DESIGN-BUILD DEMONSTRATION PROGRAM
PROJECT AUTHORIZATION REQUEST

Mad-99-9.5/13.1
06-0E0401
Rehabilitate Roadway on Route 99 in Madera County

Executive Summary

This project proposes to rehabilitate the pavement on Route 99 from the South Madera Overcrossing to the Avenue 16 Overcrossing in Madera County. The repair strategy varies from replacing failed concrete panels with full-depth asphalt concrete and an overlay to full reconstruction of lanes and shoulders.

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 expects to save twelve months or more through the use of design-build. The Department is requesting authorization to award based on low bid. The Department does not anticipate achieving better value through competition of other than price between design-builders on this project.

This project is one of a group of four projects the Department has identified for the use of design-build contracting. 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.

Background and Importance of Project

a. <u>Description and Scope of the project</u>

This is a pavement rehabilitation project. Within the limits of PM 9.5/10.0 and 11.7/13.1, the project proposes to replace failed Portland Cement Concrete (PCC) panels with full depth Asphalt Concrete (AC), cold plane AC/PCC on the northbound (NB) and southbound (SB) No. 2 (truck) lanes and replace with AC, and overlay all lanes and shoulders with AC. From PM 10.0 to 11.6, the project proposes to reconstruct PCC lanes and AC shoulders with PCC and reconstruct the No. 2 (truck) lanes with Continuously Reinforced Concrete Pavement (CRCP). Guardrail, lights, signs and drainage will be upgraded or repaired as needed. The project is Categorically Exempt under Class 1 of the CEQA guidelines and is a Programmatic Categorical Exclusion under the NEPA.

b. <u>Project Benefits</u>

The underlying Portland Cement Concrete (PCC) pavement within the project limits has already had several panel replacement projects, and continues to fail. This results in a safety issue for both maintenance staff and the traveling public. The project proposes to reconstruct PCC lanes and AC shoulders with PCC and reconstruct the No. 2 (truck) lanes with CRCP. The remaining of the project will be constructed with a fairly straightforward design strategy. No additional R/W is needed for this project, and preliminary design thus far identified no major environmental

issues. The primary benefit is that less maintenance resources will be required in the future to maintain this failing section of highway. Another benefit is that safety will be enhanced due to less need for maintenance staff to be working on the pavement in this area. This limits exposure of both maintenance staff and the travelling public.

c. Regional Significance

State Route 99 is a National Highway System highway, functionally classified as a principal arterial, with a high percentage of truck traffic (approximately 22%).

Route 99 is an important regional and local facility within the San Joaquin Valley. It is a major truck route, which provides critical access for shipments of agricultural goods to markets outside of the Valley. It also serves as a significant recreational access during the summer months. Regionally, Route 99 extends in a north-south direction to link the San Joaquin and Sacramento Valleys from its junction with Interstate 5 south of Bakersfield to its connection north at Interstate 5 in Red Bluff. Locally, the highway is important to the Madera County circulation system. Route 99 is a 4-lane facility through Chowchilla with a posted speed limit of 65 mph. The portion of Route 99 within the project vicinity is entirely freeway.

d. Project status

i. Stage of Development

The project is has complete the Project Approval and Environmental Document (PA&ED) phase and the design phase is underway.

ii. Current schedule

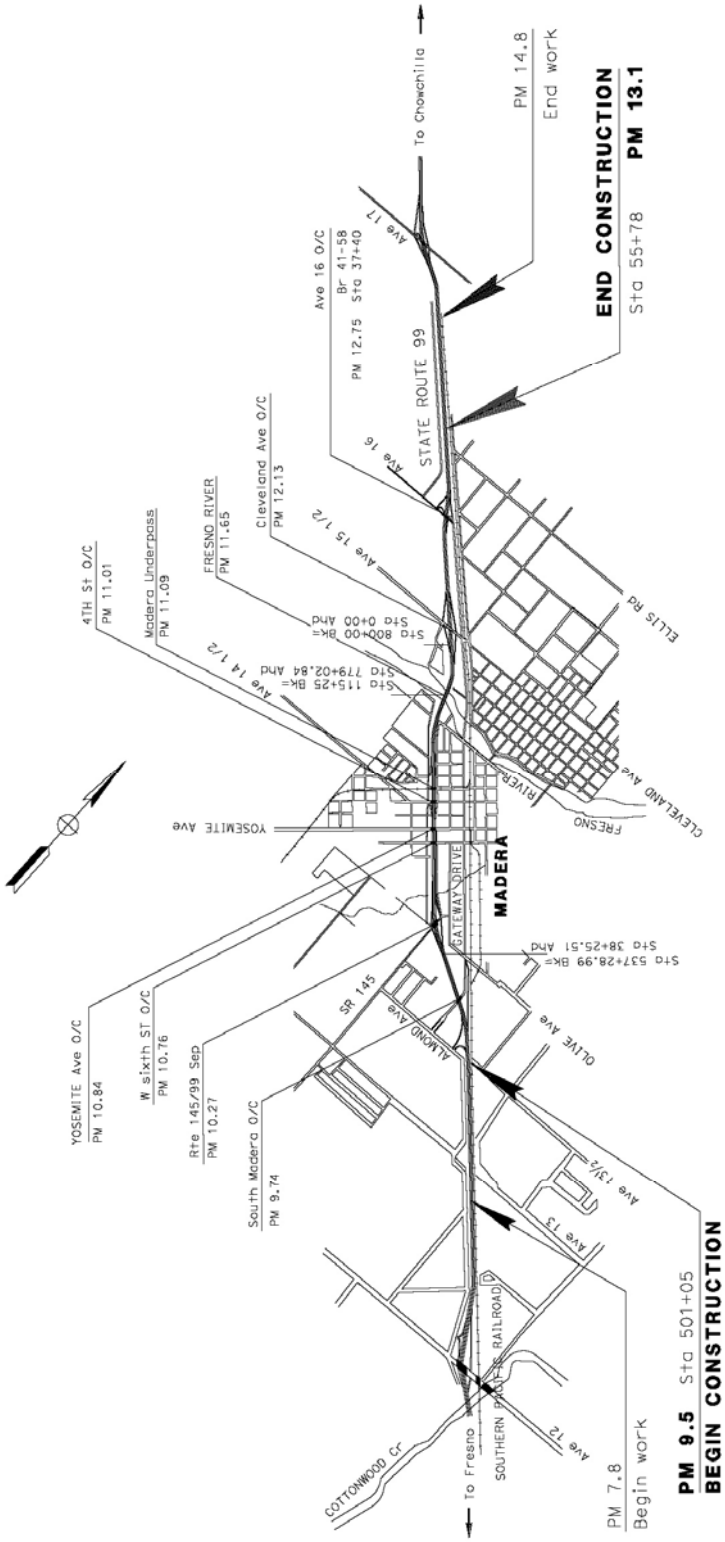
Based on the current 2008 SHOPP and proposed draft 2010 SHOPP, the schedule is as follows:

Project Approval and Environmental Document	7/30/08	(Actual)
Right of Way Certification	9/01/10	
Ready to List	2/01/11	(Programmed FY 13/14)
Advertise	4/01/11	
Award	8/15/11	
Construction Contract Acceptance	12/15/12	

e. Project cost estimate

Construction Capital	$33,504,000
Right of Way Capital	$21,000
Total Capital	$33,525,000

f. Vicinity Map



Justification for Design-Build Authorization

a. <u>Summary of Analysis and Steps taken to Date</u>

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.

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 Qualification (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. <u>Procurement Type Requested</u>

The Department is requesting authorization to utilize low bid procurement for this project. The project scope is non-complex and the Department does not anticipate that additional value could be obtained from using criteria other than price. The design of the project is advanced to the point where there is little flexibility to allow for competing approaches to the design elements. The RFQ process will still allow the Department to evaluate qualifications and shortlist the most qualified firms for this type of work.

c. <u>Implementation Schedule</u>

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

PA&ED	7/30/08	(Actual)
Request for Qualifications	4/2010	
Invitation to Bid	6/2010	
R/W Certification	6/2010	
Award Contract	8/2010	
Construction Contract Acceptance	12/2011	

d. <u>Expected Design-Build Benefits</u>

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 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 about 12 months earlier than by design-bid-build.

ii. Innovation – It is not expected that new design or construction techniques will arise from this process in the rehabilitation of the existing pavement. 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 overall construction schedule while allowing the contactor 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 methodology, 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. Other - Allow early lock-in of lower construction materials/labor pricing since the project is expected to be awarded over a year sooner by using design-build process than by using the normal design-bid-build process.

e. Proposed Project Funding Plan

This project is a proposed candidate for inclusion in the 201.120 Roadway Preservation Program of the 2010 State Highway Operation and Protection Plan (SHOPP) for the 2013/2014 fiscal year.

Construction Capital	$33,504,000
Right of Way Capital	$21,000
Total Capital	$33,525,000
PA&ED	$304,000
PS&E	$1,695,000
Right of Way Support	$88,000
Construction Support	$1,782,000
Total Support	$3,869,000
Total Project Cost	$37,394,000

f. Project Considerations

i. Project Eligibility

This project has been programmed for funding in the 2008 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 the ten slots allocated to the Department by statute.

iii. Selection Method (low bid/best value)

Department is requesting authorization to utilize low bid method.

iv. Geographic Location (north/south)

This project is in Madera 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 includes schedule acceleration, risk transfer, and cost certainty. The timely execution of this rehabilitation project will slow the deterioration of the existing pavement. Delays in completion will result in more extensive and costly rehabilitation strategies. 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 design-build method of procurement for this project with a low bid award.

Attachment

Project Delivery Selection Questionnaire

DESIGN-BUILD
PROJECT SELECTION TOOL

The following is a tool that the Department of Transportation (Department) is developing to assist in determining the appropriate delivery method for projects. The Department is testing this tool on projects on the State Highway System that have been nominated for the Design-Build Demonstration Program authorized by Senate Bill (X2) 4. Please provide a response to each question below.

EVALUATION OF PROJECT SCOPE AND CHARACTERISTICS		
QUESTION No.	**QUESTION**	**Rating (A, B or C)**
1a)	**Where is the project in the project development process?** **A**. Detailed or final engineering stage **B**. Preliminary design **C**. Conceptual engineering stage	**A**
1b)	**What is the size/complexity of the project?** **A**. Relatively simple, smaller project with no need for specialized outside expertise **B**. Medium size project with more technically complex components and schedule complexity **C**. Large, complex project with significant schedule complexity (e.g. multiple phases, extensive third-party issues, specialized expertise needed)	**B**
1c)	**Does the project involve significant impacts to highway users and local businesses/community during construction?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
1d)	**Does the project present right-of-way limitations that would benefit from a contractor's assistance?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
1e)	**Does the project present environmental permitting issues that would benefit from a contractor's assistance?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
1f)	**Does the project present utility or third-party issues that would benefit from a contractor's assistance?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
1g)	**Does the project present unique work restrictions or traffic maintenance requirements that would benefit from a contractor's assistance?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
1h)	**Would the project benefit by packaging features of work to allow early lock-in of construction materials/labor pricing?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
1i)	**Would the project benefit by raising quality standards/benchmarks to minimize maintenance and achieve lower life-cycle cost?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**

EVALUATION OF SUCCESS CRITERIA		
QUESTION No.	**QUESTION**	**Rating (A, B or C)**
2a) Schedule Issues		
1	**Can time savings be realized through concurrent design and construction activities (fast-tracking)?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
2	**Can the schedule be compressed?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
2b) Opportunity for Innovation		
1	**Will the project scope allow for innovation (e.g., alternate designs, traffic management, construction means and methods, etc.)?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
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?** **A**. Primarily prescriptive specifications **B**. Combination of prescriptive and performance specifications **C**. Performance specifications for significant elements	**A**
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?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
2	**Will there be the opportunity for realization of greater value due to designs tailored to contractor's area of expertise?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
3	**Will warranties or maintenance agreements be used?** **A**. No **B**. Limited to short-term workmanship and materials **C**. Much more than typical	**A**

EVALUATION OF SUCCESS CRITERIA (Continued)		
QUESTION No.	**QUESTION**	**Rating (A, B or C)**
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?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
2	**Will there be opportunities for contractors to provide alternate design concepts with lower lifecycle costs than those typically specified by the state?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
3	**Is funding for the project committed and available?** **A**. Secured for design phase only or cannot support accelerated construction **B**. Funding can accommodate fast-tracking to some extent **C**. Funding will accommodate compressed schedule/fast-tracking	**C**
4	**Will the cost of procurement affect the number of bidders?** **A.** Procurement cost would significantly limit competition **B.** Procurement cost could affect the number of bidders **C**. Procurement cost would not be a significant issue given the size or complexity of the project	**C**
5	**Will project budget control benefit from the use of formal contingencies?** **A**. No benefit **B**. A formal contingency may permit the Transportation Entity to add project scope or enhance quality within the constraints of its published budget **C**. A formal contingency is required to allow the Transportation Entity to maximize project scope and quality within the constraints of its published budget	**C**
2e) Staffing Issues		
1	**Does the Transportation Entity have the expertise and resources necessary for a complicated procurement process?** **A**. Inadequate resources or expertise **B**. Limited resources or expertise **C**. Adequate resources and expertise	**B**
2	**Are resources available to complete the design?** **A**. Resources are available to complete design **B**. Resources are available for partial design **C**. Specialized expertise, not available in-house, is required	**A**
3	**Are resources available to provide construction oversight?** **A**. Resources are available **B**. Full-time construction oversight could strain staff resources **C**. Resources are unavailable	**A**

Please provide name and telephone number of person most familiar with the responses to this questionnaire for potential follow-up questions: Ray Tritt (916)653-3348