Project Delivery Method Selection Tool Guide

PIMA COUNTY

First Edition

February 20, 2020

Pima County acknowledges the following agencies for contributing to the information contained in this Guide:

THE ALLIANCE FOR CONSTRUCTION EXCELLENCE
Advance • Collaborate • Enrich

IRA A. FULTON SCHOOLS OF engineering
ARIZONA STATE UNIVERSITY

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PROJECT DELIVERY METHOD SELECTION TOOL GUIDE

INTRODUCTION

Since the early 2000s, public agencies across the country have increasingly turned to Alternative Project Delivery Methods (APDM) to deliver capital construction projects, capitalizing on approaches and processes used in the military and in private practice since at least the 1980's. This transition occurred primarily due to dissatisfaction with the traditional Design-Bid- Build (DBB) process for construction project delivery, supported by a late 1990's Construction Industry Institute research project conducted at Penn State University that demonstrated superior project performance through the use of more highly integrated delivery methods.

Legislative changes at all levels of government have made these tools available, and forward-thinking agencies have implemented these new tools to great success. Project Delivery Methods definitions differ across the country and within various levels of government. Included among the project delivery methods available to deliver construction projects are: Design-Bid- Build (DBB), Design-Build (DB), Construction Manager at Risk (CMAR), Construction Manager/General Contractor (CM/GC), Multi-Prime, and Job Order Contracting (JOC).

Many of these delivery methods have more than one name for the same process. For example, CMAR and CM/GC are the same delivery method. JOC is also known as Annual Contracts, or On-Call Contracts, and the military has multiple names reflecting this same basic delivery method. This Guide further discusses these naming issues in the Descriptions section.

Different jurisdictions may also apply different restrictions on permissible use of the various delivery methods. For example, JOC may be restricted to repair or maintenance but not new construction, CMAR might be restricted to use only for educational facilities, or DB prohibited from use on transportation projects. Further, while federally-funded projects require qualifications only selection for design professionals, certain federal agencies do not allow procurement of construction services without a cost component, sometimes creating conflict with local authorizing legislation or codes that prohibit cost considerations for qualifications- based procurements.

Since the authorization of and/or limitations on the use of APDM in particular can vary significantly from one jurisdiction to another, it is always best practice to confirm the allowable delivery methods for a specific project before making a delivery method determination.

For clarification, this guide is specific to the selection of the project delivery method, and does not address issues of the contractual environment within which these methods are used. Public Private Partnerships (PPP, or P3) may exist using CMAR, DB or other delivery method and service package combinations (consider Design-Build-Operate-Maintain as an example) and Integrated Project Delivery (IPD) is primarily oriented around the contractual relationships under which the parties to the project operate rather than the delivery method selected.

In summary, the project delivery methods covered in this guide include the four (4) primary methods available for County to deliver capital construction projects. Those methods are:

1) Design-Bid-Build
2) Construction Manager at Risk
3) Design-Build
4) Job Order Contracting.

OBJECTIVE

Every construction project is different, with each defined by a unique set of project parameters. No single project delivery method is best suited to deliver every type of project. Having a variety of delivery methods available allows County to select the method with the highest probability of success in delivering each project, thereby reducing project cost, duration, and providing a higher level of quality and service to the jurisdiction's residents and taxpayers.

The objective of this guide is to provide an effective, systematic process to recommend a project delivery method for the projects in County's Capital Improvement, Infrastructure Improvement, or Major Maintenance Program.

Unique project characteristics and project goals are used to determine the most appropriate project delivery system. To be clear, there is no right or wrong method to deliver a project, and all of the delivery methods have their place and use. In fact, any method has the potential to successfully deliver any project. The goal of the process is to recommend the delivery method that has the highest probability of success, the method best suited to meet or exceed all of County's project success requirements, based on the selection tool evaluation parameters.

This tool provides a recommendation only – Project Managers should use discretion and judgement in making a final delivery method selection for each project on its own individual needs and merits.

DELIVERY METHOD DESCRIPTIONS

Following are descriptions for each of the four primary methods discussed in this guide.

Design-Bid-Build (DBB):

DBB is the traditional project delivery method where design and construction are sequential steps in the project development process, with the services performed by separate entities under separate contracts. This method is often referred to as Low Bid.

The process begins with the County selecting a designer (either in-house staff or a private sector design consultant) who then designs the entire project under the County's direction with little or no construction contractor input. County is responsible for the design details and warrants the quality of the construction design documents to the construction contractor.

Upon completion of the design, County Procurement issues an Invitation for Bids and makes the design documents available to any interested party. At the designated time, County Procurement conducts a public bid opening and awards the contract to the "lowest responsible and responsive bidder." That contractor then executes the construction of the project in accordance with the plans and specifications included in the bid package. Selection of the construction contractor only considers their proposed price.

The DBB delivery method has the advantages of being well established, widely understood and having clearly defined roles for all of the parties involved. It also gives County significant control over the project since County directs and/or produces the design and conducts extensive construction inspection and quality control.

Most jurisdictions have well established requirements for use of the DBB delivery method, including for advertising the project and for receipt of sealed bids.

Construction Manager-at-Risk (CMAR):

CMAR is a project delivery method where design and construction may be sequential steps in the project development process, or may have some elements of consecutive development, with the services performed by separate entities under separate contracts, much like DBB. CMAR and Construction Manager/General Contractor (CM/GC) are essentially the same method with different names (CM/GC is the name applied to this method by the Federal Highway Administration). CMAR is the name used throughout this guide.

CMAR differs from DBB in that selection of the Construction Manager (also known as the CMAR) occurs earlier in the project development process, during design, using a process that considers qualifications and past performance. This process may or may not consider price as a selection criterion. CMAR delivery method may be considered for projects where there are project risks that can be better managed by a Construction Manager than County, such as schedule, cost/scope balance, or external impacts.

The CMAR performs preconstruction services during the design phase, providing input to the County and designer to guide and inform project development. A key service provided by the CMAR during design is to ensure the design development is constructible within County's budget. Toward the end of the design phase, the CMAR provides the County with a Guaranteed Maximum Price (GMP) to complete construction of the project. There may be multiple GMPs negotiated for the project.

The GMP establishes assumptions, clarifications and pricing for performance of the construction work, including formal contingencies for both the County and the CMAR. This permits more flexibility in dealing with unexpected changes to the scope of work without the need to initiate change orders. The GMP is established when the design has evolved to a point where the CMAR can confidently quantify the construction costs, and moves the impact of cost risk to the formal contingency where it can be managed in accordance with the terms of the contract.

Upon acceptance of the GMP by the County, the CMAR's role shifts from Construction Manager to General Contractor (indicative of the CM/GC naming convention). The CMAR then performs construction of the project in accordance with the terms of the GMP and construction contract.

CMAR project delivery allows the County to maintain full control of the design while getting early involvement of the construction contractor through the preconstruction services phase of the contract. Often the CMAR procures subcontracted work packages through competitive bidding, or a combination of qualifications and bidding.

This delivery method provides great flexibility in delivering projects and can compress the schedule through phasing and early procurement of long-lead items. Construction activities can begin on early work packages, such as site work and foundations, before the project design is 100% complete thus locking in critical construction costs at the earliest opportunity and enhancing construction cost certainty.

Design-Build:

DB is a project delivery method where design and construction may be sequential steps in the project development process, or may have some elements of consecutive development, with the services performed by a single legal entity, the design-builder. This differs from DBB and CMAR in that design and construction are performed under a single contract rather than separate parties under separate contracts. Generally, the DB method shifts risk to the Design Builder similar to CMAR, but the Design Builder has greater control over the project design decisions used to control risks that impact scope, schedule or budget of the project.

Selection of the design-builder may be based on a qualifications and past performance basis only, or may be a best value selection process that also includes a cost component. If cost is a consideration, County may base the cost on design and preconstruction only, negotiating a GMP when the design has evolved to a point where the design-builder can confidently quantify the construction costs, or may choose to base the cost consideration on the total cost of completion for the project. A key consideration is the amount of cost risk the County is willing to absorb, understanding that fixing the cost of construction before the design advances will drive pricing risk higher to address unknowns.

As with CMAR, the DB delivery method provides opportunity for the contractor member of the design-builder to perform preconstruction services during the design phase, providing input to the County and designer to guide and inform project development. Similarly, depending on the selection process employed, the GMP development and acceptance process mirrors that of the CMAR method.

An area of difference between DB and CMAR often mentioned is the ability for the County to maintain control of the design. Since the designer is often a subcontractor/vendor to the contractor on the design-builder team, their contractual relationship is to the contractor not the County. Overcoming this concern is achievable through greater levels of team integration, but it is a consideration for County when evaluating its comfort level with the various delivery methods available.

Job Order Contracting (JOC):

JOC is a project delivery method generally used for small projects and/or repetitive types of work where separate procurement of a contractor for each project is an inefficient and impractical process. JOC is best for situations where the time, location, and quantity of work to be performed is unknown today, but having a qualified contractor at the ready is of value.

Developed by the military in the 1980's, JOC is known by a number of other names. Among these are Annual Contracts, On-call Contracting, Indefinite Delivery – Indefinite Quantity (IDIQ), Performance Oriented Contracting Activity (POCA), Multiple Award Task Order Contracting (MATOC), Simplified Acquisition of Base Engineering Requirements (SABER), Multiple Award Construction Contracts (MACC), and numerous other variations of these. The primary differentiators among these methods are generally the contract and individual assignment values allowed.

Selection of the contractor may be based on a qualifications and past performance basis only, or may be a best value selection process that also includes a cost component. If cost is a consideration, County may develop its own unit price book (UPB) or use an industry standard UPB upon which the JOC contractor will base their coefficient, or unit cost multiplier.

In the case of a qualifications-based selection, each individual project assignment, known as a Job Order, is individually negotiated similar to a GMP process pursuant to the requirements of the Job Order Master Agreement.

The JOC delivery method has numerous advantages for its intended project types, not the least of which is the significant time and cost savings provided in the procurement process by consolidating multiple procurements into a single program. Other JOC benefits include providing an extension of the County's staff for routine and repetitive work functions, allowing for rapid completion of projects, and often achieving a higher level of project quality due to the long- term relationships formed by the County and its JOC contractors. JOC job orders are limited by the Master Agreement terms with a Pima County procedure current upper limit of $2M, and are therefore more appropriate for smaller capital or maintenance projects.

DELIVERY METHOD SELECTION PROCESS

The selection process outlined in this guide is a 5-step process that considers ten (10) key project parameters, assigns scores to each parameter based on project characteristics, and then compares the sum of those project parameter scores to a standard metric. The project parameters chosen were determined to be the most important indicators in predicting project challenges based on discussions with multiple CIP Department representatives.

The approach is based on a variety of studies and research projects on the topic of delivery method selection that have been completed over the past two decades, all of which are listed in the references section of this guide. The most recent study to be completed is the 2015 Pankow/CII study, which builds upon numerous preceding research efforts.

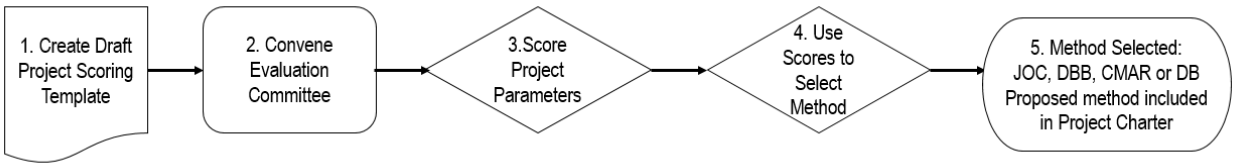
This study found that project teams with higher degrees of cohesion and integration executed more projects that are successful. High degrees of cohesion and integration are achieved through various means, but the use of the available alternative project delivery methods is the primary technique to improve project performance.

Selecting the optimal project delivery method utilizing the Selection Process may result in more than one outcome depending upon differing variables but ultimately depends upon on total stakeholder agreement. To the extent allowed by local jurisdictional statute or code, County may equally apply qualifications only or best value selection processes to any of the delivery methods.

5-Step Project Delivery Method Selection Process

The 5-step process results in a delivery method recommendation based on a project score developed by assessing the challenges presented by each individual project. Figure 1, *5-Step Project Delivery Method Selection Process*, demonstrates the steps in the process.

Figure 1: 5-Step Project Delivery Method Selection Process



The five (5) steps in the Project Delivery Method Selection Process are as follows:

1. Create Draft Project Scoring Template

The process begins with the Project Manager identifying the candidate project for evaluation, complete with information to address the significant project parameters listed in Table 1, *Project Parameter Definitions*, shown in step 3 of the process.

Calculation of the overall project score results from adding the individual parameter scores, with the delivery method recommendation made based on the overall project score in comparison to the sliding scale shown in Figure 2, *Project Delivery Method Recommendation Scale*.

2. Convene Evaluation Committee

The choice of an appropriate project delivery method is a complex decision involving many variables. Although a single person might be able to answer all of the analysis questions, a team approach can be beneficial due to the wide range of project characteristics and success criteria needed to select the best project delivery method.

The team approach, in addition to being preferred to obtain an accurate selection, will also facilitate a meaningful dialogue and common understanding of the delivery method decision. Personnel for each evaluation committee will vary by type of project, phase of project development and location of the project, but common evaluation committee members may include planning, design, construction, and maintenance personnel.

The County recommends completing this evaluation as part of the Project Charter development, and should include the Project Manager, Department Leadership, and Procurement representatives at a minimum.

3. Score Project Parameters

Once formed, the evaluation committee members evaluate each of the eleven (11) project parameters described in Table 1, *Project Parameter Definitions.* Some of the parameters are objective and easily answered depending upon the current state of the project scope and characteristics.

Other parameters are more subjective, with their scoring benefitting from discussion among a group of knowledgeable project participants with experience on similar projects. Each parameter is scored on a scale from zero (0) to three (3) based on increasing level of impact for that parameter.

Table 1, *Project Parameter Definitions,* includes a discussion of the applicable factors and the scoring methodology to apply for each parameter. A template has been provided to facilitate scoring of projects.

4. Use Scores to Select Method

Once scoring concludes on all eleven (11) project parameters, sum the individual numerical values to obtain an overall project parameter score between zero (0) and 35. This overall score will determine the delivery method recommended for the highest likelihood for project success.

If the project team leadership choses to override the numerical results, the following conditions must be met:

1. There is an overriding constraint, perhaps due to funding requirements such as federal funding.
2. There is a defined clear reason why it is in the County's best interest to use a different selection method, and both Department Director and Procurement Director are in agreement with the recommendation.
3. The calculated results are borderline; and either delivery method may be applicable upon agreement by the evaluation committee.

Include proposed project delivery method determination in Project Charter and attach Selection Tool Template for review.

Table 1: Project Parameter Descriptions			
Project Parameter	**Discussion**	**Scoring Methodology**	
		Horizontal Construction	**Vertical Construction**
Size/Budget	Larger projects tend to benefit more from the use of an alternative project delivery method and greater levels of team integration than do smaller projects.	0 pts: $0 - $3M 1 pts: $3M - $10M 2 pts: $10M - $25M 3 pts: $25M and above	0 pts: $0 - $500,000 1 pts: $500,000 - $5M 2 pts: $5M - $10M 3 pts: $15M and above
Project Type	Routine repetitive work and all surface horizontal work are less challenging due to familiarity and the ease of defining them through plans and specs. Introducing subsurface work or structures on horizontal projects increases the challenge level.	0 pts: Routine, repetitive; or Horizontal at surface level 1 pts: Horizontal with subsurface work 2 pts: Horizontal with subsurface and routine structures; 3 pts: Horizontal with subsurface, complex structural or specialty work (bridges, RR)	0 pts: Routine repetitive types of work; Tenant Improvement, or equipment replacement 1 pts: Some new ground disturbance, expansion of existing, low impact 2 pts: Non-complex new vertical construction 3 pts: Vertical, includes complex systems or structural elements
Complexity	More complex projects benefit from using alternative project delivery methods due to the cooperative coordination efforts that occur. Complicating factors driving complexity may include such issues as: • access issues • significant traffic/pedestrian safety concerns/structural complexity, historic impacts/renovation • system and technical complexity • other risks and/or unknowns	0 pts: No complicating factors involved 1 pts: Any 1 factor 2 pts: Any 2 factors 3 pts: Any 3 or more factors	

Project Parameter	Discussion	Scoring Methodology	
		Horizontal Construction	Vertical Construction
Schedule	When there are factors in project delivery that may cause the schedule to become a driving or critical issue, earlier contractor involvement can help to develop strategies to accelerate work or avoid pitfalls. These include such schedule factors as: • Is there a firm fixed date of completion – such as beneficial use of the facility is required by a date certain? • Do financial penalties apply if the completion date is not met - such as fines, liquidated damages, loss of revenue, etc.? • Are long lead items required that may affect schedule due to fabrication or availability? • Is the project delivery going to occur in two or more phases?	0 pts: No schedule factors involved 1 pts: Any 1 factor 2 pts: Any 2 factors 3 pts: Any 3 or more factors	
Stakeholders	When projects include stakeholders outside of County, these groups can have a significant effect on project delivery, including scope, schedule and cost impacts through additional coordination or project elements. Earlier contractor involvement provides an opportunity to build relationships with these groups, and for mitigation strategies to be developed. Stakeholder groups than can impact the project delivery may include: • Other agencies outside of County are involved. • One or more neighborhood groups are impacted and require coordination • One or more businesses or business groups are impacted and require coordination • The project faces organized opposition from one or more interested groups	0 pts: Only additional Government Agencies 1 pts: Either Neighborhood or Business groups 2 pts: Both Neighborhood and Business groups 3 pts: Organized opposition groups exist	

Project Parameter	Discussion	Scoring Methodology	
		Horizontal Construction	Vertical Construction
Utility Relocations	Utility coordination has varying degrees of impact on project delivery, depending on the amount of conflict and relocation required. More complex utility impacts benefit from earlier contractor involvement in developing solutions to the issues. Factors to consider in this area include: • No utilities exist within project, or no relocations are required. • A limited number of utilities are impacted, or all utilities are public agency owned utilities. • Multiple utilities are impacted, and/or some utilities are privately owned service providers. • Significant impact utilities exist on the project (i.e.: national 911 trunk line, railroads, military fuel pipeline, etc.)	0 pts: Typical utility coordination with no utility relocations 1 pts: Limited low impact relocations required, or only Local Agency owned utilities impacted 2 pts: Multiple utilities impacted, privately owned service utilities involved 3 pts: Significant impact utilities exist and are affected	
ROW Impacts	Right-of-Way impacts on a project can significantly affect a project's schedule. Assessing probable impacts of this parameter may require early investigation of adjacent property ownership and experience with landowners, utilities and agencies involved in the process. Earlier contractor involvement can help to define possible limitations and impacts for their space needs during construction as well as strategies to reduce/simplify requirements.	0 pts: No right-of-way required for project 1 pts: TCEs or Right-of-Entry 2 pts: Permanent Fee Title or Easement acquisition 3 pts: Condemnation, Severance Damages, Relocation and/or protracted negotiation	
Permitting	Permitting for projects can vary significantly depending on the type and location of the work. As permitting requirements increase, earlier contractor involvement can help by providing more comprehensive permit application information, developing mitigation ideas and strategies, and building strong relationships between the permitting entity and the organization actually performing the permitted work.	0 pts: No regulatory permits 1 pts: Standard regulatory permitting required 2 pts: Unique or extensive regulatory permitting with no mitigation required 3 pts: Unique or extensive regulatory permitting with mitigation required	

Project Parameter	Discussion	Scoring Methodology	
		Horizontal Construction	Vertical Construction
Opportunity for VE and/or Innovation	When projects present opportunities for alternatives, design innovations, or value engineering savings, involvement of the contractor who will be constructing the project can often result in greater savings and more creativity. Through their involvement, the contractor can identify specific expertise, equipment or approaches that the designer may not otherwise be able to predict.	0 pts: No opportunities for design alts or innovations exist 1 pts: Design alternatives are apparent 2 pts: Either Innovative approaches or VE opportunities exist 3 pts: Both Innovation and VE opportunities exist	
Design Control	The degree of control the County wishes to have over the design of each project may vary based on a number of items, including scope, community issues, regional partners, etc. Projects requiring less design control, or where the County is more flexible with the design options, are more suited to alternative delivery methods, as the contractor and designer are then able to work together to optimize the project.	0 pts: Complete control with little to no flexibility 1 pts: Control of portions of design higher than others with little flexibility 2 pts: Some design control needed, flexibility exists 3 pts: Minimal design control needed, flexibility exists	
Quality	The quality component is intended to determine the level of quality necessary to meet the project goals. Generally, quality may be minimal standard to meet basic needs, average that meets some needs but may exceed in some areas or exceed the standards in most areas. This may be more critical in highly regulatory projects, or meeting a unique need. Projects that require a higher level of quality may similarly need a higher qualified contractor to meet these needs, then alternative delivery with qualifications based selection may be beneficial. If the quality is standard, the assumption is any qualified registered contractor would meet the required level of quality.	0 pts: Typical quality; meets minimum standards 1 pts: Some elements exceed standards; require a specialty item 2 pts: More than one area that exceeds typical standards; higher grade equipment or experimental 3 pts: Unique; standards don't apply, one time installation of significant quality	

1. Select Project Delivery Method

Once the overall project score is calculated, that number is compared to the scoring metric shown in Figure 2, *Project Delivery Method Recommendation Scale*. Higher project scores will typically result in a recommendation for a more integrated delivery team (DB), while lower project scores will result in a recommendation for less integration (DBB).

Scores in the median area typically recommend CMAR as the delivery method, however there are overlapping areas of the ranges where a decision to move between CMAR and DBB or CMAR and DB may require further discussion by the evaluation committee based on the which parameters drove the score versus which were less impactful.

Figure 2. Project Delivery Method Recommendation Scale

<u>Overall Project Parameter Point Total</u>

Table 2: Project Delivery Method Selection by Score Range

Score Range	Recommended Project Delivery Method
0 - 5	Job Order Contracting or Design-Bid-Build may be successful (base final decision on scores for highest priority parameters and JOC limitations)
– 6 - 15	Design-Bid-Build
–16 - 17	Design-Bid-Build or Construction Manager at Risk may be successful (base final decision on scores for highest priority parameters and APDM limitations)
–18 - 25	Construction Manager at Risk
–26 - 27	Construction Manager at Risk or Design-Build may be successful (base final decision on scores for highest priority parameters and APDM limitations)
–28 - 33	Design-Build

CONCLUSIONS

No single project delivery method is appropriate for every type of project. The project delivery method selection should consider each project's unique characteristics and success criteria. While many of these criteria are objective, some important criteria are inherently subjective in nature.

The Project Manager and evaluation committee should keep in mind that the scoring process applied for this tool is a simplification of the decision process, provided to facilitate a meaningful and organized discussion at the Gate 1-1: Entry gate meeting. The process of using this tool should help guide and inform the delivery method selection decision-making process, but ultimately the decision still requires the application of qualified judgement. Unique project characteristics, or specific success factors, may cause the committee to override the delivery method recommended by the scoring system.

By applying a team approach to the project delivery method selection, the probability of gaining stakeholder buy-in and successful project delivery increases. This project delivery method selection tool will provide guidance and facilitate a meaningful dialogue and common understanding of the final project delivery method decision during the Gate 1-1: Entry gate meeting.

APPENDIX 1

ASSUMPTIONS AND REFERENCES

ASSUMPTIONS

In the preparation of this guide, it was necessary to make a limited number of assumptions. Those assumptions are:

1. Application of this process occurs early in the project life cycle, before completion of any design activities that would preclude use of a particular delivery method.
2. The County has adequate, trained staff available to manage the project type being contemplated using any delivery method available to them.

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APPENDIX 2

PROJECT DELIVERY METHOD SELECTION TOOL

WORKSHEET DATA FORMS

WORKSHEET DATA FORMS

Project Delivery Method Selection Tool Worksheets

The project information below is advantageous to compile when evaluating the project and populating the Project Delivery Method Selection Worksheet. The listing is not comprehensive, but provides a summary of key information needed for the evaluation process. More detailed evaluation forms follow this summary.

Project Information
Project Name:
Project Location:
Project Description/Major Features:
Estimated Budget:
Source(s) of Project Funding:
Estimated Project Delivery Period:
Required Delivery Date (if applicable):
Major Schedule Milestones:
Major Project Stakeholders:
Major Obstacles with Right of Way, Utilities, and/or Permitting:
Major General Obstacles:
Major Obstacles during Construction Phase:
Opportunities for Value Engineering or Innovative Solutions:
Level of Design Control Needed:
Sustainable Design and Construction Requirements:

Size/Budget:

Budget information should be available directly from the Capital Improvement Program for use in evaluating the Size/Budget parameter, as well as for use in determining cost risk factors.

Project Type:

Define the project type for use in evaluating the Project Type parameter as well as for use in determining complexity factors. For projects that consist of both horizontal and vertical work, define the type by evaluating the work being performed and assessing what is the predominant portion of the work by cost value. The highest value type of work governs the determination.

Project type factors to consider may include:

Horizontal or Vertical:	☐ Horizontal ☐ Vertical ☐ Both
Predominant Work Type if Both:	☐ Horizontal ☐ Vertical
Any Subsurface Work Included :	☐ Yes ☐ No
If Vertical, Building Type & Use:	☐ Low-rise ☐ Mid-rise ☐ Hi-rise ☐ Public Access ☐ Secure Access Only ☐ 24-hour Access ☐ Defined Use Hours ☐ Commercial/Office ☐ Industrial Type Uses
Any Structural or Special Building Systems Included:	☐ Yes ☐ No
Any Other Complex Elements:	☐ Yes ☐ No

Complexity:

Projects that are more complex often benefit from the integrated project delivery approaches available by using an alternative project delivery method. DBB delivery favors projects where the County can fully resolve complex design and coordination issues and evaluate the design prior to any contractor involvement.

CMAR and DB provide increased opportunities for contractor input into these issues before construction begins - CMAR offering design phase involvement of the contractor and key subcontractors, and DB providing even earlier involvement via proposal phase alternative technical concepts in addition to the design phase preconstruction and design-assist services.

Project complexity factors to consider may include such issues as:

Access Issues:	☐ Project Site ☐ Business ☐ Neighborhood
Significant Traffic/Pedestrian Safety Concerns:	☐ Yes ☐ No
Technical Complexities :	☐ Yes ☐ No
Risk Factors & Unknowns:	☐ Funding Has Restrictions on Uses ☐ Funding Obligation Deadlines Exist ☐ Unknown Site Conditions ☐ New Materials Being Used ☐ New Construction Method Being Used ☐ Limited Pool of Qualified Designers/Contractors ☐ County Staff Inexperienced In Project Type
Other Risk Factors Identified:	

Schedule:

Project schedule applies to the time from start of scoping/planning through completion of construction and beneficial use of the facility for its intended purpose. Time constraints may apply to a number of factors, many of which can affect project delivery differently depending on the delivery method in use. DBB delivery requires adequate time to perform sequential design, bidding/procurement, and construction. It generally does not favor early acquisition of long-lead items or constructing a project in phases.

CMAR and DB provide increased opportunities for contractor input into items that could potentially affect the schedule before construction begins. This includes early evaluation of work items that may require long-lead fabrication or delivery, assessment of opportunities to accelerate the project through phased delivery, and evaluating when the work requirements may necessitate nighttime or weekend work in order to maintain production rates.

Project schedule factors to consider may include such issues as:

Planned Project Start Date:	
Planned Construction Start Date:	
Planned Construction Completion Date:	
Is the Completion Date Firm :	☐ Yes ☐ No
Are There Penalties or Fines For Late Completion :	☐ Yes ☐ No ☐ Regulatory Fines for County ☐ Late Penalties for Contractor ☐ Other: _____
Does Project Include Potential Long-Lead Items :	☐ Yes ☐ No
Does Project Type/Scope Lend Itself To Phased Delivery:	☐ Yes ☐ No
Other Potential Schedule Impacts Identified:	

Stakeholders:

Project stakeholders may include any number of individuals or organizations within or outside of the County. Stakeholder coordination can include everything from providing project related information, to coordinating localized impacts, to negotiating significant mitigation measures necessary to obtain project approval. In addition, stakeholder responsiveness can significantly affect project delivery.

DBB delivery requires performance of all stakeholder coordination by County staff or the designer. CMAR and DB provide increased opportunities for contractor involvement by providing specific details of how they will prosecute the work. It also allows the contractor to begin building relationships with the stakeholders early on, before construction begins, establishing a higher level of trust and cooperation.

Project stakeholder factors to consider may include:

Government Agencies With Project Involvement:	☐ County Departments (outside Project Mgmt) ☐ Adjacent Municipalities ☐ Adjacent Counties ☐ State ☐ Federal/Military ☐ Special Districts ☐ Other: _____
Business Groups Involved:	☐ Individual Businesses ☐ Business Centers/Complexes ☐ Business Associations/Chambers
Community Groups Involved:	☐ Individual Citizens ☐ Neighborhood Associations ☐ Community Groups
Is There Known Opposition to the Project:	☐ Yes ☐ No
If Opposition Exists, From Whom:	☐ Individual Citizens ☐ Neighborhood/Community Groups ☐ Business Groups ☐ Government Agencies ☐ Other: _____

Utility Relocations:

Utility coordination is one of the highest risk areas in terms of schedule and cost impacts, and often requires significant coordination and interdisciplinary effort to plan and construct in order to minimize project impacts. The more complex or greater the level of utility involvement, the more the project may benefit from using an alternative delivery method.

DBB delivery places all risk for identification and mitigation of utility issues on County staff or the designer. CMAR and DB provide increased opportunities to reduce and/or reallocate this risk through early contractor involvement in such items as utility identification, relocation planning, and identifying locations where construction can proceed while utility work is still underway.

Utility factors to consider may include:

Are Utilities Present Within Project Area:	☐ Yes ☐ No
Utility Actions Required For Project:	☐ Notification of Construction in Area ☐ Permit to Construct On or Near ☐ Relocation of Utility(ies) Required
Types of Utilities Affected by the Project:	☐ Municipal/Agency Owned Utilities ☐ Privately Owned Utilities ☐ Irrigation District(s) ☐ Railroad Company ☐ Military Fuel Delivery or Other High Value Liquid or Gas Pipeline ☐ National or Public Safety Communication Lines (i.e.: 911 Trunkline, Air Traffic Control Communications, Military Communications, etc.) ☐ Other: _____

Right-of-Way Impacts:

Right-of-Way (ROW) impacts on a project can significantly affect a project's schedule. Assessing probable ROW impacts may require early investigation of adjacent property ownership and experience with landowners, utilities and agencies involved in the process. Earlier contractor involvement can help to define possible limitations and impacts for their space needs during construction as well as strategies to reduce/simplify land need requirements.

DBB delivery requires County staff or the designer to identify all ROW requirements, including anticipating how much space the contractor will need for performing the work on the project. CMAR and DB allow the contractor to participate in identifying the amount of space required for his work in addition to developing alternatives that may mitigate damages or issues during construction.

Right-of-Way factors to consider may include:

Are Temporary or Permanent Rights-of-Way Required:	☐ Yes ☐ No
Types of Right-of-Way Required:	☐ Temporary Construction Easements ☐ Temporary Right of Entry ☐ Permanent Fee Title Easement Acquisition ☐ Permanent Fee Title Partial Parcel Acquisition ☐ Permanent Fee Title Full Parcel Acquisition ☐ Other: _____
Are Additional Impacts Anticipated as a Result of Acquisitions:	☐ Severance Damages ☐ Residential Relocations ☐ Business Relocations ☐ Demolition ☐ Other: _____
Is Condemnation or Protracted Negotiation Requiring Mediation Anticipated:	☐ Yes ☐ No

Permitting:

Permitting for projects can vary significantly depending on the type and location of the work, and regulatory agencies involved. As permitting requirements increase, earlier contractor involvement can help mitigate damages or reduce issues during construction.

DBB delivery requires County staff or the designer to identify all permit requirements. The project documents must include comprehensive information detailing permit requirements and mitigation work required to ensure adequate contractor knowledge during the bidding phase.

CMAR and DB allow the contractor to participate by gaining a stronger understanding of the permit requirements, providing more comprehensive permit application information, developing mitigation ideas and strategies, and building strong relationships between the permitting entity and the organization actually performing the permitted work.

Permitting factors to consider may include:

Are Regulatory Permits Required:	☐ Yes ☐ No
Level of Regulatory Permitting Anticipated:	☐ Minimal/Typical Permits ☐ Extensive Type and/or Number of Permits ☐ Unique/Atypical Permits
Are Additional Studies Required to Satisfy Permit Requirements:	☐ Yes ☐ No Type of Study: _____
Are Mitigation Measures Anticipated:	☐ Yes ☐ No

Opportunity for Value Engineering and/or Innovation:

When projects present opportunities for design alternatives, material or delivery innovations, or value engineering savings, involvement of the contractor who will be constructing the project can often result in greater savings and more creativity. Through their involvement, the contractor can identify specific expertise, equipment or approaches that the designer or County may not otherwise be able to predict.

DBB delivery requires County staff or the designer to identify and fully resolve complex design issues and qualitatively evaluate designs before procurement of the contractor. Innovation is provided by County staff and designer expertise, and through traditional agency directed processes such as VE studies and contractor bid alternatives.

CMAR and DB allow the contractor to address complex innovative designs through three party collaboration by the County, designer and contractor. This allows for a qualitative (non-price oriented) design that may also include best value selection and contractor proposed Alternate Technical Concepts (ATCs) – which are a cost-oriented approach to providing complex and innovative designs.

Value Engineering and Innovation factors to consider may include:

Do Opportunities for Value Engineering and/or Innovative Solutions Exist:	☐ Yes ☐ No
Types of Innovation Apparent for the Project:	☐ Design Alternatives for Project Components ☐ Opportunity for Innovation Through ATC Process ☐ Specialty Contractors With Unique Relevant Expertise are Available ☐ Type of Work Lends Itself to Contractor Specific Means and Methods Consideration During Design ☐ Other: _____

Design Control:

The degree of control the County wishes to have over the design of each project may vary based on a number of items, including scope, community issues, regional partners, etc. Projects requiring less design control are more suited to alternative delivery methods, as the County, contractor and designer are able to work together collaboratively to optimize the project.

DBB provides the County with full control over a well-understood, linear design and construction process. The process provides multiple review points during development of construction documents, but also requires a higher level of oversight by County staff. The County warrants the quality of the design to the contractor, but lack of contractor involvement in development may result in more opportunities for change orders or claims.

CMAR and DB provide an opportunity for the contractor to participate in the design of the project, providing constructability reviews, schedule analysis, and cost control. The higher level of integration achieved through this process can provide higher quality project results due to the contractor's greater knowledge of design intent and project goals. Accomplishing this requires a greater skill level on the part of County staff and designer to oversee and participate as the levels of integration increase.

Design Control factors to consider may include:

Level of Design Control Desired by County:	☐ Complete Control Over All Aspects of Design ☐ Complete Control Over Some Portions of Design, But Not All ☐ Minimal Design Control ☐ No Design Control, Project Team Has Ability to Recommend Design of Project (i.e.: Design Competition)
Level of Flexibility County Can Accept in the Design Process:	☐ No Flexibility on Criteria or Features ☐ Limited Flexibility on Criteria or Features ☐ Flexible on Criteria or Features ☐ Flexible on Criteria and Features

Quality:

The quality component determines the level of quality necessary to meet the project goals. Generally, quality may be minimal standard to meet basic needs, average that meets some needs but may exceed in some areas or exceed the standards in most areas. This may be more critical in highly regulatory projects, or meeting a unique need. Projects that require a higher level of quality may similarly need a higher qualified contractor to meet these needs, then alternative delivery with qualifications based selection may be beneficial. If the quality is standard, the assumption is any qualified registered contractor would meet the required level of quality.

DBB provides the County with full control over the quality of the project, as the design process is completed prior to start of construction. The process provides multiple review points during development of construction documents, but also requires a higher level of oversight by County staff. The built quality (workmanship) is the responsibility of the contractor, but is overseen by County inspection processes, and gaps in quality may result in rework or potential claims.

CMAR and DB provide an opportunity for the contractor to participate in the design of the project, providing constructability reviews, schedule analysis, and cost control. Additionally, level of quality can be used as part of the contracting scope to ensure final level of construction meets quality expectations. Accomplishing this requires a greater skill level on the part of County staff and designer to oversee and participate as the levels of integration increase.

Design Control factors to consider may include:

Level of Quality – Conformity to Existing Standards:	☐ Complete use of standard detailing and specifications ready for use ☐ Most elements use existing Design Standards, with minimal special design elements ☐ Some use of existing Design Standards, many areas utilize project specific design elements or emerging technology ☐ No Design Standards, Unique installation requiring project specific design elements, May be experimental or new technology
Level of Quality – County flexibility regarding lifetime of design elements	☐ Quality meets minimum needs, initial price more important than lifecycle savings ☐ Limited Flexibility on Quality, a key usage area may require higher investment due to criticality or level of use ☐ Quality for several key usage areas require higher initial investment ☐ Project identified as a critical service area, requires unusually higher level than typical investment, Uniquely defined needs and increased initial investment

PROJECT DELIVERY METHOD SELECTION TOOL

The link to the working tool in an Excel spreadsheet for both horizontal and vertical construction, may be found at https://webcms.pima.gov/government/project_management_office_pmo/.

Image 1 –Project Parameter Data Entry Sheet – HORIZONTAL CONSTRUCTION

Project: Dept:
Type:

Project Parameter	HORIZONTAL Scoring Methodology		Score
	Impact/Issue	Pts	
Size Budget	$0 to $3 million	0	
	$3 million to $10 million	1	
	$10 million to $25 million	2	
	$25 million and greater	3	
Project Type	Routine repetitive types of work; or Horizontal work at surface level	0	
	Horizontal, includes subsurface work	1	
	Horizontal with subsurface work and routine structural elements	2	
	Horizontal w/ subsurface, complex structural or specialty work (bridges, RR)	3	
Complexity	No complicating factors involved	0	
	Any 1 complicating factor (access issues, traffic/pedestrian concerns, technical complexity, risks & unknowns)	1	
	Any 2 complicating factors (access issues, traffic/pedestrian concerns, technical complexity, risks & unknowns)	2	
	Any 3 or more complicating factors (access issues, traffic/pedestrian concerns, technical complexity, risks & unknowns)	3	
Schedule	No schedule factors apply	0	
	Any 1 complicating factor (firm fixed date, financial penalties, long-lead items, phasing)	1	
	Any 2 complicating factors (firm fixed date, financial penalties, long-lead items, phasing)	2	
	Any 3 or more complicating factors (firm fixed date, financial penalties, long-lead items, phasing)	3	
Stakeholders	Only additional government agencies	0	
	Either neighborhood or business groups will have an interest in the project	1	
	Both neighborhood and business groups will have an interest in the project	2	
	Organized opposition to the project exists	3	

Utility Relocations or Services	Coordination, but no utility relocations required	0	
	Limited utility relocations required, only local public agency owned utilities affected	1	
	Multiple utilities affected, including privately owned service utilities	2	
	Significant utility impacts exist on the project (i.e. railroads, military fuel pipelines, 911 trunk line, etc.)	3	
Right-Of-Way Impacts	No right-of-way required for the project	0	
	Only temporary rights-of-way required (TCEs and/or rights-of-entry)	1	
	Permanent Fee Title and/or Easement acquisition required	2	
	Condemnation, Severance Damages, Relocations or protracted acquisition negotiations anticipated	3	
Permitting	No regulatory permits needed	0	
	Typical regulatory permits required	1	
	Unique or extensive regulatory permitting, no mitigation measures required	2	
	Unique or extensive regulatory permitting with mitigation measures required	3	
VE/Innovation Opportunities	No opportunities for design alternatives, value engineering or innovation exist	0	
	Design alternatives are apparent	1	
	Either Innovative approaches or value engineering opportunities exist	2	
	Both innovative approaches and value engineering opportunities exist	3	
Design Control	Complete control of design desired with little to no flexibility granted	0	
	Control desired over portions of the design, but not all, with little flexibility	1	
	Some design control needed, but flexibility exists for designer	2	
	Minimal design control to be exerted with significant flexibility for the designer	3	
Quality	Typical quality, meets minimum standards	0	
	Some elements exceed standards, require a specialty item	1	
	Project has more than one area that exceed typical standards, higher grade equipment, or experimental	2	
	Project is unique, standards don't apply, one time installation of significant quality	3	

Total Evaluation Score: 0

(Tool Autofills Methodology Result)

Image 2 –Project Parameter Data Entry Sheet – VERTICAL CONSTRUCTION

	Project:	Dept:
	Type:	

Project Parameter	VERTICAL		Score
	Scoring Methodology		
	Impact/Issue	Pts	
Size Budget	$0 to $500,000	0	
	$500,000 to $5 million	1	
	$5 million to $10 million	2	
	$15 million and greater	3	
Project Type	Routine repetitive types of work; Tenant Improvement, or equipment replacement	0	
	Some new ground disturbance, expansion of existing, low impact	1	
	Non-complex new vertical construction	2	
	Vertical, includes complex systems or structural elements	3	
Complexity	No complicating factors involved	0	
	Any 1 complicating factor (structural complexity, historic impacts/renovation, system and technical complexity, risks & unknowns)	1	
	Any 2 complicating factor (structural complexity, historic impacts/renovation, system and technical complexity, risks & unknowns)	2	
	Any 3 or more complicating factor (structural complexity, historic impacts/renovation, system and technical complexity, risks & unknowns)	3	
Schedule	No schedule factors apply	0	
	Any 1 complicating factor (firm fixed date, financial penalties, long-lead items, phasing)	1	
	Any 2 complicating factors (firm fixed date, financial penalties, long-lead items, phasing)	2	
	Any 3 or more complicating factors (firm fixed date, financial penalties, long-lead items, phasing)	3	
Stakeholders	Only additional government agencies	0	
	Either neighborhood or business groups will have an interest in the project	1	
	Both neighborhood and business groups will have an interest in the project	2	
	Organized opposition to the project exists	3	

Utility Relocations or Services	Utility connections available onsite	0	
	Limited new utility services required, easily connected near the site	1	
	Multiple utilities required, possible onsite relocations necessary	2	
	Significant utility impacts exist on the project, extensive extensions and new services required, offsite road improvements	3	
Right-Of-Way Impacts	No right-of-way or land acquisition required for the project	0	
	Only temporary rights-of-way required (TCEs and/or rights-of-entry), possible utility service easements	1	
	Permanent Fee Title and/or Easement acquisition required	2	
	Condemnation, Relocations or protracted acquisition negotiations anticipated, coordination with state land or BLM	3	
Permitting	Standard Building Permits only	0	
	Building permits, plus others such as ROW, SWPPP, etc	1	
	Unique or extensive regulatory permitting, no mitigation measures required	2	
	Unique or extensive regulatory permitting with mitigation measures required	3	
VE/Innovation Opportunities	No opportunities for design alternatives, value engineering or innovation exist	0	
	Design alternatives are apparent	1	
	Either Innovative approaches or value engineering opportunities exist	2	
	Both innovative approaches and value engineering opportunities exist	3	
Design Control	Complete control of design desired with little to no flexibility granted	0	
	Control desired over portions of the design, but not all, with little flexibility	1	
	Some design control needed, but flexibility exists for designer	2	
	Minimal design control to be exerted with significant flexibility for the designer	3	

Quality	Typical quality, meets minimum standards	0	
	Some elements exceed standards, require a specialty item	1	
	Project has more than one area that exceed typical standards, higher grade equipment, or experimental	2	
	Project is unique, standards don't apply, one time installation of significant quality	3	

Total Evaluation Score 0

(Tool Autofills Methodology Result)