JPB Technology, Operations, Planning, and Safety (TOPS) Committee
Meeting of February 22, 2023

Reading File

#	Subject
1	BBGS Delivery Method Evaluation Report
2	TAMC-JPB Memorandum of Understanding

AECOM

Project Delivery Method Evaluation

18-J-P-042A PCJPB Program Management Oversight
WD#10764

Caltrain

January 2023
Final

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Executive Summary

The purpose of this assignment is to evaluate two project delivery methods to assist Caltrain's in preparing for and implementing the Broadway Burlingame Grade Separation (BBGS) Project. More specifically, the goal of this assignment is to identify the preferred project delivery method that will best achieve the BBGS Project goals and objectives. This report presents:

- AECOM's findings having carried out the assessment using two recognized evaluation methodologies which included contributions of Caltrain, San Mateo County Transit Authority, and City of Burlingame staff that attended the Project Delivery Evaluation Workshop (Workshop) held at Caltrain's offices on November 18, 2022;
- Supporting material defining the evaluation methodologies and delivery methods considered;
- Detailed evaluation matrices for each methodology and delivery method considered, including the rationale and assumptions supporting the assessment of each criterion; and
- A conclusion of the most beneficial project delivery method based on the results provided in the evaluation matrices

Evaluation Framework

The process of determining the optimal delivery method for any given project depends on many factors such as project complexity, public policy goals, private sector interest, transfer of risks and value for money. Two independent evaluation tools were utilized for this task. Firstly, the 2009 Transit Cooperative Research Program (TCRP) 131 publication: "A Guidebook for the Evaluation of Project Delivery Methods" (the TCRP 131) report and secondly, the 2008 Caltrans Alternative Procurement Guide - the Project Selection Tool. These two methodologies are considered best practice when determining the optimal delivery method for a project. At Caltrain's request, the evaluation of potential project delivery methods was limited to t Design Bid Build (DBB) and Construction Manager General Contractor (CMGC) methodologies.

The aim of utilizing two evaluation methodologies for this task, is to help Caltrain to evaluate and rank the two project delivery methods available for the BBGS Project thoroughly and objectively. Both evaluations were completed in collaborative manner as a facilitated group discussion during the Workshop.

Project Evaluation

A successful delivery method evaluation relies on an understanding of each delivery method being considered and the potential impacts to the project under review. Prior to performing the delivery method evaluation, a detailed review of the project constraints, proposed schedule, budget, and the differences between DBB and CMGC delivery strategies were completed with all Workshop attendees. During the Workshop, project goals were viewed, and workshop participants identified two overarching project goals, namely:

1. **Increase Project certainty** – This can be attributed to both cost and schedule project goals, obtaining a better or earlier idea of the project costs and schedule provides a higher degree of certainty on the project.
2. **Enhance safety in the vicinity of the project** – An overarching goal of the project is enhancing safety for all modes of transportation including transit, vehicle, and pedestrian. With numerous conflicting modes, and high rate of safety related incidents, the resulting impacts to the community and emergency services are significant. Achieving this overarching goal is paramount for a successful project.

This Workshop review also included an examination of the general benefits and disadvantages of each delivery method in relation to the BBGS Project. It was emphasized that, a key benefit of CMGC is the preconstruction services which can be utilized prior to construction, however, with the BBGS Project at 65% Design, this limits some of the potential benefits typically seen under CMGC delivery method. Table 1 below summarizes the typical preconstruction services available under CMGC broken down into those potentially beneficial and those of limited benefit to the BBGS Project based on the design level.

Table 1. Summary of CMGC Preconstruction Services

Potentially Beneficial to BBGS Project	Limited Benefit to BBGS Project*
• Verify and prepare quantity takeoffs • Validate cost estimates • Prepare open book estimates • Award early, enabling construction work • Prepare cost risk analyses • Verify and prepare construction schedules • Coordinate with permitting agencies and third-party stakeholders • Verify environmental document commitments and mitigation requirements are met • Prequalify Project subcontractors Prepare Project subcontractor bid packages and secure subcontractors	• Input to design and constructability reviews • Encourage innovation • Conduct value engineering analyses *It is noted that implementing any of the above, although still possible the potential cost saving measures may not be recognized. For example, implementing a significant design change due to constructability reviews may cost more to implement than proceeding with the planned design.

Even within the BBGS schedule design constraints, CMGC was still deemed a viable delivery method for the delivery method evaluation for the BBGS project. It was agreed during the Workshop, that the broad benefits and versatility of CMGC particularly in relation to cost and schedule certainty and the advantageous benefits that experienced contractors could contribute to final design, outweighs the limitations due to the current design level.

Conclusions and Recommendations

Based on the results of the two project delivery method evaluations summarized above, the CMGC project delivery method will best achieve the project goals and objectives including project costs certainty, and expedited schedule. Table 2 summarizes the scoring of each evaluation methodology assessed during the Workshop.

Table 2. Summary of Evaluation Score

Evaluation Framework	DBB	CMGC	Preferred Delivery Method
TCRP 131 Report - A Guidebook for the Evaluation of Project Delivery Methods	46	**62**	CMGC
Caltrans Alternative Procurement Guide - The Project Selection Tool	52	**77**	CMGC

Even with the design level constraints, CMGC was deemed the most appropriate delivery method particularly in relation to:

- Cost Certainty:
- Expedited schedule
- Benefits that experienced contractors could bring

Other key benefits noted during the Workshop were the reduced potential conflicts and claims and the improved Designer and Contractor relationship; the higher the level of adversarial relationships in a project, the more likely the project will suffer from cost, schedule, and quality problems.

Accordingly, even within the design level constraints, the consensus from the independent evaluation methodologies, deemed CMGC the most appropriate delivery method for the BBGS Project. The broad benefits and versatility of this delivery method particularly in relation to the above specific benefits; surpass those a DBB delivery method would provide.

Acronyms and Abbreviations

Table 3. Table of Acronyms and Abbreviations

Acronyms/ Abbreviations	Definition
BBGS	Broadway Burlingame Grade Separation
City	City of Burlingame
CMGC	Construction Manager General Contractor
CMR	Construction Manager at-Risk
DBB	Design Bid Build
FTA	Federal Transit Administration
PCJPB	Peninsula Corridor Joint Powers Board
TCRP	Transit Cooperative Research Program
TCRP 131 Report	Transit Cooperative Research Program (TCRP) 131 publication: “A Guidebook for the Evaluation of Project Delivery Methods”
TCP	Total Contract Price
Workshop	Project Delivery Evaluation Workshop

1. Introduction

1.1 Overview

A project's success is often contingent upon procurement of a contractor that can produce deliverables on time, on budget, and of the quality required; establishing the optimal project delivery method is a key element in this process. At this time, Caltrain is only considering the Construction Manager/ General Contractor (CMGC) alternative delivery method and the traditional Design Bid Build (DBB) delivery method. The purpose of this Work Directive (WD) is to assist the Peninsula Corridor Joint Powers Board (Agency) in assessing these two potential project delivery methods for the Broadway Burlingame Grade Separation Project (Project) and provide a preferred project delivery recommendation.

Alternative project delivery incorporates practices to supplement the traditional DBB method and generally accelerate delivery, providing project owners with early contractor involvement, early cost certainty, and phasing and schedule benefits, Two independent evaluation tools were utilized to identify the most advantageous delivery methodology for this project. Firstly, the 2009 Transit Cooperative Research Program (TCRP) 131 publication: "A Guidebook for the Evaluation of Project Delivery Methods" (the TCRP 131) report and secondly, the 2008 Caltrans Alternative Procurement Guide - the Project Selection Tool. These two evaluation methodologies are considered best practice when determining the optimal delivery method for a given project.

The aim of utilizing two evaluation methodologies for this task, is to help Caltrain effectively evaluate and rank the delivery methods for delivering the BBGS Project thoroughly and objectively. This report summarizes the work performed by AECOM under WD#10764 and the results of this assessment.

This work has been undertaken in accordance with the defined scope of work, and in the context of discussions between AECOM and Caltrain including kick-off meeting held October 6th.

1.2 Project Description

The below is a summary project description extracted from the 2017 Project Study Report with some modifications to reflect recent value engineering elements implemented in the design.

The Project consists of a 1.5-mile area from just north of Oxford Road to just north of Oak Grove Avenue, between California Drive and Carolan Avenue and just north of Rollins Road to north of Paloma Drive along Broadway. Broadway connects US 101 to the City of Burlingame (City) and provides a key access route for the City, particularly for its Downtown Business and Rollins Road Industrial Districts. As the City's population has grown, major traffic congestion and safety issues have developed at the current at-grade railroad crossing. In addition, pedestrian and cyclist access has deteriorated. Future Caltrain service to the Broadway station is planned to increase and can be expected to further exacerbate these problems. Additionally, with more than 10,000 at-grade railroad crossings throughout the state, the California Public Utilities Commission ranks this project as it's top priority.

The purpose of the proposed project is to create a grade separation that eliminates the existing at-grade crossing in order to reduce congestion and improve traffic operations on Broadway, thereby enhancing safety and mobility for all travel modes in the area. The BBGS Project and will include:

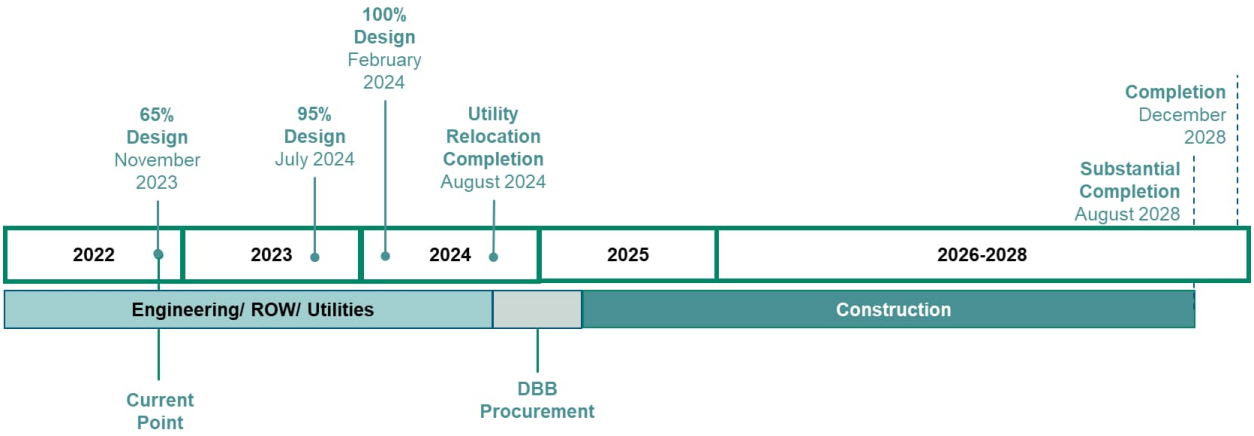
1. Realigning and reconstructing the existing two-track railroad on elevated structure
2. Reconstructing the existing Broadway station on the elevated track structure, providing a central boarding platform which is ADA compliant
3. Reconfiguring and reducing station parking
4. Providing pedestrian/bicycle access improvements
5. Realignment of existing natural drainage crossing at Easton Creek

1.2.1 Current Project Schedule

Figure 1 illustrates the indicative Project timeline presented in the Project website[1], with Final Engineering (100% Design) expected to be completed in February 2024 and Utility relocation completed in August of 2024.

This timeline is based on the proposed DBB delivery and does not include potential modifications to incorporate alternative project delivery. As such, procurement of the DBB Contractor can not start until both design and utility relocation are completed. Historically, Caltrain's DBB procurement is typically between six to nine months depending on project complexity, it has been assumed as six months for the BBGS Project.

Figure 1. Project Indicative schedule under DBB Delivery Method



See Appendix A Section A.1 for a larger image of the BBGS Indicative Project schedule under DBB.

1.3 Project Delivery Method Evaluation Workshop

As stated within both the TCRP and Caltrans guidelines, it is advisable to perform the delivery method evaluations within a team environment to facilitate a meaningful dialogue and common understanding of the delivery decision. On November 18, 2022, ten Agency participants (eight from Caltrain, one from the City of Burlingame, and one from San Mateo County Transportation Authority) met and conducted a Project Delivery Evaluation Workshop (Workshop) facilitated by AECOM for the BBGS Project. See Appendix A for the Workshop Agenda (Section B.1) and attendance sign-in sheet (Section B.2).

Prior to performing the delivery method evaluations, a detailed review of DBB and CMGC delivery methods was completed with all workshop attendees. This review included an examination of the potential benefits and disadvantages of each delivery method in relation to the BBGS Project and provided an opportunity to openly discuss the Project's status, specific goals and objectives, constraints, and evaluation expectations. A copy of the workshop PowerPoint presentation can be found Appendix B Section B.3, where appropriate, discussions around the evaluation rating have been documented within this report.

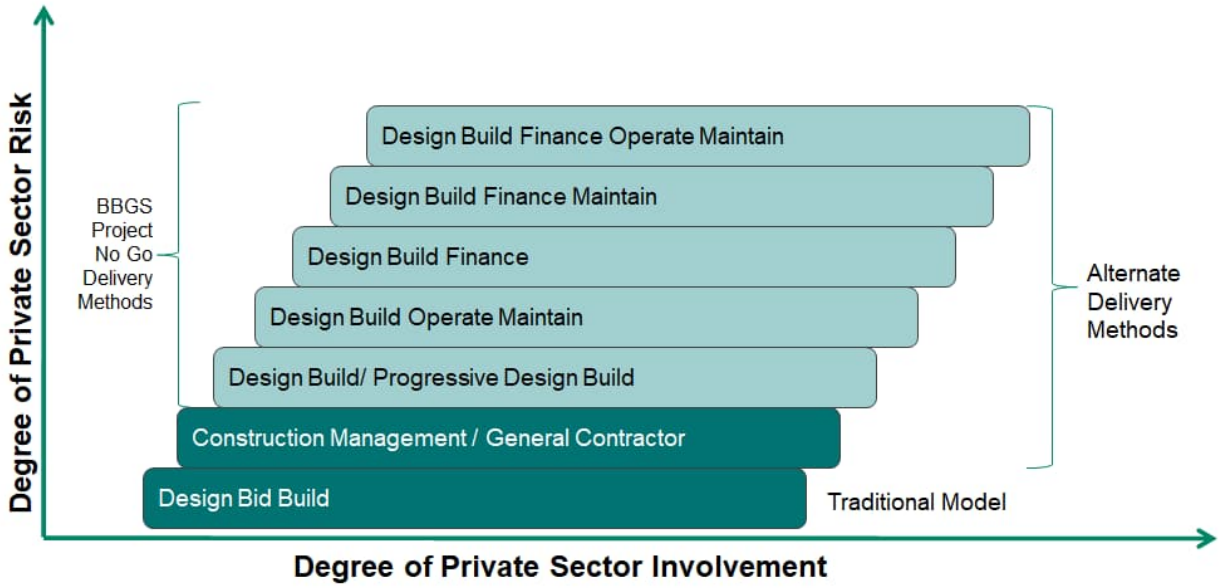
[1] Burlingame Broadway Grade Separation Project | Caltrain

2. Project Delivery Methods

2.1 Overview

There are numerous delivery methods which have been used to varying degrees of success across transit projects within the United States. These are outlined in Figure 2 below, which categorizes each delivery method as either Traditional or Alternative Delivery, and where each is ranked according to its degree of private sector risk apportionment and control (involvement).

Figure 2. Delivery Methods Available



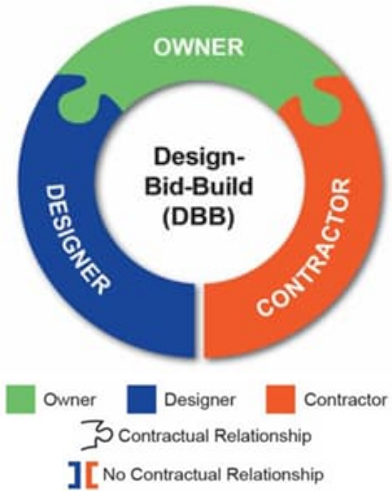
At Caltrain's request, for this Project, the analysis of potential alternative project delivery methods was limited to the CMGC method. At this time, Caltrain is only considering evaluating the CMGC Project Delivery Method as the Designer has already been engaged and design is progressed to 65%. Therefore, in addition to the baseline DBB method, only the CMGC method was evaluated using the TCRP Report 131 Analytical Method and the Modified Caltrans Quantitative method. These two delivery methods are further described below.

2.2 Design Bid Build

In the US, DBB is typically referred to as the "Traditional Delivery" and is generally considered the baseline by which alternative project delivery methods are evaluated against. DBB schedule is sequential where the owner awards separate design then construction contract that is based on the designer's completed construction document. The construction phase of DBB projects is generally awarded on a low-bid basis with no discussion of risk and little incentive for the contractor to minimize the cost of change orders. In fact, "a contractor who has won a project by submitting the lowest possible bid may need to look to post-award changes as a means of enhancing profit on the project" (Bearup, Kenig, and O'Donnell 2007)[2]. Projects that benefit from the use of DBB are typical or common infrastructure projects that do not involve many unknowns, necessitate complex construction requirements, or benefit from contractor input during the pre-construction design phase. The relative advantages and disadvantages as well as the contract structure for DBB project delivery method are summarized in Table 4 below.

[2] A Guidebook for the Evaluation of Project Delivery Methods |The National Academies Press

Table 4. Summary of DBB Delivery Method

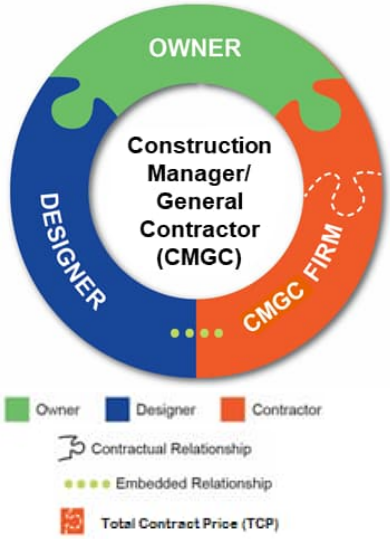
Contract Structure	Advantages	Disadvantages
	• Owner controls design and construction • Design changes can easily be accommodated before start of construction • Contractor cost commitment based on completed or near completed design documents • Most common practice, contractors' familiarity with process	• Multiple contracts for owner to manage • Owner assumes all risk • Costs are not firm until design is completed and bids received • Potential for project delay and additional design costs if bids run over budget • Changes to design documents during construction may lead to construction delays and/or requests for change orders • Owner is responsible for the cost of errors or omissions • Potential for longer schedule because the process is sequential
		

2.3 Construction Management/ General Contractor

The CMGC delivery method allows an owner to engage a construction manager during the design process to provide constructability, value engineering, and means and method input. The Construction Manager is generally selected on the basis of qualifications, past experience and fixed management cost that will provide best-value to the owner. During this phase, the construction manager provides input regarding scheduling, pricing, phasing and other input that helps the owner design a more constructible project. The owner then encourages participation between the designer and contractor to deliver the best value project; however, there is no contractual relationship between the designer and contractor sometimes complicating the pre-construction phase collaboration. Prior to design completion, the owner and the construction manager negotiate a Total Contract Price (TCP) for the construction of the project based on the defined scope and schedule. If the TCP is acceptable to both parties, they execute a contract for construction services, and the construction manager becomes the general contractor. Historically, CMGC utilized 'Guaranteed Maximum Price' terminology however, Caltrain and the industry has moved away from this terminology as it can give unreasonable expectations for a project, in favor of “Total Contract Price”.

The CMGC delivery method is valuable for more complex non-standard types of designs where the project owner prefers to remain actively engaged in developing the project design and technical requirements while engaging a construction contractor to provide constructability and construction phasing input during the pre-construction/ final design phase. The CMGC delivery method is also called the Construction Manager at-Risk (CMR) method by state law, in some states. The relative advantages and disadvantages as well as the contract structure for the CMGC project delivery method are summarized in Table 5 below.

Table 5. Summary of CMGC Delivery Method

Contract Structure	Advantages	Disadvantages
	• Opportunity to establish selection criteria to match objectives of the project, applying non-cost factors • Owner retains control of the final design process • Early contractor involvement results in a better understanding of the contract • Better risk allocation, and fewer claims for compensation for changes • Early cost and budget certainty • Establishes a partnership among the owner, designer, and contractor during the design that is likely to carry through construction • Tends to reduce or minimize contractor claims due to changed conditions or constructability issues • Allows input of means and methods and value engineering to reduce cost and improve schedule,	• Multiple contracts for owner to manage • No contractual relationship between the designer and the contractor • Less competitive leverage on the general contractor when pricing the construction • If owner cannot reach agreement on the Final Construction Price, they will need to reprocure through DBB, which could delay the project

With projects becoming more complex: the growth of multi-modal systems, more densely populated areas, aging infrastructure, and more stringent regulations; CMGC has been growing in applicability and acceptability. Across the US, transportation and transit agencies have increasingly turned to CMGC to deliver their projects timely and on budget. Numerous case studies have validated the successful use of CMGC contracting strategy. Most predominantly for transit, the Mid Coast Corridor Alternative Delivery Report, (SANDAG 2012) which cited five key agencies with significant experience:

- Utah Transit Authority (UTA) - Five CMGC transit projects
- Dallas Area Rapid Transit (DART) - Three CMGC transit projects
- Tri-Met (Portland) - Six CMGC transit projects
- City of San Diego – Five CMGC projects
- San Diego Airport Authority

Appendix C provides a brief sampling of project fact sheets from CMGC infrastructure projects. FTA provides a summary of its experience with the benefits of CMGC project delivery on its website[3]. Additionally, Caltrans provides a fact sheet of its CMGC project delivery experience[4] and it's CMGC program[5] on its website.

[3] Cost Benefits to Construction Manager/General Contractor Approach | FTA (dot.gov)
[4] Fact Sheet Alternative Project Delivery Method Construction Manager / General Contractor (CMGC) (ca.gov)
[5] Construction Manager/General Contractor (CMGC) Program | Caltrans

2.4 CMGC Limitations for BBGS Project

A CMGC contract is typically award after the completion of 30% design and as mentioned above, a key benefit of CMGC are the preconstruction services. However, with the BBGS Project at 65% Design, this limits some of the potential benefits typically seen during the preconstruction phase of the CMGC delivery method. Table 6 below summarizes the typical preconstruction services available under CMGC broken down into those still potentially beneficial and those of limited benefit to the BBGS Project based on the current design level.

Table 6. Summary of CMGC Preconstruction Services

Potentially Beneficial to BBGS Project	Limited Benefit to BBGS Project*
• Verify and prepare quantity takeoffs • Validate cost estimates • Prepare open book estimates • Award early, enabling construction work • Prepare cost risk analyses • Verify and prepare construction schedules • Coordinate with permitting agencies and third-party stakeholders • Verify environmental document commitments and mitigation requirements are met • Prequalify Project subcontractors Prepare Project subcontractor bid packages and secure subcontractors	• Input to design and constructability reviews • Encourage innovation • Conduct value engineering analyses *It is noted that implementing any of the above, although still possible the potential cost saving measures may not be recognized. For example, implementing a significant design change due to constructability reviews may cost more to implement than proceeding with the planned design.

It was agreed during the Project Delivery Evaluation Workshop, that even within the BBGS design level constraints, CMGC was still deemed a viable delivery method for the delivery method evaluation for the BBGS project. The broad benefits and versatility of CMGC particularly in relation to cost and schedule certainty and the advantageous benefits that experienced contractors could contribute in relation to final design and better risk allocation outweighs the limitations due to the current design level. Consequently, the evaluation between DBB and CMGC delivery methods proceeded.

2.5 Legislation Review

DBB has traditionally been used throughout the United States, and all 50 state codes have given full authority to transit agencies to use this method in their projects. However, alternative delivery methods do not have this clear statutory support. Some states do not allow transit entities to use alternative delivery methods, some have given one-time authority to use an alternative method for a special project, a group of states have put some limits on the application of alternative delivery methods, and a few states require transit agencies to obtain extra approval in order to use alternative methods.

Historically, California's public agencies have utilized DBB through a qualifications-based selection process to award design contracts and a separate competitive low-bid selection process to award a construction contract. Subject to the limitations of article 103395 (b) of California Public Utility Code Article 12, the district may utilize the CMGC project delivery method for public transit projects within its jurisdiction. The district may enter into a CMGC project delivery method if, after evaluation of the traditional DBB and CMGC delivery method in a public meeting, the district makes a written finding that use of the CMGC on the specific project will accomplish one or more of the following objectives:

- reduce project costs,
- expedite the project's completion, or
- provide features not achievable through the design-bid-build method.

In addition, this finding shall be made prior to the district entering into a CMGC project delivery method contract. In the CMGC project delivery method proposal, the written findings shall be included as part of an application for state funds for a transit project.

3. Evaluation Framework

Historically in the US, the significance of project delivery method selection has often been overlooked, resulting in Design-Bid-Build (DBB) as “traditional” delivery. While DBB can still be an effective solution it is not the only one and is increasingly not the most efficient or cost-effective option, particularly as the size and complexity of capital expansion projects has tended to increase over time. The process of determining the optimal delivery method for any given project depends on many factors such as project complexity, public policy goals, private sector interest, transfer of risks and value for money. The following methodologies are considered best practice when determining the optimal delivery method for a project.

3.1 TCRP 131 Evaluation Framework

In 2009, the Transit Cooperative Research Program (TCRP), a program sponsored by Federal Transit Administration (FTA), responded to the need for a more rational method to select the most appropriate project delivery method with the publication of “A Guidebook for the Evaluation of Project Delivery Methods” (TCRP Report 131). The aim of the guidebook is to help transit agencies such as Caltrain to evaluate and rank the various project delivery methods available to them in delivering their capital projects.

The report provides guidelines for the evaluation and selection of the most appropriate delivery method for any given project based on a three-tiered system as defined in the publication and outlined in Figure 3 and Table 7 below. Typically, Tier 1 analysis is sufficient for most transit projects with subsequent Tiers only utilized if no clear delivery method is identified through completion of previous tiers.

Figure 3. Summary of TCRP 131 Three-Tiered Project Delivery Methods Evaluation Approach

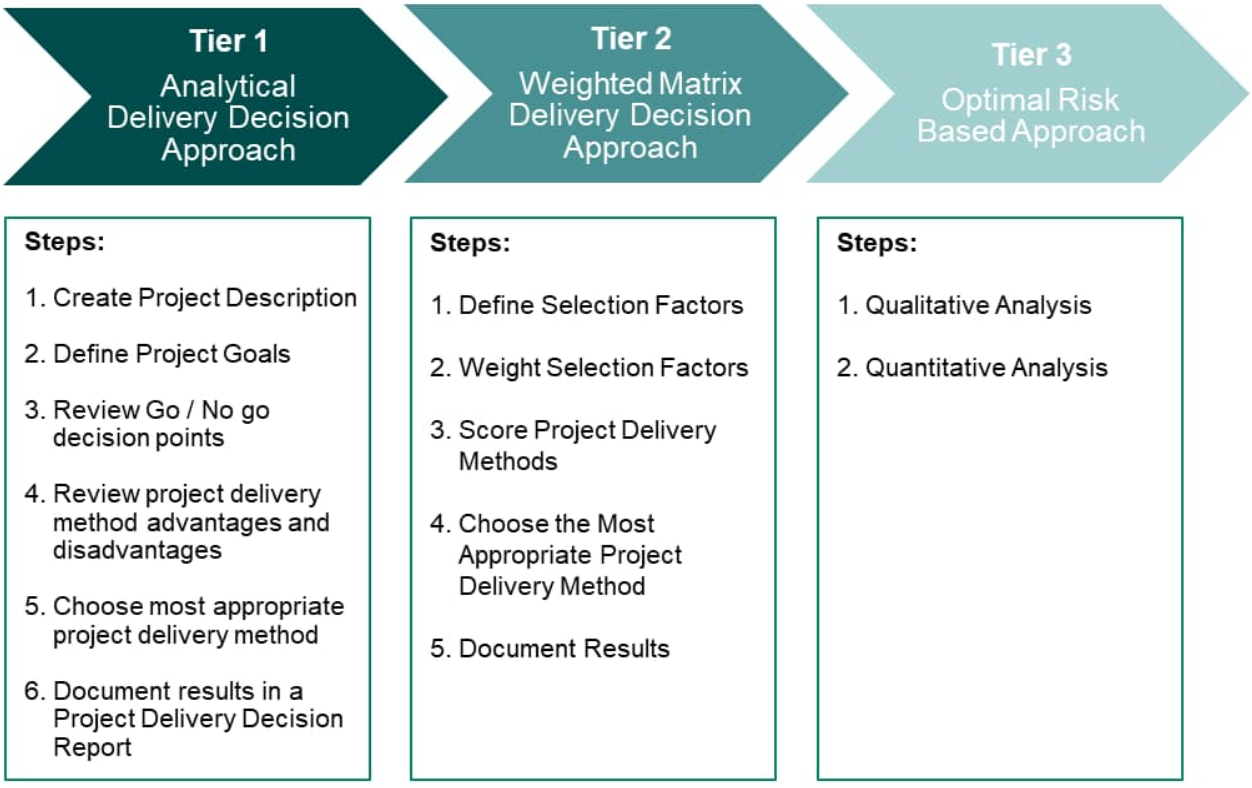


Table 7. Description of TCRP 131 Three-Tiered Project Delivery Methods Evaluation Approach

Tier	Description
1	**Analytical Delivery Decision Approach:** A primary step in selecting a preferred project delivery method is to decide on the suitability of the various project delivery methods under review using a consistent and systematic approach. TCRP's systematic methodology is based on an advantage/ disadvantage analysis. The advantage/ disadvantage analysis includes a set of critical issues that cover different aspects of the decision process and helps the decision makers understand their choices. In order to perform such analysis, a set of critical factors were developed, and a structured method applied so that the results are reliable including definition of project goals and a Go/ No Go review. A comprehensive analysis of the advantages and disadvantages of each delivery method is then performed with respect to the relevant aspects of the particular project. The advantage/ disadvantage analysis aims to identify a clear preference for a particular delivery method; this tier is further discussed in the following section.
2	**Weighted-Matrix Delivery Decision Approach:** The Weighted-Matrix Delivery Decision Approach, a secondary step, provides a means to further examine delivery methods. The Tier 2 approach involves prioritizing project objectives and selecting the delivery method that best aligns with these objectives. In the Tier 2 approach, the focus is on a few key parameters affecting the choice of project delivery method, assigning appropriate weights to each parameter and calculating a score for each remaining competing delivery method.
3	**Optimal Risk-Based Approach:** An Optimal Risk-Based Approach will generally be used only when the completion of the Tier 1 and Tier 2 approaches do not yield a specific project delivery decision and when a formal risk management process for the project is already in place. The Tier 3 approach consists of a two phase qualitative and quantitative analyses. The first phase involves a qualitative analysis, developing a risk-allocation matrix that clearly portrays an owner's risk under competing delivery methods. The quantitative approach emphasizes the effect of the project delivery method on project cost and schedule.

For the purposes of this assignment, AECOM completed all six steps of Tier 1 analysis. Sections 4 and Section 6 describe this work executed for Steps 1 through 5, along with the rationale for any assumptions and decisions made. This report represents Step 6 of this evaluation methodology.

Modifications that have been made to the TCRP methodology were as agreed during the November 18th Project Delivery Evaluation Workshop. This included the addition of two additional criterion of specific concern to BBGS Project.

3.2 Caltrans Evaluation Framework

In 2008, Caltrans published their Alternative Procurement Guide, the purpose of this guide is to provide a framework of alternative methods for contracting and procurement of work for capital projects. This guide provides project staff with the tools necessary for project selection of appropriate procurement method through it's Project Selection Tool. In addition, this guide provides alternative project development practices and construction management methods that may generate expedited project delivery, enhanced cost control, improved quality, and allow use of innovative materials, methods, and processes.

Project Selection Tool provides a methodology and scoring tool for selecting the most appropriate project delivery method through evaluation of critical information such as project size, complexity, the level of design, constraints,

impacts, schedule issues, quality issues, cost issues, and staffing issues. The project selection tool uses a four-step approach to the project delivery decision as shown in Figure 4 and explained in Table 8.

Figure 4. Caltrans Four Step Approach to Project Delivery

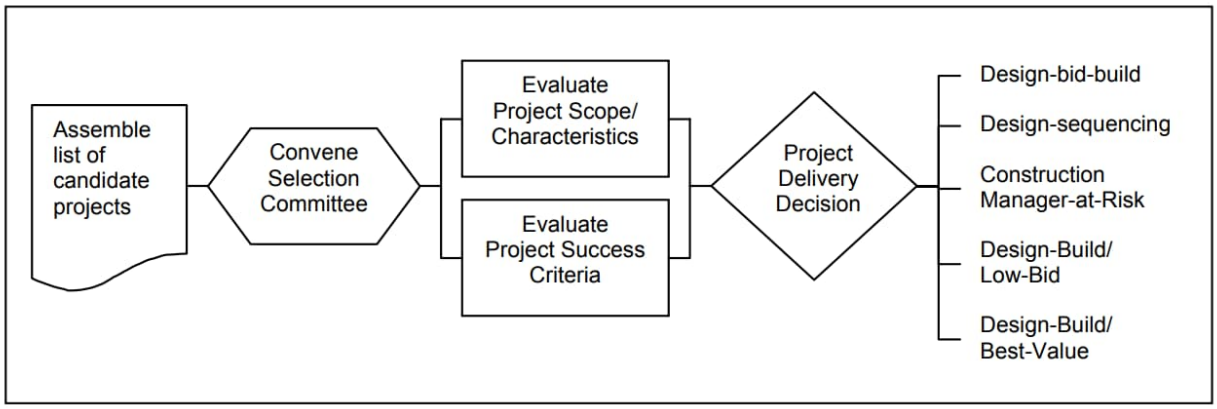


Table 8. Description of Caltrans Project Delivery Methods Evaluation Approach

Step	Description
1	**Assemble List of Candidate Projects:** The project selection tool can be used on projects of any type or size and with a variety of project goals. It can be used on only one project, but the results will be most useful if multiple projects are analysed in a comparative fashion. Critical information for each project involves knowledge of the project size, project complexity, the level of design, unique project constraints, unique project impacts, schedule issues, opportunities for innovation, quality issues, cost issues, and staffing Issues.
2	**Convene Selection Committee:** The choice of an appropriate project delivery system is a complex decision involving many variables. Although a single person could answer all of the project selection tool questions, it is advisable to adopt a team approach due to the wide range of project characteristics and success criteria needed to determine the project delivery selection. The team approach, in addition to being required to obtain an accurate selection, will also facilitate a meaningful dialogue and common understanding of the delivery decision.
3a	**Evaluate Project Success Factors:** Multiple choice questionnaire which contains nine questions concerning project scope and project characteristics. Some of the questions are objective and easily answered depending upon the current state of the project scope and characteristics (e.g., current stage in project development). Other questions are more subjective and will benefit from a group discussion and a comparison with other projects (e.g., significance of impacts to highway users).
3b	**Evaluate Project Success Factors:** Similar to the project characteristic questions, this is a multiple-choice questionnaire with 15 project success criteria which contains both objective and subjective questions which are best answered in a committee forum.
4	**Make Project Delivery Decision:** The most appropriate project delivery system will be indicated by the highest score. Additionally, some project delivery systems may be eliminated (with a “no-go” response) based upon unique project characteristics. When there is a significant difference in the project delivery scores, the decision will be apparent. However, when scores are similar, the selection committee will need more deliberation on the final choice of project delivery system. The

Step	Description
	selection committee should keep in mind that the scoring is a simplification of the decision provided to facilitate a meaningful and organized discussion. Unique characteristics, or particularly success factors, may cause the committee to override the selection suggested by the scoring system.

For the purposes of this assignment, AECOM completed all four steps of the analysis. Section 5 describes this work as executed to date for Steps 1 through 3b, along with the rationale for any assumptions and decisions made. Section 6 describes Step 4, the results of this evaluation.

In relation to Step 3a and 3b, the Alternative Procurement Guide indicates that the scoring is a simplification of the decision provided to facilitate a meaningful and organized discussion and that the unique characteristics, or particularly success factors, may cause a committee to override the selection suggested by the scoring system. Due to unique project characteristics, modifications that have been made to the Caltrans methodology as were agreed during the November 18th Project Delivery Evaluation Workshop which included overriding the selection scoring system for particular questions. This is further discussed in Section 5.

4. BBGS Evaluation using TCRP 131

The following section presents the results of the project evaluation utilizing the TCRP 131 along with the rationale for all decisions.

4.1 TCRP 131 - Tier 1

4.1.1 Step 1 Project Description

The first step in Tier 1 involves the creation of a concise project description that serves to communicate important project characteristics to decision makers and facilitates further evaluation. This was discussed with Caltrain, San Mateo County Transit Authority, and City of Burlingame, at the November 18th Workshop in relation to the BBGS project. The following general conclusions were reached.

1.5-mile Project area from just north of Oxford Road to just north of Oak Grove Avenue, between California Drive and Carolan Avenue and just north of Rollins Road to north of Paloma Drive along Broadway. Broadway is the main artery in and out of the City of Burlingame from U.S. Highway 101. Project will eliminate an the existing at-grade railroad crossing at Broadway, between California Drive and Carolan Avenue and will include:

- Realigning and reconstructing the existing two-track railroad on elevated structure
- Reconstructing the existing Broadway station on the elevated track structure, providing a central boarding platform which is ADA compliant
- Reconfiguring station parking; and
- Providing pedestrian/bicycle access improvements.

See Appendix D Section D.1 for a detailed project description.

4.1.2 Step 2 Project Goals

Defining and communicating a concise set of project goals is an important element in selecting an appropriate project delivery method and also provides a framework for measuring project success over time. During the Project Delivery Evaluation Workshop, project goals were viewed, and workshop participants identified two overarching project goals, namely 1) increase project certainty and 2) enhanced safety in the vicinity of the project.

Increase Project certainty – This can be attributed to both cost and schedule project goals. Obtaining a better or earlier idea of the project costs and schedule provides a higher degree of certainty on the project. This is deemed favourable for both the public agencies of Caltrain, San Mateo County Transit Authority, and City of Burlingame and for the public. This goal albeit to a lesser degree, also relates to value for money and return on Investment.

Enhance safety in the vicinity of the project – An overarching goal of the project is enhancing safety for all modes of transportation including transit, vehicle, and pedestrian. With numerous conflicting modes, and high incident rates the resulting impacts to the community and emergency services are significant. Achieving this overarching goal is paramount for a successful project. Additionally, with more than 10,000 at-grade railroad crossings throughout the state, the California Public Utilities Commission ranks this project as it's top priority. A key portion of this overarching goal is minimizing impacts to community and existing businesses; and improving facilities for surrounding communities.

Theoretically, the above overarching goals can be broken down into multiple specific project goals however, for the purpose of this evaluation they are deemed to provide the necessary focus to measure the project success in terms of project delivery evaluation. The full tabulated list of Project goals reviewed and agreed to by the Workshop participants is included in Appendix D Section D.2.

4.1.3 Step 3 Go/ No Go

Among the many issues and challenges that affect the project delivery decision, there are certain “fatal flaws” which could render one or more delivery methods inappropriate. For example, for projects that are part of or within a network of existing Caltrain services such as this project, the transfer of Operations to a private entity – whereby a single station would be divided among two operators – is impractical.

At Caltrain’s request, for the Project, the analysis of potential alternative project delivery methods was limited to the CMGC method. At this time, Caltrain is only considering applying the CMGC Project Delivery Method as the Project Designer has already been engaged and design has progressed to 65% making selection of DB scenarios impractical. Therefore, in addition to the baseline DBB method, only the CMGC method was evaluated using the TCRP Report 131.

4.1.4 Step 4 Review Advantages and Disadvantages

This Step involves the assessment of a standard set of criteria (issues) affecting a project, and broadly, the ability of each delivery method to achieve project goals in relation to each of these criteria. The TCRP Report outlines 24 criteria, grouped into five categories: Project-level; Agency-level; Public policy/regulatory; Lifecycle; and Other.

An assessment of the relevance of each of these criteria was performed during the Project Delivery Evaluation workshop so as to best refine the methodology to this assignment. Consequently, a number of modifications were made to the list of criteria including the removal or scored equally of any criteria that do not distinguish among delivery methods, and the inclusion of additional criteria deemed relevant to this Project needs as summarized below:

- LEED Certification for building rating was removed from the evaluation as it was deemed not appropriate for this project.
- Project Size, Staff Capability, Agency Control, DBE Impacts, Labor Unions, Federal/ State/ Local Laws, FTA/ EPA Regulations, Lifecycle Costs, Maintainability and Sustainable Design Goals were equally scored given the importance of such considerations across all forms of delivery and the lack of any distinct advantages or disadvantages between the two methods.
- Based on the nature of the Project, the following new criteria were included:
  - Geotechnical, and
  - Environmental

A full description of each of the 24 criteria considered under Step 4 of this assignment is presented in Appendix D Section D.3 to this report. Each criterion was then assessed by workshop participants. The Step 4 qualitative scoring system presented in the TCRP Report was modified for this evaluation and a quantitative scoring system summarized in Table 9 below was utilized.

Table 9. Modified TCRP project evaluation scoring

Score	Rating
3	Most appropriate delivery method
2	Appropriate delivery method
1	Least appropriate delivery method
0	Fatal Flaw – Discontinue evaluation of Delivery Method
NA	Issue Not applicable or not relevant to this evaluation

The following section presents the results of the evaluation along with the rationale for all decisions. Typically, there is no one delivery method that is appropriate for every project. The objective of this examination of the advantages and

disadvantages of the delivery methods is to determine how well each potentially viable method aligns with project goals, characteristics and challenges.

Table 10. Results of the TCRP Project Delivery Method Evaluation

	Criteria	DBB Rating	CMGC Rating	Comment
Project Level Criteria				
1	Project Size	2	2	The project's size and complexity is appropriate for all forms of project delivery
2	Costs	2	3	CMGC fairs better under this criterion primarily to due to the high likelihood of incurring significant change orders in relation to a project of this scope when considering specifics such as creek relocation, and electrified corridor. The Agency would bear these risks and associated cost overruns under DBB however, under CMGC the contractor is motivated to work with the Agency to mitigate and minimize such change orders
3	Schedule	1	3	CMGC fairs better under this criterion primarily to due 1) Reduced change orders (similar to the Cost Criteria under CMGC), 2) Potential to optimize and shorten the project schedule, generally not obtainable under DBB and 3) Concurrent procurement process with Design allows a contractor to start construction earlier then DBB where procurement commences only after 100% design
4	Risk Management	1	3	Whereas DBB requires the owner agency to control all project interfaces and the majority of its risks, CMGC allow these risks to be identified early, negotiate and shared with a contractor. CMGC provides a better approach to risk management than DBB
5	Risk Allocation	1	3	The aim of this risk apportionment process is to allocate each risk to the party that is best placed to manage and mitigate it. Sharing of individual risks is also possible under CMGC through pain share / gain share mechanisms. As a result, if structured appropriately, CMGC provides a better approach to risk allocation than DBB
Agency-Level Criteria				
6	Agency Experience	3	1	The Agency is highly experienced with DBB delivery, and with the Agency currently in the procurement phase of its first CMGC contract, DBB fairs better under this criterion
7	Staffing Required	3	2	The rationale for the assessment of this criterion is similar to that outlined for criteria 6 in addition, the Agency will utilize consultants and seconded staff per its standard practise
8	Staff Capability	2	2	Staff capability is appropriate for all forms of project delivery with the key assumptions that no unqualified staff or contractor would be brought onboard
9	Agency Goals and Objectives	2	3	The Agency goals and objectives can be described in broad terms as providing increase project certainty and enhancing safety to the community. While all forms of project delivery can be structured to target this goal, the potential

	Criteria	DBB Rating	CMGC Rating	Comment
				benefits that CMGC can provide in terms of accelerated delivery, certainty of on time and on budget completion, and warranties for asset quality are of paramount importance
10	Agency Control of Project	2	2	Agencies control of the project remains the same between DBB and CMGC, no distinguishing advantages or disadvantages
11	Third-Party Agreement	2	3	This criterion assesses the ability of each delivery method to facilitate relevant agreements with third parties such as political entities, utilities, railroads involved in the progress of the project. Due to the nature of this project's corridor, it is assumed that the definition of relevant interface agreements will be relatively straight forward compared to more complex projects of this size. However, there is an upward trend toward CMGC based on premise that a contractor motivated to work collaboratively can mitigate the chances of change orders or schedule delays
Public Policy/ Regulatory Criteria				
12	Competition	2	3	Due to the size and nature of this project all delivery methods are likely to attract strong interest and competition from private sector bidders. Note that while DBB may encourage low bid strategies, this can often end up costing more due to the selected contractor relying on change orders to be made whole. CMGC is preferred due to the recent interest expressed by multiple major contractors for this delivery method and the clarity of trisk
13	DBE Impacts	2	2	Between these four criteria, there are no distinguishing advantages or disadvantages between the delivery methods. The Agency's needs and preferences can be met equally well by all delivery methods, and that there are no legal or policy constraints that would impede the use of any particular delivery method. The FTA accepts all types of project delivery methods, although its processes vary in each case
14	Labor Unions	2	2	
15	Federal/ State/ Local Laws	2	2	
16	FTA/ EPA Regulations	2	2	
17	Stakeholder/ Community Input	2	3	A proactive approach to stakeholder and community outreach is part of and essential to all delivery methods. While alternative delivery contracts can help to frame these issues in a transparent manner early in the delivery process, this project is deemed to have largely completed much of the stakeholder/ community outreach however, any further outreach could benefit from a contractor's participation which can typically be facilitated by CMGC
Lifecycle Criteria				
18	Lifecycle Costs	2	2	At this stage of design among these three criteria, there are no distinguishing advantages or disadvantages between the two delivery methods. It is noted that there are advantages with CMGC through preconstruction services where an experienced contractor can provide input however, opportunities are limited or unlikely to be realized at this stage of Design
19	Maintainability	2	2	
20	Sustainable Design Goals	2	2	

Criteria		DBB Rating	CMGC Rating	Comment
21	Sustainable Construction Goals	2	3	CMGC method can incentivize the contractor to construct the Project both for constructability and sustainability
Other Criteria				
22	Construction Claims	1	3	DBB projects typically suffer from a higher rate of construction claims - where the risk of cost and schedule overruns are generally borne by the Agency, than alternative delivery such as CMGC. Additionally, DBB may encourage low bid strategies, this can often end up costing more due to the selected contractor relying on change orders to be made whole
23	Adversarial Relationships	1	3	Under DBB the most common adversarial relationship issues arise between the designer and contractor, which are engaged by the owner separately and will often disagree in relation to the root cause of change orders that arise during construction. Under CMGC the designer and contractor, are also engaged separately however, the contractor is motivated to work with the designer to resolve issues and with the contractor participation before 100% design, this can help reduce potential issues later encountered in construction
24	Geotechnical	1	3	Under DBB delivery geotechnical risk is typically retained by the owner. A greater extent of risk sharing is possible using alternative delivery methods such as CMGC. The contractor is typically more cost effective at managing this risk unless it is known to be very low or abnormally high, which does not apply in the case of this project
25	Environmental	2	3	Like criterion 24, under DBB delivery environmental risk is typically retained by the owner. A greater extent of risk sharing is possible using alternative delivery methods such as CMGC. Sharing of individual risks is also possible under CMGC through pain share / gain share mechanisms. As a result, if structured appropriately, CMGC provides a better delivery method
Tier 1 Total Rating Score		**46**	**62**	Summing all rating scores across five categories: Project-level; Agency-level; Public policy/regulatory; Lifecycle; and Other indicate CMGC is the optimal delivery method for this Project

Table 10 shows the scoring summary for the TCRP evaluation methodology assessed during the Workshop. The results from the evaluation and scoring are summarized below.

Table 11. Summary of TCRP 131 Project Delivery Method Evaluation

TCRP 131 Category	DBB	CMGC
Project Level Criteria	7	14
Agency Level Criteria	14	13
Public Policy/ Regulatory Criteria	12	14
Life Cycle Criteria	8	9

TCRP 131 Category	DBB	CMGC
Other Criteria	5	12
Tier 1 Total Rating Score	**46**	**62**

Based on the results of the TCRP 131 project delivery method evaluation summarized above, the CMGC project delivery method will best achieve the project goals and objectives including project costs certainty, and expedited schedule. This is discussed further in Section 6.1 Evaluation Results.

5. BBGS Evaluation using Caltrans

The following section presents the results of the project evaluation utilizing the Caltrans methodology along with the rationale for all decisions.

5.1.1 Step 1 Candidate Project

Similar to TCRP evaluation methodology, the first step in Caltrans evaluation involves the creation of a concise project description that serves to communicate important project characteristics to for the evaluation. Refer to Section 4.1.1 Step 1 Project Description for general description and see Appendix D Section D.1 for a detailed project description.

5.1.2 Step 2 Convene Selection Committee

The choice of an appropriate project delivery system is a complex decision involving many variables. Although a single person could perform the Caltrans methodology, and answer all of the project selection tool questions, it is advisable to adopt a team approach due to the wide range of project characteristics and success criteria needed to determine the project delivery selection.

The participants in the Workshop as discussed in Section 1.2, forms the Selection Committee for this evaluation. This approach, in addition to being required to obtain an accurate selection, facilitated a meaningful dialogue and common understanding of the delivery decision.

5.1.3 Step 3a - Evaluate Project Success Factors

The following section presents the results of the multiple-choice questionnaire concerning project scope and project characteristics along with the rationale for all decisions. Some of the questions were objective requiring minimal discussion, the more subjective questions generally involved informative group discussion summarized below.

Table 12. Caltrans 1-C – Worksheet 1 – Evaluation of Project scope and characteristics

Project Scope & Characteristic Criteria		DBB Score		CMGC Score		Comment
1a)	**Where is the project in the project development process?**	1a)	10	1a)	No-Go	As stated in the Alternative Procurement Guide, the scoring is a simplification of the decision provided and that the unique characteristics, or particularly success factors, may cause a committee to override the selection suggested by the scoring system. It was agreed that this project was in detailed or final engineering stage and multiple-choice A was selected resulting in a "No-Go" scoring for CMGC. However, it was agreed that the broad benefits and versatility of CMGC particularly in relation to cost and schedule certainty and the advantageous benefits that experienced contractors could contribute in relation to final design, outweighs the limitations due to current design level. As such, the selection scoring system of "No-Go" was overridden and a score of zero was given to the CMGC Score.
A*	*A Detailed or final engineering stage*	*A*	*10*	*A*	*No-Go*	
	B Preliminary design	*B*	*5*	*B*	*5*	
	C Conceptual engineering stage	*C*	*0*	*C*	*10*	

	Project Scope & Characteristic Criteria	DBB Score	CMGC Score	Comment
1b)	**What is the size/complexity of the project?**	1b) 5	1b) 5	Project is deemed to be of medium size project with more technically complex components as many specialized expertise needed along the electrified corridor
B	*A Relatively simple, smaller project with no need for specialized outside expertise*	*A 10*	*A 0*	
	B Medium size project with more technically complex components and schedule complexity	*B 5*	*B 5*	
	C Large, complex project with significant schedule complexity (e.g. multiple phases, extensive third-party issues, specialized expertise needed)	*C 0*	*C 10*	
1c)	**Does the project involve significant impacts to highway users and local businesses/community during construction?**	**1c) 0**	**1c) 5**	Considered more than typical as the Broadway corridor between U.S. Highway 101 and California Drive is heavily travelled and is the most congested roadway in Burlingame
B	*A No more than typical*	*A 5*	*A 0*	
	B More than typical	*B 0*	*B 5*	
	C Much more than typical	*C 0*	*C 10*	
1d)	**Does the project present right-of-way limitations that would benefit from the construction manager or design-builder's assistance?**	**1d) 0**	**1d) 5**	The project is deemed to have more than typical ROW requirements
B	*A No more than typical*	*A 5*	*A 0*	
	B More than typical	*B 0*	*B 5*	
	C Much more than typical	*C 0*	*C 10*	
1e)	**Does the project present environmental permitting issues that would benefit from the construction manager or design builder's assistance?**	**1e) 0**	**1e) 5**	Considered more than typical due to the realignment Easton Creek
B	*A No more than typical*	*A 5*	*A 0*	
	B More than typical	*B 0*	*B 5*	
	C Much more than typical	*C 0*	*C 10*	
1f)	**Does the project present utility or third-party issues that would benefit from the construction manager or design-builder's assistance?**	**1f) 0**	**1f) 5**	Considered more than typical due to UPRR tenant agreement and utilities

Project Scope & Characteristic Criteria		DBB Score	CMGC Score	Comment
B	*A No more than typical*	*A 5*	*A 5*	
	B More than typical	*B 0*	*B 5*	
	C Much more than typical	*C 0*	*C 10*	
1g)	**Does the project present unique work restrictions or traffic maintenance requirements that would benefit from the construction manager or design-builder's assistance?**	**1g) 0**	**1g) 5**	Considered more than typical due to the tight long construction site along active railway and within an electrified corridor
B	*A No more than typical*	*A 5*	*A 0*	
	B More than typical	*B 0*	*B 5*	
	C Much more than typical	*C 0*	*C 10*	
1h)	**Would the project benefit by packaging features of work to allow early lock-in of construction materials/ labor pricing?**	**1h) 0**	**1h) 10**	Considered more to much more than typical as early procurement could help avoid/ reduce inflation and mitigate the current supply change challenges
B	*A No more than typical*	*A 5*	*A 5*	
	B More than typical	*B 0*	*B 10*	
	C Much more than typical	*C 0*	*C 10*	
1i)	**Would the project benefit by raising quality standards/ benchmarks to minimize maintenance and achieve lower life-cycle cost?**	**1i) 5**	**1i) 0**	Considered no more than typical
A	*A No more than typical*	*A 5*	*A 0*	
	B More than typical	*B 0*	*B 5*	
	C Much more than typical	*C 0*	*C 10*	
Project Characteristics Subtotal (Total questions 1a-1i)		**20**	**40**	Summing all rating scores across all questions indicate CMGC is the optimal delivery method for this Project
*Represents the multiple-choice category selected (relates to all green shaded boxes within this table)				

5.1.4 Step 3b - Evaluate Project Success Factors

The following section presents the results of the multiple-choice questionnaire concerning project success criteria along with the rationale for all decisions. Similar to Step 3a, some of the questions were objective requiring minimal discussion, the more subjective questions generally involved informative group discussion summarized below.

Table 13. Caltrans 2-D – Worksheet 2 – Evaluation of success criteria

Project Success Criteria		DBB	CMGC	Comment
2a)	**Schedule Issues**			
1	**Can time-savings be realized through concurrent design**	**2a) - 1 0**	**2a)-1 2**	Considered more than typical with the time savings by bring the contractor onboard before

Project Success Criteria			DBB		CMGC		Comment
	and construction activities (fast-tracking)?						100% Design (Preconstruction services) and concurrently finalizing fixed price for construction
B*	*A*	*No more than typical*	*A*	*5*	*A*	*0*	
	B	*More than typical*	*B*	*0*	*B*	*2*	
	C	*Much more than typical*	*C*	*0*	*C*	*5*	
	2	**Can the schedule be compressed?**	**2a)-2**	**0**	**2a)-2**	**2**	Considered more than typical for similar reasons as 2a in addition, contractor expertise prior to 100% during design allows for potential schedule optimization in terms of traffic management, construction means and methods
B	*A*	*No more than typical*	*A*	*5*	*A*	*0*	
	B	*More than typical*	*B*	*0*	*B*	*2*	
	C	*Much more than typical*	*C*	*0*	*C*	*5*	
2b)	**Opportunity for Innovation**						
	1	**Will the project scope allow for innovation (e.g., alternate designs, traffic management, construction means and methods, etc.)**	**2b)-1**	**0**	**2b)-1**	**2**	Considered more than typical as the contractor expertise prior to 100% design allows for potential schedule optimization in terms of traffic management, construction means and methods. It is understood that innovation during design has limited potential with the design at 65% Design
B	*A*	*No more than typical*	*A*	*5*	*A*	*0*	
	B	*More than typical*	*B*	*0*	*B*	*2*	
	C	*Much more than typical*	*C*	*0*	*C*	*5*	
	2	**Must the project scope be primarily defined in terms of prescriptive specifications (i.e., predetermined materials and methods), or can performance specifications (expressing desired end results) be used, or a combination of both?**	**2b)-2**	**0**	**2b)-2**	**5**	Combination of prescriptive and performance specifications can and will be utilized for this project
B	*A*	*Primarily prescriptive specifications*	*A*	*5*	*A*	*5*	
	B	*Combination of prescriptive and performance specifications*	*B*	*0*	*B*	*5*	
	C	*Performance specifications for significant elements*	*C*	*0*	*C*	*2*	
2c)	**Quality Enhancement**						
	1	**Will there be opportunities for contractors to provide materials or methods that provide greater value than normally specified by the state on similar projects?**	**2c)-1**	**0**	**2c)-1**	**5**	Considered more than typical as the contractor expertise prior to 100% design allows for potential construction optimization in terms materials and construction means and methods. It is understood that innovation during design has limited potential with the design at 65% Design
B	*A*	*No more than typical*	*A*	*5*	*A*	*0*	
	B	*More than typical*	*B*	*0*	*B*	*5*	
	C	*Much more than typical*	*C*	*0*	*C*	*5*	
	2	**Will there be the opportunity for realization of greater value due to designs tailored to contractor's area of expertise?**	**2c)-2**	**5**	**2c)-2**	**0**	No more than typical with the design at 65% Design
A	*A*	*No more than typical*	*A*	*5*	*A*	*0*	
	B	*More than typical*	*B*	*0*	*B*	*2*	
	C	*Much more than typical*	*C*	*0*	*C*	*5*	

	Project Success Criteria		DBB		CMGC		Comment
	3	**Will warranties or maintenance agreements be used?**	**2c)-3**	**0**	**2c)-3**	**5**	Intended to use limited to short-term workmanship and materials
B	*A*	*No*	*A*	*5*	*A*	*0*	
	B	*Limited to short-term workmanship and materials*	*B*	*0*	*B*	*5*	
	C	*Much more than typical*	*C*	*0*	*C*	*5*	
2d)	**Cost Issues**						
	1	**Will there be opportunities for contractors to provide designs with lower initial construction costs than those typically specified by the state?**	**2d)-1**	**5**	**2d)-1**	**0**	No more than typical with the design at 65% Design
A	*A*	*No more than typical*	*A*	*5*	*A*	*0*	
	B	*More than typical*	*B*	*0*	*B*	*2*	
	C	*Much more than typical*	*C*	*0*	*C*	*5*	
	2	**Will there be opportunities for contractors/subcontractors to provide alternate design concepts with lower lifecycle costs than those typically specified by the state?**	**2d)-2**	**5**	**2d)-2**	**0**	No more than typical with the design at 65% Design
A	*A*	*No more than typical*	*A*	*5*	*A*	*0*	
	B	*More than typical*	*B*	*0*	*B*	*5*	
	C	*Much more than typical*	*C*	*0*	*C*	*5*	
	3	**Is funding for the project committed and available?**	**2d)-3**	**5**	**2d)-3**	**0**	Funding is currently secured for design phase only
A	*A*	*Secured for design phase only or cannot support accelerated construction*	*A*	*5*	*A*	*0*	
	B	*Funding can accommodate fast tracking to some extent*	*B*	*0*	*B*	*2*	
	C	*Funding will accommodate compressed schedule/fast tracking*	*C*	*0*	*C*	*5*	
	4	**Will the cost of procurement affect the number of bidders?**	**2d)-4**	**2**	**2d)-4**	**2**	Given the size of this project procurement cost could affect the number of bidders
B	*A*	*Procurement cost would significantly limit competition*	*A*	*0*	*A*	*5*	
	B	*Procurement cost could affect the number of bidders*	*B*	*2*	*B*	*2*	
	C	*Procurement cost would not be a significant issue given the size or complexity of the project*	*C*	*5*	*C*	*0*	
	5	**Will project budget control benefit from the use of formal contingencies?**	**2d)-5**	**0**	**2d)-5**	**5**	A formal contingency is required to allow the Agency to maximize project scope and quality within the constraints of its published budget. This is considered standard practise for federally funded projects
C	*A*	*No benefit*	*A*	*5*	*A*	*0*	
	B	*A formal contingency may permit the Department to add project scope or enhance quality within the constraints of its published budget*	*B*	*0*	*B*	*2*	

		Project Success Criteria	DBB		CMGC		Comment
	C	*A formal contingency is required to allow the Department to maximize project scope and quality within the constraints of its published budget.*	C	0	C	5	
2e)	**Staffing Issues**						
	1	**Does the Department have the expertise and resources necessary for a complicated procurement process?**	**2e)-1**	**0**	**2e)-1**	**2**	The agency is considered to have limited resources and expertise.
B	A	*Inadequate resources or expertise*	A	5	A	0	
	B	*Limited resources or expertise*	B	0	B	2	
	C	*Adequate resources and expertise*	C	0	C	5	
	2	**Are resources available to complete the design?**	**2e)-2**	**5**	**2e)-2**	**5**	Yes, the project has sufficient resources available to complete design
A	A	*Resources are available to complete design*	A	5	A	5	
	B	*Resources are available for partial design*	B	0	B	0	
	C	*Specialized expertise, not available in-house, is required*	C	No-Go	C	0	
	3	**Are resources available to provide construction oversight?**	**2d)-3**	**5**	**2d)-3**	**2**	Yes, the project has sufficient resources to provide construction oversight
A	A	*Resources are available*	A	5	A	2	
	B	*Full-time construction oversight could strain staff resources*	B	2	B	5	
	C	*Resources are unavailable*	C	No-Go	C	5	
Project Characteristics Subtotal (Total questions 2a-2e)			**32**		**37**		Summing all rating scores across all questions indicate CMGC is the optimal delivery method for this Project
*Represents the multiple-choice category selected (relates to all green shaded boxes within this table)							

The results from the multiple-choice questionnaires above (Table 12 and Table 13) from Step 3 of the Caltrans project evaluation are summarized below.

Table 14. Summary of Caltrans Step 3 of Project Delivery Method Selection

Multiple-choice Questionnaire	DBB	CMGC
Step 3a - Project Scope/ Characteristics Score	20	40
Step 3b - Project Success Factors Score	32	37
Sum of Step 3 Multiple-choice questionnaire	**52**	**77**

5.1.5 Step 4 Make Project Delivery Decision

Typically, there is no one delivery method that is appropriate for every project. Table 14 shows the ranking and scoring summary for the Caltrans evaluation methodology assessed during the Workshop. Based on the results of

the Caltrans project delivery method evaluation summarized above, the CMGC project delivery method will best achieve the project goals and objectives including project costs certainty, and expedited schedule. This is discussed further in Section 6.1 Evaluation Results.

6. Selected Project Delivery Method

6.1 Evaluation Results

Based on the results of both delivery method evaluation methodologies, the CMGC project delivery method will best achieve the project goals and objectives including project costs certainty, and expedited schedule. Table 15 shows the ranking and scoring summary for each methodology assessed during the Workshop.

Table 15. Summary of Evaluation Results

Evaluation Framework	DBB	CMGC	Identified Preferred Delivery Method
TCRP 131 Report - A Guidebook for the Evaluation of Project Delivery Methods	46	**62**	CMGC
Caltrans Alternative Procurement Guide - The Project Selection Tool	52	**77**	CMGC

Alternative project delivery such as CMGC is more than value engineering, early contractor involvement, and tailoring a solution to the contractor's preferred means and methods. Alternative project delivery allows the cost-effective sharing or transferring of varying amounts of risk and responsibilities to the contractor, provides opportunities to incentivize contractors to quickly resolve risks encountered during construction, and provides opportunities to expedite project implementation by means of multiple construction packages, streamlining costs and improving outcomes. The key benefits of CMGC as it relates to the BBGS project are described in the following sections.

6.2 BBGS Selected Project Delivery Benefits

6.2.1 Cost Benefits

Much of the cost benefits associated with CMGC are anecdotal references, the main exception being Portland, Oregon's Tri-Met (https://trimet.org/home/ or search "TriMet CMGC Resolution") which does post its Board Resolutions including detailed CMGC contract data. However, it is generally accepted, that the pre-construction fees and construction management fees range from 0.5 to 2.0 percent and 5 to 10 percent respectively, depending on the project size and complexity. Additionally, this construction management fee is not an additional project cost, as these costs are also included in a traditional DBB competitive low-price bid. CMGC has three main characteristics which could directly affect the project cost for BBGS Project:

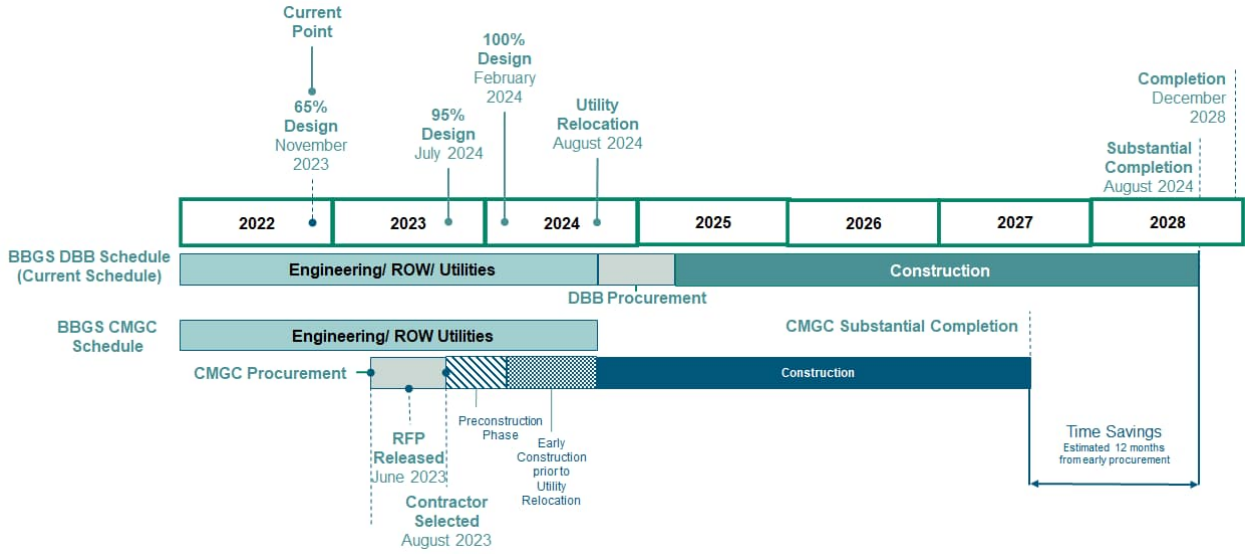
1. The contractor will be involved in the project before bidding the project out, which can result in cost savings due to early contractor input to the project. However, this benefit will be relatively limited for the BBGS Project as the design is at 65% Design allowing little room for cost savings/ value engineering. Nonetheless, it is expected to help the BBGS Project by providing cost certainty earlier in the project lifecycle.
2. This delivery method is usually combined with a fixed price payment mechanism which can result in competitive pricing through "open book" accounts. Usually, the owner can negotiate and set the fixed price before design is complete, which is earlier in the project lifecycle as compared to DBB and increases cost certainty. This benefit is still potentially available to the BBGS Project and helps provide cost certainty.
3. Potential schedule compression due to some overlap between design and construction can be an advantage of CMGC if the inflation rate has a significant effect on the project cost escalation. Even at this stage of design, this is still a potential benefit which can still be realized for BBGS Project especially under the current hyper inflation conditions.

6.2.2 Schedule Benefits

Similar to above, direct comparative data on schedule performance for CMGC as compared to DBB, are anecdotal however, past projects have shown that CMGC is faster and easier to procure, on average, than DBB. Several DOTs, including Caltrans, Nevada DOT (NDOT), Minnesota DOT (MnDOT), and UDOT have included qualitative assessments of schedule performance for DBB project delivery compared to CMGC delivery. This information was

utilized to perform a high-level assessment the BBGS indicative schedule assuming DBB against the potential CMGC schedule. The results of this schedule assessment are shown in Figure 5 below, see Appendix A Section A.2 for a larger image of the BBGS Indicative Project schedule under CMGC.

Figure 5. Project Indicative schedule under DBB and CMGC Delivery Method



Although it is generally recognized that a contractor as part of the design team can help to develop a more practical schedule for the project, this benefit is difficult to measure and as such no timesaving's have been considered in this high-level assessment; both schedules assume a 43-month construction duration. In addition, following Caltrain's recent progress with the procurement of CMGC for the Mountain View Transit Center Grade Separation and Access Project, six-month procurement CMGC was assumed, same as DBB. The above indicates the potential time saving for CMGC project delivery over DBB project delivery is approximately 12months. This potential timesaving was identified based on:

1. The early and concurrent procurement of a CMGC prior to 95% design completion milestone; and
2. The early start to construction prior to the completion of utility relocation - the completion of utility relocation is the trigger point to initiate the construction procurement process under DBB. Utilizing the CMGC, would allow the agency to start construction prior to utility relocation completion and they could benefit from CMGC participation and/ or management of the utility relocation.

It is noted that any potential timesaving will be largely reliant on the Agency continued commitment to the BBGS Project and prioritization of procurement process under CMGC.

6.2.3 Other Benefits

Other key benefits the BBGS Project could capitalise on under a CMGC deliver method is the additional experience contractors could contribute to include:

- Risk Management – CMGC allow these risks to be identified early, negotiated and shared with a contractor providing a better approach to risk management. CMGC allows the Agency to allocate each risk to the party that is best placed to manage and mitigate it as well as providing a platform to sharing distinct risks through pain share / gain share mechanisms. This could be particularly beneficial to the BBGS Project considering the difficult site constraints, unsuitable subgrade conditions and environmental requirements.
- Difficult Site Constraints – The BBGS Project is located along an electrified corridor, adjacent to two active temporary shoofly tracks within a limited footprint. These constraints would benefit from the knowledge and expertise a CMGC would bring particularly in terms of project schedule and staging.

- Unsuitable Subgrade Conditions – Poor subgrade conditions would benefit from the knowledge and expertise a CMGC would bring particularly in terms of construction means and methods - this risk would benefit from early identification and understanding to establish the most affect mitigation strategy to mange this risk.

7. Conclusion and Recommendation

The process of determining the optimal delivery method for any given project depends on many factors such as project complexity, public policy goals, private sector interest, transfer of risks and value for money. Even with the design level constraints, the consensus from the independent evaluation methodologies, deemed CMGC the most appropriate delivery method for the BBGS Project particularly in relation to:

- Cost Certainty
- Expedited Schedule
- Benefits that experienced contractors could contribute in relation to:
  - risk identification, management and allocation
  - difficult site constraints in an electrified corridor
  - Unsuitable subgrade conditions

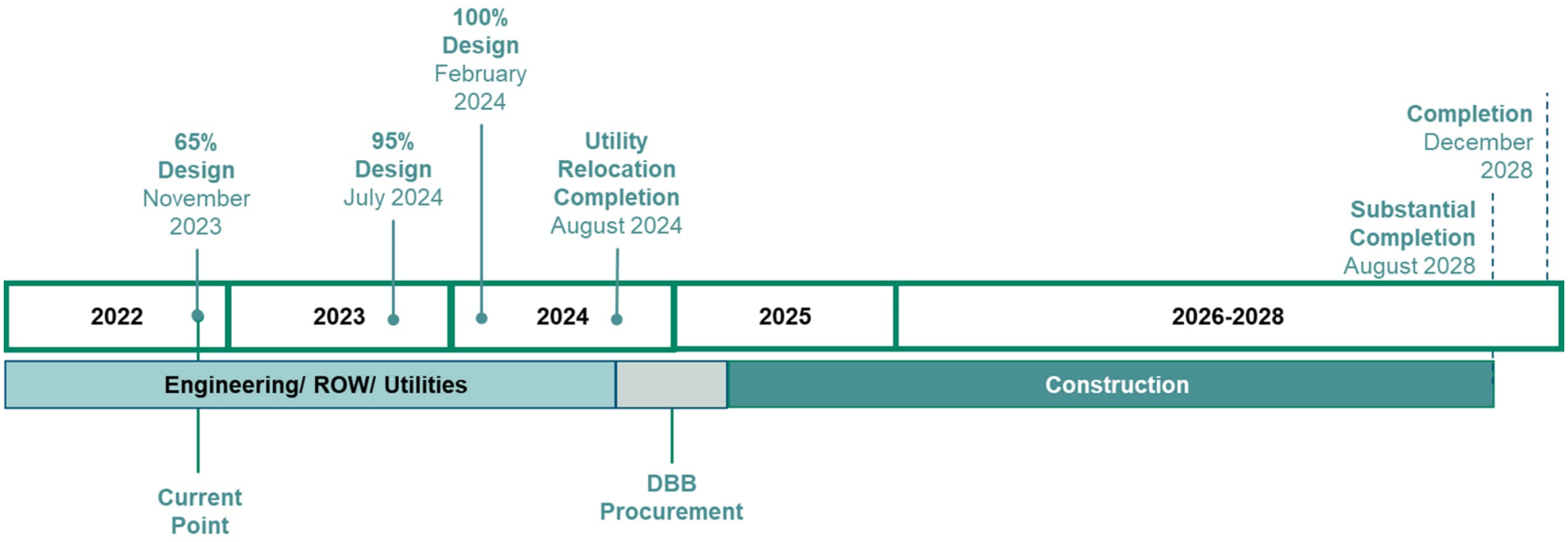
Other key benefits noted during the Project Delivery Method Evaluation Workshop were the reduced potential conflicts and claims and the improved Designer and Contractor relationship; the higher the level of adversarial relationships in a project, the more likely the project will suffer from cost, schedule, and quality problems. Accordingly, CMGC was deemed most appropriate reflecting the broad benefits and versatility of this delivery method particularly in relation to the above benefits; these net benefits were deemed to surpass those of DBB.

The following consists of the short-term next steps for the BBGS Project:

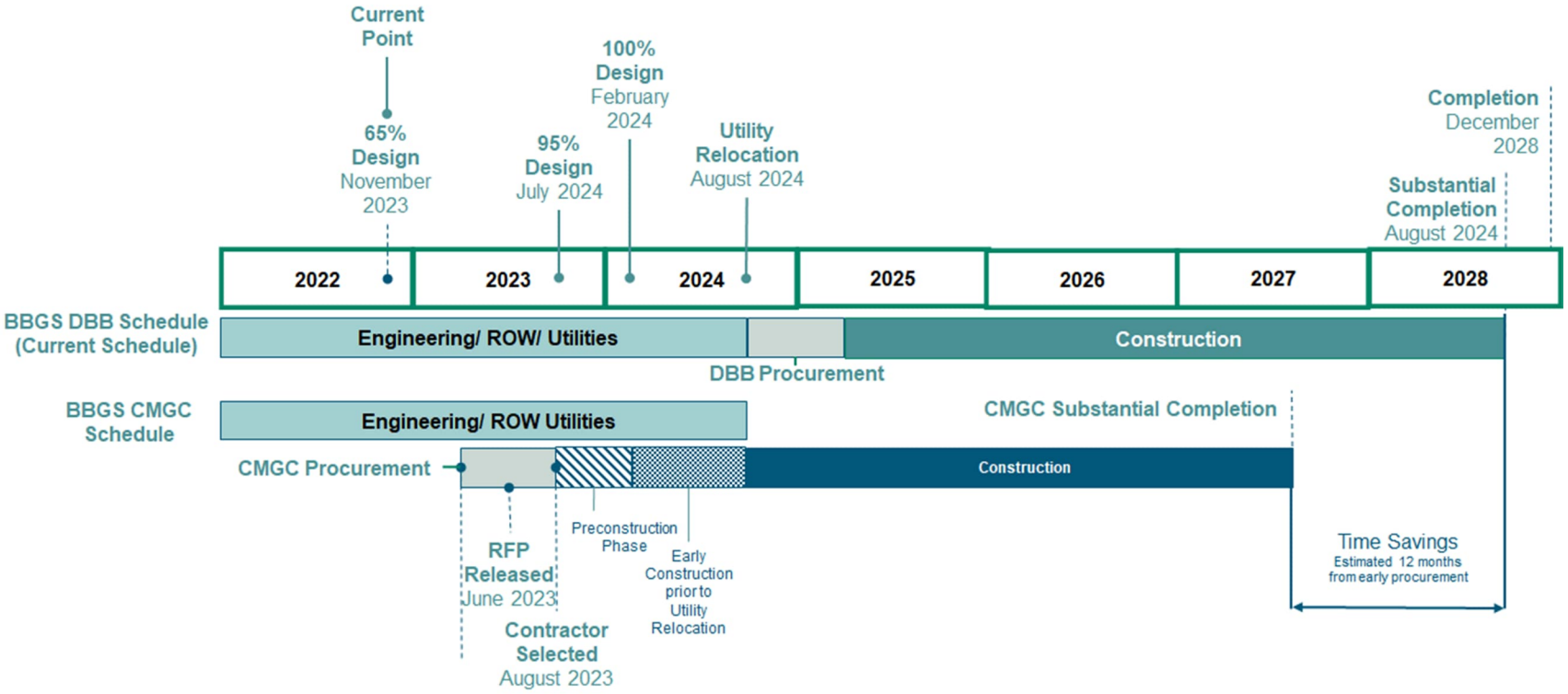
1. Review and approve the Project Delivery Method Evaluation Report
2. Prepare JPB Report Presentation Workshop, results, and project delivery recommendation
3. Conduct JPB meeting presenting the analysis and Project Delivery Method Evaluation Report
4. Secure JPB Board approval to authorize the preferred Project Delivery Method
5. Amend the existing Memorandum of Understanding (MOU) to incorporate the CMGC project delivery method and include the estimated pre-construction costs
6. Develop and issue the Request for Proposal (RFP) for the BBGS Project.

Appendix A Indicative Schedule

A.1 Indicative schedule under DBB Delivery Method



A.2 Indicative schedule under CMGC Delivery Method



Appendix B Project Delivery Evaluation Workshop Material

B.1 Workshop Agenda

Project Delivery Evaluation

Workshop Agenda

08:00 – 08:50	Introductions	
	Assignment and Purpose	
	Overview of the Project Delivery Method decision tools: • TCRP Report 131 Analytical Qualitative Assessment • Caltrans Quantitative Assessment	
08:50 – 09:45	High-level review of project site and requirements	
	Project Goals & Schedule Discussion	
	Project Risks Discussion	
09:45 – 10:15	Project Delivery Methods under evaluation: • Design Bid Build (DBB) • Construction Manager General Contractor (CMGC/ CM@Risk/ CMR)	
	Project Schedule	
	Delivery Method Considerations	
10:15 – 10:30	Break	
10:30 – 12:00	Delivery Method Evaluation using TCRP Report 131 Analytical Qualitative Assessment	All
12:00 – 13:00	Lunch	
13:00 – 13:30	Delivery Method Evaluation using TCRP Report 131 Analytical Qualitative Assessment Continued	All
13:30 – 14:30	Delivery Method Evaluation using Caltrans Quantitative Assessment	All
14:30 - 14:40	Break	
14:40 – 15:15	Workshop Wrap up	
	Next steps	

B.2 Attendance Sign-in Sheet

Broadway Grade Separation Project Workshop – November 18, 2022
Dining Room, *4th Floor*
08:00 AM – 04:00 PM
ATTENDANCE SIGN IN SHEET

Print Name	Title	Company	Phone	E-Mail Address
Alex Acenas	Senior Proj. Mgr.	Caltrain	(650) 730-0502	acenasa@caltrain.com
Arul Edwin	Senior Proj. Mgr.	Caltrain	(650) 622-7806	edwina@caltrain.com
Alvin Piano	Senior Proj. Mgr.	Caltrain	(650) 508-6447	pianoa@caltrain.com
Alfred Darmousseh	Mgr. Construction Svcs.	Caltrain	(650) 551-6120	darmousseha@caltrain.com
Andy Robbins	Dir. Cap. Proj. Deliv.	Caltrain	(650) 508-6410	robbinsa@caltrain.com
Zouheir Farah (via Teams)	Dir. Engineering	Caltrain	(650) 622-7819	farahz@caltrain.com
Rob Barnard	Deputy Chief Rail Dev't	Caltrain	(650) 508-7783	barnardr@caltrain.com
Lori Low	Gov't & Community Affairs	Caltrain	(650) 508-6391	lowl@caltrain.com
Andy Wong	Senior Civil Eng'r	City of Burlingame	(650) 558-7237	awong@burlingame.org
Heba El-Guindy	Deputy Director	SMCTA	(650) 508-6476	el-guindyh@samtrans.com
Susan Kehoe	Senior Risk Associate	AECOM	(514)775-2083	susan.kehoe@aecom.com
James Zingale	Senior Procurement Mgr.	AECOM	(646)429-2326	james.zingale@aecom.com
David Calver	Senior Proj. Mgr.	AECOM	(503)720-4395	david.calver@aecom.com
Derek Huang	Junior Engineer	AECOM	(408)772-9501	derek.huang@aecom.com

RETURN TO SUSAN WOON, JPB ENGINEERING

B.3 Workshop PowerPoint Presentation

Broadway Burlingame Grade Separation Project

Delivery Method Evaluation

NOVEMBER 18, 2022

18-J-P-042A PCJPB PROGRAM MANAGEMENT OVERSIGHT
WORK DIRECTIVE # 10764

1

AGENDA

- Introductions
- Assignment and Purpose
- Overview of the Project Delivery Method decision tools
- Project Description
- Project Goals & Schedule Discussion
- Project Risk Discussion
- Project Delivery Methods under evaluation
- Delivery Methods Considerations
- Workshop Wrap up
- Next steps

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AGENDA

- **Introductions**
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Introductions - AECOM

Susan Kehoe	Senior Risk Manager
James Zingale	Senior Procurement Manager
David Calver	Senior Project Manager
Derek Huang	Engineer

Session is being recorded to aid documentation

4

Introductions – Caltrain, SMCTA, City

Alex Acenas	Sr. Project Manager
Alvin Piano	Sr. Project Manager
Arul Edwin	Sr. Project Manager
Hubert Chan	Manager, Stations & Communications Maintenance
Alfred Darmousseh	Manager, Construction Services
Bin Zhang	Deputy Director, Engineering
Zouheir Farah	Director, Engineering (Remote via Teams)
Andy Robbins	Director, Capital Projects Delivery
Rob Barnard	Deputy Chief, Rail Dev't
Patrick Gilster	Manager, Planning & Programming, SMCTA
Andy Wong	Senior Civil Engineer, City of Burlingame
Lori Low	Government & Community Affairs
Heba El-Guindy	Deputy Director, SMCTA

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AGENDA

- Introductions
- **Assignment and Purpose**
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Assignment & Purpose

- **Perform evaluation of various Project Delivery Methods for BBGS Project**
- **Identify the preferred Project Delivery Method for BBGS project**
- Document Findings
- If required, prepare for a JPB Board Meeting in support of the BBGS Project

Expectations:

- Working session with active involvement of all key project personnel
- Identification of delivery methods advantage & disadvantages specific to Project
- Consensus on the evaluation rating of each Delivery Method

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AGENDA

- Introductions
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Established Decision Tools:

1. TCRP Report 131 Analytical Project Delivery Assessment
2. Caltrans Quantitative Project Delivery Method Selection

These tools inform the structure of today's workshop

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TCRP Report 131 Analytical Project Delivery Assessment

Tier 1 Analytical Delivery Decision Approach

Tier 2 Weighted Matrix Delivery Decision Approach

Tier 3 Optimal Risk Based Approach

Today's Workshop Focus

Steps:

1. Create Project Description
2. Define Project Goals
3. Review Go / No go decision points
4. Review project delivery method advantages and disadvantages
5. Choose most appropriate project delivery method
6. Document results in a Project Delivery Decision Report

Steps:

1. Define Selection Factors
2. Weight Selection Factors
3. Score Project Delivery Methods
4. Choose the Most Appropriate Project Delivery Method
5. Document Results

Tier 2 utilized only if Tier 1 does not establish a clear preferred project delivery method

Steps:

1. Qualitative Analysis
2. Quantitative Analysis

Tier 3 utilized only if Tier 1 and 2 do not establish a clear preferred project delivery method

Modified to tailor it to BBGS Project

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TCRP Report 131 Analytical Project Delivery Assessment

Tier 1 Analytical Delivery Decision Approach

Today's Workshop Focus

Steps:

1. Create Project Description
2. Define Project Goals
3. Review Go / No go decision points
4. **Review project delivery method advantages and disadvantages**
5. Choose most appropriate project delivery method
6. Document results in a Project Delivery Decision Report

Project-level Issues

1. Project Size
2. Capital Costs
3. Schedule
4. Risk Management
5. Risk Allocation
6. LEED Certification

Agency-level Issues

7. Agency Experience
8. Staffing Required
9. Staff Capability
10. Agency Goals and Objectives
11. Agency Control of Project
12. Third-Party Agreement

Public policy/regulatory Issues

13. Competition
14. Disadvantaged Business Enterprise (DBE) Impacts
15. Labor Unions
16. Federal/ State/ Local Laws
17. FTA/ EPA Regulations
18. Stakeholder/ Community Input

Lifecycle Issues

19. Lifecycle Costs
20. Maintainability
21. Sustainable Design Goals
22. Sustainable Construction Goals

Other Issues

23. Construction Claims
24. Adversarial Relationships

25. Geotechnical
26. Environmental

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TCRP Report 131 Analytical Project Delivery Assessment

Rating Key	
3	Most appropriate delivery method
2	Appropriate delivery method
1	Least appropriate delivery method
0	Fatal Flaw – Discontinue evaluation of Delivery Method
NA	Issue Not applicable or not relevant to this evaluation

Suggested Weighting	
2	Critical to Project Success
1.5	Important to Project Success

Project-level Issues

1. Project Size
2. **Capital Costs**
3. **Schedule**
4. Risk Management
5. Risk Allocation
6. LEED Certification

Agency-level Issues

7. Agency Experience
8. Staffing Required
9. Staff Capability
10. Agency Goals and Objectives
11. Agency Control of Project
12. Third-Party Agreement

Public policy/regulatory Issues

13. Competition
14. Disadvantaged Business Enterprise (DBE) Impacts
15. Labor Unions
16. Federal/ State/ Local Laws
17. **FTA/ EPA Regulations**
18. Stakeholder/ Community Input

Lifecycle Issues

19. Lifecycle Costs
20. Maintainability
21. Sustainable Design Goals
22. Sustainable Construction Goals

Other Issues

23. **Construction Claims**
24. Adversarial Relationships

25. Geotechnical
26. Environmental

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Caltrans Quantitative Project Delivery Method Selection

Modified to consider DBB & CMGC only

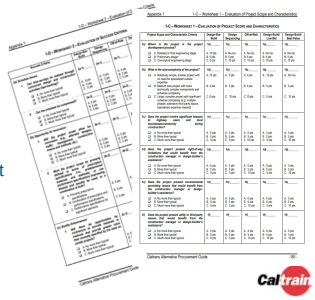
Step 1 - Complete evaluations:

1. Project Scope/Characteristics (9)
2. Project Success Factors (15)

Step 2 - Sum the score from both

Step 3 - Complete Summary Worksheet

The most appropriate project delivery system will be indicated by the **highest score**



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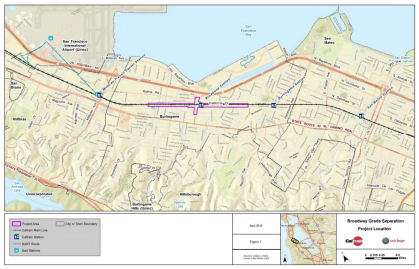
Project Description – Site Location

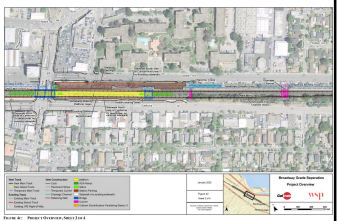


Source: BBGS NEPA DCE PROJECT DESCRIPTION

15

Project Description

- Elevating the existing two-track railroad
- Additional elements include:
  - reconstructing the existing Broadway station on the elevated track structure with a central boarding platform
  - reconfiguring station parking;
  - providing pedestrian/bicycle access improvements.
- Two temporary shoofly tracks to the east of the existing tracks also will be required during construction to maintain rail operations.

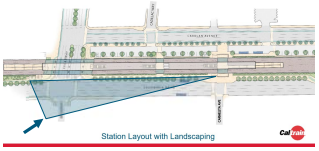


Source: BBGS NEPA DCE PROJECT DESCRIPTION

16

Project Description

Source: City Council Meeting Project Aesthetics Presentation October 3, 2022



Station Layout with Landscaping

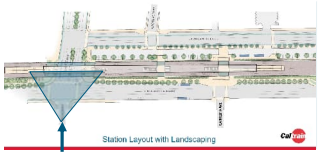
EXISTING - Broadway/California Drive

PROPOSED - Broadway/California Drive

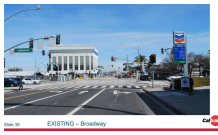
17

Project Description

Source: City Council Meeting Project Aesthetics Presentation October 3, 2022



Station Layout with Landscaping

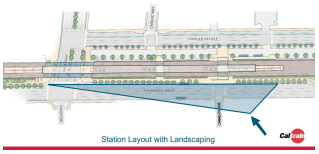


EXISTING – Broadway

PROPOSED – Broadway Overcrossing

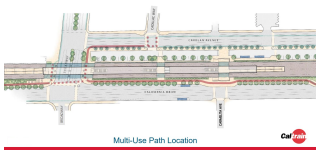
18

Project Description



19

Project Description



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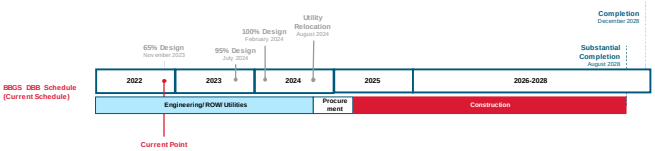
Project Description – Indicative Schedule



Assumptions:
- 6-month procurement process
- Construction duration of 43 months
- Utility Relocation (Fiber, Gas, Water, Electrical) completion trigger for Procurement Start

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Project Description

Total Project Estimate: **$316.4 Million***
FRA Funding Application: $262.1 Million

Funding Breakdown:
- Federal Contribution (Amount of FRA Grant) – 27.5%
- Non-Federal Contribution - 72.5%
  - City of Burlingame 5.7%
  - SMCTA - 50%
  - State Grade Separation Program - 11.1%
  - CPUC - 5.7%

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AGENDA

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Project Goals

- Complete the Project on or ahead of Completion target date of Dec. 2028
  - Minimize delay
  - Maximize construction schedule improvements
- Meet the Project budget and funding limits
  - Minimize project costs
  - Minimize change orders
- Enhance safety in the vicinity of the project
  - Reduce the number of crashes
  - Provide ADA compliant station
- Minimize impact of the project to community and existing businesses

Not in order of priority

24

Project Goals

- Reduce congestion, delays and queuing
  - Improve traffic operations on Broadway
- Minimize disruption during construction
  - Minimize roadway lane closures, track outages
  - Avoid utility interruptions during construction
- If applicable, satisfy legislation requirements for CMGC:
  - Reduced project costs
  - Expedite the project's completion
  - Or provide features not achievable through the DBB method

Not in order of priority

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Project Risk Discussion

Environmental

- Potential flooding at Sanchez Creek during construction
- Easton Creek relocation and re-alignment
- Dewatering for high water table - risk of infiltration/ ground water seepage.
- Regulatory compliance at Creeks
- Construction restricted to dry season (Apr 1st -Sept 30th)

ROW

- ROW impacts due to Project e.g. Audi, TA and CCSF
- Impacts to business access, circulation or operations caused by the lowering of Broadway

Do any of these risks:
1) Potentially eliminate a project Delivery Method?
2) Are better managed under a particularly delivery method?

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Project Risk Discussion

Construction

- Unsuitable subgrade conditions found, requiring additional stabilization
- Utilities relocation
- Construction in an electrified corridor (25kv)
- Complex hydraulics - challenges with temporary culvert and shoofly's

Other

- Securing adequate and timely funding
- Cross Agency Coordination – Caltrain, City of Burlingame, Peninsula Corridor Joint Powers Board (JPB) and San Mateo County Transportation Authority (SMCTA)
- Stakeholder/ Third Party Agreements - UPRR

Do any of these risks:
1) Potentially eliminate a project Delivery Method?
2) Are better managed under a particularly delivery method?

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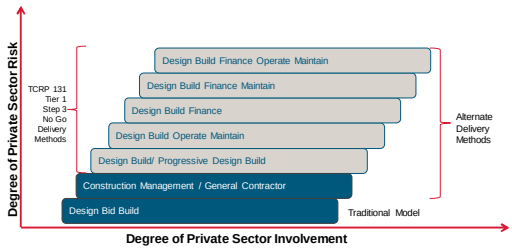
Project Delivery Methods under Evaluation



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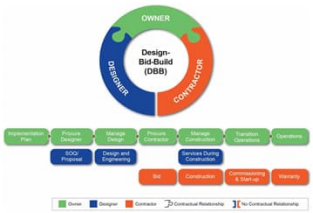
DBB



Considerations for BBGS

+ Most familiar delivery method
+ Greatest ability for Owner to control
– Scheduling sequential, final design followed by a construction contractor procurement
– Restricted qualifications & experience
– Higher risk of changes & claims
– Owner retains all risk for design errors, omissions, changes, cost and schedule
– Multiple contracts
– No fixed price until Contractor procured

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CMGC

Note: In all scenarios, Broadway Burlingame Grade Separation Project is "owner"

Considerations for BBGS

+ Owner maintains control over design
+ Early contractor engagement allows pre-construction input
+ Contractor brought on before final design, so schedule improvement relative to DBB, but still constrained by Design already at 65% schedule
+ Early indication of construction pricing and constructability reviews of design
+ Ability to do combined fixed and unit pricing, and adapt design to budget
+ Reduced change orders and claims
– New method to CALTRAIN and staff
– Failure to negotiate GMP, would delay the procurement schedule and revert to DBB

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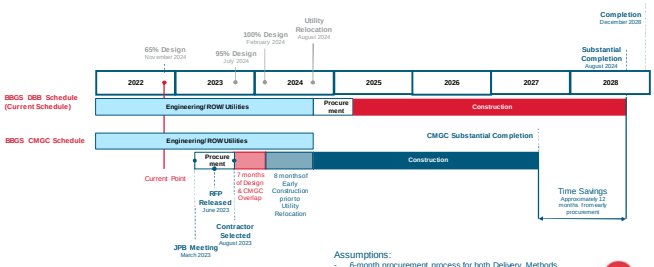
Indicative Project Schedule – Potential Time Saving



Assumptions:
- 6-month procurement process for both Delivery Methods
- Construction duration of 43 months

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CMGC Project Delivery

- Anticipated pre-construction fee of 0.5 to 2.0 percent of the project
- The construction phase CMGC fee in the range of 5 to 10 percent (same as DBB)
- Representative pre-construction contractor services include:

Potentially Beneficial to BBGS Project	Limited Benefit to BBGS Project
• Verify and prepare quantity takeoffs • Validate cost estimates • Prepare open book estimates • Award early, enabling construction work • Prepare cost risk analyses • Verify and prepare construction schedules • Coordinate with permitting agencies and third-party stakeholders • Verify environmental document commitments and mitigation requirements are met	• Conduct design and constructability reviews • Encourage innovation • Conduct value engineering analyses • Prequalify Project subcontractors Prepare Project subcontractor bid packages and secure subcontractors

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Project Delivery Method Legislation

Current legislation allows the use of CMGC delivery after:

- Evaluation of the traditional delivery method and CMGC project delivery method in a public meeting
- Written findings that the use of CMGC will accomplish one or more of the following objectives:
  - Reduced project costs
  - Expedite the project's completion
  - Or provide features not achievable through the DBB method

Above points, must be completed before entering into a CMGC contract

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Peer Agencies CMGC Experience

- Utah Transit Authority (UTA) - Five CMGC transit projects
- Dallas Area Rapid Transit (DART) - Three CMGC transit projects
- Tri-Met (Portland) - Six CMGC transit projects
- City of San Diego – Five CMGC projects
- San Diego Airport Authority
- Some transit agencies report no claims and low change orders (2% to 4% of contract value)

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Interactive Workshop

TCRP Report 131 Analytical Project Delivery Assessment

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Interactive Workshop

Caltrans Quantitative Project Delivery Method Selection

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AGENDA

- Introductions
- Assignment and Purpose
- Overview of the Project Delivery Method decision tools
- Project Description
- Project Goals & Schedule Discussion
- Project Risk Discussion
- Project Delivery Methods under evaluation
- Delivery Methods Considerations
- **Workshop Wrap up**
- Next steps

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TCRP Report 131 Analytical Project Delivery Assessment

	DBB	CMGC
Project Level Issues	7	14
Agency Level Issues	14	13
Public Policy/ Regulatory Issues	12	14
Life Cycle Issues	8	9
Other Issues	5	12
Tier 1 Total Rating Score	**46**	**62**

Preferred Delivery Method CMGC

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Caltrans Quantitative Project Delivery Method Selection

	DBB	CMGC
Project Scope/ Characteristics Score	20	40
Project Success Factors Score	32	37
Total Score	**52**	**77**

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Summary of Workshop Results

Based on this project's unique features and complexities **Design Bid Build (DBB)/ Construction Manager/General Contractor (CMGC)** delivery method most appropriate choice

	DBB	CMGC
TCRP Report 131 Analytical Project Delivery Assessment	46	62
Caltrans Quantitative Project Delivery Method Selection	52	77

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AGENDA

- Introductions
- Assignment and Purpose
- Overview of the Project Delivery Method decision tools
- Project Description
- Project Goals & Schedule Discussion
- Project Risk Discussion
- Project Delivery Methods under evaluation
- Delivery Methods Considerations
- Workshop Wrap up
- **Next steps**

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Next Steps

- Document Today's Findings: **Project Delivery Decision Report**
  - Draft report late December
  - Finalize early January

  Project Delivery Decision Report to include:
    - Provide a summary of today's discussion
    - Include tabulation of Project Delivery Method ranking results
    - Compile Project Delivery Method evaluation comments
    - Present Project Delivery Method recommendation
- Prepare for JPB Board Report presentation Workshop
- Conduct JPB Board public meeting presenting the analysis
  - March 2023
  - Issue RFP July 2023
  - Award Contract December 2023

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FOR MORE INFORMATION
WWW.CALTRAIN.COM

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TCRP Report 131 Analytical Project Delivery Assessment

Today's Workshop Focus

Tier 2
Weighted Matrix Delivery Decision Approach

Steps:

1. Define Selection Factors
2. Weight Selection Factors
3. Score Project Delivery Methods
4. Choose the Most Appropriate Project Delivery Method
5. Document Results

Define Selection Factors (up to 7)

1. Identifying key specific project goals
2. Identify key specific issues
3. Select up to 7 selection factors from above

Weight Selection Factors

1. Rank selection factors in order of priority
2. Weight selection factors
   - Using the Delphi Method by assigning weight to each such that total sum adds to 100

Score Project Delivery Methods

1. By delivery method identify rank of each selection factor and multiply by weight

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Appendix C CMGC Case Study References

CM/GC Program Case Study No. 1: Utah Department of Transportation - UDOT now has built more than 25 projects with CM/GC since 2005, and is, therefore, the state agency most experienced in using this method on a large variety of projects.

CM/GC Program Case Study No. 2: City of Phoenix, Arizona - The City of Phoenix has built more than 200 projects using what they call a CMR construction project delivery system since initiating the system in 2000. Only recently has the city commenced using CMR for horizontal construction, totaling 12 horizontal CMR projects since their first project, let in 2008.

CM/GC Program Case Study No. 3: Osceola County, Florida - The CMR program in Osceola County was initiated under great controversy due to the long-term instability of the county road building program, and political pressures to complete and execute a major infrastructure plan. As a result, the program was under an ultimatum from the County Commission to have nine projects under contract within one year, when only one was under contract at the time. The new administration boldly decided to implement an untried delivery system to meet the target, adding to the controversy. The CM/GC system was installed despite overwhelming, wide-ranging protest from local contracting, design, and CEI communities. The results were that within a year, 11 major road- way segments were ready to begin construction, thus achieving 55 times the production rate of the previous five years, and this at over 20% under budget for all projects, including design, permitting, mitigation and construction. All CM/GC fees and preconstruction fees in savings were returned to the owner. Local participation rate, the strongest of the myriad objections voiced, stood at 75% and helped keep numerous local contractors from going out of business.

CM/GC Program Case Study No. 4 Utah Transit Authority - UTA has used the CM/GC construction project delivery system on five major projects since 2002. At the time of the case study, the $2.5 billion cost of these projects may be more than any other agency has spent on CM/GC projects.

CM/GC Program Case Study No. 5: Oregon Department of Transportation - ODOT has used the CM/GC construction project delivery system on three projects since 2011. When using this system, ODOT employs several methods of managing post-award design activities. Their process allows DPs to adjust their plans with “real-time” information provided by the CM/GC firm. There are written SOPs for the design of CM/GC projects, and the agency now utilizes these contracts, because while the agency had only worked on one CM/GC project under such a contract at the time of publication, it worked well.

Federal Highway Administration (FHWA) - CM/GC is part of the Federal Highway Administration’s FHWA’s Every Day Counts initiative designed to foster innovation and speed delivery of infrastructure projects.

The Federal Highway Administration in issuing its final regulation to allow state transportation agencies to use the "construction manager/general contractor" method for federal-aid highway projects nationwide, stated that “it was an innovation that allowed project designers to tap the know-how of actual builders during the design phase”. (FWHA reg. 2016)

FHWA cites CM/GC contracting as proven effective method of project delivery that shows that “early contractor involvement through the CM/GC method has the potential to improve the quality, performance and cost of the project while ensuring that construction issues are addressed and resolved early in the project development process.” (FHWA reg. 2016)

In 2010 twelve states were authorized to use CMGC in 2010 (Ginsberg and Shane 2010, NCHRP Synthesis, Construction Manager at Risk, Project Delivery for Highway Programs) including Utah, Colorado and Arizona under a predecessor FHWA program. Since then, California, Minnesota, and Tennessee, among other states, have also authorized the use of CMGC.

As stated by the Minnesota DOT (MnDOT), the advantages of using CMGC are that it allows the agency to retain control of the design, it allows the agency to independently select the best designer and the best contractor, and it can lead to the faster completion of projects because longer lead times can be accommodated. CMGC also allows for a more streamlined design and can help to foster innovation in the project development stage (MnDOT n.d.).

Several other case studies were cited in the document, Evaluating the Pre-construction Phase in a CMGC Program (Jeanne Marie Schierholz, Iowa State University 2012) validating the successful completion of projects using CMGC evaluation techniques and resultant CMGC contracts. These include:

- State Routes 89 and 303 Arizona DOT
- Eisenhower/Johnson Tunnels; Colorado DOT
- Mountain View Corridor; Utah DOT
- Phoenix Sky Harbor Transit Guideway; City of Phoenix, Arizona
- West Lane Corridor; Regional Transportation District, Colorado
- Tuttle Creak Dam Modification; USACE Kansas
- Sellwood Bridge; Multnomah County, Oregon
- Highway 3 Grand River Bridge; Ministry of Transportation, Ontario
- Alaska DOT&PF Fairbanks International Airport
- Downtown Pedestrian Improvements, City of Glendale, Arizona
- Florida DOT Miami Intermodal Center
- Oregon DOT I-5 Willamette River Bridge
- Pinal County Public Works; Ironwood-Gantzell Multi-Phase Road Improvement
- Utah DOT I-80
- Michigan DOT; Oversight - Passenger Ship Terminal Expansion
- Utah Transit Authority; Weber County Commuter Rail Project

Appendix D TCRP 131 Project Evaluation Data

D.1 Step 1 Project Description

Project Name	Broadway Grade Separation Project
Location	City of Burlingame, San Mateo County, California
Mode of Transportation	Commuter and Freight Rail
Estimated Budget	$350 Million
Estimated Project Delivery Period	Construction - 43 Months
Required Delivery Date	December 1, 2028
Project Funding Sources	City of Burlingame, FRA
Project Corridor	1.5-mile Project area from just north of Oxford Road to just north of Oak Grove Avenue, between California Drive and Carolan Avenue and just north of Rollins Road to north of Paloma Drive along Broadway. Broadway is the main artery in and out of the City of Burlingame from U.S. Highway 101.
Major Features of Work	Project will eliminate an the existing at-grade railroad crossing at Broadway, between California Drive and Carolan Avenue and will include: 1) Realigning and reconstructing the existing two-track railroad on elevated structure 2) Reconstructing the existing Broadway station on the elevated track structure, providing a central boarding platform which is ADA compliant 3) Reconfiguring station parking; and 4) Providing pedestrian/bicycle access improvements.
Forecast Ridership	Prior to Covid - 62,000 weekday riders
Major Schedule Milestones	95% Design – August 2023 100% Design – February 2024 Utility Relocation – August 2024
Major Project Stakeholders	UPRR, FTA, Caltrain, City of Burlingame, Peninsula Corridor Joint Powers Board (JPB) and San Mateo County Transportation Authority (SMCTA)
Labor Unions Status/ Impacts	No labor union issues anticipated
Major Challenges	Construction on two existing creeks is restricted to dry season only (Apr 1st -Sept 30th), over 32,000 vehicles, pedestrians, and bicyclists daily contend with the existing at-grade crossing
Major Risks	Flooding during construction, safety of construction (narrow and electrified corridor), coordination with Union Pacific for the work that Union Pacific has to do, unsuitable subgrade soil conditions
Sustainable Design and Construction Requirements	Improves safety at highway-rail or pathway-rail grade crossings, reduces emissions, protects the environment, and provides community benefit

D.2 Step 2 Project Goals

Project Goals

Complete the Project on or ahead of Project Completion target date of December 2028

- Minimize delay
- Maximize construction schedule improvements

Project Goals

Meet the Project budget and funding limits

- Minimize project costs
- Minimize change orders

Enhance safety in the vicinity of the project

- Reduce the number of crashes
- Provide ADA compliant station
- Provide enhanced bike and pedestrian access

Minimize impact of the project to community and existing businesses

- Reduce congestion, delays and queuing
- Improve traffic operations on Broadway

Minimize disruption during construction such as roadway lane closures, track outages

- Minimize roadway lane closures, track outages
- Maintain safe and ADA compliant site during construction
- Avoid utility interruptions during construction

Complete the Project on or ahead of Project Completion target date of December 2028

- Minimize delay
- Maximize construction schedule improvements

D.3 Step 4 Criteria Description

Project Delivery Method Advantage/ Disadvantage Summary - Definitions (per TCRP)		
Criteria		Description
Project Level Criteria		
1	Project Size	Project size reflects the dollar value and physical dimensions of the transit corridor.
2	Costs	This criterion includes several aspects of project capital cost, such as ability to handle budget restrictions, early and precise cost estimation, and consistent control of project costs.
3	Schedule	This criterion includes two aspects of project schedule—the ability to shorten the schedule and the opportunity to control and prevent time growth (keeping the duration of the project within the expected timeframe).
4	Risk Management	Considers delivery methods to cope with project uncertainties that are inherent to each delivery method
5	Risk Allocation	Each project delivery method has inherent risk-allocation characteristics. The overarching goal should be to select the project delivery method with the best ability to assign project risks to the parties in the best position to manage them
Agency-Level Criteria		
6	Agency Experience	The level of experience of an owner's staff can affect the success of an alternative project delivery method application.
7	Staffing Required	This criterion ultimately concerns the amount of owner involvement required by each delivery method. The total number of owner employees is one measure of the extent of owner involvement. Another important measure for the owners is the variation in the number of staff required throughout the project development process.
8	Staff Capability	This criterion regards the owner's requirement to furnish a highly capable staff to complete the duties it must undertake in each delivery method.
9	Agency Goals and Objectives	Agency goals define project success. The extent to which these goals align with the inherent attributes of each project delivery method has a significant bearing on delivery method selection.
10	Agency Control of Project	The owner's ability to control the details of design and construction varies with each project delivery method. (Note that discussion of cost control and time control is included in other consideration descriptions.)
11	Third-Party Agreement	Each delivery method can facilitate agreements with third parties, such as political entities, utilities, railroads, etc. in a different manner. The extent to which designers or contractors can facilitate third party agreements is the basis for the advantage and disadvantage of each delivery method.
Public Policy/ Regulatory Criteria		
12	Competition	Each delivery method may affect the level of competition, and thus the effect of each delivery method on competition must be evaluated. Alternative project delivery methods allow agencies to package projects in sizes that can effectively enhance or reduce competition.
13	DBE Impacts	Delivery methods may facilitate the fair competition for DBEs for DOT-assisted contracts and reduce burdens on small businesses. The effect of each delivery method on promoting participation by disadvantaged businesses is evaluated under this issue. In general, due to the size of most transit

Project Delivery Method Advantage/ Disadvantage Summary - Definitions (per TCRP)		
Criteria		Description
		programs, it would be unlikely that a DBE firm serve as the lead Contractor. What is more common is to set aside a certain percent of budget to assure DBE participation.
14	Labor Unions	The choice of delivery method may have an impact on labor usage and hence labor union considerations. These considerations can be both internal to the transit agency as well as external with its contractors.
15	Federal/ State/ Local Laws	Transit agencies may not be able to use some delivery methods due to state or local laws. Some of the states require that transit agencies go through several steps before being allowed to use an alternative delivery method. The advantages and disadvantages of each project delivery method for this consideration reflect the level of difficulty of using a delivery method from a legal standpoint.
16	FTA/ EPA Regulations	The extent to which the various delivery methods can accommodate FTA requirements and EPA regulations given the unique project characteristics constitutes the advantages and disadvantages of this consideration.
17	Stakeholder/ Community Input	This criterion addresses the opportunity for stakeholder involvement afforded by each delivery method.
Lifecycle Criteria		
18	Lifecycle Costs	Delivery methods can influence costs in the operation and maintenance phase. This consideration concerns the opportunities or challenges that each delivery method provides with regard to lifecycle costs.
19	Maintainability	The criterion of maintainability involves the owner's ability to specify quality and ease of maintenance. There are advantages and disadvantages to each delivery method with regard to how maintainability is achieved.
20	Sustainable Design Goals	Sustainable design is becoming ever more important in helping to achieve sustainability goals for the projects. The effect of delivery method in facilitating the process of implementing sustainability issues in the design is the focus of this discussion.
21	Sustainable Construction Goals	Sustainable construction is an important vehicle for achieving sustainability goals for new projects. The disconnect between designer and builder with some delivery methods can create limitations on the means and methods available to the project. The effect of a delivery method on facilitating the process of sustainable construction is the focus of this discussion.
Other Criteria		
22	Construction Claims	The effect of each delivery method on exposing the agency to potential conflicts and claims is addressed under this consideration.
23	Adversarial Relationships	There are advantages and disadvantages to each project delivery method with regard to avoiding adversarial relationships on the project team. These advantages and disadvantages will vary depending on the nature of the project and the owner's experience with the delivery methods. Transit projects can be hampered by conflicts between parties to the design and construction contracts. The higher the level of adversarial relationships in a project, the more likely the project will suffer from cost, schedule, and quality problems.
24	Geotechnical	Unforeseen geological conditions and the associated geotechnical problems are a major contributor to cost and schedule overruns on large civil engineering projects. This consideration examines the geotechnical risks and the advantages and disadvantages for each delivery method.
25	Environmental	Environmental requirements vary from project to project and complex environmental requirements would strongly influence the choice of delivery method and should to be considered in combination with other considerations, such as risk allocation in order to determine an appropriate project delivery method.

Appendix E Sources

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Utah Department of Transportation (UDOT). n.d. Contractor Resources.
https://www.udot.utah.gov/connect/business/construction

ATTACHMENT A:

MEMORANDUM OF UNDERSTANDING
BY AND BETWEEN
THE TRANSPORTATION AGENCY OF MONTEREY COUNTY AND
THE PENINSULA CORRIDOR JOINT POWERS BOARD
REGARDING THE EXTENSION OF CALTRAIN PASSENGER RAIL SERVICE
FROM GILROY TO SALINAS

Effective Date: Date of Last Signature

This Memorandum of Understanding (hereinafter "MOU") is made and entered into between the Transportation Agency for Monterey County (hereinafter "TAMC"), and the Peninsula Corridor Joint Powers Board (hereinafter "Caltrain") collectively hereinafter referred to as "Parties", regarding the Monterey County Rail Extension (hereinafter "Project").

WHEREAS, the Parties have a cooperative working relationship for planning, development, and implementation of the Project; and

WHEREAS, through previous transportation planning studies, TAMC and the State of California determined that they needed to invest in a system of premium transit services that could better compete with traveling by automobile and attract new riders from the automotive modes of travel in order to provide additional transportation capacity in the US 101 Corridor, thereby reducing congestion, improving air quality, and saving energy in the Monterey Bay Area and San Francisco Bay Area; and

WHEREAS, the Governor and the Legislature expressed their support and endorsement of this Project by providing funding for the Project from the Traffic Congestion Relief Act of 2000, the Proposition 116 Rail Bond, the Public Transportation Account, and the Transit and Intercity Rail Capital Program; and

WHEREAS, the Caltrans State Rail Plan of 2018 includes this service in its near-term scenario; and

WHEREAS, in order to provide safe, efficient and effective transportation alternatives to the automobile, TAMC adopted a resolution endorsing the Extension of Rail Service into Monterey County as the Locally Preferred Alternative for the US 101 corridor on January 31, 2007; and

WHEREAS, Caltrain adopted a Gilroy-Salinas Feasibility Study on April 27, 2020, which specifies that the project shall be cost-neutral to Caltrain, and which outlines a range of issues that will need to be confirmed or clarified; and

WHEREAS, TAMC, as the Lead Agency under the California Environmental Quality Act (CEQA), certified the final Environmental Impact Report (EIR) on August 23, 2006, and adopted an Addendum to the EIR on August 28, 2013, which EIR and Addendum to the EIR contemplate the actions described herein; and

WHEREAS, the California Transportation Commission, as a responsible agency, approved TAMC's Final EIR on September 7, 2006; and

WHEREAS, AMBAG adopted the Project as an element of the regional Metropolitan Transportation Plan/ Sustainable Communities Strategy in June 2022; and

WHEREAS, it is recognized that, with respect to some of the provisions set forth herein, numerous actions must be taken pursuant to federal, state, and local laws and regulations before such policies can be implemented; and

WHEREAS, the purpose of this MOU is to provide a framework for the Parties' cooperation, and the respective duties of the Parties will be set forth in subsequent permits and agreements;

NOW THEREFORE, the Parties hereby agree as follows:

PROJECT FEATURES AND LIMITS

1. To collaborate on the continued development and planned operations of the Project located along the Union Pacific Railroad (UPRR) Coast Main Line Track, between the City of Gilroy at Milepost (MP) 77.4, to the City of Salinas at MP 114.94 (See **Exhibit A**, Gilroy site map and **Exhibit B**, Salinas site map).

2. That the Project is intended to facilitate transportation uses, including, but not limited to, an extension of passenger rail service from Gilroy southward toward Salinas.

3. That the full buildout of the Project, as described in the EIR and EIR Addendum, includes, but is not limited to, the following capital improvement projects:

    a. Extension of track from the Gilroy station and layover facility to connect to the UPRR Coast Main Line Track;
    b. Construction, relocation, and/or removal of tracks, turnouts, and railroad signaling within the Gilroy layover facility and at Salinas, as may be required;
    c. Modification of the rail crossings on East 10th Street and East Luchessa Avenue in Gilroy;
    d. Circulation improvements at the Salinas train station;
    e. Construction of a transit exchanges in Salinas;

f. Installation of platform shelters, lighting, fixtures, and landscaping in Salinas;
g. Construction of a train layover yard, including crew base and train servicing support facilities in Salinas; and
h. Site drainage and stormwater treatment facilities per the City of Gilroy and City of Salinas National Pollutant Discharge Elimination System Permit requirements.

4. To the scope, character, and layout of the Project, as defined by the plans and specifications dated August 31, 2022, and provided separately due to their large file size.

5. That, within the footprint of the approved EIR, the precise limits, locations, and/or alignments of Project features may be adjusted to accommodate design refinements, specifically:

   a. Right-of-way limits;
   b. Utilities and subsurface constraints, if any;
   c. Americans with Disabilities Act requirements; and
   d. Environmental impact mitigation, as may be required.

DESIGN STANDARDS, OPERATIONS PARAMETERS, AND COORDINATION

The Parties further agree:

6. To cooperate in good faith to develop the Project.

7. TAMC shall be the lead agency for project development, which includes the funding, planning, any further state and any applicable federal environmental review, design, right-of-way acquisition, and construction of the rail and other related elements of the Project (e.g., items identified in Paragraph 3, a-e). TAMC will collect input from the Cities of Gilroy and Salinas, the Santa Clara Valley Transportation Authority (VTA), UPRR, Amtrak, California Public Utilities Commission, the California High-Speed Rail Authority, neighboring businesses, residents, property owners, and the public and to reflect this input, consistent with the design framework described herein.

8. Caltrain shall be the lead agency for operating service, subject to the execution of an operations and maintenance agreement, and coordinating for the maintenance of any project improvements constructed on in the Gilroy yard and Salinas layover facility, including, but not limited to, the Caltrain equipment sheds, track improvements, and stormwater treatments.

9. That the design of the Project shall be consistent with the following documents, as appropriate:

    a. Peninsula Corridor Joint Powers Board (Caltrain) Design Criteria
    b. Union Pacific Railroad Track Standard Drawings – 2019
    c. City of Gilroy Standard Details and Specifications
    d. City of Gilroy's Stormwater Management Guidance Manual for Low Impact Development & Post-Construction Requirements – June 2015
    e. City of Salinas Standard Specifications Design Standards and Standard Plans and Stormwater Development Standards

10. That the Project shall include all mitigations identified or to be identified through CEQA and any applicable National Environmental Policy Act environmental documents, per the adopted Mitigation Monitoring and Reporting Program.

11. That the Parties will cooperate in good faith on related projects, including, but not limited to, the California High-Speed Rail project, Caltrain's service changes, and proposed changes to the VTA-owned yard and parking lot.

12. That Project implementation is contingent on funding availability and the Parties' execution of an operations and maintenance agreement.

13. That the Project shall include the four foundational elements of the Feasibility Study in all written agreements:

    a. Service must be cost-neutral for Caltrain;
    b. No changes to the Caltrain mainline operation (San Francisco to Gilroy);
    c. TAMC, working with the State, will address all risks and liabilities of the new service; and
    d. No changes to the Joint Powers Agreement governance structure.

GENERAL PROVISIONS

A. Terms of this MOU

Should any provision of this MOU prove to be invalid or illegal, the court is authorized and instructed to modify the same to effectuate the original intent of the Parties to the extent possible. It is agreed and understood that the paramount purpose for which the Parties have entered into this MOU is to express their mutual intent to cooperate in good faith to realize the Project.

B. Effective Date

This MOU is effective on the date of the last signature and shall remain in force until December 31, 2025, unless extended or sooner terminated by mutual consent of the Parties. The period of performance may be extended or shortened by written agreement of the Parties. Any Party hereto may terminate this MOU at any time by giving 180 days written notice to the other Party.

C. Authority

Any individual executing this MOU on behalf of a party represents and warrants hereby that he or she has the requisite authority to enter into this MOU on behalf of such party and bind the party to the terms and conditions of this MOU.

D. Further Actions

Each of the Parties agrees to execute and deliver to the other Party such information and documents, as may reasonably be required to give effect to the terms and conditions of this MOU.

E. Modifications or Amendment

This MOU is not subject to modification or amendment except by a writing signed by all the Parties hereto. This MOU may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same Memorandum.

F. Interpretations

No party is to be deemed the party which prepared this MOU within the meaning of California Civil Code section 1654.

G. Disputes

In the event of a dispute arising out of the performance of this MOU, each Party shall send a written notice of dispute to the other Party. Within fifteen (15) working days of receipt of such notice, the notified Party shall respond and agree to a meeting for the purpose of negotiating a settlement or procedure for settlement of the dispute. This is an agreement to cooperate in good faith, and the sole remedy for a breach of any provision of this Agreement (other than a provision for indemnification or defense) is the termination hereof.

H. Indemnification

In lieu of and notwithstanding the pro rata risk allocation that may otherwise be imposed among the Parties pursuant to Government Code section 895.6, each party shall hold harmless, indemnify, and defend the other Parties (including their respective elected and appointed officials, agents, and employees), from all claims, liabilities, fines or other penalties, costs, or attorneys' fees arising from the indemnifying party's omissions, negligence, or willful misconduct in the performance of this Agreement.

I. Notices and Correspondence

Any notice required to be given to any party shall be in writing and deemed given if personally delivered upon the other party or deposited in the United States mail, and sent certified mail, return receipt requested, postage prepaid and addressed to the other party at the address set forth below, or sent via email transmission to the party to which notice is given:

If to TAMC:
Todd A. Muck
Executive Director
Transportation Agency for Monterey County
55-B Plaza Circle
Salinas, CA 93901-2902
Telephone: (831) 775-0903
Email: todd@tamcmonterey.org

If to Caltrain:
Michelle Bouchard
Executive Director
Peninsula Corridor Joint Powers Board
P.O. Box 3006
San Carlos, CA 94070-1306
Telephone: (650) 508-6349
Email: bouchardm@caltrain.com

J. Applicable Law

California law shall govern this MOU.

IN WITNESS WHEREOF, the Parties hereto have executed this MOU as of the Effective Date and as set forth herein:

_____

Todd A. Muck, Executive Director Dated _____
Transportation Agency for Monterey County

As to Form: _____
TAMC Counsel

_____

Michelle Bouchard, Executive Director Dated _____
Peninsula Corridor Joint Powers Board

As to Form: _____
JPB Counsel

Attachments:

- Exhibit A: Gilroy Site Map
- Exhibit B: Salinas Site Map