

DESIGN-BUILD DEMONSTRATION PROGRAM PROJECT AUTHORIZATION REQUEST

Fre-180-R58.4/R60.4

06-0C1100

Construct Braided Ramp Connections

Executive Summary

This project proposes to construct a braided ramp system on Route 180 between the two freeway-to-freeway interchanges of Routes 180/41 and Routes 180/168 in the city of Fresno. Constructing the braided ramp system will eliminate major weaving movements within the freeway system, reduce traffic congestion and improve traffic operations.

The Department desires to utilize design-build on this project to achieve several important benefits including faster delivery, innovation, transfer of risk, and cost certainty. The Department anticipates completing the project 23 months earlier using the design-build method. The Department is requesting authorization to award based on low bid. The Department believes that it will achieve better value through price competition on this project.

This project does not require any new right of way and does not have any environmental issues of concern.

Background and Importance of Project

a. Description and Scope of the project

This is an operational improvement project. The project will construct new Portland Cement Concrete (PCC) pavement branch connections, braided by two new structures, one on the north side and the other on the south side of Route 180 between the two freeway-to-freeway interchanges of Routes 180/41 and Routes 180/168. The existing First Street undercrossing structure will be widened to accommodate the braiding system. All work will be done within the existing state right of way. Ramp metering will be installed at the Cedar Avenue on ramp to westbound Route 180 and at the westbound Route 180 connector ramp to southbound Route 41.

b. Project Benefits

Constructing the braided ramp system will eliminate major weaving movements within the freeway system, reduce traffic congestion and improve traffic operations to provide a Level of Service of “D” or better on Route 180.

c. Regional Significance

In the Fresno-Clovis Metropolitan area, Route 180 is designated as a part of the National Highway System (NHS). An STAA route, it serves Fresno as an urban commuter route with access to the Fresno Yosemite International Airport. Route 180 also serves as a recreational route to Kings Canyon and Sequoia National Parks, as well as supports agricultural goods movement and travel between downtown Fresno and smaller communities in the outlying county areas.

d. Project status

i. Stage of development

The project has completed the draft project report and is ready to circulate the environmental document.

ii. Current schedule

The current schedule shown below is based on using the design-bid-build method:

Project Approval and Environmental Document	9/1/10
Right of Way Certification	8/1/12
Ready to List	9/1/12
Advertise	10/1/12
Approve Contract	1/15/13
Contract Acceptance	11/1/15

e. Project cost estimate

PA&ED	\$1,804,000
PS&E	\$3,596,000
Right of Way Support	\$100,000
Construction Support	<u>\$3,000,000</u>
Total Support	\$8,500,000
Construction Capital	\$61,000,000
Total Project Cost	\$69,500,000

f. Vicinity Map

See Figure 1 for vicinity map for the project.

Vicinity Map

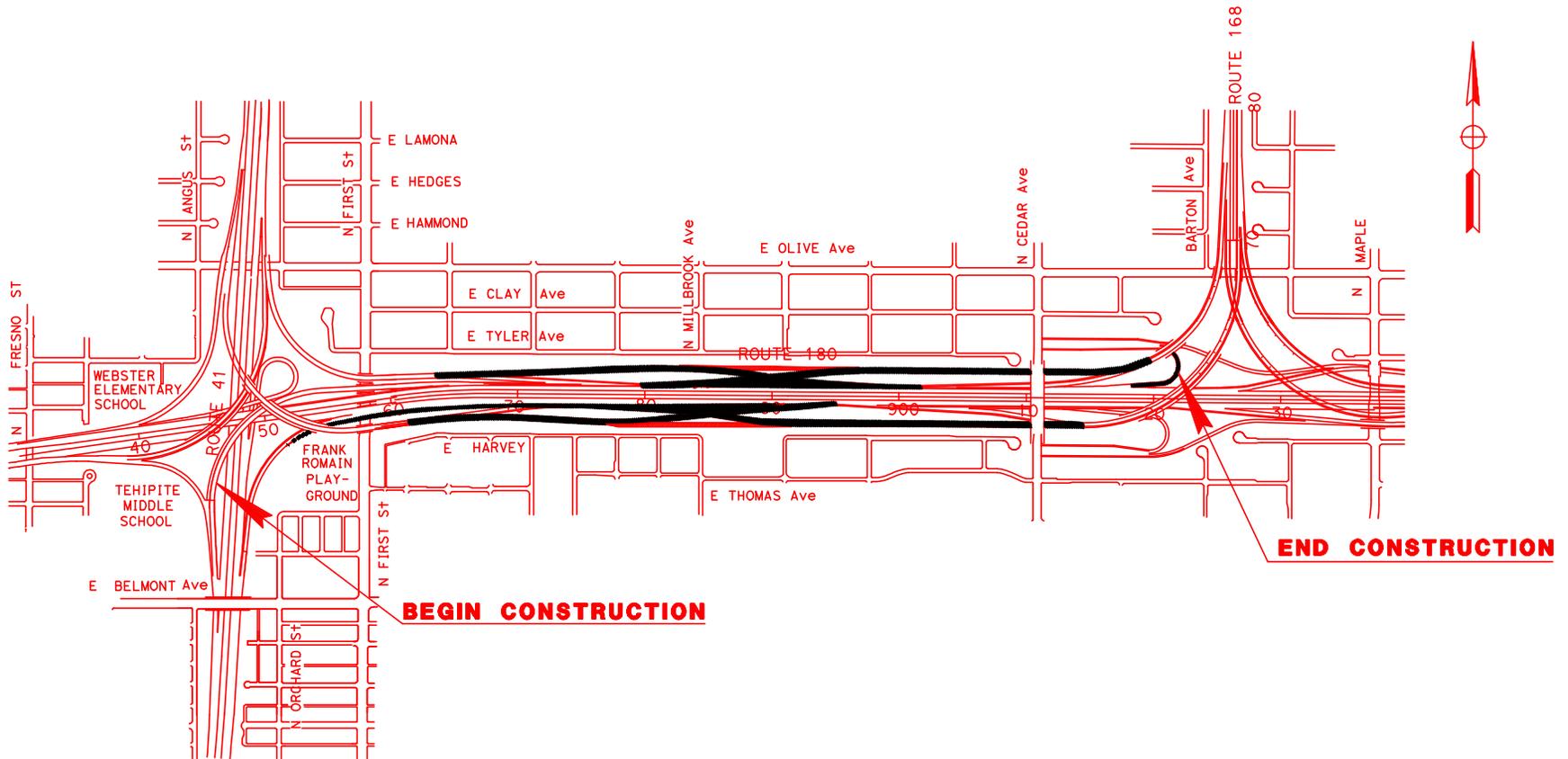


Figure 1

Justification for Design-Build Authorization

a. Summary of Analysis and Steps taken to Date

The Department made a call for projects in April of 2009 in anticipation of the California Transportation Commission's (CTC) approval of the Design-Build Program Guidelines. Initial screening criteria were for projects that were fully funded, that had achieved environmental clearance and with minimal right of way involvement. The nominated projects were then presented to the Department's Design-Build Steering Committee for approval. The projects were compared to the draft CTC guidelines to ensure that they met the proposed criteria and the Steering Committee approved the initial four projects at its August 2009 meeting. Three of these projects were submitted to and approved by the CTC at its February 2010. A fourth project was approved at the April CTC meeting.

The Department's approach to the Design-Build Demonstration Program is to begin with smaller and simpler projects to test the methodology before attempting larger and more complex projects. The Department intends to utilize the lessons learned on these first projects to ensure success on the next set of projects.

To prepare for the use of design-build, the Department has been developing templates for the Request for Qualifications (RFQ) and Request for Proposal (RFP) documents. The templates were posted for industry review between December 2, 2009 and January 8, 2010. The Department expects to achieve consistency in contract documents by developing these templates.

The Project Team is currently using the templates to develop the project RFP. Upon CTC authorization, the Project Team will be prepared to release the RFQ and RFP documents per the proposed implementation schedule contained in this Authorization Request.

b. Procurement Type Requested

The Department is requesting authorization to utilize low bid procurement for this project. The Department does not anticipate that additional value will be obtained from using criteria other than price. The RFQ process will still allow the Department to evaluate qualifications and shortlist the most qualified firms for this type of work.

c. Implementation Schedule

The following is the proposed schedule for delivery of this project utilizing the design-build process;

PA&ED	9/1/10
Request for Qualifications	8/1/10
R/W Certification	10/1/10
Invitation to Bid (RFP)	12/15/10
Award Contract	5/1/11
Construction Contract Acceptance	12/1/13

d. Expected Design-Build Benefits

Thirty-two states have design-build authority and have used design-build to deliver a large number of projects. There have also been a number of studies that have documented the benefits of design-build over the design-bid-build method of contracting. Based on the results achieved by other state departments of transportation that have utilized the design-build method and the available research, the Department anticipates achieving the following benefits by using design-build on this project:

i. Schedule acceleration

Under design-build, portions of the design and construction phases are overlapped leading to significant time savings. Improved coordination between the designer and the builder lead to better constructability and improved efficiency. The design-builder is also able to order critical materials earlier and schedule subcontractors more effectively. Finally, the designer is able to design the project to take advantage of the contractor's strengths (equipment, materials on hand and expertise). Each of these benefits can lead to significant time savings. It is anticipated that design-build will enable this project to be completed approximately 23 months earlier than by the design-bid-build method.

ii. Innovation

It is not expected that new design or construction techniques will arise from this process in constructing the braided ramp connections. It is possible that innovation in staging the work could be achieved. The primary innovation in the design-build process is the early involvement of the contractor that enables engineering considerations to be incorporated into the design phase and enhances the constructability of the engineered project plans. Interjecting contractor knowledge early into design can foster creative engineering and construction solutions as well as possible innovation available in the staging of construction and maintenance of traffic. Design-build projects have the ability to lessen the impact on the traveling public by shortening the overall construction schedule while allowing the contractor maximum flexibility.

iii. Risk transfer

The design-build process allows for transfer of risks, including cost escalation and schedule delays. The design-build contract is for a firm fixed price and a schedule guarantee for the work. The contractor is responsible for completing the scope of the work in accordance with the schedule. This would include responsibility for the schedule performance of subcontractors after the initial award. The contractor is responsible for any increase in the quantities of commodities, labor and any other units that evolve as design is advanced.

iv. Cost certainty

Because design-build projects are awarded on a fixed price basis, with limited opportunities for cost growth, the Department will have greater certainty regarding the total project cost at a fairly early stage of the process. Under the design-build delivery method, the contractor provides the Department with a fixed price for the construction before detailed design is complete and then is responsible for working with the designer to make sure that price remains fixed.

v. Others

Allow early lock-in of lower construction material/labor pricing, since it is anticipated the project will be awarded nearly two years earlier by using the design-build process than by using the normal design-bid-build process.

e. Proposed Project Funding Plan

This project was amended into the 201.310 Operational Improvement Program in the 2010 State Highway Operation and Protection Plan (SHOPP).

Total SHOPP funds	\$55,000,000
Total local measure funds	<u>\$14,500,000</u>
Total funds available	\$69,500,000

f. Project Considerations

i. Project Eligibility

This project has been amended into the 2010 SHOPP and is therefore eligible for the Design-Build Demonstration Program pursuant to authorization by the California Transportation Commission (CTC).

ii. State or local project

This is a state project on the State Highway System and will fill one of the ten slots allocated to the Department by statute.

iii. Selection Method (low bid/best value)

The Department is requesting authorization to utilize the low bid method.

iv. Geographic Location (north/south)

This project is located in Fresno County and will be a “North” project as defined by the CTC Guidelines.

v. Project Size

This project falls in the greater than \$20 million and less than \$200 million category.

Conclusion/Summary

The Department desires to utilize the design-build method of contracting for this project to achieve several important benefits, which includes schedule acceleration, risk transfer and cost certainty. The timely execution of this operational improvement project will improve traffic operation, reduce congestion and enhance traffic safety. Delays in completion of the project will result in increase travel delays and increased potential for traffic accidents. The project meets the eligibility requirements as outlined in the CTC’s design-build guidelines approved in September 2009. It is requested that the CTC authorize the use of the design-build method of procurement for this project with a low bid award.

Attachments

Design-Build Project Selection Tool