CMAA
Construction Management
Association of America

Understanding Your Role

CM/PM Responsibilities by Project Delivery Method

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Acknowledgments

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Introduction

Construction and program managers (CM and PM, respectively) are uniquely trained to coordinate planning, design, and construction for capital projects. While construction management has proven effective regardless of the project delivery method, owners should understand that work accomplished by a CM/PM varies by process.

Due to the variety of delivery methods, confusion is inevitable for owners. This guide will help you understand the core modern delivery methods and the different roles a CM/PM will likely play. In this guide, you will learn to identify the CM or PM's role in each of the following delivery methods:

- CM at-Risk
- Design-Bid-Build
- Design-Build
- Engineer-Procure-Construct
- Integrated Project Delivery
- Public-Private-Partnership

Editor's Note: Multiple Prime Contracting is an alternative to the traditional procurement approach, in which the owner holds separate agreements with contractors in various disciplines, such as general construction, structural, mechanical, plumbing, and electrical. This system is prevalent in education-related projects in California and the West Coast. Since multi prime contracting is uncommon, this guide will not discuss it further.

But first, it's essential to define **project delivery method**:

A project delivery method is designed to satisfactorily complete a construction project from conception to occupancy. The chosen method determines how stakeholders—typically owners, designers, and builders—will collaborate to meet their obligations.

To help you conceptualize a CM/PM's role, each delivery method is broken down by construction phase. From pre-design to post-construction, this guide highlights the primary tasks a CM/PM needs to perform to meet the needs of the project owner and other stakeholders. With a greater understanding of the different delivery methods, you will be prepared to take on a greater variety of projects.

Editor's Note: No singular delivery method is superior. Instead, try focusing on the following: what's the best project delivery method for each opportunity? The good news is that the variety of alternatives offers owners and CMs more flexibility in choosing an appropriate and effective system for the project.

CM at-Risk

Introduction

Most commonly, the CM at-Risk (CMAR) joins the team through a qualification-based selection* during pre-design and joins the owner's preconstruction team to develop schedules, estimates, logistic studies, long lead procurement insight, and more to help build out the owner's requirements.

***The qualification process typically includes preconstruction service prices, general conditions prices, and the CM's construction fee.**

When the owner is ready to procure construction services, they may proceed with the construction manager (professional services) in a CMAR role to deliver construction services within a lump sum fee cost plus or percentage fee guaranteed maximum price agreement. This typically occurs at the inception of the project/program. The CMAR is also responsible for construction performance. Alternatively, the owner may end the relationship and place the project/program out for a competitive bid.

CMAR is a form of agreement between the CM at-Risk and the owner with many variations. It is primarily used in contracts with a collaborative delivery process where the CMAR takes on the role of prime builder. The CMAR may hire separate trade partners/consultants or utilize in-house services.

CM at-Risk or Agency CM?	
CM at-Risk	**Agency Construction Management**
This delivery method entails a commitment by the construction manager to deliver the project for an established amount, often a guaranteed maximum price (GMP). The construction manager is a consultant to the owner in the development and design phases. During construction, the CM will assume additional obligations and undertake construction responsibilities, typically in a legal position like that of a general contractor. In simpler terms, the CMAR is responsible for controlling the entire jobsite. They are accountable for building the project, general liability and safety claims, inspections, and more.	The agency form of construction management is performed in a defined relationship between the CM and owner. The agency establishes a specific role for the CM, who acts as the owner's principal agent in connection with the project/program.

PM/CM Roles

Defining Program vs. Construction Management	
Construction Management	**Program Management**
A professional management practice applied to construction projects from inception to completion to control time, cost, scope, and quality.	The practice of professional construction management applied to a capital improvement program of one or more projects from inception to completion. Comprehensive construction management services integrate the different facets of the construction process, including planning, design, procurement, construction, and activation, to provide standardized technical and management expertise on each project.

Design/Pre-construction

- Determine scope
  - Prepare needs assessment
  - Clarify owner's requirements for budget, schedule, quality, risk, safety, sustainability, technology, etc.
  - Establish preliminary schedules and budgets
  - Develop the conceptual design package for prospective builders
- Conduct a market survey
- Write a project/program management plan, procedures manual, and construction management plan
  - Establish processes and procedures to coordinate the team
  - Develop time, cost, quality, sustainability, technology, risk, and safety management plans
  - Create management information system policies
  - Set up document control procedures
  - Perform quality control/quality assurance (QC/QA)
  - Complete verification, testing, and commissioning procedures
- Manage procurement
  - Facilitate the contracting methodology
  - Develop contract provisions
  - Develop RFQs/RFPs and assist with prequalification
  - Conduct interest campaigns
  - Review proposals
  - Host pre-design conference and site walkthroughs
  - Issue addenda and review effects on schedule, budget, and quality
  - Conduct interviews and pre-award conference
  - Issue notices
- Lead design reviews
  - Constructability, operability, and sustainability
- Review schedules
- Develop contractual scope of work
- Determine lump sum fee or guaranteed maximum price (GMP)
- Develop RFQs/RFPs and manage prequalification for consultants, trade partners
- Conduct interest campaigns
- Host pre-bid conference and site walkthroughs
- Review proposals
- Secure financing
- Issue addenda and review effects on schedule, budget, and quality
- Conduct interviews and pre-award conference

PM/CM Roles Continued

Construction

- Conduct meetings (kick-off meeting, risk workshops, special meetings, etc.)
- Facilitate owner's and end-users' understanding of the design
- Monitor deliverables
- Monitor document control and distribution
- Review and document change orders
- Assist owner with end-user review/public relations
- Process payment requests
- Monitor costs and prepare cost reports
- Issue notices

CM at-Risk	Agency Construction Management
✓ Perform quality control ✓ Document daily jobsite activities ✓ Update schedules and prepare schedule reports ✓ Implement site-specific safety program(s) ✓ Implement acceptance/performance testing and commissioning	✓ Review and process claims against the owner ✓ Perform quality assurance ✓ Review daily jobsite reports ✓ Perform quality assurance ✓ Ensure schedules are up to date ✓ Monitor compliance with the site-specific safety program(s) ✓ Ensure CM employees follow site-specific safety program(s) ✓ Monitor acceptance/performance testing

Post-construction

- Collect/review warranties, guarantees, and operation and maintenance manuals
- Manage or monitor submission of sustainability certification application(s), if applicable
- Prepare final closeout reports and recommendations
- Provide training for owner's operation and maintenance staff

CM at-Risk	Agency Construction Management
✓ Compile operation and maintenance manuals ✓ Provide training for owner's operation and maintenance staff ✓ If applicable, incorporate operation and maintenance manuals into the BIM model ✓ If applicable, transfer the BIM model to the owner	✓ Ensure final documentation is transferred to the owner ✓ Monitor training for owner's staff ✓ Ensure compliance with final permitting requirements ✓ Review and process final payment

Design-Bid-Build

Introduction

Design-bid-build (D-B-B) is considered the traditional project delivery method. Many owners appreciate this linear, well-understood, and clearly defined approach. Due to the level of involvement required in the D-B-B method, some owners may have the technical and human resources to perform all or a portion of the construction monitoring services. However, many still hire an outsourced CM as agent (CMa) to manage the project and administer the contracts.

Using the D-B-B method, the CMa is the owner's agent throughout the project delivery process. The earlier the CMa is added to the team, the better, as they can provide design oversight, bid evaluation, budget planning, and more.

This commonly used delivery method includes an owner, a designer, and at least one prime builder with subcontractors. The project is delivered in a linear sequence, with comprehensive construction documents completed before cost proposals or requests for bids are made. While D-B-B is the best-known and most prescriptive model, the process typically takes longer. This process is often mandated by statute in the public sector.

Standard Contracts in Design-Bid-Build Projects

With the delivery method defined, let's distinguish the types of contracts commonly seen in D-B-B projects. While horizontal builds and heavy civil projects tend to rely on **unit rate contracts**, vertical construction emphasizes **lump sum contracts**. With both contract types, the design is completed at the start of the project. However, when it comes to bidding, the distinction lies in how the owner and CM decide to accept bids.

In **vertical construction**, bids are typically returned in a lump sum format, meaning the contractor will deliver a complete set of priced-out drawings, which they commit to building for a lump sum.

In **horizontal construction**, the final quantities may be harder to identify at the outset, making a unit rate contract optimal. Using a unit rate contract, a bidder estimates the cost of materials, labor, etc., and intermittently collects that estimate based on the work performed and materials used. For larger projects, like a large-scale manufacturing facility, both unit rate and lump sum contracts may be used.

CMs and owners may also encounter job order contracts. **Job order contracting (JOC)** allows an owner to hire one contractor to handle multiple smaller maintenance items throughout a project. Under this method, different types of work correspond to a previously agreed rate, and the contractor is paid based on the unit quantity completed. JOC is almost entirely seen in the public sector and is a way for public agencies to provide work to smaller contractors.

PM/CM Roles

Design/Pre-Construction

- Determine Scope
  - Prepare needs assessment
  - Clarify owner's requirements for budget, schedule, quality, risk, sustainability, technology, etc.
  - Establish preliminary schedules and budgets
- Conduct a market survey
- Write a project/program management plan, procedures manual, and safety, quality, commissioning, and construction management plan.
  - Establish processes and procedures to coordinate the team
  - Develop time, cost, quality, sustainability, technology, risk, and safety management plans
  - Create management information system policies
  - Set up document control procedures
  - Perform quality control/quality assurance (QC/QA)
  - Complete verification, testing, and commissioning procedures
- Manage procurement
  - Facilitate the contracting methodology
  - Develop contract provisions
  - Develop RFQs/RFPs and assist with prequalification
  - Conduct interest campaigns
  - Review design proposals
  - Host pre-design conference and site walkthroughs
  - Issue addenda and review effects on schedule, budget, and quality
  - Conduct interviews and pre-award conference
  - Issue notices
- Review schedules
- Develop contractual scope of work
- Determine lump sum fee or guaranteed maximum price (GMP)
- Develop RFQs/RFPs and manage prequalification for consultants, trade partners
- Conduct interest campaigns
- Host pre-bid conference and site walkthroughs
- Review proposals
- Secure financing
- Conduct meetings (kick-off meeting, risk workshops, OAC meetings, special meetings, etc.)

Construction

- Lead design reviews
  - Constructability, biddability, operability, and sustainability
- Facilitate the owner's and end-users' understanding of the design
- Monitor deliverables
- Monitor document control and distribution
- Review and document change orders
- Assist owner with end-user review/public relations
- Monitor costs and prepare cost reports
- Review schedules
- Secure permits, insurance, labor affidavits, and bonds
- Perform punchlist walkthroughs
- Notify responsible parties of nonconforming work

PM/CM Roles Continued

Construction

Agency CM Responsibilities	
✓ Review and process claims against the owner	✓ Monitor the design-builder's compliance with the site-specific safety program(s)
✓ Perform quality assurance	✓ Ensure CM employees follow site-specific safety program(s)
✓ Review daily jobsite reports	✓ Monitor acceptance/performance testing
✓ Perform quality assurance	
✓ Ensure schedules are up to date	

Post-Construction

- Collect/review warranties, guarantees, and operation and maintenance manuals
- Manage or monitor the submission of sustainability certification application(s), if applicable
- Prepare final closeout reports and recommendations

Agency CM Responsibilities	
✓ Ensure final documentation is transferred to the owner	✓ Ensure compliance with final permitting requirements
✓ Monitor training for owner's staff	✓ Review and process final payment

Design-Build

Introduction

Using the design-build method, the owner contracts with a single entity (a firm or team of firms) for design and construction. The design-builder manages subsidiary teams of designers, builders, and trade partners. This single point of responsibility for design and construction means that disputes among the design-build team members remain internal to that team.

Note that two variations are most common. In both variations, the CM should join the team as early as possible to help the owner develop the requirements, ideally during pre-design.

1. **"Best Value"** – In these contracts, the CM typically helps the owner develop the requirements, and then the design-builder performs the design and construction work. This variation is sometimes called "Traditional" design-build delivery in the architecture, engineering, and construction (AEC) industry.

2. **"Progressive"** – These contracts typically allow the owner/CM and the design-builder to develop the design together, step-by-step. The CM advises the owner and helps define the requirements as the design progresses. Note that progressive design-build procurement usually takes two phases.

   a. *Phase one:* the selected design-builder develops an initial design with enough detail for the design-builder to estimate the remaining work accurately. Phase one advances until schedule, scope, and cost certainty are achieved.

   b. *Phase two:* the design-builder submits a separate proposal for final design and construction services.

The CM must facilitate collaboration between the owner and the design-build team. In this role, the CM should help guide the workforce to a "one team-one goal" mindset. This requires the design-build CM to develop strong soft skills in people management and relations. Note that there are some scenarios where a CM agent is explicitly hired to oversee and coordinate with the design-builder.

PM/CM Roles

Design/Pre-Construction

- Determine scope
  - Prepare needs assessment
  - Clarify owner's requirements for budget, schedule, quality, risk, safety, sustainability, technology, etc.
  - Establish preliminary schedules and budgets
  - Develop the conceptual design package for prospective design-builders
- Conduct a market survey
- Write a project/program management plan, procedures manual, and safety, quality, commissioning, and construction management plan.
  - Establish processes and procedures to coordinate the team
    - Time, cost, quality, sustainability, technology, risk, and safety management plans
    - Management information system policies
    - Document control procedures
    - Establish quality control procedures
    - Verification procedures
    - Testing procedures
    - Commissioning procedures
    - Manage design-build procurement
- Determine long-lead items
- Facilitate the contracting methodology
- Develop contract provisions
- Develop RFQs/RFPs and assist with prequalification
- Conduct interest campaigns
- Review design-build proposals
- Host pre-design conference and site walkthroughs
- Issue addenda and review effects on schedule, budget, and quality
- Conduct interviews and pre-award conference
- Issue notices
- Secure financing
- Monitor preliminary/preconstruction services (phase one)
- Review the designers' budget-level design development submittals
- Negotiate firm contract price (lump sum or guaranteed maximum price) for final design and construction services (phase two)

Construction

- Conduct meetings (preconstruction, progress meetings, risk workshops, safety, quality, commissioning, special meetings, etc.)
- Lead design reviews
  - Constructability, biddability, operability, and sustainability
- Facilitate owner's and end-users' understanding of the design
- Monitor deliverables
- Monitor document control and distribution
- Review and document change orders
- Assist owner with end-user review/public relations
- Process payment requests
- Monitor costs and prepare cost reports
- Review schedules
- Secure permits, insurance, labor affidavits, and bonds
- Perform punchlist walkthroughs
- Facilitate team collaboration
  - Establish a team vision
  - Use emotional intelligence to guide communications, relationships, and the decision-making process
  - Recognize and address potential conflicts of interest
- Notify responsible parties of nonconforming work

PM/CM Roles Continued

Construction

CM at-Risk	Agency Construction Management
✓ Perform quality control ✓ Document daily jobsite activities ✓ Update schedules and prepare schedule reports ✓ Implement site-specific safety program(s) ✓ Implement acceptance/performance testing and commissioning	✓ Review and process claims against the owner ✓ Perform quality assurance ✓ Review daily jobsite reports ✓ Perform quality assurance ✓ Ensure schedules are up to date ✓ Monitor the design-builder's compliance with the site-specific safety program(s) ✓ Ensure CM employees follow site-specific safety program(s) ✓ Monitor acceptance/performance testing

Post-Construction

- Review/collect warranties, guarantees, and operation and maintenance manuals
- Manage or monitor submission of sustainability certification application(s), if applicable
- Prepare final closeout reports and recommendations

CM at-Risk	Agency Construction Management
✓ Compile operation and maintenance manuals ✓ Provide training for owner's operation and maintenance staff ✓ If applicable, incorporate operation and maintenance manuals into the BIM model ✓ If applicable, transfer the BIM model to the owner	✓ Ensure final documentation is transferred to the owner ✓ Monitor training for owner's staff ✓ Ensure compliance with final permitting requirements ✓ Review and process final payment

Engineer-Procure-Construct

Introduction

Engineer-Procure-Construct (EPC) is a contractual agreement like Design-Build in that the builder is responsible for the entire project lifecycle. With EPC contracts, the owner primarily manages the project, and the contractor is responsible for the design, management, procurement, and final handoff. An EPC contract is considered a turnkey building solution for owners.

By incorporating construction management best practices, an EPC project can be taken to the next level. As with all delivery methods, a CM can insert itself into every project phase, serving as a coordinator to ensure the project is progressing as the owner would expect. In EPC, delivery to the owner needs a CMa to assist in managing the project. The CM's role closely resembles the CMa role in a Design-Build project.

PM/CM Roles

Design/Pre-Construction

- Determine Scope
  - Prepare needs assessment
  - Clarify owner's requirements for budget, schedule, quality, risk, sustainability, technology, etc.
  - Establish preliminary schedules and budgets
- Conduct a market survey
- Write a project/program management plan, a procedures manual, and a safety, quality, commissioning, and construction management plan.
  - Establish processes and procedures to coordinate the team
    - Time, cost, quality, sustainability, technology, risk, and safety management plans
    - Management information system policies
    - Document control procedures
    - QC/QA
    - Verification procedures
    - Testing procedures
    - Commissioning procedures
- Manage design procurement
  - Determine long-lead items
  - Facilitate the contracting methodology
  - Develop contract provisions
  - Develop RFQs/RFPs and assist with prequalification
  - Conduct interest campaigns
  - Review design proposals
  - Host pre-design conference and site walkthroughs
  - Issue addenda and review effects on schedule, budget, and quality
  - Conduct interviews and pre-award conference
  - Issue notices

PM/CM Roles Continued

Construction

- Attend meetings (kick-off meeting, risk workshops, special meetings, etc.)
- Lead design reviews on behalf of the owner
  - Constructability, biddability, operability, and sustainability
- Facilitate the owner's and end-users' understanding of the design
- Monitor deliverables
- Monitor document control and distribution
- Review and document change orders
- Perform quality control
- Assist owner with end-user review/public relations
- Monitor costs and prepare cost reports
- Review schedules
- Perform punchlist walkthroughs
- Notify responsible parties of nonconforming work

Post-Construction

- Collect/review warranties, guarantees, and operation and maintenance manuals
- Manage or monitor the submission of sustainability certification application(s), if applicable
- Prepare final closeout reports and recommendations
- Ensure final documentation is transferred to the owner
- Monitor training for owner's staff
- Ensure compliance with final permitting requirements
- Review and process the final payment

Integrated Project Delivery

Introduction

Integrated Project Delivery (IPD) is a relatively new method in construction. Unlike other methods that assign primary project oversight to the CM or builder, IPD is a fully collaborative process in which all stakeholders—primarily a tri-party agreement between the owner, designer, and contractor—are contractually connected and function as a cohesive unit. Most examples of this model exist in healthcare programs.

You may encounter something called IPD light, which attempts to recreate the benefits of an IPD arrangement without the tri-party agreement.

Under the IPD system, the CM operates similarly to its role in a construction manager at-risk (CMAR) project. The CM is a "true partner" to the project owner in both delivery systems. Under these systems, it's expected that the person(s) best suited for a task should be responsible while other stakeholders still have every opportunity to share their expertise. The CM also serves as one of the leaders of the integrated team, driving the project forward with its best interests in mind. The CM should drive the team to set up the project productively and fairly.

Due to the interconnected risk of IPD systems, the process requires careful value management. Using IPD, where risk is shared among the various stakeholders, a CM can also make their mark as the facilitator focused on owner value. A CM with a detailed understanding of the design process is the ideal partner.

Under this delivery method, the CM, architect, and engineer should be added to the team simultaneously. Together, the team must determine the project's focus and how they'll collaborate to deliver the final product to the owner. The project charter is established, and the CM prepares for its integral role as an advocate of collaboration.

PM/CM Roles

Design/Pre-Construction

- Help develop a charter for the project and project team, including:
  - Rules of engagement and behaviors
  - Meeting cadence
  - Determine participants in the Senior Management Team (SMT) and Project Management Team (PMT)
- Determine scope
  - Prepare needs assessment
  - Clarify owner's requirements for budget, schedule, quality, risk, safety, sustainability, technology, etc.
  - Establish preliminary schedules and target value budgets
- Conduct a market survey
- Write a project/program management plan, a procedures manual, and a safety, quality, commissioning, and construction management plan.
  - Establish processes and procedures to coordinate the team
    - Time, cost, quality, sustainability, technology, risk, and safety management plans
    - Management information system policies
    - Document control procedures
    - QC/QA
    - Verification procedures
    - Testing procedures
    - Commissioning procedures

Construction

- Conduct meetings (kick-off meeting, risk workshops, OAC meetings, special meetings, etc.)
- Actively participate in design reviews
  - Constructability, biddability, operability, and sustainability
- Facilitate the understanding of the design for the owner and end users
- Monitor deliverables
- Monitor document control and distribution
- Review and document change orders
- Perform quality control
- Assist owner with end-user review/public relations
- Monitor costs and prepare cost reports
- Review schedules
- Help secure permits and project insurance
- Secure labor affidavits and bonds
- Participate in punchlist walkthroughs
- Notify responsible parties of nonconforming workCollect/review warranties, guarantees, and operation and maintenance manuals

Post-Construction

- Collect/review warranties, guarantees, and operation and maintenance manuals
- Manage or monitor the submission of sustainability certification application(s), if applicable
- Prepare final closeout reports and recommendations
- Ensure final documentation is transferred to the owner
- Monitor training for owner's staff
- Ensure compliance with final permitting requirements
- Review and process the final payment

Public-Private-Partnership

Introduction

Public-Private-Partnership (P3) is a funding and delivery method in which public sector entities seek a private-sector partner to support the development of public projects. In many of cases, the public entity would otherwise lack the municipal funds to support a project of its scale. In return, the private partner will be compensated for their efforts via tolls or user fees upon project completion.

While the role of a CM in a P3 delivery system is similar to its role in Design-Build, prior P3 experience is critical. For a P3 project to be successful, the agreement must benefit all parties. That means minimal financial risk, an acceptable return for the private partner, and a functional resource for end users. A CM with experience navigating these partnerships will be better equipped to meet those demands for all stakeholders.

As with projects outside the P3 delivery system, the public entity may not have the expertise to manage project quality and costs properly. This may also be their first P3 project, requiring an experienced CM with the ability to verify schedules, track project costs, perform quality assurance, administer contracts, and coordinate with all trade partners.

PM/CM Roles

Design/Pre-Construction

- Determine Scope
  - Prepare needs assessment
  - Clarify owner's requirements for budget, schedule, quality, risk, sustainability, technology, etc.
  - Establish preliminary schedules and budgets
- Conduct a market survey
- Write a project/program management plan, a procedures manual, and a safety, quality, commissioning, and construction management plan.
  - Establish processes and procedures to coordinate the team
    - Time, cost, quality, sustainability, technology, risk, and safety management plans
    - Management information system policies
    - Document control procedures
    - QC/QA
    - Verification procedures
    - Testing procedures
    - Commissioning procedures
- Manage design procurement
  - Facilitate the contracting methodology
  - Develop contract provisions
  - Develop RFQs/RFPs and assist with prequalification
  - Conduct interest campaigns
  - Review design proposals
  - Host pre-design conference and site walkthroughs
  - Issue addenda and review effects on schedule, budget, and quality
  - Conduct interviews and pre-award conference
  - Issue notices

Design/Construction

- Conduct meetings (kick-off meeting, risk workshops, OAC meetings, special meetings, etc.)
- Lead design reviews
  - Constructability, operability, and sustainability
- Facilitate the owner's and end-user's understanding of the design
- Monitor deliverables
- Monitor document control and distribution
- Review and document change orders
- Perform quality assurance
- Assist owner with end-user review/public relations
- Monitor costs and prepare cost reports
- Review schedules
- Secure permits, insurance, labor affidavits, and bonds
- Perform punchlist walkthroughs
- Notify responsible parties of nonconforming work

Post-Construction

- Review/collect warranties, guarantees, and operation and maintenance manuals
- Manage or monitor the submission of sustainability certification application(s), if applicable
- Prepare final closeout reports and recommendations
- Ensure final documentation is transferred to the owner
- Monitor training for owner's staff
- Ensure compliance with final permitting requirements
- Review and process the final payment

Conclusion

With the information gleaned from this guide, you will feel even more confident when embarking on your next major construction project. Whether an owner, construction manager, or industry professional, you're now armed with the knowledge to help determine how to proceed with each construction opportunity regardless of the project delivery method.

However, it's important to remember that this industry is dynamic and ever-evolving. As such, this document captures a moment in time. As we learn from the markets and realize the outcomes of ongoing and recently completed projects, CMAA will continue to examine this document for updates or the emergence of a different delivery method. CMAA has also sent this publication to other industry organizations for an alternative perspective on delivery methods. For those insights, please read the forthcoming addendum.

Don't forget: As helpful as this publication may be, the lessons learned throughout your career are the ultimate guide. This white paper should serve as a reference rather than a prescriptive set of rules. And remember that no singular delivery method is superior. Instead, try focusing on the best project delivery method for each job and client.

CMAA will continue to refine this document over the coming years. Construction managers with experience in multiple project delivery methods or CMs knowledgeable about emerging methods are encouraged to contribute. If you'd like to participate in the next update to this guide, please contact CMAA at pd@cmaanet.org.

Industry Perspectives

Several industry groups were invited to share their perspectives on PM/CM roles across delivery methods, and the following organizations were graciously willing to contribute:

Construction Owners Association of America (COAA)

This document is an excellent reference, but owners may want to note that it heavily uses the terms "construction manager" (CM) and "program manager" (PM). Most internal project owner leaders are referred to as " project managers" (PM), and many hired design consultants and builders use the same "PM" term for their respective leaders.

Regardless, owners should understand that this guide speaks entirely to the duties of a service provider hired by the owner to manage a project or an entire portfolio of work ... not the responsibilities of an internal employee of the owner (aka, project manager) who leads the planning, design, and construction effort.

COAA asserts that several "PM/CM" duties are missing from the lists above:

The project/program/construction manager for an At-Risk CM should also be performing or overseeing all these tasks during the design/pre-construction stage:

- Cost estimates
- Schedule development (not just review)
- Logistics planning
- BIM/VDC efforts

In addition to what's listed above, the project/program/construction manager for an At-Risk CM should be performing or overseeing all these tasks during construction:

- Manage and coordinate trade contractors
- Prepare pay applications
- Submit RFIs
- Process change orders
- Maintain as-builts / BIM models

Similar omissions apply to the lists of duties under the Design-Build and IPD methods.

COAA suggests that the itemized duties for an At-Risk CM in the Design-Bid-Build delivery method are not applicable. A CMAR, by definition, would not be involved with a DBB project.

To learn more about COAA's perspective on delivery methods and owner advisors, visit coaa.org.

Design-Build Institute of America

The Design-Build Institute of America (DBIA) generously contributed to this publication. To learn more about DBIA's perspective on Design-Build and owner advisors, visit dbia.org.

Lean Construction Institute

Lean Project Delivery (LPD), as defined by the Lean Construction Institute (LCI), provides a structured framework to maximize value and minimize waste throughout the project lifecycle. Central to its success are the Project Manager (PM) and Construction Manager (CM) roles. These roles are pivotal in fostering collaboration, aligning stakeholders with project goals, and ensuring value-driven outcomes. The responsibilities of the PM/CM adapt to the constraints and opportunities of each delivery method, making them essential in applying Lean principles effectively. By focusing on transparency, reliability, and continuous improvement, the PM/CM enhances workflows and drives superior project outcomes.

LPD integrates, but is not limited to, the following Lean methods, systems, and tools:

1. **Target Value Delivery (TVD):** TVD ensures project goals align with client-defined value by integrating budget and design constraints early. PMs and CMs play a crucial role in coordinating between owners, designers, and builders to prioritize value and avoid unnecessary costs or rework.
2. **Last Planner®System:** The Last Planner®System improves workflow reliability through collaborative planning and scheduling. PMs and CMs ensure that all team members are engaged in the planning process, fostering accountability and improving predictability.
3. **Choosing by Advantages (CBA):** CBA focuses on decision-making that prioritizes the advantages of each alternative. PMs and CMs use this method to guide teams in selecting alternatives that align with the project's goals and deliver maximum stakeholder value.
4. **Integrated Project Controls:** Real-time tracking of cost, schedule, and scope is essential for aligning project objectives. PMs and CMs oversee these controls to ensure transparency and make informed adjustments as needed.
5. **A3 Thinking:** A3 Thinking structures problem-solving and decision-making through the Plan-Do-Check-Act (PDCA) method. PMs and CMs facilitate this approach to improve communication and foster a shared understanding of challenges and solutions across stakeholders.
6. **Waste Removal:** Waste removal focuses on identifying and eliminating non-value-adding activities. PMs and CMs lead this effort by analyzing processes, reducing inefficiencies, and ensuring resources are directed toward value creation.
7. **Conditions of Satisfaction (CoS):** CoS establishes clear, measurable criteria for project success, aligning stakeholder expectations with deliverables. PMs and CMs define and track these conditions, ensuring all team members work toward shared goals.
8. **Retrospectives:** Retrospectives are structured evaluations conducted at the end of each project phase/Milestone and/or upon completion. PMs and CMs facilitate these sessions to reflect on performance, capture lessons learned, and implement continuous improvements in real-time.

These systems and tools are adaptable to all contracting strategies, with the PM/CM playing a critical role in their implementation. Collaborative models like Integrated Project Delivery (IPD) naturally support the full application of Lean principles due to their emphasis on shared risk, reward, and integration. Conversely, traditional methods such as Design-Bid-Build (DBB) or segmented processes like Engineer-Procure-Construct (EPC) require the PM/CM to creatively adapt Lean practices within these constraints. A PM/CM serves as the bridge between design, construction, and operations, ensuring that the principles of value delivery and waste reduction are consistently applied.

Lean Construction Institute Continued

In every delivery method, the PM/CM is essential in aligning diverse stakeholder interests and fostering open communication. They are responsible for driving collaboration, ensuring processes are value-focused, and maintaining alignment with project goals. This adaptability allows the principles of LPD to overcome challenges inherent in different contracting strategies.

LPD's flexibility ensures its success across all project delivery methods. Whether enhancing collaboration in IPD or streamlining processes in a Public-Private Partnership (P3), the framework provides the tools and methods needed to achieve optimal outcomes. The leadership and expertise of the PM/CM ensure that Lean principles are effectively implemented, enabling project teams to deliver exceptional value and achieve LCI's mission of transforming the built environment.

By integrating these principles and tools, the PM/CM fosters alignment, eliminates inefficiencies, and ensures exceptional outcomes. LPD is not confined to any one delivery method but is a dynamic framework that enables value-driven results across all strategies. The PM/CM's role is indispensable in applying this approach, ensuring that projects achieve their full potential.

To learn more about LCI's perspective on delivery methods and owner advisors, visit leanconstruction.org.

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