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4-1.07 Value Engineering

4-1.07A General

Construction Manual

Additional information is available in the *Construction Manual*, Section 3-405, *Value Engineering*.

4-1.07B Value Engineering Change Proposal

Resources, Review and Determination Procedure

Additional information is available in the:

- *Structure Design Alert*¹ dated July 1, 2014.
- Project Delivery Directive, PD-13, *Value Engineering Change Proposals*.²

The Division of Engineering Services (DES) is responsible for providing technical concurrence on structure related Value Engineering Change Proposals (VECPs). Acceptance of the VECP is a district/region responsibility. The Deputy District Director for Construction (DDDC) in each district makes the final determination if a VECP is acceptable based in part on the technical recommendation of DES.

It is critical that VECPs are thoroughly vetted and not rejected or accepted without full consideration. If a determination is made that a structure related VECP is:

- Acceptable to DES, that decision should be made at the lowest level possible and concurred at the level just above those making the decision.
- Unacceptable to DES, that decision must be validated by an appropriate team of DES Deputies (Structure Construction [SC], Structure Design [SD], and Material Engineering and Testing Services/Geotechnical Services [METS/GS]) before the determination is transmitted to the district.

Proposal Concept Stage

When the proposal concept is presented, the appropriate DES Representatives (Structure Representative, Structure Design Project Engineer, Bridge Construction Engineer (BCE), and SD Branch Chief) should participate in the meeting between the Contractor and the Engineer. To ensure an adequate understanding of the *Proposal Concept*, invite all parties from DES³ and Structure Maintenance & Investigations, to participate as appropriate. It is important that fatal flaws in the *Proposal Concept* be discussed early before the Contractor prepares a VECP.

The DES Representatives must **confer and concur as to the DES decision for the *Proposal Concept***. If a *Proposal Concept* is found to be unacceptable (rejected), the next level (Area Construction Manager (ACM) and SD Office Chief) should review it. If they concur with the

¹ http://onramp.dot.ca.gov/hq/des/sd/docs/structure_design_alerts/sda_20140701.pdf

² <http://www.dot.ca.gov/hq/projdev/directive/PD-13-VECP-3-14-14.pdf>

³ Appropriate DES parties could include Geotechnical Services, Earthquake Engineering, Structures Office Engineer (Specifications), Hydraulics, etc.

rejection, the *Proposal Concept* and VECP Analysis Report should be forwarded to the next level (DES Deputies) for review. **The DES Deputy Division Chiefs for SC, SD, and METS/GS will make the determination for DES on whether the VECP *Proposal Concept* is unacceptable.**

Submit the DES decision in writing to the Resident Engineer. The decision to proceed with the *Proposal Concept* should be made at the lowest level possible and concurred at the level just above those making the decision. **The decision to accept a *Proposal Concept* must be documented on the *VECP Analysis Report***, for which a template is provided in Attachment No. 1.

For structure related items, the review times required by DES will vary depending upon the complexity of the *Proposal Concept*, as multiple functional units within DES will need to review and provide input on the VECP. Convey to the Resident Engineer the review times required by DES to the Resident Engineer for their discussion with the Contractor.

VECP Investigation Stage

During the VECP investigation stage, the BCE will facilitate the review by all DES functional units⁴ and Structure Maintenance and Investigations to ensure all stakeholders have provided input and to ensure timely completion of the investigation.

The DES functional unit representatives should confer and concur as to the DES decision for the VECP. If the representatives find the VECP to be unacceptable, the next level (Area Construction Manager (ACM)/Office Chief) should review the VECP; if they concur with the rejection, the BCE should arrange for a meeting between the DES Deputy Division Chiefs for SD, SC, and METS/GS to review the VECP. **Prior to the meeting, provide the *VECP Analysis Report* to the Deputy Division Chiefs.**

The *VECP Analysis Report* will provide:

- All pertinent contract information along with a description of the VECP.
- Structures affected.
- Positive aspects of the VECP.
- Reasons the VECP should be rejected.
- The recommendation(s) of the Structure Representative and Project Engineer.

Submit the DES decision, in writing, to the Resident Engineer. The decision to proceed with the VECP should be made at the lowest level possible and concurred at the level just above those making the decision. **The decision must be documented in the *VECP Analysis Report*.**

Roles / Responsibility

Structure Representative – Collaborate with the Structure Design Project Engineer on the DES recommendation to the VECP.

⁴ SD, METS/GS, and Program/Project and Resource Management (PPRM)/Special Funded Projects

Structure Design Project Engineer – Evaluate the VECP for technical soundness and collaborate with the Structure Representative on the DES recommendation to the VECP.

Bridge Construction Engineer – Facilitate the review by all DES units to ensure timely completion. If needed, arrange for a meeting with the Deputy Division Chiefs from SC, SD, METS/GS and PPRM. Work with the ACM to review the Structure Representative's and Project Engineer's recommendation to the VECP.

Structure Design Branch Chief – With the BCE, review the Structure Representative's and Project Engineer's recommendation to the VECP.

Area Construction Manager – In cases of rejection of the VECP, verify that the VECP has been properly vetted. Confer with the SD Office Chief on the recommendations to the VECP. Meet with the Deputy Division Chiefs to review the cause for rejection. Confirm the recommendation from DES to the District, or return the VECP to the Structure Representative and Project Engineer for continued review.

Structure Design Office Chief – In cases of rejection to the VECP, verify that the VECP has been properly vetted. Confer with the ACM on the recommendations to the VECP. Meet with the Deputy Division Chiefs to review the cause for rejection. Confirm the recommendation to the District or return the VECP to the Structure Representative and Project Engineer for continued review and evaluation.

Division of Engineering Services Deputy Division Chief – In cases of rejection of the VECP, verify that the VECP has been properly vetted. Confirm the DES recommendation to the District or return the VECP to the Structure Representative and SD Project Engineer for continued review and evaluation.

The following is a sample *VECP Analysis Report* that can be used as a template:

Structure Construction – Value Engineering Change Proposal Analysis (VECP) Report

Insert Date

Project Information

Dist-EA

Dist-Co-Rte-PM

Structure or bridge name

Br. No.

Description of VECP

Provide a description of the VECP

- *Reduce any cost of construction.*
- *Reduce construction activity duration.*
- *Reduce traffic congestion.*
- *Permit issues.*
- *Impact on other projects.*
- *Project impacts, including traffic, schedule, later stages.*
- *Peer reviews.*
- *Overall proposal merits.*
- *Review times required by the Department and other agencies.*
- *Etc.*

Structure(s) Affected: *(Identify any structures that are affected)*

Chronology:

Proposal Concept received: (date)

Proposal Concept accepted or rejected: (date)

VECP received: (date)

VECP accepted or rejected: (date)

Change Order issued: (date)

Elapsed review time: _____ days

Introduction:

This report presents the results of the review for the *(insert type of review completed, i.e. Proposal Concept or VECP)*.

Discussion:

Positive Aspects of the VECP – *List and clarify*

Structure Construction Value Engineering Change Proposal (VECP) Report continued

Reasons the VECP should be rejected – *This portion of the report would describe specific deficiencies found with the Proposal Concept or VECP that would be cause for rejection i.e.*

Recommendation of the Structure Representative:

Authorization – No exceptions were found with the VECP (*number or title of VECP or other unique identifier*).

Rejection:

Structure Construction does not accept the VECP. The (*insert type of review completed, i.e. Proposal Concept or VECP*) for (*identify specific location*) of the (*Bridge name, Br. No.*), based upon the analysis that found the deficiencies listed above.

If you have any questions regarding this report, please contact Structure Representative at (XXX) XXX-XXXX.

Steve Street, P.E.
Structure Representative
Structure Construction