to the risk register, cost model, and constructability plans described earlier in Chapter 4, schedules should be reviewed, and input provided, by all key members of the preconstruction team. It is crucial the schedule considers all constraints and sound activity logic. The schedule should be achievable but aggressive but also realistic as it will eventually become the basis for estimating indirect and other duration-based costs.

Successful CM/GC projects emphasize the need to develop design work package schedules that seamlessly flow into the construction work package sequence of work as part of the preconstruction process.

4.9 Work Packages

A CM/GC project may be progressed by dividing the work into separate and severable work packages, as determined by the Department on a project-by-project basis. Each work package becomes an NCP package which must be a severable and independent phase of the construction, such that the Department is not obligated to have the contractor construct any other portions of the work. Each work package should obtain all required clearance, may be awarded through the NCP Proposal and contracting process, and will require FHWA concurrence if the project is federally funded.

For each separate work package, the CM/GC and DOR will agree to OPCC milestones appropriate for the project and subject to the Department's acceptance. Each OPCC will include review meetings at which the CM/GC may provide the following services:

- Identify any long lead items that may cause schedule impacts;
- Identify CM/GC self-performed work to meet the 30% requirement; and
- Furnish the work packaging and subcontracting plan to the Department and the DOR for use in scheduling Released for Construction (RFC) design packages.

The following issues should be evaluated to develop a plan and policy for each work package:

- Required level of design detail that the quantities of work can be determined with a reasonable degree of accuracy and that as-built information can be added to the design product in the package;
- Design reviews for early RFC packages, which can necessitate expediting the design review process between the parties to include the use of “over-the-shoulder” design reviews;
- RFC materials packages to retire construction material escalation or long-lead time risk; and
- The CM/GC request for information process on RFC design packages.

Chapter 5. Project Cost and NCP

5.1 Project Cost Components

The CM/GC is responsible for progressing the estimates of probable construction cost and developing the price proposal for the construction of each package. The Negotiated Construction Price (NCP) reflects the actual construction cost, and the NCP proposal is comprised of the following elements: the direct costs of construction, contingency, and construction services fees. The construction management cost is not included in the NCP. The total project cost components are shown in Figure 5-1, and include the NCP, the construction management cost (including any Preconstruction Services Fee (PSF)) and contingency.

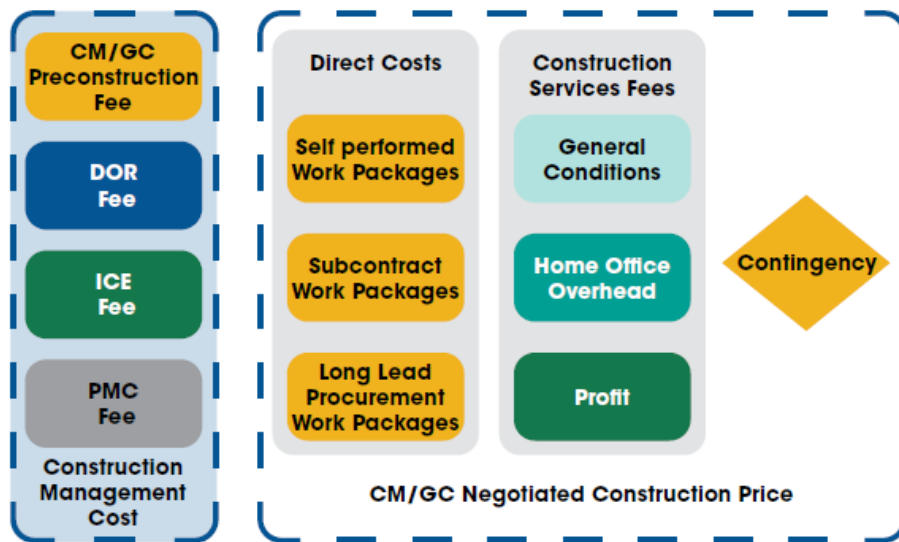


Figure 5-1 Components of the CM/GC Project Cost Structure

5.1.1 Construction Management Costs

As shown in Figure 5-1, construction management costs are the sum of the fees paid by the Department to the DOR, ICE, and PMC, covering their support of the full execution of the project, together with the Preconstruction Services Fee of the CM/GC to conduct the necessary effort to advance to a point where an NCP can be agreed. The DOR, ICE and PMC fees are negotiated no differently than for traditional DBB projects. The CM/GC’s Preconstruction Services Fee is established competitively during the CM/GC selection process.

5.1.2 CM/GC Negotiated Construction Price

The NCP is equal to the sum of direct costs of construction, the construction services fee and contingency for the project. Each portion of the NCP is described further below. The process of establishing the NCP is described in Chapter 5.3 of this Manual.

5.1.2.1 NCP: Direct Costs

The three construction cost components included in the NCP direct costs are:

- CM/GC self-performed work package costs;
- Subcontract work package costs, and
- Long lead time procurement work package costs, if required.

5.1.2.2 NCP: Construction Services Fee

The construction services fees are negotiated with the CM/GC after award of the preconstruction services contract.

To assist with differentiating between direct costs and the construction services fee, Table 5-1 contains a description of costs that may be included in the NCP as direct costs and those that may be included as a part of the construction services fee, which will be further described and defined in the RFP. The division of costs permits the use of open-books accounting for the direct costs on a basis of labor, materials, production, etc. that define the unit cost for a specific pay item.

Table 5-1 CM/GC Construction Services Fee Components

Costs Included in CM/GC Construction Services, Home Office Overhead and Profit	Costs Included in Direct Costs or General Conditions
<i>Other overhead and non-reimbursable costs listed below will be negotiated and included in the Construction Services Fee</i>	<i>Costs for the categories below will be negotiated and included in the NCP direct costs or general conditions</i>
Project principal – all costs	Mobilization
Cost estimator services during construction phase –all costs. (Note: Cost Estimator services during preconstruction phase are reimbursable as included in the Preconstruction Services Fee)	Project manager
Home, branch and regional office administrative support staff and all related costs	Project manager relocation, housing, and subsistence costs
Home, branch and regional office safety support staff and all related costs	Construction manager/superintendent relocation, housing, and subsistence costs
Home, branch and regional office quality control support staff and all related costs	Additional CM/GC staff relocation, housing, and subsistence costs
Profit	Construction manager/superintendent
	All other on-site, construction management staff as approved by the Department
	On-site administrative staff, including clerical and secretarial staff
	All project direct costs related to safety

Costs Included in CM/GC Construction Services, Home Office Overhead and Profit	Costs Included in Direct Costs or General Conditions
	All project direct costs related to quality control
	Project office costs for cleaning, set-up / demobilization, maintenance, security, utilities, rent/lease, equipment, and furniture
	Materials and equipment handling, including shipping/transport to site and storage costs
	Job site temporary toilet facilities/ maintenance
	Partnering workshops
	Construction rental equipment
	Actual cost of permits
	All project direct costs related to implementation of Agency-approved sustainable practices
	All project direct costs related to implementation of Department-approved DBE program
	Construction equipment and vehicles at Proposer's internal cost rate, including costs of maintenance and fuel
	All costs related to cell phones, radios, fax machines, computers, computer support networks, and software
	All costs of capital and interest; licenses and taxes required by law
	Miscellaneous project office costs, including but not limited to, drinking water, printing, reproduction, postage, delivery, and supplies
	Bonds and insurance
	Payroll taxes, insurance and benefits for direct hire employees performing self-perform work

5.1.3 NCP: Project Contingency

The project contingency is estimated by the CM/GC and the Department collaboratively based on probable costs of risks in the project risk register. The purpose of the contingency is to share the risk between the parties and share the costs when certain risks are incurred, instead of including those risks as a part of the NCP.

There are typically two contingency pools:

- CM/GC Contingency – Includes the risks the CM/GC could control.

- The CM/GC contingency is negotiated as a lump sum or unit price per risk. The CM/GC may access funds from the CM/GC contingency for CM/GC controlled risks in the risk register, with GDOT concurrence, as they are encountered.
- GDOT Contingency – Includes the remainder of the risks.
 - The Department will maintain ownership of the GDOT contingency which may be a lump sum or unit price per risk. The CM/GC can request that funds in the GDOT contingency be allocated to cover realized risks in the risk register that are outside of the control of the CM/GC, as they are encountered.

Detailed rules for contingency usage will be negotiated at the same time as the construction services fee and before the first Opinion of Probable Construction Cost (OPCC) is required.

All cost savings in the GDOT contingency will be returned to the Department unless otherwise negotiated in the final NCP.

5.2 Opinion of Probable Construction Cost (OPCC)

One of the most critical steps in successfully developing and establishing the final NCP on a CM/GC contract is to require the CM/GC to submit its estimate for the cost of the work at logical milestones as the design of the project progresses and in alignment with the work packages. Regular submission and review of the CM/GC's cost estimates allows the Department to compare the CM/GC's estimate for the work with the cost estimated by the ICE and the engineer. Through these submissions, the Department can review and resolve cost variances prior to the final NCP Proposal. The number of costing milestones will vary based on the complexity of the project. As a best practice, aligning the costing milestones with the design validation milestones allows all estimates to be based on the same set of interim documents and helps minimize uncertainty and assumptions.

Estimates provided by the CM/GC at costing milestones are each a non-binding "Opinion of Probable Construction Cost" or OPCC. Although non-binding, an OPCC is considered a good-faith estimate of construction costs by the CM/GC. Each OPCC should assume that prices for items of work will not vary dramatically between costing milestones unless the price changes can be substantiated by documented changes in assumptions or work.

Figure 5-2 presents an outline of successful CM/GC practices used by highway agencies throughout the country combined with input from local FHWA, the Department, GHCA, and ACEC representatives in developing each OPCC, which practices may be implemented by GDOT at its discretion.

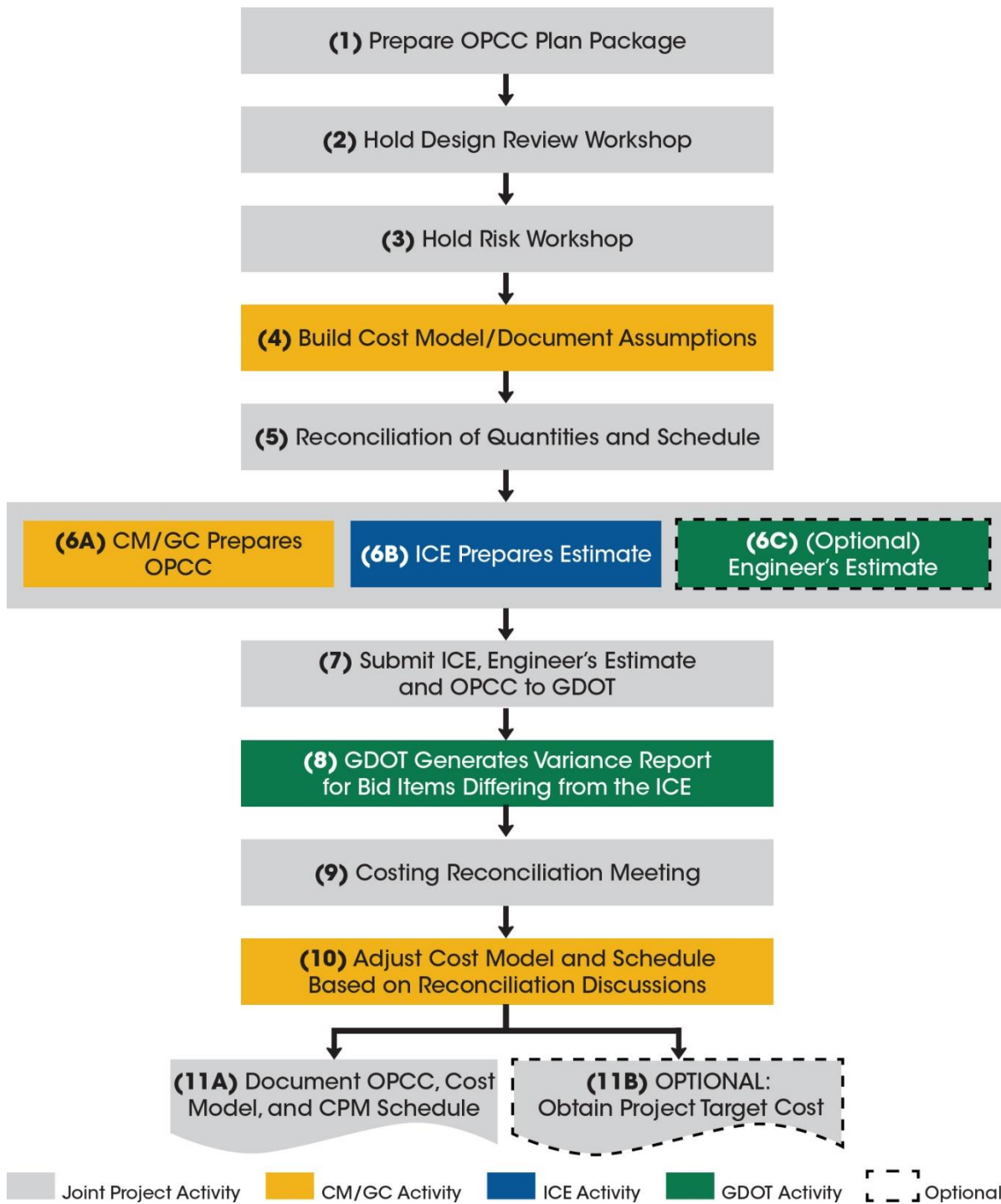


Figure 5-2 OPCC Process Flowchart

Each step represented in Figure 5-2 is described below. The process of creating, submitting, and reviewing an OPCC described in this Manual reflects best practices of CM/GC delivery projects, but each component is subject to the discretion of the Department.

Task 1: Prepare OPCC Plan Package

The DOR prepares and distributes an OPCC Plan Package for each costing milestone. The scope of work will be clearly defined for each OPCC Plan Package and, although the design may progress, the scope used for costing will not change through the OPCC process. Each OPCC Plan Package should include plans, quantity take-offs, measurement/payment definitions, and any specifications appropriate for the level of design. Plans should be labeled as “OPCC Plan Package #” where # corresponds with the applicable costing milestone iteration. Plans should be prepared at typical design review milestones used in a DBB process but can be adjusted depending on the complexity of the project. Also, the design documents plans may be customized based on requests from the CM/GC to help them prepare their OPCC. The CM/GC prepares and submits a Critical Path Method (CPM) schedule that supports each OPCC as part of the OPCC Plan Package.

Task 2: Hold Design Review Workshop

After the OPCC Plan Package has been distributed, a Design Review Workshop with the Department, DOR, CM/GC, and ICE should be held. During these workshops, each party reviews the plans and quantities with the following objectives:

- Allowing all parties to understand the work that is being estimated;
- Allowing the CM/GC to provide feedback on the constructability of the plans;
- Discussing assumptions on means and method regarding how the project will be priced;
- Defining and agreeing upon what is included in a line item; and
- Allowing all parties to identify any errors, omissions, ambiguities, or other items that need to be corrected in the OPCC plans.

Task 3: Hold Risk Assessment Workshop

After the design review workshop is held, a formal risk assessment workshop with the Department, DOR, CM/GC, and ICE should be conducted. During this meeting, the Department and the CM/GC should discuss and agree upon how project risks and contingencies related to the timing and cost of delivery of the project will be quantified and assigned. The ICE participates in this discussion to stay informed and understand risk and contingency assignment. Based on discussion at the risk workshop, adjustments to plans and quantities in the OPCC Plan Package may be necessary, and the parties should agree to those adjustments during the workshop if possible. During risk workshops that occur early in the design process, a significant amount of time may be spent identifying risks related to the project, as well as identifying time and cost impacts for each risk as applicable. During later workshops, the focus of the meeting may be to identify any new risks that have been discovered and update the risk model for risks that have been retired or where the time and cost impact has been reduced.

Task 4: Build Cost Model/Document Assumptions

Once the design review and risk workshops are held, the next step in developing each OPCC is to build the cost model and document assumptions that will apply to the OPCC. Preparing successful price justification in the CM/GC delivery method depends on thorough documentation of the assumptions that were used by the CM/GC to estimate the costs. Documentation that is developed during the course of this process should be maintained to capture a history of changes at each costing milestone.

The CM/GC is responsible for preparing and updating the cost model which should be structured using GDOT bid items to the greatest extent possible. To this end, the CM/GC will be expected to be open and transparent about how the work for the project is priced, and the CM/GC will be expected to prepare or update the approved cost model with each OPCC that clarifies the means, methods, assumptions, and risks that were used to estimate the costs for each OPCC. The following information is typical of what is included in a CM/GC cost model:

- Unit costs and quantity take-offs;
- Material costs, equipment costs, labor costs, hourly labor rates, crew sizes, shifts per day, hours per shifts. Labor rates will include employee benefits, payroll taxes and other payroll burdens;
- Risk assumptions and assignment of burden of risks;
- Production rates, transportation, and other facilities and services necessary for the proper execution of the work;
- Reconciliation of quantities;
- Quotations from subcontractors, vendors, and suppliers; and
- Field indirect costs, bonds, taxes and insurance.

As a part of its submission, the CM/GC should prepare for the Department a narrative summarizing the cost model to summarize the key costing assumptions for each OPCC. The cost model narrative should include such things as: type of equipment proposed to perform the work, labor rates, equipment rates, sub/material plug, shifts per day, hours per shift, risk assumptions, assignment of risks, assumed weather delays, and supporting subcontractor quotes.

Task 5: Reconciliation of Quantities and Schedule

Once the CM/GC and ICE have reviewed the OPCC Plan Package for each costing milestone, a quantity reconciliation and schedule review should be performed. This process should include the DOR to help validate that the OPCC Plan Package is being interpreted as intended and to help identify and mitigate risks. This reconciliation also helps expedite the cost reconciliation process by eliminating quantity variance between the estimates.

As part of the quantity reconciliation process, the CM/GC's proposed schedule for the OPCC Plan Package should also be reviewed and validated. Agreement on a reasonable start date and construction duration will help the parties estimate indirect costs and other duration-based items.

Once quantity reconciliation and a schedule review have occurred, an agreed list of bid items and activities is distributed for incorporation into estimates. By the end of this task, all estimators should price identical quantities of materials during the remainder of the OPCC process for the applicable OPCC Plan Package.

Task 6: Preparation of OPCC and Estimates

During this task, based on input from the design and risk workshops, the DOR will update the design documents used in the OPCC (if necessary), and the CM/GC prepares an OPCC and the ICE and, in some cases, the DOR prepares an estimate of cost. The estimates should be prepared for the work to be performed for each costing milestone. Estimates prepared by the ICE and CM/GC should be a “bottom up”, production-based, contractor-style estimate prepared by using typical contractor-style estimating software. Any and all subcontractor and vendor quotes received by the CM/GC may be shared with the other estimators to be evaluated and incorporated into their estimates as appropriate.

While the CM/GC’s preparation of the OPCC and the ICE’s preparation of an estimate should occur at each costing milestone, the DOR’s preparation of an engineer’s estimate may be done at the discretion of the Department. Because the ICE’s estimate is “blind” or hidden from the project team during costing milestones, the Department may elect for the DOR to perform an Engineer’s Estimate so that the project team can see estimated costs at each milestone. Advantages of using an Engineer’s Estimate include:

- It provides another perspective that can be used in reconciliation discussions;
- It provides another “set of eyes” on ways to price the work; and
- It gives the Department the opportunity to understand how the work is priced, how risk and contingency gets assigned, and how production and labor costs get rolled up into unit prices.

Task 7: Submit Estimates and OPCC

After the OPCC and estimates are prepared, the CM/GC should submit their OPCC to the Department. OPCCs should NOT be submitted directly to the ICE. The ICE estimate and engineer’s estimate should be submitted directly to the Department.

Task 8: Preparation of Variance Report

After receipt of the OPCC, ICE estimate, and engineer’s estimate, the Department should prepare a variance report. This variance analysis of the OPCC can be used in costing reconciliation during each interim costing milestone.

Task 9: Costing Reconciliation Meeting

The project team may hold a costing reconciliation meeting at each costing milestone following the submission of the OPCC, the ICE estimate and the preparation of the variance report. The reconciliation process gives both the CM/GC and the Department opportunities to understand each other’s perspectives about costing assumptions and risk assignment.

During these meetings, the Department and the CM/GC should attempt to reconcile cost differences for every item identified in the variance report having a significant price deviation from that of the ICE in excess of a stipulated target amount established by the Department for the project. At the price reconciliation meetings, the Department may request that the CM/GC share its version of the current cost model to better understand how the proposed pricing was derived and to reconcile differences. Attendance at these meetings and the sharing of or discussions about the CM/GC's cost model should be limited to the CM/GC, the Department's project management staff, the Department's estimating staff, and the ICE.

The ICE is present at the reconciliation meetings to hear the discussion and ask questions as needed to clarify. It is the Department's responsibility to help ensure the ICE remains independent during reconciliation meetings.

Open Book Process: As part of the CM/GC open book estimating environment during the reconciliation process, the Department may ask the CM/GC to "share" or review with them information that clarifies how the proposed costing was derived in order to help reconcile differences between the ICE and the CM/GC's OPCC. All materials of this nature will be reviewed in an "over-the-shoulder" format.

The detail anticipated to be provided by the CM/GC in an open book review may include the costs related to:

- Labor rates (burdened)
- Permanent material
- Equipment rates (burdened)
- Means and methods
- Crew personnel makeup
- Production rates
- Small tools and consumables
- Other direct costs
- Indirect costs
- Mobilization

The Department and the CM/GC may not be able to resolve all differences in costing for certain items or for the overall cost during OPCC reconciliation meetings. The Department and the CM/GC may decide to, among other things, (a) acknowledge differences, move forward with design, and attempt to continue reconciling differences during later OPCCs, or (b) agree that reconciliation is not possible and terminate negotiation on the work package or contract to allow the Department to procure the construction through some other method. If there are multiple work packages or contracts, the CM/GC may continue work on contracts previously executed.

Task 10: Adjust Cost Model and Schedule and Resubmit Costing

If the Department and the CM/GC agree upon changes to the costing assumptions as a result of the reconciliation meeting, the CM/GC should adjust its cost model and the schedule to reflect these changes. The CM/GC should also revise the cost model narrative and resubmit the revised narrative to the Department. Following submission, the revised cost narrative should be documented in the

project file. During the reconciliation process, it may be necessary for the ICE to adjust their costing assumptions and estimate based on information furnished by the CM/GC.

Task 11: Document OPCC, Cost Model, and Schedule

The Department documents the OPCC, the cost model, and the CPM schedule in the project file for each milestone.

5.2.1 Project Target Cost (PTC)

If the project is separated into severable work packages, each with their own contract, GDOT may request a Project Target Cost (PTC) from the CM/GC.

If requested, the PTC is a non-binding, good-faith estimate of construction costs (similar to an OPCC) reflecting the total cost required to complete all work packages on a project. A PTC may be used by the Department to verify that the overall construction scope can be completed within the available project budget. A PTC should be based on the assumptions and risks that are known at the time the estimated costs are submitted to the Department. The CM/GC's PTC should be supported by a cost model and narrative similar to the OPCC. When the CM/GC submits a PTC, the Department may assume that the CM/GC intends to construct the overall project at or below the PTC, subject to documentable changes in costing assumptions or scope that affects costing.

5.3 Negotiated Construction Price (NCP)

The Negotiated Construction Price (NCP) is the maximum amount that will be incorporated into the CM/GC Construction Contract to accomplish the construction phase. The NCP is the sum of the direct cost of construction, indirect costs of construction, and the CM/GC Construction Services Fee for a work package. The total contract amount for the construction phase of the project is the sum of the NCP and Project Contingency. A supplement agreement or amendment to the CM/GC Agreement, once executed, will include the total contract amount.

To establish a NCP, a proposal (NCP Proposal) must be prepared. NCP Proposals are based on the open book Cost Model developed during the preconstruction phase and refined through the series of OPCC submittals and review meetings, as described in this Manual. Multiple NCP Proposals may be developed and accepted to facilitate project construction phasing or long lead procurement items.

A NCP Proposal can be prepared for the entire project, a severable phase of the project, or for long lead procurement items. The CM/GC prepares an NCP Proposal once GDOT and the CM/GC have agreed that the design has advanced to a point to be able to establish an NCP. The timing of the development of the NCP Proposal is based on the percentage of design complete, as determined by the Department, on a project-specific basis. Typically, the design will be 90% complete or greater.

When a NCP Proposal is desired, the DOR may provide the Summary of Approximate Quantities (SAQ) to be used by the CM/GC when preparing the NCP Proposal, or the CM/GC may prepare the SAQ with GDOT's approval and confirmation of the estimated quantities. The Department will prepare a comparison template based on the SAQ; therefore, when preparing the NCP Proposal

and ICE Estimate, it is very important that the CM/GC and ICE use the same SAQ and do not modify the format or reorder the bid items.

The CM/GC prepares the NCP Proposal based on the Bid Package from the Department and open book Cost Model that was refined during the preconstruction phase and the OPCC submittal process. The ICE Estimate uses the same project documentation to prepare their independent estimate. An NCP comparison worksheet will be prepared to identify price and percentage differences of the individual bid items and the total bid amount.

Prior to agreement of the NCP, the CM/GC prepares a detailed baseline cost and resource loaded CPM schedule to serve as the Project Baseline Schedule, which identifies all construction activities at an appropriate level of detail. In addition to the CPM Schedule, submit a finalized cost and schedule control management plan to ensure completion of construction within budget and in accordance with the Project Baseline Schedule.

After the submission of the NCP Proposal and a price reconciliation meeting to discuss the differences in the Department's estimate and the NCP Proposal, the Department may accept or reject the NCP Proposal. If a reasonable NCP Proposal is negotiated, with FHWA concurrence when required, the CM/GC is awarded a construction contract to perform the work through a supplemental agreement or amendment to the Construction Management Agreement. The supplemental agreement or amendment authorizes the CM/GC to complete the construction of the project.

After a NCP has been established through the acceptance of a NCP Proposal, the NCP will not be increased except for change orders and certain agreed upon risk pool items approved by the Department. The CM/GC Construction Contract will identify which items, if any, are included as risk pool items that are eligible for approved overruns. The CM/GC will assume all risk with performance of the work, including management of its subcontractors, suppliers, and any associated cost impacts over and above an NCP not listed as overrun items in the contract or agreed to as risk pool items in the executed risk register.

Following the establishment of the NCP, the DOR will be responsible for completing stamped RFC documents. The Department will be responsible for scope changes that occur between the NCP and the RFC documents. Significant changes may require additional NCP negotiations. Therefore, it is a best practice that all major items that affect pricing or schedule should be accounted for in the plans used to establish the NCP. If the project schedule allows, the plans may be advanced through stamped RFC documents prior to establishing the NCP to reduce the risk of changes.

The NCP Proposal and contracting process is shown schematically on the flowchart in Figure 5-3. The flowchart details the basic steps in the process leading from the Negotiated Construction Price (NCP) Proposal to award and contracting. The following narrative corresponds to the numbered Process Steps as depicted in the flowchart and provides a brief description of the steps typically involved in the process.

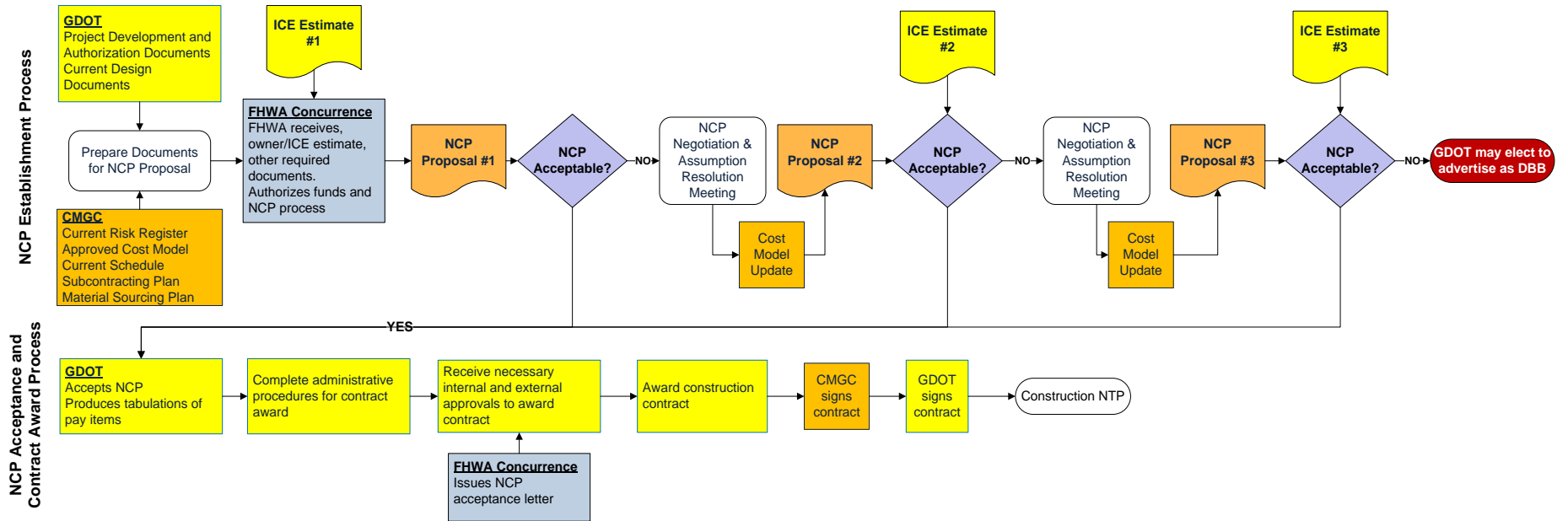


Figure 5-3 Negotiated Construction Price (NCP) Flowchart

5.3.1 FHWA Concurrence on CM/GC projects with Federal Funding

The established NCP Proposal construction plans and specifications are also submitted to FHWA. FHWA may then authorize funds for the construction phase and give approval to proceed with the NCP Proposal process.

5.3.2 NCP Proposal 1

The CM/GC prepares the NCP Proposal based on the RFC design documents, open book Cost Model, established risk register and risk pools, final SOQ, and assumptions previously discussed and agreed to during the preconstruction phase. The NCP Proposal must include a construction schedule and the assumptions underlying the NCP amount. Concurrently with the CM/GC, the ICE prepares an independent estimate using the same information. Upon receipt of the NCP Proposal and ICE estimate, the Department imports the data from the ICE Estimate and NCP Proposal unit costs into the template NCP comparison spreadsheet for review by the Department.

5.3.3 NCP Review Meeting

The Department and the CM/GC meet to review the NCP Proposal and discuss any differences between the Department's estimate and the NCP Proposal. If the NCP Proposal is within a percentage difference acceptable to the Department, the Department may accept NCP Proposal and move forward with the award and contracting process.

5.3.4 NCP Negotiations and Assumption Resolution Meetings

If the NCP Proposal is not within a percentage difference acceptable to the Department, then the Department and the CM/GC may negotiate to resolve the pricing differences. This process may involve revisiting pricing assumptions made by both the CM/GC and the ICE (similar to the cost estimate review meetings held during the OPCC process). The negotiations may take place in open forum meetings or through one-on-one discussions between the Department and the CM/GC.

A reconciliation meeting may be held before NCP negotiations begin. The first NCP Proposal review should be similar to the cost estimate reviews performed during the OPCC submittal process. During the initial negotiations, the Department, ICE, and CM/GC should attempt to reconcile pricing differences that can be contributing to the pricing variance. The negotiations may take place in open forum meetings or through one-on-one discussions between the Department and the CM/GC. As this stage, the Department should promote open and honest discussions to help resolve discrepancies.

After the initial negotiations, the CM/GC may prepare a second NCP Proposal based on the results of the negotiations and any revision made to the Cost Model, if requested by the Department. The ICE should prepare an independent estimate using the revised criteria. If the NCP Proposal pricing differences have been resolved in a manner acceptable to the Department, then the NCP Proposal may be accepted, and the Department may initiate the contracting process. If the percentage difference is not acceptable to the Department, then a second round of negotiations may occur at Department's option. However, these negotiations should be elevated to a higher level of project management within the CM/GC's organization and the Department. Often a new perspective from senior management can open up new lines of communication to help resolve differences.

The negotiation meetings may also benefit from the involvement of additional personnel such as construction managers with specialty experience in the type of construction required for the project.

As a part of the negotiation process, the Department may consult with GDOT professionals or consultant construction managers that have unique experience with the complexities of construction methods for a particular project and provide valuable insight into the CM/GC's methods and means.

If negotiations continue, it may be helpful to refer back to the partnering workshop held at the beginning of the preconstruction phase. The partnering session should have identified an escalation ladder to help resolve conflicts and can remind all parties of the mutual goals that were established for the project. A second partnering session could also be conducted to bring the team back together with the participation of the highest level of management, executive personnel from GDOT and CM/GC.

5.3.5 Estimate Differences when Negotiating the NCP

The Department will review the overall project total and individual bid items for major discrepancies. The Department may accept the NCP Proposal when it is within a percentage of the ICE Estimate that is acceptable to the Department, with FHWA concurrence on federally funded projects. There is no set amount for an acceptable percentage. The acceptable percentage is not a contractual provision but is discussed for the specific project based on its complexity, location, schedule, and other factors.

5.3.6 NCP Proposals 2 and 3

The negotiation process may continue at the Department's discretion with additional NCP Proposals if NCP Proposal 1 is not accepted by the Department.

5.4 Revealing Pricing Differences

Typically, the ICE Estimate and amount of any pricing differences are not revealed to the CM/GC; however, the Department may reveal pricing if the Department believes it would help to advance negotiations. For example, if a particular bid item has a significant price difference from the NCP Proposal, revealing the pricing information may provide the CM/GC an opportunity to explain the difference. It may be discovered that the ICE's pricing assumptions are inaccurate and that the ICE should refine its estimate. Conversely, it may cause the CM/GC to re-evaluate its methods or revisit its pricing assumptions.

5.4.1 Expected Timeframe for Negotiations

The evaluation and negotiations for each NCP Proposal typically takes between ten days to several weeks but will depend on the difference between the NCP Proposal and the ICE Estimate, and the number of pricing items to be resolved. The use of costing milestones and OPCC submittals during the preconstruction phase are implemented so that ideally the NCP Proposal process is streamlined.

At the time of submittal, the CM/GC will be asked to hold the price for a specified period of time while negotiations take place.

Sufficient time should be allowed for the ICE Estimator to become familiar with any changes to the construction plans that have occurred since the last OPCC. Prior to NCP negotiations, GDOT should inform OAD, senior management, and FHWA of the upcoming NCP schedule so that they can commit to the timeframes and meetings required for negotiations.

5.4.2 Failure to Reach an Agreement

The CM/GC will have the opportunity to prepare and submit up to three NCP Proposals. After the third and final attempt at an NCP negotiation, the Department reserves the right to initiate a new procurement to complete the construction-phase work for the project and prepare the plans, specifications, and estimate package for advertisement as DBB. The CM/GC will not be allowed to bid.

5.4.3 Contract Award and Contracting

If an NCP Proposal is acceptable to GDOT, then GDOT initiates the process for Contract Award.

5.5 Long Lead Time Procurement (LLTP) NCP

An advantage of CM/GC project delivery is the ability to secure construction materials and equipment during the preconstruction phase to reduce delays during construction. Although not necessary for every project, in some instances, materials may also be procured early in the design process to avoid price escalations for volatile construction materials, such as steel girders, as determined by the Department.

The Long Lead Time Procurement (LLTP) NCP is a price submitted by the CM/GC for items which must be ordered and/or procured in advance of the construction phase for which it will be used. The LLTP NCP is established through the same procedures as an NCP Proposal.

Once GDOT and the CM/GC have agreed that it is appropriate to submit a proposal for a Long Lead Time Procurement (LLTP) NCP item, the CM/GC must update the Cost Model and Risk Register to reflect any changes from the last OPCC submittal. The CM/GC also updates the construction schedule, subcontracting plan, and material sourcing plan, and submits the documents to GDOT and the ICE to use as the basis for preparing the ICE Estimate for the LLTP.

5.6 DBE Requirements

The CM/GC develops and formulates a Subcontracting Plan to integrate subcontractors as needed to accomplish the construction work and to meet DBE contract goals for the overall project and also for each separate and severable work package.

The scope of work for each LLTP and PTC will be submitted to the GDOT Office of OAD who will coordinate with the GDOT Office of EEO and, if there are federal funds, the FHWA Civil Rights Office prior to the NCP Proposal in order to determine the Contract Goal. With the NCP Proposal, the CM/GC must submit an Anticipated DBE/SVDBE Participation Plan documenting its proposed DBE/SVDBE participation for the phase. Approval of the NCP Proposal will be treated at selection as the lowest apparent bidder and all procedures of the then current DBE/SVDBE Standard Special Provision will apply.

Chapter 6. Construction Administration

6.1 CM/GC Construction – Phase 2

After acceptance of the NCP proposal, the Department and the CM/GC will sign a supplemental agreement or amendment to the Construction Management Agreement to authorize the CM/GC to complete the construction of the project. Additionally, upon the acceptance, the CM/GC will be required to provide performance and payment bonds in the fully amount of the NCP. After the supplemental agreement has been or amendment has been signed, the Construction Management Agreement becomes contractual, and the Department may release distinct work packages to allow the CM/GC to proceed with the project and, thus, commence phase 2 of the CM/GC delivery method.

Benefits of the CM/GC delivery method, such as reduced design errors, enhanced constructability, and coordinated design and work packages, are typically realized in the construction phase in terms of cost, time, and quality. Often, the benefits are a result of the CM/GC's selection prior to completion of the design so that the design can be tailored to the CM/GC's experience, methods, and techniques. Issues regarding design and availability of materials, means and methods are also identified and addressed prior to construction. All of these factors may reduce construction time, construction costs, construction engineering inspection costs, and change order requests relative to other contract execution methods.

Similar to the DBB method, GDOT will manage project scope and budget and evaluate and negotiate changes in CM/GC project phase. The major change to the traditional DBB construction administration process induced by CM/GC project delivery method is the pace at which the construction proceeds. Construction activities often begin before all design activities are complete. As a result, the Department's standard construction administration processes must be modified to accommodate production and avoid hindering progress of both the design and the construction contracts. This also requires the Department to provide project personnel that have the authority to make decisions in a timely manner to maintain project pace.

Lastly, the keys to successful CM/GC construction administration are the Department's participation and collaboration between parties. CM/GC construction responsibilities may include, but are not limited to:

- Constructing the project within the NCP;
- Managing subcontractors;
- Suggesting improvements to the design as the construction progresses;
- Executing the QC Program;
- Complying with DBE and OJT program requirements; and
- Developing, proposing, and tracking innovations for project construction then documenting cost savings and schedule impacts associated with innovations in a written report to GDOT.