

California Department of Transportation
Division of Design
Office of Special Projects

Value Analysis Program



ANNUAL REPORT

Federal Fiscal Year 2007/2008

October 1, 2007 - September 30, 2008



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EXECUTIVE SUMMARY

The Federal Fiscal Year (FY) 2007/08 was a busy year for the Department's Value Analysis (VA) Program. Utilizing our VA contracts, many Districts have studies performed continuously throughout the year. Although many studies were not finalized by FY end, over 75 task orders were written to perform studies. It requires a great deal of effort and persistence to coordinate and perform these studies. The VA Coordinator team works diligently to ensure the success of the VA program here in the Department.

Last year, 39 studies were completed on projects with a total cost (capital and support) of over \$4.4 billion. The Department reported a savings of \$263 million, \$40 million more than 2006/2007, to the Federal Highway Administration (FHWA). These savings were derived from the "Accepted Alternatives" proposed by the VA teams and implemented by the decision-makers, project managers, functional managers, and Project Development Teams (PDT). In comparing the cost savings to the cost to conduct the studies, the Department achieved a Return on Investment (ROI) of 135:1.

The Joint Stewardship and Oversight Agreement between the Department and the FHWA lists four performance indicators/measures for the Value Analysis Program: percent of required studies conducted, number of non-required studies conducted, percent project cost savings, and implementation rate. The Department conducted 100 percent of all required studies for the 2007/08 Federal Fiscal Year. In addition, the Department performed nine studies on projects costing less than the \$25 million threshold. The Department also reported an average cost savings of 6 percent, which exceeded our goal of 5 percent. The implementation rate is determined by comparing the number of proposed recommendations to the number of implemented recommendations. The Department's implementation rate was 65 percent for last year. This represents a significant increase in the implementation rate over the previous year (45 percent versus 65 percent).

In an effort to improve the delivery of projects, the VA Program is always looking for opportunities to improve the Department's business practices. Several District and Headquarters (HQ) units utilized the VA process in FY 2007/08 to streamline the way they do business. These studies included streamlining the Feasibility Study Report in District 7, standardizing the development of the "Need and Purpose Statement", the development of vegetation control/fire strip strategies, and improving the project delivery process in District 4. Although many of these studies were not complete by the end of the fiscal year, hundreds of ideas were generated and improvements are being implemented throughout the Department.

This year will also be an exciting year for the VA Program. This year, the Department will have an opportunity to share our successes at the National level. The American Association of Highway Transportation Officials (AASHTO) Value Engineering Conference will be held in San Diego at the end of the summer and the Department will be showcasing our successful VA studies to other Departments of Transportation, AASHTO members, FHWA partners, other VE experts, and our local partners.

2007/2008 PROGRAM RESULTS

During the federal fiscal year ending September 30, 2008 the Department completed the following value analysis activities:

- Thirty-nine (39) studies were completed including thirty (30) mandated transportation project studies and nine (9) voluntary studies. An additional thirty-two (32) transportation project studies were performed, but not completed. The results of these studies will be reported when complete. The total estimated project cost of the thirty-nine (39) transportation projects studied was \$4,381,081,300.
- Many process studies were performed including: HQ's Vegetation Control, District 11's Flexible Resources, District 4's project delivery process, HQ's development of the Need and Purpose statement, and District 7's Feasibility Study Report. Also, one Cost Risk Assessment study was performed on District 2's Antlers Bridge project. These studies are in the process of being completed and will be distributed, via the intranet at a later date.
- Nineteen (19) Cost Reduction Incentive Proposals (CRIPs), otherwise known as Value Engineering Change Proposals (VECPs), were submitted by contractors and approved by the Department resulting in savings of \$5,358,181 (the State shared 50% of these savings).
- Project teams implemented 119 of 182 proposed recommendations resulting in \$263,096,500 in savings. Table 1 below summarizes the results of the VA transportation project studies.

Table 1: Value Analysis Studies – Federal FY 2007/2008

Study Leader	No. Studies	Original Project Costs	Value Analysis Recommendations				Total Study Cost	Return on Investment
			Proposed		Implemented			
		(millions)	No.	Savings (million)	No.	Savings (million)	(x 1000)	
In-house	0	0	0	0	0	0	0	
Consultant	39	\$4,381	182	\$545	119	\$263	\$1,956	135:1
Total	39	\$4,381	182	\$545	119	\$263	\$1,956	135:1

Study cost includes \$730,000 in staff time and \$3,651,000 in consultant fees for team leaders and expert team members.

The VA program has been striving to improve the quality of alternatives so that the decision-makers can be confident in approving and implementing recommended changes. The **total implementation rate** (the percentage of Implemented Alternatives with respect to Proposed Alternatives) was **65%**. This is a significant improvement from our reported 45% rate last year. One of the main barriers to implementation is the timing of the study. Table 2 shows the return on investment and implementation rate by project phase. The greatest return investment is when a study is performed in the 0 phase (prior to Draft ED). If the project is not well defined or already bound by constraints, the implementation rate and return on investment fall dramatically.

Table 2: VA Study Results by Phase

Project Phase	# of Studies	ROI	Implementation Rate (%)
K	3	29	93
0	15	209	67
1	11	81	65

Table 3 shows a comparison of results by District. Districts 4 and 8 completed the most studies (8) last year. District 7 had the highest return on investment (369:1). Districts 3 and 8 had the highest implementation rates (73 percent and 74 percent respectively). District 11 had the highest average cost savings (15 percent).

Table 3: VA Study Results by District

District	# of Studies	ROI	Implementation Rate (%)	Avg. Project Savings (%)
1	0	0	0	0
2	0	0	0	0
3	4	52	73	3
4	8	100	52	8
5	0	0	0	0
6	2	125	53	2
7	5	369	71	5
8	8	-2	74	0
9	0	0	0	0
10	5	117	57	10
11	5	169	71	15
12	2	18	67	4
Total	39	135	65	6

PERFORMANCE CRITERIA

In addition to realizing substantial cost savings by performing the VA study early in the delivery process, the Department is also working closely with our local partners to find common ground to maximize the performance of the project. This year marked the first year that FHWA required the Department to report how the VA studies affected the performance of the projects. The Department's VA program was the first program to use performance criteria during VA studies. Now, years later, the FHWA has adopted these measures to capture the successes of VA alternatives.

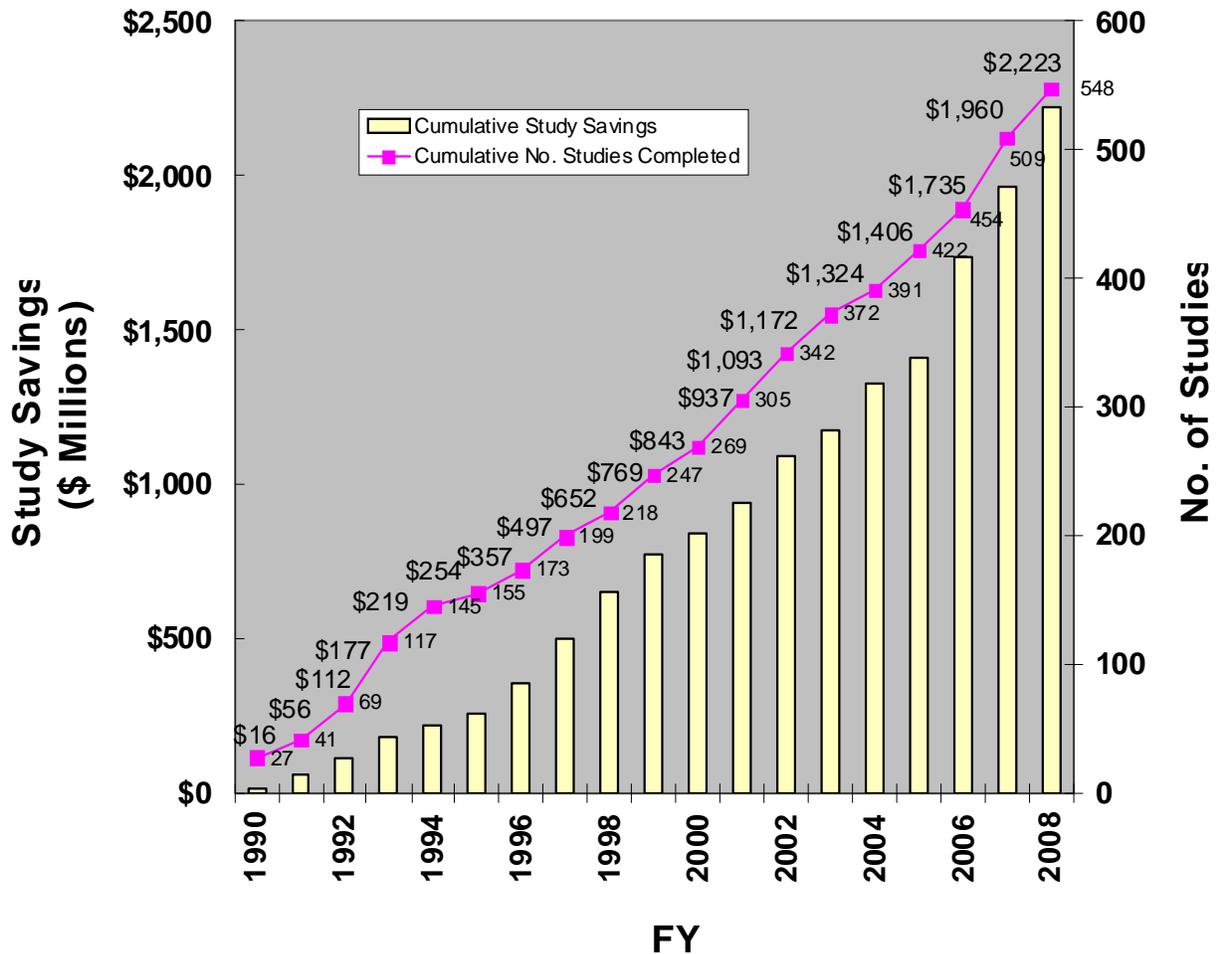
The FHWA has broken down the performance criteria into five categories; Mobility, Operations, Safety, Environmental Impacts, and Innovative Construction. These differ slightly from the Department's standard performance measures. The Department includes Maintainability and measures Local Operations and Mainline Operations separately. FHWA has asked the states to identify the number of accepted alternatives that impact one or more of the five performance categories significantly. At this time, only positive impacts are being reported.

This year the Department reported 18 accepted alternatives that increased performance in the area of Mobility of the project, 15 that increased performance in Operations, 30 alternatives that improved performance in Environmental Impacts and 61 alternatives that improved the Constructability of the project. Furthermore, 37 accepted alternatives resulted in a cost savings with no significant impact to the any of the performance categories. These add up to more than the 119 accepted alternatives because several of the alternatives had a substantial impact on more than one of the performance categories.

HISTORICAL PROJECT SAVINGS

The historical savings from the Department's VA program are presented graphically in the following charts. Chart 1 shows the cumulative savings over the past 18 years. Over \$2.2 billion in savings has been realized from the VA Program. Chart 2 shows the average implemented savings per study. Table 4 indicates the number of studies performed by each District over the last 18 years.

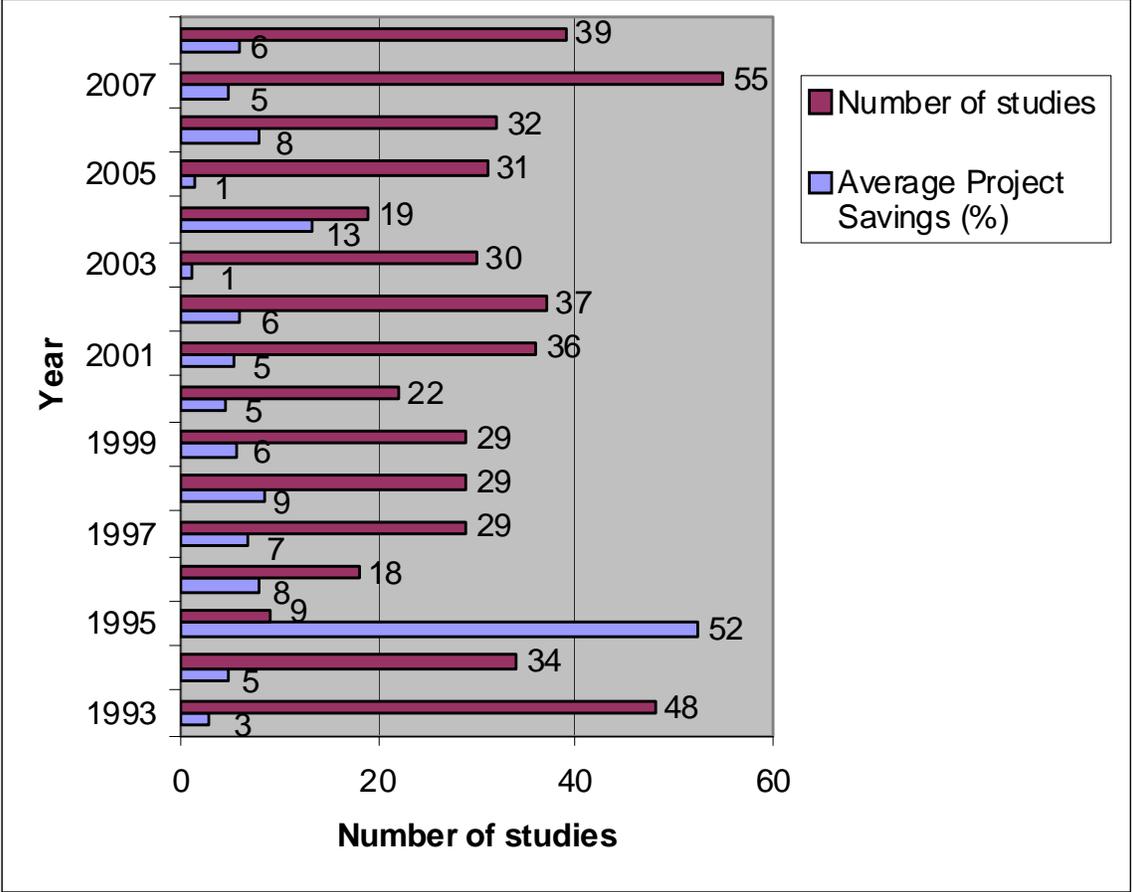
**Chart 1:
Cumulative Project Savings**



**Table 4:
Number of VA studies Completed (1990-2008)**

District	Fiscal Year																			Total
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
1	1	0	2	3	2	1	1	0	1	0	0	0	3	1	0	1	0	0	0	16
2	2	6	0	6	3	0	2	3	0	1	1	2	1	0	1	1	1	3	0	33
3	0	1	1	2	0	2	1	0	1	2	0	4	1	1	1	3	1	4	4	29
4	2	4	5	6	6	0	8	10	6	6	6	7	15	6	5	4	9	8	8	121
5	1	5	6	0	2	0	0	1	0	0	1	1	1	0	0	2	2	8	0	30
6	0	2	2	4	0	0	0	2	2	2	0	2	1	2	2	2	2	3	2	30
7	1	0	0	4	1	1	0	2	8	7	1	5	6	9	6	5	3	5	5	69
8	0	1	0	7	11	0	1	2	1	2	3	3	4	9	1	9	7	16	8	85
9	2	1	1	2	1	0	0	1	0	0	3	2	2	0	0	0	0	0	0	15
10	2	2	0	1	1	0	0	0	2	0	2	2	0	1	0	1	6	5	5	30
11	2	4	5	12	5	5	3	7	6	6	5	7	1	1	3	3	1	2	5	83
12	0	3	0	1	2	0	2	1	2	3	0	1	2	0	0	0	0	1	2	20
Total	13	29	22	48	34	9	18	29	29	29	22	36	37	30	19	31	32	55	39	561

Chart 2:
Average Percentage Saved per Study
 (Average study cost under \$40,000)



VALUE ANALYSIS WEBSITE

Along with the Headquarters Division of Design's intranet website, the VA website (See Figure 1) has been completely reorganized. Better organization allows for more information to be easily browsed. The intranet VA page also links more information to the external VA internet website so information can be shared worldwide. Many of our external partners utilize our information to establish standards within their own organization. The Department is among the leaders within the VA world.

The VA website can be found at:

Internal Intranet: <http://onramp.dot.ca.gov/hq/design/specproj/value-analysis.php>

External Internet: <http://www.dot.ca.gov/hq/oppd/value/index.htm>

In addition to the website overhaul, the Department's VA program is working with the Data Retrieval System (DRS) unit to archive the VA Final reports in the DRS Database. Over 300 reports can be found within DRS and can be searched by District and/or project details.

The screenshot shows a web browser window displaying the Value Analysis Program page. At the top, there is a breadcrumb trail: [Project Delivery](#) > [Design](#) > [Special Projects](#) > [Value Analysis](#). To the right of the breadcrumb is a search box with the text "Search:" and a dropdown menu currently set to "Design", with a "Search" button below it. The main content area is titled "Value Analysis Program" and includes a definition of Value Analysis/Value Engineering (VA/VE) as a function-oriented, systematic team approach. Below this, it states that the Department is mandated to perform VA studies on projects with a total cost of \$25 million or more. A "Statewide VA Contacts" section lists links for "Organizational Chart" and "Phone List". The page footer indicates it was last updated on Wednesday, October 15, 2008. A left-hand navigation menu contains sections for "Office of Special Projects - Value Analysis" (with links for Reports, District Coordinator, Resources, VA Guides, Value Analysis FAQ, and VA Awards), "Division of Design Menu" (with links for Design Offices, Design Guidance, and About Division of Design), and "Value Analysis Links" (with links for FHWA Value Eng. and SAVE International).

Figure 1: New look for the VA Intranet page.

AWARDS

The VA Program awarded two outstanding achievement awards this year, the District Value Analysis Coordinator (DVAC) of the Year and the E. Darwin Spartz Award.

Caltrans Award: 2008 District VA Coordinator of the Year

District 4's Binh Dang earned the title of "Value Analysis Coordinator of the Year." Each year the HQ Value Analysis Program evaluates the District and Regional VA Coordinators based on some very stringent criteria. Engaging with Management, meeting FHWA requirements, identifying projects early to maximize savings, and engaging with Local officials and HQ are among some of the criteria.

Binh's leadership has taken the VA program to the next level in District 4. Over the past year, Binh has managed 12 project studies and has actively engaged in using VA to develop good business practices. These process improvements are shared throughout the Department and nationally through our FHWA and AASHTO partners. Congratulations to Binh and the entire District 4 staff from the HQ VA Program.



Figure 2: From left to right: Troy Tusup, HQ Value Analysis Program Manager; Binh Dang, District 4 Value Analysis Coordinator; Hamid Khorram, District 4 Program Manager.

Caltrans Award: 2008 E. Darwin Spartz – Excellence in Value Analysis

Caltrans' Chili Cilch, District 11 Senior Transportation Planner, won the "E. Darwin Spartz Excellence in Value Analysis" Award, which recognizes the excellent application of Value Engineering/Value Analysis (VA) within the Department of Transportation. She has made significant contributions to the Department by being a champion of the VA Program throughout the year.

Chili's dedication to VA is surpassed by none. Not only is she currently the District 11 District VA Coordinator, but she has also served as the HQ VA program manager and has contributed to making the VA program a national leader. She has represented Caltrans on the AASHTO VE Technical Committee, currently is the President of the San Diego chapter of SAVE International, and is well respected throughout the VA community. Chili's leadership is directly reflected in the success of District 11's VA program. A special thanks goes to Chili and the entire District 11 staff from the HQ VA Program.

VALUE ANALYSIS TRAINING

The Department maintains an active VA training program. This year, 67 employees were trained in the VA methodology. Since 1982 the Department has trained over 1400 individuals.

The VA program offers three types of training courses:

- Module 1 Value Methodology Training Workshop - This course is a 40-hour workshop comprised of 50% lecture and 50% hands-on training. The course is designed to teach the VA Methodology, provide the Department with trained Value Specialists, and motivate employees to participate as team members on upcoming VA studies.

Both the Society of American Value Engineers (SAVE) and the Project Management Institute (PMI) have approved the course. The successful completion of this course allows employees to apply for the Associate Value Specialist (AVS) certification through SAVE. In addition, this course has been approved by PMI and is worth 40 Professional Development Units (PDUs).

- Module 2 Value Methodology (VM) Training Workshop - This 24-hour seminar provides a comprehensive overview of advanced VM techniques ranging from FAST diagramming, Value Metrics, and Value Program Management.

This is a SAVE accredited course that provides students the ability to apply to become a Certified Value Specialist (CVS) from SAVE International. Like Module 1, this course is also approved by PMI and is worth 24 PDUs.

- VA Overview for Project Managers and Management – This is a two-hour seminar focusing on the roles and responsibilities of Project Managers and functional unit managers. The course is co-facilitated by the Department's VA Program Manager and one VA team leader (consultant CVS). This interactive seminar is designed to give a brief overview of VA Methodology, federal legislation requirements, the Department's VA program work plans, and "when" to use VA in the project delivery process to maximize the benefits from VA.
- Other VA seminars include the Design Senior Seminars, PM and PE staff meetings.

To learn more about VA Training, or to attend a course, please contact your District VA Coordinator (DVAC) or the HQ VA Program Manager. You may register for Module 1 and 2 through the Learning Management System (LMS), course #100563 and #100764 respectfully. Both courses are brought to you by: the HQ VA unit and Capital Project Skills Development (CPSD) unit.

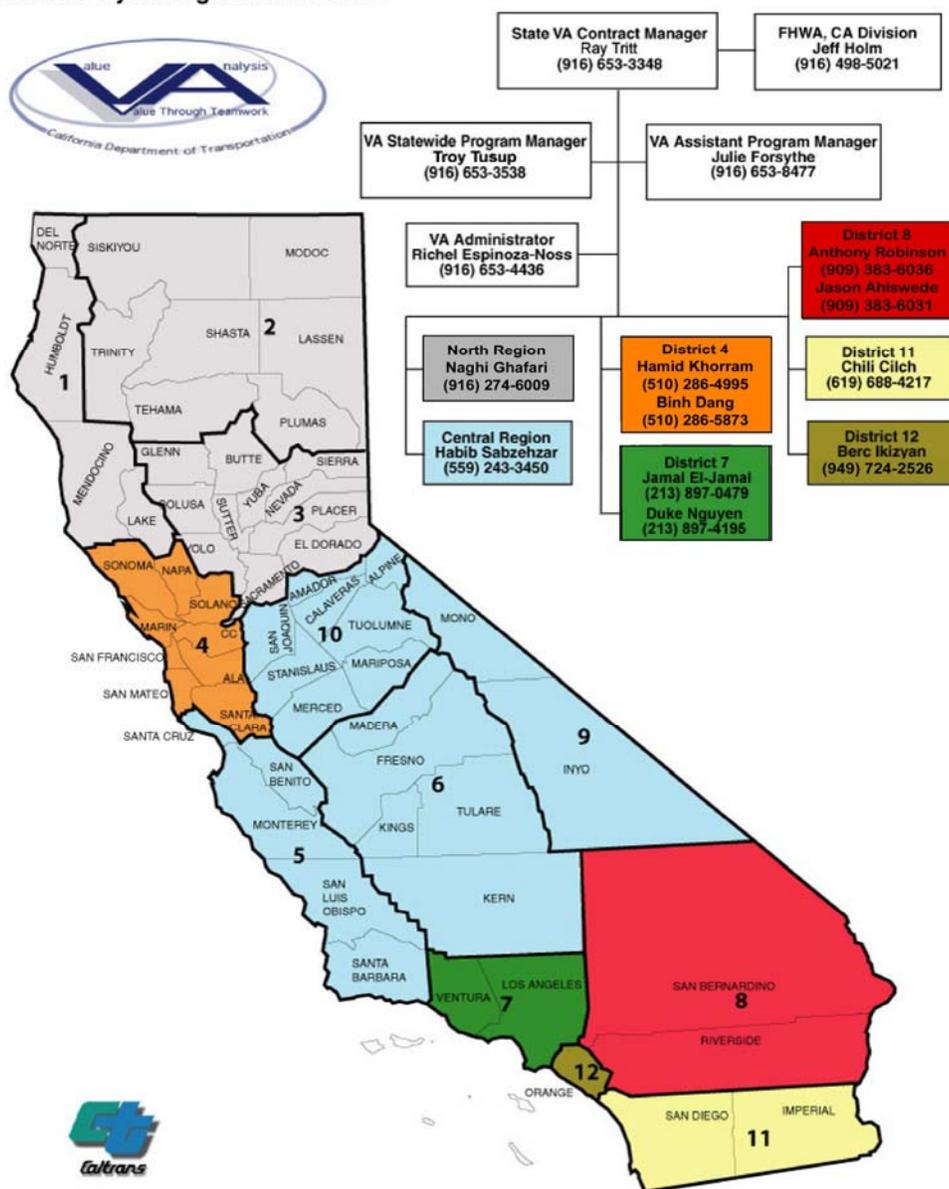
VA PROGRAM ORGANIZATION

The Department has been actively engaged in Value Analysis (VA) for 40 years and has a growing program. Both consultants and in-house VA team leaders are used to organize and conduct VA studies under the leadership of District VA Coordinators (DVAC). The Office of Special Projects in the Headquarters Division of Design manages the VA Program for the entire state.

VA Program Mission: Provide stewardship and improve mobility across California through application of the VA methodology on the Department's projects, products, and processes.

VA Program Vision: The Department is a leader in the application of Value Analysis in the transportation industry.

Value Analysis Organization Chart



UPCOMING EVENTS

- Thirty-two other studies were performed, but not finalized, in fiscal year 2007/2008. These studies are in various stages of progress and most will be reported next year. Many of these studies were performed on local projects where the Department played an oversight role in the process.
- The VA Program is frequently contacted to improve the Department's business practices. This year we have initiated several studies throughout the Department. These studies include: improving the Division of Structures design process to become the "designer of choice", improving the Hazardous Materials process, and improving the Document Retrieval System (DRS).
- **2009 AASHTO Value Engineering Conference is coming to California.** As a leader in the Value Engineering world, the Department has agreed to take a leading role in the conference. The 3-day conference will be held in San Diego starting August 31, 2009. Registration can be made on-line at:

<http://www.wsdot.wa.gov/partners/aashtove/>

- The Department's VA Program continues to maintain the VA Website. The website includes: manuals, guides, blank VA Task Order forms, and a complete list of contact numbers for the entire VA Team.

The **AASHTO Value Engineering Technical Committee** Represents:

“Oceans of Value”

at

The 2009 AASHTO VE Conference

August 30th – September 2nd 2009

The Westin Hotel – Horton Plaza

San Diego, CA

Come hear presentations from VE professionals from around the world about lessons learned, best practices, and innovative techniques.

See <http://www.wsdot.wa.gov/partners/aashtove/>
For Registration and Details