AN OWNER'S GUIDE TO CONSTRUCTION AND PROGRAM MANAGEMENT

Enabling Project Success Under Any Delivery Method

Acknowledgments

CMAA gratefully acknowledges the time and efforts of those who served as contributing editors in developing this Owner's Guide to Construction and Program Management. Without the collective efforts of these individuals, this document would not have been possible.

Preface

This document is intended as an introductory guide for public and private owners to understand the roles and responsibilities of the key pro fessionals critically important to the success of a construction program and/or project.

This document will benefit those owners who embark on a construction project or program providing guidance to define the expertise recommended for success in the pl anning, design and construction processes. It introduces construction and program management practices describing how they can enhance the success of a project.

Traditional and alternative project delivery methods are presented, with the corresponding ri sks to be managed in each. In addition, the differences between Agency Construction Management and At- risk Construction Management are hi7i7ilteon7ichin-5guhidance in sei de.359idaon1(s)-4vi(dan)-1(c)-4(e)-5( )1(i)10(n)50(l)10(te)wneon-1(d)11(pr

Contents

Executive Summary

Construction is inhe rently a complex endeavor. An o wner embarking on a construction project or program faces a variety of challenges, such as time and cost constraints, program and quality goals, project team creation and integration, and internal organizational requirements. Successful delivery requires a well crafted management plan, a disciplined approach to carrying it out, and effective leadership of the program/ project team.

A Construction Management professional can help identify specific needs, mobilize appropriate staff and manage implementation. Management services and expe

The project or program team is critical to successful delivery, and should enhance and compliment the strengths of the owner to provide a comprehensive set of resources and skills. The core players on a design and construction team are the owner, the designer, the builder (or contractor), and the manager (CM or PM). The designer, the builder, and often the manager, will typically have numerous subconsultants and/or subcontractors. The owner, using either a Construction Management or program management approach, may choose to manage the team with in-house personnel, or contract out to a qualified consultant, or use a combination of both. The relationships of the various players among one another will be determined by the management plan, the delivery method(s) chosen, and the contracting format.

Contracting for and Delivering the Project or Program

As an owner, it is necessary to choose a project delivery method and contracting format that efficiently delivers the project or program. A

CM/PM services are hourly rates (either billing rates or salary times multiplier) plus direct expenses; lump sum fee; and cost plus fixed fee.

1.0 Framing Construction P

construction and activation – for the purpose of providing standardized technical and management expertise on each project.

- The designer(s) - Employed by the owner to provide design services in support of the project. While Designers can be contractually responsible to the owner, they report progress to the CM/PM and are monitored by the CM/PM for compliance with the scope statement and both the design and construction budgets.

- Other consultants - Providers of specialized services, such as commissioning agents, real estate acquisition firms, geotechnical engineering firms, environmental engineers, and permitting consultants that are employed by the owner in support of the project. Their efforts are coordinated and monitored by the CM/PM.

- The contractor – The organization or individual who undertakes responsibility for the performance of the work in accordance with plans, specifications and contract documents; providing and controlling the labor, material, equipment, and subcontractors to accomplish the work.

Meeting Project and Program Needs

The integration and coordination of the complex interrelationships occurring in a typical construction project or program require substantial expertise. Some owners may have extensive operational organizations with significant resources and capabilities. Other owners may not have the organizational resources or expertise on board to meet specific project or program needs. Whatever level of expertise the owner may have, project and program organizations can be designed to leverage and compliment the strengths of the owner's existing staff and provide the comprehensive skills needed for success.

Construction Management and Program Management are specialized professional service disciplines applied to the planning, design and construction processes. CM/PMs provide an array of management options and expertise tailored to owner and project needs and independent of the chosen contract form or project delivery method. For example, CM/PMs apply and integrate comprehensive project controls to manage the critical issues of time, cost, scope and quality. It is in the matching of services to project and program needs, in concert with the owner, where Construction Management and Program Management creates value.

Expertise applicable to virtually any project or program includes:

- Stakeholder coordination
- Project scope development
- Risk management
- Sustainability
- Land acquisition
- Permitting

- Financing
- Cash flow management
- Design acquisition and management
- Constructability review
- Budgeting & Cost estimating
- Contracting an d project delivery method s
- Value engineering
- Cost and schedule control
- Contract administration
- Document control
- Construction inspection
- Quality control
- Dispute avoidance and resolution
- Commissioning
- Activation

A significant advantage of using a CM/PM is that the organizational structure is notoc 0.478 0 Td [(is)-14
that the organi565n(o)-5(nal)10(n 17(nal-5()4 Tc -42 1 Tf 0.446 0 n)-1.174ac(inc)-4(

interests; and the construction phase, in which the CM /PM at risk is a contractor and is prim arily focused on managing the “at risk” part of its role and no longer has the duty to advance the owner’s interests.

Regardless of the form of contract agreement, the CM/PM plays a pivotal role throughout all the phases of project implementation. A co ntract agreement will establish the scope of services and will also define the relationship of the parties.

2.0 Co ntracting and Project Delivery Systems

Project Delivery Methods

A project delivery method

- Multiple Primes – Separate Contractors contact directly with the owner for specific and designated elements of the work.

- Public Private Partnership (P3) – A private entity or consortium of investors provides some or all of the capital and a commitment to deliver a completed project for the public sector in exchange for revenue that the project is anticipated to generate.

There are benefits and trade-offs that come with various delivery methods, and it can be invaluable for the owner to have professional CM/PM advice to determine what makes the most sense for any given project or program. For example, one owner may value the speed to completion and the potential for design innovation that Design-Build promises while another owner may not wish to accept the reduction in owner control of final design that accompanies Design-

3.0 Why Construction Management/Program Management?

Construction Management and Program Management have been used successfully in a

- One or more Management Plan s
- Master Planning
- Development of a written scope understood by all of the participants
- Detailed project budget based on scope, quality and schedule
- Development of thorough design criteria for issue to the Designer
- Design quality assurance throughout the design process
- Consideration of material, systems and process alternatives
- Construct ability and sustainability review s
- Code compliance review
- Life-cycle Cost Analyses/Value Engineering
- Milestone cost estimating so that design complies with the budget
- Matching construction spending to available funds
- Construction specification enforcement
- Continu al schedule monitoring
- Commissioning

The implementation of these management activities turns the planning, design and construction process into one which maximizes the owner 's control over the project's scope, quality, time, and cost, and adds predictability of the o utcome from the start of programming to completion of construction.

Early development of the scope provides the information needed to establish a baseline budget and schedule. Because of the continu al monitoring of the schedule and project cost over time , the impact of changes and new information on this baseline can be evaluated and managed contemporaneously . The CM can prepare well formulated and appropriately sized construction bid packages, developed during the planning and design process, are the ke y to minimizing changes and avoiding disputes and delays during construction. This is the owner 's most powerful tool in assuring a positive outcome for the project.

The addition of a CM does not lessen the owner 's control over the project, but enhances i t through the owner 's acquiring access to experienced design and construction professionals. When an owner implements a project using an agency CM, it allows the owner to make use of advice that is unaffected by any potential conflict of interest. The own er is still able to obtain the advantages of the many procurement methods, but with much greater control over and confidence in the outcome.

4.0 Selecting the CM and PM

Typically, CM/PM professional services are procured using Quality Based Selection (QBS) - an objective evaluation of the qualifications of competing firms. QBS is an accepted practice that is used by both public and private entities to select the best qualified CM and/or PM for a program and/or project.

Preliminary Decisions and Information

At the outset of the CM or PM selection process, certain information should be documented and certain decisions should be made regarding the concept of the project or program and the needs of the owner to realize objectives.

A description of the project, including size, purposes, goals and objective parameters, must be developed in order to convey to the CM or PM proposer the activities and approximate level and type of skills that will be necessary. If any studies or other documents are available, they should be called to the attention of the proposers.

The program and/or project proposed scope, schedule and budget should be included in the description. Finalization of schedule should not take place until the selected CM or PM has advised the owner regarding the achievability of the proposed schedule and associated project or program cost.

Owner's Internal Delegation and Management. On all projects and programs, the ability to react to changing circumstances is critically important. The decision-making process must be designed to deliver informed decisions swiftly. It has been said that the most frequent cause of project disruption is delay caused by indecision.

It is very important that contractual authority --authority to obligate the owner to pay money --be delegated to a qualified individual or small group of people so that binding decisions can be rendered in a timely manner and by those who are most familiar with the project or program. These decisions may concern change orders, contracts, dispute settlements, labor relations, min or purchases and contracts in support of the project.

Some owners' governing bodies may establish budget guidance for parts of a project or program, with specific decision and dollar value authority within those budgets delegated to a part of the permanent staff. With appropriate controls, this practice is highly recommended, because it makes for a nimble organization in response to changes that benefits all parties.

The owner should decide and share with proposers the project organization, as envisioned by the owner

technical proposal. Th is solicitation, issued as a request for proposal (RFP), is a request for information about a firm's qualifications and intentions to perform the services desired. The technical proposals are usually written for a specific project.

The RFP should provide prospective respondents with a description of the project and information regarding the method of compensation. Additionally, the RFP should contain information about the project such as the project budget, major constraints, unusual services that may be required, and particular goals of the owner .

If the owner has sufficient understanding of the expected scope of services, it may be advantageous to organize the RFP on that basis. The RFP may also be organized as a series of questions to be answered by the respondents.

The RFP should seek the following information from the proposers:

- The respondent's approach to the project in terms of organization, process, tools and techniques, staff and quality assurance/quality control, etc.
- The respondent's experienc e with projects of similar nature, including owner references
- Resumes of key staff to be assigned full time and those to be available as resources

owners should keep in mind that proposals are often a CM's or PMs largest non - project expense. CMs and PMs a ppreciate an RFP that allows them to efficiently present their qualifications. It is appropriate for the RFP to include the criteria for the evaluation of the proposals as well as the weighting to be used.

It is desirable for the selection committee to be involved in the development and organization of the RFP. The RFP should be drafted with the understanding that the selection committee will have to evaluate a number of technical proposals and that the more consistent the presentations by the respondents the easier the evaluation will be. A mandatory outline of the technical proposal is useful in organizing the data for comparison by the selection committee. Additionally, a page limitation is suggested to keep the presentations to a manageable size. The page limitation should not include data such as resumes and brochures. The RFP should be examined by an experienced person for clarity and internal consistency.

Evaluation Process. The evaluation process may be time consuming and difficult. The selection committee should proceed with a logical and methodical evaluation of each proposal and grade each against the evaluation criteria stated in the RFP. The final ranking of CM or PM s should be determined by averaging ranks assigned by each panelist rather than averaging the panelists' scores. This serves to reduce the influence of any one member of the panel and to ensure that the relative best of the proposals are identified. The proposal with the best average numerical ranking should be selected as the finalist to proceed to the next steps of submitting a cost proposal and negotiating the work effort.

In some cases, more than one respondent may appear qualified, and interviews or oral presentations may be the only appropriate method to differentiate between the

- Acquisition of special consultants
- Acquisition of d esigners
- Acquisition of c ontractors and s uppliers
- Quality, cost and schedule control
- Testing, startup and turnover

The scop e of services should include deliverables or other tangible methods for measuring performance. Where applicable, physical examples of reports or other expected outcomes should be included or referenced. CMAA's Construction Management Standards of Practice is not intended to be a scope statement in support of a contract, but it provides information about the functions typically provided by a CM or PM firm .

The owner and the selected firm should jointly, through negotiation, agree on a final scope of servic es based on the selected firm's scope proposal and designed to support the timely delivery of the project. Development of a CM or PM budget grows out of this scope and is the first step in the detailed planning of the project.

If the owner and the most qu alified firm are not able to reach agreement on price and scope, negotiations are commenced with the next qualified firm.

Methods of Paying for Services

Several methods are recognized and commonly used in the compensation of firms for professional Const ruction Management services. All result from a negotiation between the owner and the firm as to the proper level of staffing for particular tasks that constitute the firm’s scope of services.

Salary Times Multiplier, Plus Direct Expenses. A typical appro ach is based on a firm's direct salaries times a multiplier. The multiplier is a number that is derived from the sum of the firm's indirect salary costs (such as FICA and unemployment insurance and salary benefits) and overhead costs (general and administrative office and other indirect costs) divided by the total salaries paid. This ratio is used by the firm to recover these costs. An agreed profit rate is then applied to the product of the direct salary times the multiplier. Direct project expenses are paid separately. Frequently, an administrative or handling charge mae or hanirms10((ts)-4(.)20(i)10(-1(e)-2qw10(s)-4( ))-5(j)-7(e)-5(c)-4(t)12(e)