

**FHW Value Engineering Program
Accomplishment Report for _____
Fiscal Year 2009**

Directions:

- 1. Indicate your office/state in the title above**
- 2. For “best answer” and “all that reply” questions, click the box to indicate a “yes” response, or applicability to the statement being discussed**
- 3. For “short answer” or “comments”, type text in the shaded box provided. The shaded box will expand to accommodate the responses being entered**
- 4. Save your completed form with the title “XX VE Report FY 09” where XX = your office/state**
- 5. Email completed form to Jeff Zaharewicz at jeffrey.zaharewicz@dot.gov**

Part 1 –Value Engineering Program

Number	Question	Background and Instructions
1a	<p>Does your DOT have a formalized VE Program that includes: <i>(Select all that apply):</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> An official VE Policy <input checked="" type="checkbox"/> A designated VE Coordinator <input checked="" type="checkbox"/> A VE Training Plan <input type="checkbox"/> No formalized VE Program currently exists at the DOT <p>Comments:</p>	<p>Select each program element that currently exists at the DOT.</p> <p>Answer appropriately if the DOT does not have a VE Program comprised of the elements listed.</p> <p>Provide comments as necessary.</p>
1b	<p>If your DOT’s VE Program has an official VE Policy, indicate which of the following elements are included <i>(Select all that apply):</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Processes to identify projects for VE studies <input checked="" type="checkbox"/> Processes to assure that required VE studies are completed <input checked="" type="checkbox"/> Processes to conduct VE studies <input checked="" type="checkbox"/> Timing of VE studies <input checked="" type="checkbox"/> Processes to review/accept/reject VE recommendations <input checked="" type="checkbox"/> Processes for tracking and monitoring VE studies <input type="checkbox"/> Processes for tracing and monitoring implementation of VE recommendations <p><input type="checkbox"/> No official VE Policy is in place, or the general requirements of 23 CFR 627 are followed</p> <p>Comments: We Identify projects through our annual VA workplan so money can be allocated for the upcoming FY. Chapter 19 of the PDPM Manual provides the Processes.</p>	

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1c	<p>Provide links to any of your DOT's currently available, VE-related web sites, such as:</p> <p>http://www.dot.ca.gov/hq/oppd/value/index.htm General VE Program Information http://admin.dot.ca.gov/tr/rppo/dep_directives/DD-92_Signed.pdf Official VE Policy http://www.dot.ca.gov/hq/oppd/value/index.htm General VE Processes and procedures</p> <p><input type="checkbox"/> Other</p>	
2a	<p>Does your DOT:</p> <p><input checked="" type="checkbox"/> Monitor the performance of the VE Program? <input checked="" type="checkbox"/> Evaluate and report on the performance of the VE Program?</p>	<p>Answer "Yes" to the first question if the DOT monitors its performance at a programmatic level.</p> <p>Answer "Yes" to the second question if the DOT prepares an annual report (separate from the FHWA reporting requirements) that summarizes and evaluates the performance of the VE Program.</p>
2b	<p>Does your DOT utilize performance measures besides those included in the FHWA reporting requirements, to assess the effectiveness of the VE Program:</p> <p><input checked="" type="checkbox"/> Yes</p>	<p>Answer "Yes" if your DOT tracks performance measures other than those required by this survey.</p>
2c	<p>If the answer to 2b is "Yes", please briefly describe. Our FHWA Stewardship agreement, includes percentage of mandated studies completed and number of non-mandated studies</p>	
3a	<p>Describe any practices your DOT uses to make the application of VE more successful.</p> <p>Caltrans has found that centralizing the VA program through HQ Design is the most effective practice for managing federal VE mandate, policy, and distribution of VA services. Caltrans also contracts out the Team Leader role in the VA study. By contracting out, the Department can hire Certified Value Specialist (CVS) that are experts in delivering a successful VA study. Some benefits to using consultant team leaders include; guaranteed completion of the VA process, delivery of a completed report, outside influence for better performing team members, statewide standardization of VA policy and procedure, and expertise not found within the</p>	<p>Briefly describe individual practices or policies that enable VE studies to be conducted in a successful manner. Examples for discussion include but are not limited to:</p> <ul style="list-style-type: none"> • Program Coordination and Communication • Planning, coordinating and conducting VE studies • Integrating VE within Project Development • Coordinating VE with other project cost and quality review techniques • Reviewing/Accepting/Rejecting

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	<p>Department. Along with hiring CVS, we also on occasion utilize our VA contracts to hire expert consultants team members. For specialized expertise not found in the Department, these consultants are key to the success of the study.</p>	<p>recommendations</p> <ul style="list-style-type: none"> • Monitoring and tracking activities • Other practices and policies 								
3b	<p>Describe any practices your DOT uses to encourage more successful implementation of VECPS during construction. N/A</p>	<p>Briefly describe individual practices or policies that enable VE Change Proposals to be implemented in a successful manner. Examples include but are not limited to:</p> <ul style="list-style-type: none"> • Encouraging submittals of VECPS • Reviewing/approving/rejecting VECPS • Monitoring and tracking the implementation of VECPS • Implementing VECPS on design-build projects 								
4a	<p>Identify the typical project factors and associated measures that your DOT requires to be analyzed on VE Studies.</p> <p>Examples:</p> <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 20px;"><u>Factor</u></td> <td><u>Measure</u></td> </tr> <tr> <td>Safety</td> <td>Crashes</td> </tr> <tr> <td>Traffic flow</td> <td>Delay</td> </tr> <tr> <td>Cost</td> <td>\$\$\$</td> </tr> </table> <p>Our VE Process defines five standard functional performance measures. Mainline Operations, Local Operations, Maintainability, Constructability, and Project Schedule. A great deal of effort is performed during the study to quantify these functions. During the Pre-study and Investigation phases, the importance of each function is determined based on project details and a percentage is assigned using paired comparisons. Then during Development and Evaluation, the alternatives are measured against the baseline functions to determine the Value of the alternative. Value is defined by Performance divided by Cost.</p>	<u>Factor</u>	<u>Measure</u>	Safety	Crashes	Traffic flow	Delay	Cost	\$\$\$	<p>Identify and briefly describe how project functions (e.g., traffic, safety) are typically addressed during the Investigation, Speculation, and Evaluation phases of your VE analyses; explain the typical level of effort expended in analyzing these critical project functions.</p>
<u>Factor</u>	<u>Measure</u>									
Safety	Crashes									
Traffic flow	Delay									
Cost	\$\$\$									
4b	<p>Describe how your DOT incorporates Life-Cycle Cost Analyses during the VE.</p> <p>During the development of alternatives, a Life Cycle Cost analysis is used to determine the user cost/benefits of the alternative. Typically, this analysis is used to quantify the Value of the alternative for implementation support.</p>	<p>Summarize your DOTs use of life cycle cost analyses while conducting VE studies; indicate whether they are conducted as part of the study directly, if the study incorporates an independently conducted life cycle cost analysis, etc.</p>								

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4c	<p>What number of the total number of VE studies completed in FY 09 occurred in the following:</p> <p>2 Planning Phase 31 Environmental Phase 4 Up to 30% Design Phase 3 30-60% Design Phase 8 60% or later Design Phase</p> <p>Provide comments describing your experience regarding the timing of the VE studies:</p> <p>Typically, the bulk of our savings is found in the Enviromental phase of the project. Out of our 31 studies performed during the environmental phase, a 9% savings was achieved. That's almost twice the national average. Lesson Learned... earlier is better.</p>	<p>For the total number of VE studies completed in FY 09 (as reported in Question 9a) select the timetable that best matches your DOT's timing for conducting the studies.</p> <p>Provide additional details about successes and lessons learned, or describe when your DOT would not follow the general trend.</p>
4d	<p>For design-build projects, identify the timetable that best describes when VE studies are typically conducted by your DOT. <i>Select one of the following:</i></p> <p><input type="checkbox"/> Planning/scoping <input type="checkbox"/> Prior to Issuance of RFP <input type="checkbox"/> After Issuance of RFP</p> <p><input checked="" type="checkbox"/> State DOT does NOT currently use design-build</p> <p>Provide comments describing your experience regarding the timing of the VE studies:</p> <p>The Design-Build process has just recently been authorized deliver projects within Caltrans. The Department was granted authority to deliver 10 projects using DB. We are currently in the project selection process and have mandated that the VA study be performed prior to the RFP.</p>	<p>Select the timetable that best matches your DOT's timing for scheduling and conducting studies. If your state does not use or permit design-build contracting, indicate as appropriate and proceed to question 4e.</p> <p>Use the "Comments" section to briefly detail the approach taken to conduct the study based on the stage of the project when the study was conducted and identify successes and lesions learned.</p>
4e	<p>If your DOT conducts multiple VE studies on Major Projects, describe the points in the project development process where the studies occur.</p> <p>Caltrans does not have a multiple study policy for Major projects, however, many of our Major projects do utilize VA</p>	<p>Identify the common points in the project development process when VE studies typically occur for Major Projects (\$500 Million or greater). If the DOT does not conduct multiple studies for Major Projects, proceed to Question 5.</p>

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	<p>several time. Typically, at least one study is performed in the planning stage, and additional studies are performed in the Environmental and Design phases.</p>	
5	<p>Briefly describe any special studies conducted by your DOT in FY 2009.</p> <p>The Document Retrieval System (DRS) –DRS is an archive database where the Department stores project As-Built data. The system is used by many divisions such as: Traffic, Design, Planning, Legal, R/W, and others to retrieve the As-Built plan sheet information. Over the years, the system now houses many project related documents including VA study reports.</p> <p>In 2009, we conducted two VA studies on DRS. One to determine “The Value of DRS” and the other on the how, why and who is responsible for the DRS support, both technically and financially. Because DRS is used by so many different divisions and programs, the VA study was conducted to determine the support levels, organization structure, and technical requirements for the future of DRS. It was also determined that DRS is not only valuable, but may replace the Department’s microfiche policy. In today’s “go green” environment, paperless archives are the way of the future.</p> <p>Unfortunately, in today’s economy, when it comes to dollars, many are reluctant to give up any. At this point, some of the VA alternatives are still in the implementation phase. However, management has the backing and documentation needed to convince the decision makers of what needs to be changed for the future of DRS.</p>	<p>Describe any business process, review of standards & specifications, or any other unique studies that used the VE job plan for which cost savings were not calculated.</p> <p>Answer “N/A” as appropriate.</p>
6	<p>Briefly describe any special studies conducted by your DOT in FY 2009.</p> <p>The VA process was used for a two-phase process improvement study to identify processes and develop tools for Project Development Teams (PDT) to better manage stakeholder involvement planning throughout project development. First, gaps were identified in the Caltrans stakeholder involvement process and opportunities developed to address those gaps. Then a generic “Stakeholder Involvement Plan” was developed as an enhanced communication tool to supplement the Caltrans Project</p>	<p>Describe any business process, review of standards & specifications, or any other unique studies that used the VE job plan for which cost savings were not calculated.</p> <p>Answer “N/A” as appropriate.</p>

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	<p>Communication Handbook for use early and continuously through each phase of a project to facilitate cost-effective delivery of projects. The Plan was then successfully used as a Pilot Plan on a controversial California coastal widening project in Santa Barbara County to help the Project Manager move the stalled project forward.</p> <p>The generic Plan is to be used by the PDT to better identify, address, track and manage involvement of affected stakeholders, or their representatives, especially those with diverse interests. The Plan also allows a PDT to better plan for needed staff and resources to identify key stakeholders throughout project development. This Plan facilitates key buy-in from stakeholders streamlining consensus in identifying an alternative for the project that could be pursued for funding.</p> <p>Currently, an internal team is being assembled led by the Division of Design's Landscape Architecture Program to assess, prioritize and implement the opportunities identified in the VA process improvement study to address the gaps in the Caltrans stakeholder involvement process.</p>	
7	<p>Describe a unique or innovative VE recommendation or VE Change Proposal that provided significant benefit to the project on which it was implemented</p> <p>The VA study was a \$47 million replacement of the SR 89 Union Pacific Railroad Undercrossing in Truckee, California. The baseline design proposed construction of a new underpass in place. Proposed roadway work would increase the capacity and allow pedestrian and bicycle access. The baseline also proposed to construct a shoofly detour for the two mainline railroad tracks during construction of the new structure. The VA team concentrated on ways to minimize temporary work for the long-term solution, such as eliminating the need for the \$13 million shoofly for the railroad.</p> <p>The team explored new “top-down’ construction methods. Using the New Austrian Tunneling Method (NATM) they developed two alternatives that would create a double tunnel in place without disturbing the mainline RR tracks. The construction methods consist of an interlocking pipe support system and soft-earth</p>	<p>Describe an implemented recommendation or VE Change Proposal that could potentially find application in other projects or by other DOTs.</p>

Number	Question	Background and Instructions
	<p>tunneling techniques to bore a tunnel beneath the RR tracks without disrupting service. Both alternatives eliminated the shoofly detour saving the project \$10-\$15 million.</p>	
8a	<p>Enter the number of State DOT, FHWA, and other individuals receiving VE training in FY 2009</p> <p>38 DOT FHWA Other</p>	
8b	<p>Identify the method(s) that best describe(s) your DOT's approach to conducting VE training and education (<i>Select all that apply</i>):</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Short-duration orientation presentations for agency leadership <input checked="" type="checkbox"/> Short-duration orientation presentations for technical staff <input type="checkbox"/> Short-duration workshops/studies <input type="checkbox"/> NHI VE Workshop <input checked="" type="checkbox"/> SAVE Mod I training course <input checked="" type="checkbox"/> SAVE Mod II training course <input type="checkbox"/> Other 	

Part 2 --Summary of VE Studies

Number	Question	Background and Instructions
9a	Total # of Studies Completed in FY 2009 # In-House 48 # Consultant	Report only on studies that for which all activities were completed; distinguish between studies accomplished by in-house resources and consultants
9b	# of Studies Completed in FY 2009 that were Required by Federal Law # In-House, 43 # Consultant	Of the numbers reported in Question 9a, indicate the number of studies that were conducted to meet current Federal Regulations.
9c	# of Studies Completed in FY 2009 that were specially designated by the Secretary. 0 # In-House, 0 # Consultant	The Secretary of Transportation has the authority to require states to conduct VE studies on any project determined to be appropriate (as specified in 23 USC 106(e)(2)(c)). This authority has been delegated to the Division Administrator in each Division Office. Of the studies reported in Question 9a, indicate if any of these were specially directed.
9d	# of Studies Completed in FY 2009 for Projects that received funding from American Recovery and Reinvestment Act (ARRA) of 2009 # In-House 2 # Consultant	Of the number of Studies reported in Question 9a, indicate the number of projects studied that received funding from the ARRA.
9e	# of specially designated Studies for projects that received ARRA funding. 0 # In-House 0 # Consultant	Of the number of Studies for projects involving ARRA funding as reported in Question 9d, indicate the number of studies that were specially designated by the Secretary in accordance with 23 USC 106(e)(2)(c).
9f	Anticipated # of Studies to be Completed during FY 2010 and 2011. FY 2010 # In-House, 49 FY 2010 # Consultant FY 2011 # In-House 43 FY 2011 # Consultant	For informational purposes only, report on any studies that were initiated in 2009 but will be finalized in 2010, in addition to all other planned studies for completion in 2010 and 2011 if information is available.

Number	Question	Background and Instructions
10a	Estimated costs associated with conducting the VE studies \$2,151,000	When reporting on cost of studies completed, include the following: <ul style="list-style-type: none"> • Contract amounts associated with consultant-led VE studies • Approximate salary, travel and incidental in-house costs associated with supporting consultant-led VE studies • Approximate salary, travel and incidental costs associated with conducting in-house VE studies • Approximate costs associated with documenting in-house VE studies
10b	Estimated costs of the projects studied <i>\$3,398,000,000</i>	Use the estimated costs of the projects at the time the VE study was conducted. Project Costs include: <ul style="list-style-type: none"> • Planning • Environmental Compliance • Preliminary Engineering • Construction Estimate • Construction Engineering Estimate
11a	Enter the total number of recommendations proposed 199	Enter the total number of recommendations proposed.
11b	Enter the total number of recommendations approved 135	Enter the total number of recommendations that were approved.
12a	Enter the value of recommendations proposed 257,000,000	Enter the total net value of the proposed recommendations.
12b	Enter the value of recommendations approved 171,000,000	Enter the total net value of the recommendations that were approved.
13a	Enter the total number of VECP Submitted Unknown	Enter the total number of VECP that were submitted.
13b	Enter the total number of VECP approved 43	Enter the total number of VECP that were approved.
14a	Enter the total value of VECP submitted	Enter the total value of the proposed VECP.
14b	Enter the total value of VECP approved 3,688,500	Enter the total value of the approved VECP.

Part 3-Benefits of VE Studies and VE Change Proposals

Number	Question	Background and Instructions
15	<p>Tabulate the approved VE recommendations according to functional benefit</p> <p>#safety 2 #operations 26 #environment 31 #construction 70 #other 34</p>	<p>Report each approved recommendation (from Question 11b) in terms of the project feature or features that recommendation benefits. If a specific recommendation can be shown to provide benefit to more than one feature described below, count the recommendation in each category that is applicable:</p> <ul style="list-style-type: none"> • Safety: Recommendations that mitigate or reduce hazards on the facility • Operations: Recommendations that improve real-time service and/or local, corridor, or regional levels of service of the facility. • Environment: Recommendations that successfully avoid or mitigate impacts to natural and or cultural resources. • Construction: Recommendations that improve work zone conditions, or expedite the project delivery. • Other: Recommendations not readily categorized by the above performance indicators.
16	<p>Tabulate the approved VECs according to functional benefit</p> <p>Tabulate the approved VE recommendations according to functional benefit</p> <p>#safety unknown #operations unknown #environment unknown #construction unknown #other unknown</p>	<p>Report each approved change proposal (from Question 13b) in terms of the project feature or features that recommendation benefits. If a specific recommendation can be shown to provide benefit to more than one feature described below, count the recommendation in each category that is applicable:</p> <ul style="list-style-type: none"> • Safety: Recommendations that mitigate or reduce hazards on the facility • Operations: Recommendations that improve real-time service and/or local, corridor, or regional levels of service of the facility. • Environment: Recommendations that successfully avoid or mitigate impacts to natural and or cultural resources. • Construction: Recommendations that improve work zone conditions, or expedite the project delivery. • Other: Recommendations not readily categorized by the above performance indicators.

Part 4-FHWA Stewardship & Oversight of the VE Program (The following information is for use by the FHWA only)

Number	Question
17a	<p>How is VE considered as part of your Division’s Risk Management process? <i>Select One of the Following:</i></p> <p><input type="checkbox"/> Directly</p>

Number	Question
	<input checked="" type="checkbox"/> Indirectly (e.g., through Design Program) <input type="checkbox"/> Not Considered
17b	What was the identified level of risk assigned to VE by your Division? <i>Select One of the Following:</i> <input type="checkbox"/> High risk to program <input type="checkbox"/> Moderate to program <input checked="" type="checkbox"/> Low risk to program <input type="checkbox"/> Not Evaluated
18a	Did your Division Office conduct a Process Review of the DOT's VE Program in FY 2009? <input type="checkbox"/> Yes/No
18b	Will your Division Office conduct a Process Review of the DOT's VE Program in FY 2010? <input checked="" type="checkbox"/> Yes/No
19a	Describe how the VE Program is currently addressed in your Division's Stewardship and Oversight Agreement with your DOT. <i>Select All that Apply:</i> <input type="checkbox"/> VE is not addressed <input checked="" type="checkbox"/> VE is addressed by reference in Design Oversight Section <input type="checkbox"/> Federal Regulations for VE are referenced <input type="checkbox"/> State DOT's VE Policies and Procedures are referenced <input type="checkbox"/> Division's VE Coordinator Role is discussed <input type="checkbox"/> Division's general roles and responsibilities are discussed <input type="checkbox"/> Division's participation in VE Studies is discussed <input type="checkbox"/> Division's role in review of VE recommendations is discussed <input type="checkbox"/> Division's role in VE Program monitoring is discussed
20a	Describe your Division's typical level of participation in VE Studies <i>Select that answer that best applies:</i> <input type="checkbox"/> Normally (80-100% of projects) <input type="checkbox"/> Frequently (60-80% of projects) <input type="checkbox"/> Occasionally (40-60% of projects) <input type="checkbox"/> Seldom (20-40% of projects) <input checked="" type="checkbox"/> Rarely (0-20% of projects)
20b	Describe your Division's typical level of participation in the approval/rejection process for VE recommendations <i>Select that answer that best applies:</i> <input type="checkbox"/> Normally (80-100% of projects) <input type="checkbox"/> Frequently (60-80% of projects) <input type="checkbox"/> Occasionally (40-60% of projects) <input type="checkbox"/> Seldom (20-40% of projects) <input checked="" type="checkbox"/> Rarely (0-20% of projects)
20c	Describe your Division's level of effort monitoring the implementation of recommendations

Number	Question
	<p data-bbox="275 180 663 207"><i>Select that answer that best applies:</i></p> <ul style="list-style-type: none"> <li data-bbox="327 212 722 240"><input type="checkbox"/> Normally (80-100% of projects) <li data-bbox="327 245 722 272"><input type="checkbox"/> Frequently (60-80% of projects) <li data-bbox="327 277 743 305"><input type="checkbox"/> Occasionally (40-60% of projects) <li data-bbox="327 310 684 337"><input type="checkbox"/> Seldom (20-40% of projects) <li data-bbox="327 342 663 370"><input checked="" type="checkbox"/> Rarely (0-20% of projects)
20d	<p data-bbox="275 375 1566 402">Describe your Division's efforts to ensure that the States complete the required VE Studies prior to authorization:</p> <p data-bbox="275 407 663 435"><i>Select that answer that best applies:</i></p> <ul style="list-style-type: none"> <li data-bbox="327 440 810 467"><input type="checkbox"/> All projects are checked for compliance <li data-bbox="327 472 852 500"><input checked="" type="checkbox"/> Projects are "spot checked" for compliance <li data-bbox="327 505 1199 532"><input type="checkbox"/> Compliance for completion of required VE studies is not checked formally