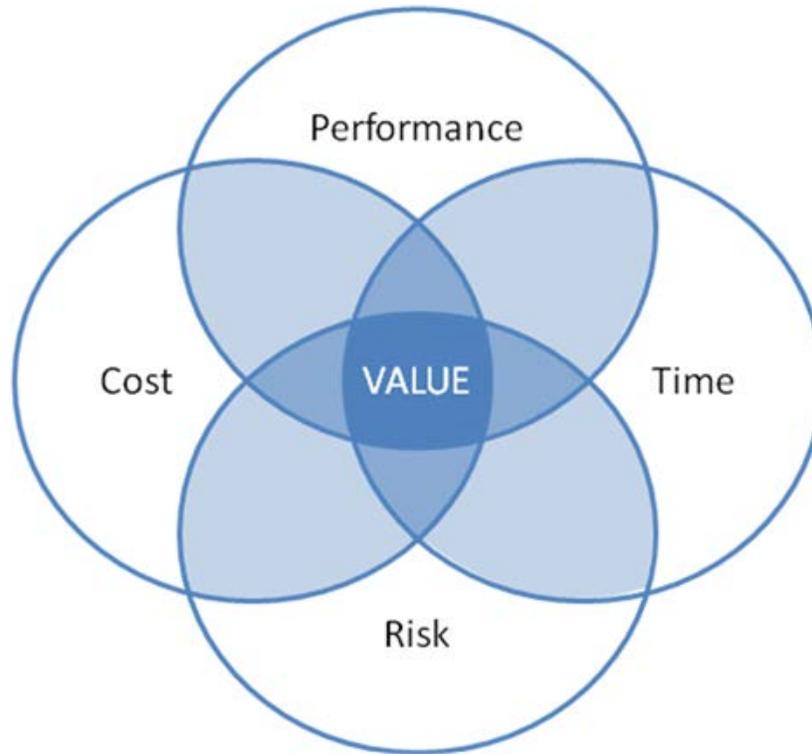


# VALUE ANALYSIS TEAM MEMBER GUIDE



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# VA Team Member Guide

## Acknowledgement

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The purpose of this guide is to help Value Analysis (VA) Team members understand the Caltrans VA Process and their roles as team members in a VA Study. Being prepared is an important part of the VA process. This guide can be used as a quick reference in preparing for a study. Many of the graphics and language was developed from our friends at Value Management Strategies, Inc. A special thanks is given to them for their years of dedicated service to the Caltrans VA Program.

## INTRODUCTION

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Congratulations, you have been selected to participate on the Value Analysis (VA) Study as a valued team member. Your management has chosen you for your functional expertise and experience in your field. They believe your expertise is critical to improve the value of the project. As a team member, you are expected to provide your professional knowledge and judgment and work with other team members to identify potential improvements to the project being studied. The VA Study will be conducted by a Certified Value Specialist (CVS), experienced in the Caltrans VA Process. The CVS will guide the team through the VA Study and document the results for management.

This guide is the first step in preparing you for a VA Study. Knowing the VA process and your role as a team member will help streamline the VA process to improve the project.

Thank you for your participation in the VA Study.

## WHAT IS A VALUE ANALYSIS STUDY?

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**A VA Study is the application of recognized techniques by a multi-discipline team to improve project value by evaluating its functions to meet the customer's required performance at the lowest overall cost.**

A Value Analysis (VA) Study is a unique workshop where an independent team of subject matter experts (SMEs) analyze the functions of the project. While evaluating the project functionally, the team will ultimately make recommendations that make the baseline project perform even better. This workshop is not a design review, nor is it to critique the current baseline design. It is meant to recommend ways for the project to meet its purpose and need at a greater value.

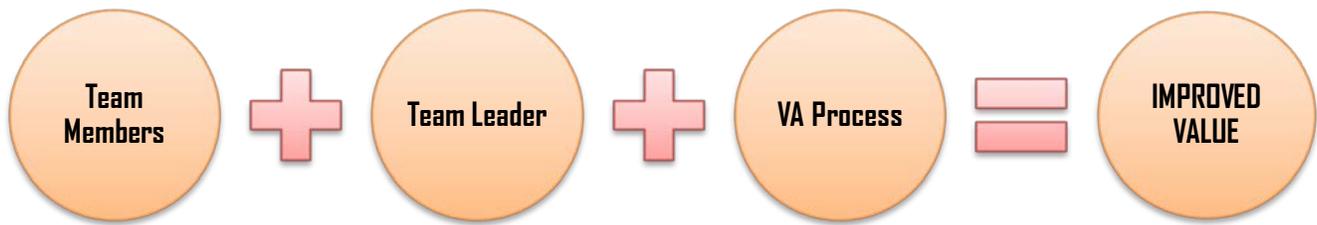
Value can be measured several ways. Within Caltrans, value is defined as the interrelationship between cost, performance, delivery schedule, and project risks. The equation below describes the relationship. Ideally, to maximize Value, the study will recommend something that will increase performance and reduce delivery schedule with less risk at an overall less cost.

Project performance is the cornerstone of VA in Caltrans. Our VA process will quantify how the recommendation affects the project's performance. In general, we measure performance in terms of Operations, Environmental Impacts, Construction Impacts, Maintainability, Project schedule, and Risk.

$$\text{VALUE} = \frac{\text{Performance} + \text{Risk}}{\text{COST} + \text{Delivery}}$$

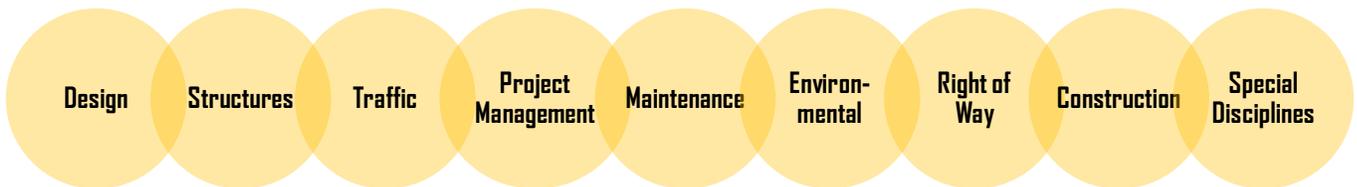
## VA TEAMS

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### ▶▶ Who is selected to be a Member of a VA Team?

Caltrans employees from all functional units are eligible for participation on a VA Study. Based on the project, the disciplines required, level of experience, and expertise for each discipline, the PM and functional unit management work with the District Value Analysis Coordinator (DVAC) to identify and commit the right team members for the study.



### ▶▶ Why be a VA Team Member?

Participating on a VA Study provides a unique opportunity to:

- Look at what you do every day in a different way
- Apply your creativity to solve problems
- Challenge standard ways of doing things
- Understand how other people see things
- Learn something new
- Meet new people
- Be recognized for your contributions
- Improve the value of taxpayer dollars

## ▶▶ Team Leader

The VA Team Leader facilitates all meetings and workshops and prepares reports documenting the results of the VA Study. They are independent of the project and have no direct authority over the project. However, they provide some degree of objectivity to guide the team members through the VA process. They are typically a Certified Value Specialists (CVS) with unique qualifications to abstract the most from their teams.

## ▶▶ District VA Coordinator (DVAC)

Each Caltrans District/Region has a VA Coordinator. DVAC's are the local VA contacts and are excellent resources regarding VA. DVACs are responsible for the following:

- ✓ Coordinate with Project Managers
  - Determine which projects are to be studied
  - Study timing
- ✓ Prepare and submit task orders to HQ for Team Leaders
- ✓ Coordinate dates, times and meeting locations
  - Pre-Study Meetings
  - VA Study Workshops
  - Implementation Meetings
- ✓ Coordinate VA Team Members
- ✓ Distribute Reports

## ▶▶ Team Member's Roles and Responsibilities

The following are some of the roles and responsibilities of the individual members of the VA Team. This list is not all-inclusive and not project-specific, but generally encompasses the expectations for each member. Project-specific roles and responsibilities may differ from those listed below, but these will generally be announced at the start of a VA Study.

- **Make every effort to be present throughout the VA Study workshop.** VA is a process and missing time places the entire team at a disadvantage, disrupts the study, and potentially diminishes the results.
- **Be prepared.** Make every effort to review the project information prior to the VA Study.
- **Be ready to challenge project assumptions.** This will either serve to validate the concept or lead to interesting and valuable alternatives for consideration.
- **Follow the Team Leader's guidance in helping the team move towards its objectives.** It is likely that the VA Team Leader will not be a Caltrans employee. They are not your "boss", but rather your "coach".

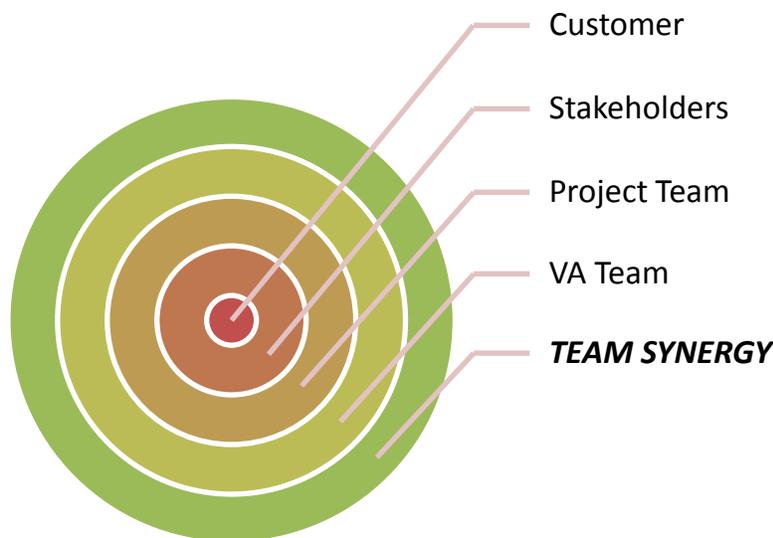
- **You must maintain a positive mental attitude.** You are on the team to look at problems differently and help find alternative solutions. Try and find ways to overcome challenges rather than contribute to the roadblocks!
- **Use empathy in dealing with others and avoid using critical language.** The VA Process is not a design review – it is a way of looking at problems differently and coming up with alternative ways of solving them.
- **It is your responsibility to make yourself heard!** The VA Study provides an environment that allows everyone to be heard. If you have something to say, you will be given the opportunity but you must take advantage of it.
- If the project or study has little to do with your area of expertise, find other ways to help – ask the Team Leader!

► **Expected Behaviors & Attitudes** ◀

1. ***Be prompt***
2. ***Be respectful***
3. ***Be open-minded***
4. ***Listen – People were given two ears and one mouth – use them proportionately***
5. ***Participate – don't just sit on the sidelines***
6. ***Contribute in a meaningful way***
7. ***Don't assume anything – find out!***
8. ***Do your best!***

►► **Teamwork**

The VA process is a complex and systematic process. The success of the study is directly linked to the communications, dedication and teamwork of all the people involved.



# CALTRANS VA PROCESS

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The Caltrans VA process involves 16 activities needed to accomplish a VA Study, organized in three parts: Pre-study, VA Study, and Report.

The following provides an overview of the Caltrans approach to VA. The Caltrans VA Study Activity Chart, presented on page 12, identifies the steps in each activity. Under each of the following sections, a clear breakdown of the activities, responsibilities, and expectation of the VA Team members is provided.

## ►► Pre-Study

Meaningful and measurable results are directly related to the pre-study work performed. Depending on the type of study, all or part of the following information needs to be determined during the pre-study phase:

- ✓ Clear definition of the current situation and study objectives
- ✓ Identification of study team members
- ✓ Identification of project stakeholders
- ✓ Definition of how stakeholders are impacted by the project
- ✓ Identification of key issues and concerns
- ✓ Identification of project's performance requirements and attributes
- ✓ Status of project cost estimate
- ✓ Project data gathered to be distributed to VA Team

In preparation for the VA Study, the Team Leader confers with owners and stakeholders to outline the Caltrans VA process requirements, initiate data gathering, refine project scope and objectives, structure the scope and team members and technical specialists, and finalize study plans.

Following the initial planning meeting, the Team Leader reviews the data collected for the project and develops a cost model. The Team Leader also consults with the technical specialists (team members) to prepare them for the VA Study.

***★ Team members are not included in the pre-study meeting. However, this typically begins the team members' involvement in the VA process.***

## ▶▶ VA Study Workshop

The VA Job Plan guides the VA Team in their endeavor to enhance value in the project or process. Caltrans follows a seven-phase VA Job Plan.

### ☑ Information Phase

At the beginning of the VA Study, the design team presents a more detailed review of the design and the various systems. This includes an overview of the project and its various requirements, which further enhances the VA Team's knowledge and understanding of the project. The project team also responds to questions posed by the VA Team. The project's performance requirements and attributes are discussed, and the performance of the baseline concept is evaluated.



#### ★ What this typically means for you

▶ **VA Team Set-up** – The VA Team will arrive at the designated location to get situated and set up for the Kick-Off Meeting.

▶ **Kick-Off Meeting** – Consisting of:

**Introductions** (Approx. 15 mins) – All participants in attendance will introduce themselves to the group.

**VA Agenda Review** (Approx. 15 mins) – The VA Team Leader will review the VA Study's activities, process, schedule, and responsibilities.

**Project Overview** (Approx. 30 to 45 mins) – The Project Manager and Engineers will discuss the project's need and purpose, provide an overview of the project, which will, from this point forward, be referred to as the "baseline concept."

**Stakeholder Issues and Concerns** (Approx. 30 to 45 mins) – The key Project Stakeholders will be asked to describe their issues and goals for the project, unusual circumstances that need accommodation, and other operational considerations.

**Performance Attributes and Requirements and Analysis of Design Alternative** (Approx 30 to 45 mins) – The VA Team Leader will solicit input from the participants to establish the most important performance attributes, requirements that the project must achieve in order for it to proceed, and then evaluate the baseline design concept based on this information.

▶ **Site Visit** (Approx. 2 hours) – The Project Manager and/or Project Stakeholders will, if possible, facilitate a visit to the site or a similar facility to better understand operations. If a site visit cannot be accommodated, a virtual site visit can also be performed using video logs or other methods to adequately depict site conditions.

▶ **Recap Site Visit** (Approx. 30 mins) – The VA Team Leader will solicit and document the site visit observations made by the Team.

## ✓ Function Phase

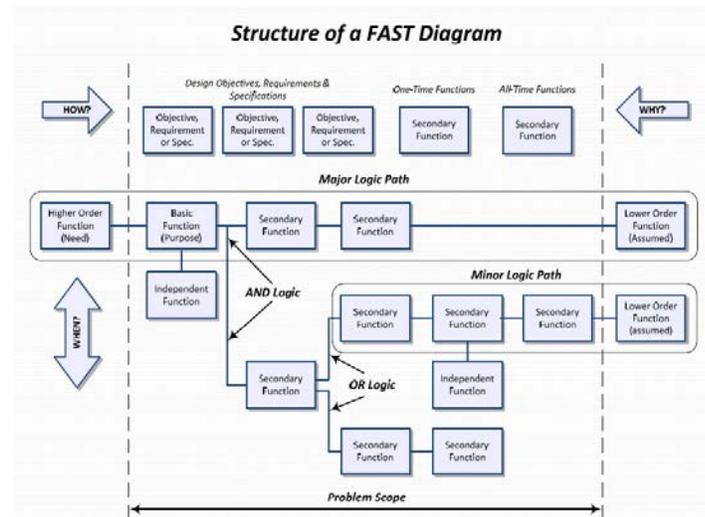
Key to the VA process is the function analysis techniques used during the Function Phase. Analyzing the functional requirements of a project is essential to assuring an owner that the project has been designed to meet the stated criteria and its need and purpose. The analysis of these functions in terms of cost, performance, time, and risk is a primary element in a VA Study, and is used to develop alternatives. This procedure is beneficial to the VA Team, as it forces the participants to think in terms of functions and their relative value in meeting the project's need and purpose. This facilitates a deeper understanding of the project.



### ★ What this typically means for you

► **Function Analysis/FAST Diagram** (Approx. 1 hour)– The VA Team Leader will solicit input from the team about what the functions of the project are, including the one-time functions, all-the-time functions, and even functions that are undesirable. The Team Leader will then arrange those functions to form a Function Analysis System Technique (FAST) Diagram. This helps the team to understand how the various project functions relate to each other and support the project's need and purpose.

► **Cost and Performance/Function Analysis** (Approx. 90 mins) – The Team Leader will guide the team through the process of analyzing the functions of the project as they relate to project cost and project performance. This information is then related back to the FAST Diagram, helping to focus the team's thinking of the project for creativity and brainstorming to occur in the next phase, Speculation.



## ✓ Speculation Phase

The Speculation Phase involves identifying and listing creative ideas. During this phase, the VA Team participates in a brainstorming session to identify as many means as possible to provide the necessary project functions. Judgment of the ideas is not permitted in order to generate a broad range of ideas.

The idea list includes all of the ideas suggested during the study. These ideas should be reviewed further by the project team after the VA Study, since they may contain ideas that are worthy of further evaluation and may be used as the design develops. These ideas could also help stimulate additional ideas by others.

★ What this typically means for you

► **Team Brainstorming** (Approx. 2 to 4 hours) – Using the functions previously determined in the Function Phase as targets, the Team Leader will elicit creative ideas or alternatives to the baseline concept from the team to optimize the value of the project.

☑ Evaluation Phase

The purpose of the Evaluation Phase is to systematically assess the potential impacts of each idea generated during the Speculation Phase relative to its potential for value improvement.



★ What this typically means for you

► **Evaluation of Ideas** (Approx. 2 to 3 hours) – Each idea is evaluated by the *team as a group* in terms of its potential impact to performance, cost, time, and risk. Once an idea is fully evaluated, it is given a total rating number, based on a scale of 1 to 7, as indicated by the following rating index:

Rating/Level of Value Improvement	Definition
7 = Major Value Improvement 6 = Moderate Value Improvement 5 = Minor Value Improvement 4 = Possible Value Improvement	These ratings represent the subjective opinion of the VA Team regarding the potential benefits of the concepts in order to prioritize them for development.
3 = Minor Value Degradation	Concept results in a minor cost or performance improvement at the expense of the other.
2 = Moderate Value Degradation	Concept reduces cost but creates an unacceptable degradation to performance.
1 = Major Value Degradation	Concept is not technically feasible or does not meet project need and purpose.

☑ Development Phase

During the Development Phase, the highly rated ideas (rated 4 and higher) are expanded and developed into VA Alternatives. The development process considers the impact to performance, cost, time, and risk of the alternative concepts relative to the baseline concept. This analysis is prepared as appropriate for each alternative, and the information may include a performance assessment, initial cost and life-cycle cost comparisons, schedule analysis, and an assessment of risk. Sketches and calculations are also prepared for each alternative as appropriate. Below is a sample of a VA Alternative.

**VA ALTERNATIVE 1.2**  
Do half width bridge construction to eliminate the detours

Initial Cost Savings: (\$860,000)  
LCC Savings: \$0  
Change in Schedule: +6 months  
Performance Change: +11 %  
Value Change: +5 %

**Description of Baseline Concept:** The proposed baseline project includes the replacement of the existing Rojo Wash Bridge (Bridge No. 54-894 L&R) and the Clipper Valley Wash Bridge (Bridge No. 54-895 L&R) with new structures in both directions at the same time. This approach requires the construction of a two-directional temporary construction detour within the median to redirect traffic away from the existing structures. The proposed detour would consist of one 12-foot-wide lane, a 4-foot outside shoulder, and a 2-foot inside shoulder in each direction. The temporary detour would be designed to accommodate operating speeds of 55 mph and would be constructed of asphalt concrete pavement. The length of the temporary detour would be approximately 3,050 feet at Rojo Wash and 4,730 feet at Clipper Valley Wash.

**Description of Alternative Concept:** The alternative approach includes the simultaneous demolition and reconstruction of the four structures by half width (half bridge at a time). No detours are required. A closure pour will be necessary.

**Advantages:**

- Eliminates detours
- Reduces environmental impacts
- Smooths traffic flow by keeping traffic in the same roadbed
- Eliminates the potential for washing out the detour

**Disadvantages:**

- Longer construction period
- Built in three stages, including the closure pour
- Somewhat narrower roadway during construction; may pose a problem for emergency vehicles
- Existing bridges may need to be shored during construction
- Care must be taken to avoid interference during substructure construction

**Discussion:** This approach minimizes the impact on the traveling public by eliminating traffic shifts due to detours. Will need to use gawk screen on the K-rail during construction. By eliminating the detours this will significantly improve impacts to the environment.

**Technical Review Comments:** May help to avoid additional stresses on the bridge. May not need to reduce traffic speeds during construction. Access to the wash can only be at one point. Saves environmental issues.

**Project Management Considerations:** An increase in schedule will increase project management costs.

**Discussion of Schedule Impacts:** Increases the construction schedule from 18 to 24 months.

D-8 Rojo Clipper Wash Bridge Replacement Value Analysis Alternatives

**VA ALTERNATIVE 1.2**  
Do half width bridge construction to eliminate the detours

**Assumptions and Calculations:**

Costs will increase by 15% on the whole width construction. Base cost is approximately \$415/SF. This approach is \$477.

660' long x 42' wide = 27,720  
11,500,000/27,720 = \$415/SF  
\$415 x 1.15 = \$477

D-8 Rojo Clipper Wash Bridge Replacement Value Analysis Alternatives

★ What this typically means for you

► **Team Member Assignments for VA Alternative Development** (Approx. 15 mins) – Based on the disciplines and strengths of the team members, the Team Leader will work with the team to assign the task of developing each of the highly rated ideas into VA Alternatives.

► **Review VA Alternative Development Process** (Approx. 10 mins) – The Team Leader will distribute the “Guidelines for Writing Value Alternatives for VA Team Members” (see page 13) and review the development process with the team.

► **VA Alternative Development** (Approx 1 to 3 work days) – This independent work time is used to develop the alternatives based on the instructions previously given. This can include – and often does – enlisting the help of other team members to obtain input from other disciplines for fully fleshing out ideas, meeting with the team cost estimator/engineer to determine quantities and unit cost assumptions and calculations, and creating drawings/sketches to visually depict the alternative concept.

► **Group Review and Ranking of VA Alternatives/Strategy** (Approx. 1 to 2 hours) –The VA Team will develop a VA strategy(s) that represents their opinion of the best combination of alternatives for the project to assist the decision makers in their evaluation of the VA Alternatives. (Typically, there are combinations of some alternatives that may provide the best solution for the project. This is due to the fact that some alternatives may be competing ideas or different ways to address the same issue. Some alternatives are developed to answer a question raised by a decision maker or to resolve an open issue and found not to be beneficial to the ultimate project.) The VA

strategy(s) can be based on factors that include improved performance, likelihood of implementation, least community impact, cost savings, or any combination of project's performance attributes.

## ☑ Presentation Phase

The VA Study concludes with a preliminary presentation of the VA Team's assessment of the project and VA Alternatives. The presentation provides an opportunity for the Owner, Project Team, and Stakeholders to preview the alternatives and develop an understanding of the rationale for their potential implementation.

### ★What this typically means for you

► **Presentation Preparation** (Approx. 1 to 3 hours) – The VA Team will work with the Team Leader to prepare a presentation, usually with PowerPoint®. The presentation typically includes:

- ✓ Project Overview
  - Purpose & Need
  - Project Description
- ✓ Brief Overview of Value Analysis process
- ✓ Preview of the VA Alternatives that have been proposed by the VA Team
- ✓ Summary of VA Strategies
- ✓ Opportunity for Questions from Owner, Project Team, and Stakeholders

*★This typically concludes the team members' involvement in the VA process. This is, however, subject to change on a project-by-project basis, and some team members may be involved in the Implementation Meeting (see below) as needed.*

## ☑ Implementation Phase

After the stakeholders have had an opportunity to review the alternatives identified by the VA Team, the Team Leader conducts an implementation meeting to discuss the VA Alternatives and resolve appropriate action for each of them. This implementation meeting helps to ensure that savings or process improvements are not lost due to lack of communication and that those VA Alternatives that are accepted are properly integrated into the project design. If necessary, any other edits to the VA report requested by the representatives are also made by the VA Team leader when the final report is issued.

### ★What this typically means for you

► **Implementation Meeting:** VA Team members may be invited to the Implementation Meeting to offer special input in the Project Stakeholder decision-making process.

## ▶▶ Post-Study/VA Report

After the conclusion of the VA Study, a series of reports are created by the VA Team Leader and issued to the Project Team. The following describes the intent of each report, its timing, its contents, and its ultimate call to action.

### ☑ Preliminary Report

Following the completion of the VA Study, the Team Leader compiles the information developed during the VA Study into the *Preliminary Value Analysis Study Report*. This report, documenting viable alternatives, is provided to the PM, PDT, DVAC, Decision Makers, and team members within the timeframe requested (usually within two weeks). The preliminary report also contains a *VA Study Summary Report – Preliminary Findings*, designed to highlight critical elements of the VA Study, including documentation of VA Alternatives and Strategies, in a concise manner for the use of parties that do not have the opportunity to review the report in its entirety. More details can be found in the complete preliminary report, which consists of the following documentation: VA Alternatives, Project Information, Project Analysis, Idea Evaluation, and VA Process.

### ☑ VA Implementation Action Memo

If the disposition of all VA Alternatives cannot be determined at the Implementation Meeting, then a *VA Implementation Action Memo* is submitted. This memo states which alternatives are accepted, which are rejected (and the rationale for rejection), and which VA Alternatives are conditionally accepted with further study required. For these alternatives, the memo states what action must be completed so that a decision can be made as to their dispositions, when that action is expected to be completed, and who is responsible to complete this action. [If all VA Alternatives are either accepted or rejected, then this memo is not required.]

### ☑ Final Report

Once all VA Alternatives have been either accepted or rejected, the Team Leader updates the Preliminary Value Analysis Study Report to show the final results of the study in a Final Value Analysis Study Report. In addition, a Value Analysis Study Summary Report (VASSR) is sent to Caltrans HQ to permit easy documentation into the Caltrans Annual Report to FHWA.

# CALTRANS VA STUDY ACTIVITY CHART

<b>PREPARATION</b>	<b>INITIATE STUDY</b> 1 <ul style="list-style-type: none"> <li>➤ Identify study project</li> <li>➤ Identify study roles and responsibilities</li> <li>➤ Define study goals</li> <li>➤ Select team leader</li> <li>➤ Prepare draft Study Charter</li> </ul>	<b>ORGANIZE STUDY</b> 2 <ul style="list-style-type: none"> <li>➤ Conduct Pre-Study Meeting</li> <li>➤ Select team members</li> <li>➤ Identify stakeholders, decision-makers, and technical reviewers</li> <li>➤ Identify data collection</li> <li>➤ Select study dates</li> <li>➤ Determine study logistics</li> <li>➤ Update VA Study Charter</li> <li>➤ Identify and define performance requirements</li> </ul>	<b>PREPARE DATA</b> 3 <ul style="list-style-type: none"> <li>➤ Collect and distribute data</li> <li>➤ Develop construction cost models</li> <li>➤ Develop highway user benefit / life cycle cost (LCC) model (if required)</li> </ul>		
	<b>VA STUDY WORKSHOP</b>	<b>INFORM TEAM</b> 4 <ul style="list-style-type: none"> <li>➤ Review study activities and confirm reviewers</li> <li>➤ Present design concept</li> <li>➤ Present stakeholders' interests</li> <li>➤ Review project issues and objectives</li> <li>➤ Discuss Design Exceptions</li> <li>➤ Rate performance of baseline concept</li> <li>➤ Visit project site</li> </ul>	<b>ANALYZE FUNCTIONS</b> 5 <ul style="list-style-type: none"> <li>➤ Analyze project data</li> <li>➤ Expand project functions</li> <li>➤ Prepare FAST diagram</li> <li>➤ Determine functional cost drivers and performance</li> <li>➤ Assess Risk (if needed)</li> </ul>	<b>CREATE IDEAS</b> 6 <ul style="list-style-type: none"> <li>➤ Focus on functions</li> <li>➤ List all ideas</li> <li>➤ Apply creativity and innovation techniques (group and individual)</li> </ul>	<b>EVALUATE IDEAS</b> 7 <ul style="list-style-type: none"> <li>➤ Apply key performance attributes to rate idea</li> <li>➤ List advantages and disadvantages</li> <li>➤ Consider cost impacts</li> <li>➤ Rank all ideas</li> <li>➤ Assign alternatives for development</li> </ul>
		<b>DEVELOP ALTERNATIVES</b> 8 <ul style="list-style-type: none"> <li>➤ Develop alternative concepts</li> <li>➤ Prepare sketches and calculations</li> <li>➤ Measure performance</li> <li>➤ Estimate costs, LCC benefits/costs</li> </ul>	<b>CRITIQUE ALTERNATIVES</b> 9 <ul style="list-style-type: none"> <li>➤ VA Alternatives Technical Review</li> <li>➤ VA Alternatives Team Consensus Review</li> <li>➤ Identify mutually exclusive groups of alternatives</li> <li>➤ Identify VA strategies</li> <li>➤ Validate performance</li> </ul>	<b>PRESENT ALTERNATIVES*</b> 10 <ul style="list-style-type: none"> <li>➤ Present findings</li> <li>➤ Document feedback</li> <li>➤ Confirm pending reviews</li> </ul> <p><i>*Interim presentation of study findings</i></p>	
<b>DETERMINE DISPOSITION</b>	<b>DOCUMENT VA STUDY</b> 11 <ul style="list-style-type: none"> <li>➤ Document process and study findings</li> <li>➤ Develop and Distribute VA Study Summary Report - Preliminary Findings and VA Study Preliminary Report</li> <li>➤ Distribute electronic report to HQ VA Branch</li> </ul>	<b>ASSESS ALTERNATIVES**</b> 12 <ul style="list-style-type: none"> <li>➤ Review Study Summary Report</li> <li>➤ Assess alternatives for project acceptance</li> <li>➤ Prepare draft implementation dispositions</li> </ul> <p><i>**Activities performed by PDT, Technical Reviewers, and Stakeholders</i></p>	<b>RESOLVE ALTERNATIVES</b> 13 <ul style="list-style-type: none"> <li>➤ Review implementation dispositions</li> <li>➤ Conduct Implementation Meeting</li> <li>➤ Resolve implementation actions with decision-makers and stakeholders</li> <li>➤ Document VA Alternative Disposition</li> <li>➤ Develop Implementation Action Memo (If Conditionally Accepted (CA) Alternatives remain)</li> </ul>	<b>FINALIZE ALTERNATIVES</b> 14 <ul style="list-style-type: none"> <li>➤ VA Team Leader follow up with PM on CA Alternatives</li> <li>➤ Resolve Conditionally Accepted Alternatives</li> <li>➤ Develop Implementation Plan with PM</li> <li>➤ Design Manager Sign off on VA Implementation Plan Authorization</li> <li>➤ Final presentation of study results (if needed)</li> </ul>	
	<b>REPORTING RESULTS</b>	<b>PUBLISH RESULTS</b> 15 <ul style="list-style-type: none"> <li>➤ Document process and study results</li> <li>➤ Incorporate all comments and implementation plan</li> <li>➤ Distribute Final VA Study Report in PDF format</li> <li>➤ Submit VA Study Summary Report (VASSR) and two-page summary to HQ VA for FHWA Auditing</li> <li>➤ Include Implementation Plan Authorization in Final VA Report</li> </ul>			

## **GUIDELINES FOR WRITING VALUE ALTERNATIVES FOR VA TEAM MEMBERS**

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## VA ALTERNATIVE NO. 1.0

This will be determined by the VA Team Leader.

### Alternative Title

The title can be modified if further research or refinement uncovers necessary changes or clarifications. Do not use this area to describe the reason(s) for the alternative.

Initial Cost Savings:

LCC Savings:

Change in Schedule:

Performance Change:

Value Change:

This information will be filled in by the VA Team Leader.

**Description of Baseline Concept:** *What is currently planned?* Describe the project element(s) as presented in the Kick-Off Meeting and available drawings and cost estimates. Be as descriptive and specific as possible, but only include those elements that are relevant to the alternative concept being proposed below.

**Description of Alternative Concept:** *What is the change(s) proposed by the VA Team?* Describe the proposed change(s) to the baseline concept described above. Be as descriptive and specific as possible, but do not discuss the rationale for the change or its benefits.

**Advantages:** *Why is the Alternative Concept better?*

- Benefits (“Pros”) of implementing the Alternative Concept
- Use concise statements (one per line), not full sentences

**Disadvantages:** *What challenges or disadvantages does the Alternative Concept introduce?*

- Detriments (“Cons”) of implementing the Alternative Concept
- Use concise statements (one per line), not full sentences

**Discussion:** *Describe IN DETAIL why the Alternative Concept should be implemented.* Provide an in-depth narrative about the Baseline and Alternative Concepts and thorough analysis of the Alternative’s advantages and disadvantages, etc. For instance, if you listed “Reduces required retaining wall maintenance” in the Advantages above, it is critical to describe why and how in this section. **The Discussion section is intended to PROVE to project stakeholders, owners, and Project Team that this alternative should be implemented.**

**Technical Review Comments:** *Highlight issues/concerns for the Project Team or technical personnel considerations.* If there is a Technical Review session during the VA Study, use this space to relate the comments of the reviewers as to the technical feasibility of the Alternative Concept. It is acceptable to paraphrase reviewer comments, and it is not necessary to identify the commenter.

**Project Management Considerations:** *What will the PM have to do to implement this alternate concept?* Also, how are the PM’s continuing responsibilities affected by implementing this alternative?

**Discussion of Schedule Impacts:** *Describe how implementing the Alternative Concept will impact the project schedule.* Be specific as to the phases, activities, etc., to be impacted. While you are welcome to provide exact durations for every potential impact, it is not always possible. Therefore, if necessary, estimate lengths of time based on your best judgment and expertise.

**Discussion of Risk Impacts:** *Describe how the Alternative Concept will address existing risks and/or opportunities, as well as any new risks/opportunities introduced by implementing this Alternative.* It is possible for an alternative to simultaneously address an existing risk and introduce a new one. In this case, discuss the trade-offs and demonstrate why it is still good practice to implement the Alternative Concept.

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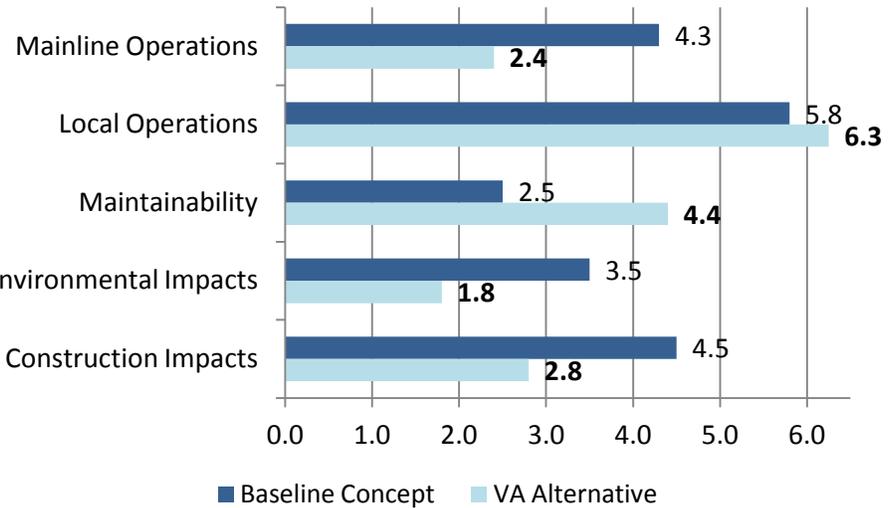
## Alternative Title

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### Comparison of Performance

These performance attributes will be identified either prior to the study or during the Information Phase of the VA study.

The chart to the right – which depicts the differences in performance ratings between the Baseline Concept and the Alternative Concept – will be created by the VA Team Leader.



### Performance Assessment

Performance Attribute	Rationale for Change in Performance
Mainline Operations	<b><i>How will the alternative impact each of the various performance attributes? Is performance better or worse? Explain why. At times, this information is captured from discussions during group Idea Evaluation; elaborate on this information.</i></b>
Maintainability	Is performance better or worse? Explain why.
Environmental Impacts	Is performance better or worse? Explain why.
Construction Impacts	Is performance better or worse? Explain why.

### Baseline Concept Sketch

***Provide a visual depiction of the Baseline Concept.*** This could include plans/drawings, hand-drawn sketches, photos, or figures. Scale and precision are not required, though it is encouraged if it is available. Please limit the area to that which is relevant to the Alternative Concept.

### VA Alternative Concept Sketch

***Provide a visual depiction of the Alternative Concept.*** This could include marked-up plans/drawings, hand-drawn sketches, photos, or figures. Scale and precision are not required, though it is encouraged if it is available.

**Assumptions and Calculations:** ***What was assumed in order to develop the cost impact of this VA alternative?*** Provide assumed quantities, unit costs, calculations, and/or activities that must be (or must not be) performed. This enables development alternative and the cost estimate/comparison, as shown on the “Initial Cost Estimate” on the following page.

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### Initial Cost Estimates

Once the VA Alternative information is captured, initial and life-cycle cost estimates and order-of-magnitude comparisons can be made in the MS Excel templates provided by the VA Team Leader, shown below.

CONSTRUCTION ELEMENT		BASELINE CONCEPT			ALTERNATIVE CONCEPT		
Description	Unit	Qty	Cost/Unit	Total	Qty	Cost/Unit	Total
<b>ROADWAY ITEMS</b>							
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
<b>ROADWAY SUBTOTAL</b>				\$ -			\$ -
<b>ROADWAY MARK-UP</b>				\$ -			\$ -
<b>ROADWAY TOTAL</b>				\$ -			\$ -
<b>STRUCTURE ITEMS</b>							
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
<b>STRUCTURE SUBTOTAL</b>				\$ -			\$ -
<b>STRUCTURE MARK-UP</b>				\$ -			\$ -
<b>STRUCTURE TOTAL</b>				\$ -			\$ -
<b>RIGHT-OF-WAY ITEMS</b>							
Right-of-Way Acquisition				\$ -			\$ -
Utility Relocation				\$ -			\$ -
Relocation Assistance				\$ -			\$ -
Demolition				\$ -			\$ -
Title and Escrow Fees				\$ -			\$ -
<b>RIGHT-OF-WAY TOTAL</b>				\$ -			\$ -
<b>ENVIRONMENTAL MITIGATION ITEMS</b>							
				\$ -			\$ -
				\$ -			\$ -
<b>CAPITAL OUTLAY SUPPORT ITEMS</b>							
Reengineering and Redesign				\$ -			\$ -
Project Engineering				\$ -			\$ -
<b>TOTAL</b>				\$0			\$0
<b>TOTAL (Rounded)</b>				\$0			\$0
						<b>SAVINGS</b>	<b>\$0</b>

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### Life-Cycle Cost Estimates

Based on the initial cost estimates previously developed, the VA Team Leader will work with the team to perform a life-cycle cost analysis, if the relevant information is available and there is a high likelihood that life-cycle cost savings can be realized by implementing the VA alternative. The form used to perform this analysis is shown below.

Life-Cycle Period	Years	Real Discount Rate		BASELINE	ALTERNATIVE
<b>A. INITIAL COST</b>					
Service Life - Baseline	Years		<b>INITIAL COST SAVINGS:</b>		\$ -
Service Life - Alternative	Years				
<b>B. SUBSEQUENT ANNUAL COSTS</b>					
1. Maintenance and Inspection					
2. Operating					
3. Energy					
<b>Total Subsequent Annual Costs:</b>				\$ -	\$ -
<b>Present Value Factor (P/A):</b>				0.000	0.000
<b>PRESENT VALUE OF SUBSEQUENT ANNUAL COSTS (Rounded):</b>				\$ -	\$ -
<b>C. SUBSEQUENT SINGLE COSTS</b>	<b>Year</b>	<b>Amount</b>	<b>PV Factor</b>	<b>Present Value</b>	<b>Present Value</b>
			1.00000	\$ -	\$ -
			1.00000	\$ -	\$ -
			1.00000	\$ -	\$ -
			1.00000	\$ -	\$ -
			1.00000	\$ -	\$ -
			1.00000	\$ -	\$ -
			1.00000	\$ -	\$ -
<b>PRESENT VALUE OF SUBSEQUENT SINGLE COSTS (Rounded):</b>				\$ -	\$ -
<b>D. TOTAL SUBSEQUENT ANNUAL AND SINGLE COSTS (B+C)</b>				\$ -	\$ -
<b>E. TOTAL SUBSEQUENT COSTS SAVINGS:</b>					\$ -
<b>F. TOTAL PRESENT VALUE COST (A+D)</b>				\$ -	\$ -
<b>TOTAL LIFE-CYCLE SAVINGS:</b>					\$ -

