State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

M e m o r a n d u m

TAB 66

To: CHAIR AND COMMISSIONERS
CALIFORNIA TRANSPORTATION COMMISSION

CTC Meeting: March 15-16, 2017

Reference No.: 2.5e.(1) – ***REVISED ITEM***
Action Item

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Subject: **SUPPLEMENTAL CAPITAL OUTLAY SUPPORT PROGRAMMING ACTION FOR PREVIOUSLY APPROVED PROJECTS**
RESOLUTION FA-16-16

ISSUE

Should the California Transportation Commission (Commission) approve the California Department of Transportation (Department) request for additional $939,000 Capital Outlay Support (Support Cost) for the State Highway Operation Protection Program (SHOPP) seismic safety retrofit project in Contra Costa County on Interstate 580 for a revised amount of $2,167,500?

RECOMMENDATION

The Department recommends that the Commission approve an additional $939,000 for completion of the Plans, Specifications and Estimate (PS&E) phase (pre-construction activities) for the SHOPP seismic safety retrofit project in Contra Costa County on Interstate 580 for a revised amount of $2,167,500.

PROJECT INFORMATION

Dist-PPNO EA	County Route	Project Description	Project ID	Program Fiscal Year Program Code
04-0086R 4G890	CC-580	Scofield Ave Undercrossing Seismic Retrofit	0413000059	SHOPP 16-17 20.10.201.113 (Seismic Retrofit)

REQUESTED PHASE FUNDING INFORMATION

Phase	2016 SHOPP Original Programmed Amount	Department G-12 Adjustment	Total Authorized Amount	Supplemental Funds Request	% Over Total Authorized Amount	Revised Amount
PA&ED						
PS&E	$935,000	$293,500	$1,228,500	$939,000	76.4%	$2,167,500
R/W Supp						

BACKGROUND

This seismic safety retrofit project is located on Interstate 580, at Scofield Undercrossing, in the city of Richmond, Contra Costa County. The purpose of the project is to retrofit the undercrossing for safety to address structural vulnerabilities associated with the site specific seismic hazard. This project is currently in the final design phase. The additional funds are needed to complete the design and allow the project to be advertised for construction.

The steel bridge that spans across Chevron's Northern California refinery main pipelines was built in 1954 and widened in 1986. The Department completed the Phase 1 seismic retrofit in 1988 to tie the superstructure members together (hinge restrainers and seat extenders) and replaced the bridge deck in 2014. During the design of the bridge deck replacement in 2011, the Department discovered existing seismic vulnerabilities of the substructure elements (bents, columns, hinges and joints) and proposed further retrofit that is being addressed by this project.

REASON FOR INCREASE

The Department has expended $1,228,500 in Support Cost to prepare about 65 percent of the PS&E, and the additional $939,000 will provide for the completion of PS&E, advertisement and award of the construction contract. The PS&E phase cost increase is due to additional analysis and design efforts to address the unique conditions of the project site and the bridge's structural details and behavior. The 2013 Project Initiation Document (PID) proposed a preliminary seismic retrofit strategy that involves encasing the columns in concrete-filled steel shells and strengthening and stiffening the bents. Based on the level of effort during the PID phase, the preliminary strategy assumed a traditional 2-dimensional seismic analysis for similar type of structures. During the PS&E phase, the complexity and variability of 35 columns, 32 girders and 12 bents necessitated a more sophisticated 3-dimensional finite element structural analysis with time history to better model the bridge behavior, address concerns of extreme deformation in the columns, bents, superstructure and joints, and verify the appropriate retrofit strategy. The result of this effort expanded the retrofit strategy from strengthening of the columns and substructure elements, to include the isolation of the columns from the bents and superstructure **to achieve seismic safety.**

The remaining activities and estimated costs to complete PS&E and achieve Ready-to-List (RTL) in June 2017, and request funds allocation to advertise and award by February 2018 are:

1) **Complete the structural design: $550,000**
   - **Finalize structural design details for individual columns and bent caps locations, temporary supports and staging and sequence of jacking at columns.**
   - **Finalize cost estimates and specifications**
   - **Perform quality reviews**

2) **Finalize contract documents: $250,000**
   - **Assemble the PS&E package for Office Engineer reviews for completeness and accuracy**
   - **Complete Cost Certification**
   - **Address comments from the Office Engineer**
   - **Review plans for utility relocation by Chevron**

- **Develop and get concurrence on pipe protection and Transportation Worker Identification Credentials (TWIC), which is required by the Maritime Transportation Security Act and the Transportation Security Administration for workers' access to secured areas of the nation's maritime facilities and vessels.**

3) Perform project management and complete Right of Way Certification: $39,000
- **Conduct outreach to the local community regarding construction staging and closures**
- **Coordinate and finalize R/W and utility contracts with Chevron**

4) Perform advertising and award: $100,000
- **Advertise**
- **Pre-bid meeting with contractors**
- **Respond to inquiries**
- **Open bids, resolve protests and award**

RISK ANALYSIS

Risks related to the PS&E phase include obtaining Chevron's concurrence on pipeline protection and security of and access through their property. The Department and Chevron have been coordinating early in the design process to obtain feedback, address concerns on the pipeline protection and secure the necessary right of way access for construction.

EXPECTED IMPACTS

Since the current seismic retrofit strategy requires cutting the columns and jacking the steel girders and deck to install rubber isolators at the top of the columns, outreach to the community and coordination with local agencies for bridge closure and detour may be extensive to inform and reduce traffic impacts. Construction Capital and Support Cost will be updated at the completion of contract documents for funds allocation and are expected to be higher due to more extensive retrofit to achieve seismic safety for the bridge.

CONSEQUENCES

If this request for an additional $939,000 Support Cost to complete the PS&E phase is not approved, this seismic safety retrofit project will be re-programmed and construction will be delayed.