
EXECUTIVE SUMMARY

SYNOPSIS

The California Safety Roadside Rest Area (SRRA) system is a well-planned and maintained system of attractive and safe places where travelers restore their energy and driving alertness, gather information, and can learn about California's natural and cultural resources. The system will continue to have traveler convenience and comfort as its top priority, but it will also serve more expansive goals that benefit the community and economy.

Due to looming Americans with Disabilities Act (ADA) and California Occupational Safety and Health Administration (Cal/OSHA) mandates, the California Transportation Commission (CTC) directed the Department in 1999 to begin developing projects to bring the system into compliance. Completion of currently programmed State Highway Operation and Protection Program (SHOPP) projects will rehabilitate the existing rest area structures and sites to comply with ADA and Cal/OSHA mandates. It will also provide some infrastructure to accommodate limited partnership activities (California Highway Patrol (CHP) and Business Enterprise Program, vending).

Recent bid results for SRRA projects have come in well over the estimated budgets. This has focused attention on the SRRA Upgrade Program. The causes of the high bids as determined by the VA team were as follows:

- Project was in Metrics may have deterred contractors to bid
- Contractor outreach needs to be implemented, and to the "right" contractors
- Bidders were paving contractors
- Timing of bidding has significant impact to the bid results
- Bidding climate has significant impact to the bid results. Seemed contractors were not hungry for Caltrans work
- Material, fuel and labor costs have been increased significantly due to Katrina
- This project proposes to use significant amount of steel. Steel price has been increased exponentially in the past few years

The primary purpose of these value analysis (VA) studies was to identify ways to reduce construction costs while maintaining or improving project quality.

The purpose of this report is to summarize the results of VA studies conducted on seven (7) California's Safety Roadside Rest Areas within the northern region in 2006.

- D-6 Warlow SRRA
- D-6 Boron SRRA
- D-4 Hunter Hill SRRA
- D-6 Coalinga-Avenal SRRA
- D-5 Camp Roberts SRRA

- D-6 Philip S. Raine SRRA
- D-5 Shandon SRRA

As illustrated in the Table 1-1, the total programmed amount was \$53.9 million, total original estimated construction costs were \$58.5 million, total implemented VA savings were \$6.4 million.

A total of 465 ideas were generated during the Creative Phase of the VA studies. Through the Evaluation Phase, the VA team identified and presented a total of 107 key VA alternatives to address five key functions: *Comply Requirements, Refresh Public, Allow Rest, Enhance Safety* and *Improve Site*.

A total of 63 VA alternatives were accepted. Implementing these VA alternatives would maintain design intent and reduce initial cost. The total potential savings of accepted VA alternatives are estimated at \$6.4 million.

Ten additional VA alternatives were conditionally accepted. By implementing these VA alternatives, there would be additional cost savings of \$1,085,000.

Table 1-1

Name	County	RTE	No. of Units	Prop. Capacity of restrooms	Programmed Amount	Orig. Est. Design Cost	Total Ideas	VA Proposals	Accepted	Cond. Accepted	Accepted VA Savings	Cond. Accepted Savings
Warlow	TUL	99	1 (NB), Serves both NB & SB	Men's (6 water closets and urinals, 3 lavs; Women's (8 water closets and 4 lavs); Maintenance Crew Room, CHP office and Vending	\$2,215,000 in the 2004 SHOPP for 04/05 FY, \$3,713,000 in the 2006 SHOPP for 07/08 FY	\$ 3,200,000	42	28	14	2	\$ 231,600	\$ 167,800
Boron	KER	58	2 (EB & WB)	EB: Men's: 2 stalls, 4 urinals, 2 ADA lavs; Women's: 10 stalls, 2 ADA lavs; WB: Men's: 2 stalls, 4 urinals, 2 ADA stalls; Women's: 10 stalls, 2 ADA stalls; Maintenance Crew Room, CHP office and Vending on both directions	\$5,131,000 in the 2004 SHOPP for 05/06 FY, \$9,981,000 in the 2006 SHOPP for 07/08 FY	\$ 14,945,000	81	22	18	0	\$ 3,295,429	\$0
Hunter Hill	SOL	80	1 (WB) Serves both EB & WB	2 woman's (7 toilets each), 2 man's (2 toilets,3 urinals each) & 2 family; Maintenance Crew Room, CHP office and Vending	\$6,042,000 in the 2004 SHOPP for 06/07 FY, \$8,217,000 in the 2006 SHOPP for 08/09 FY	\$ 7,497,450	86	12	8	0	\$ 669,000	\$0
Coalinga	FRE	5	2 (NB & SB)	Both NB & SB: Men's 10 WC & Urinals, 6 lavs. Women's 16 WC and 9 lavs; Maintenance Crew Room, CHP office and Vending on both directions	\$9,981,000 in the 2006 SHOPP for 09/10 FY	\$ 10,700,000	61	18	12	2	\$ 873,000	\$ 1,320,000
Camp Roberts	MON	101	2 (NB & SB)	Both NB & SB: 2 Women's Bldgs - (includes 8 reg stalls, 2 ADA, 1 Family) & 2 Men's Bldgs (includes 4 reg stalls, 4 urinals, 2 ADA, 1 Family); Maintenance Crew Room, CHP office in southbound side only; No vending on either side	\$4,025,000 in the 2004 SHOPP for 05/06 FY, \$7,427,000 in the 2006 SHOPP for 07/08 FY	\$ 7,840,000	81	18			\$ 856,000	
Philip S. Raine	TUL	99	2 (NB & SB)	Both NB & SB: 2 women's (toilets) 16 each, 2 men's (toilets/urinals) 10 each; Maintenance Crew Room, CHP office and Vending on both directions	\$8,123,000 in the 2006 SHOPP for 09/10 FY	\$ 8,145,000	47	18	7	3	\$ 1,266,600	\$ (464,000)

Name	County	RTE	No. of Units	Prop. Capacity of restrooms	Programmed Amount	Orig. Est. Design Cost	Total Ideas	VA Proposals	Accepted	Cond. Accepted	Accepted VA Savings	Cond. Accepted Savings
Shandon	SLO	46	1 EB	1 Women's Bldg - (includes 6 reg stalls, 2 ADA, 1 Family) & 1 Men's Bldg (includes 2 reg stalls, 4 urinals, 2 ADA, 1 Family); Maintenance Crew Room, CHP office, equipment storage building and Vending	\$4,502,000 in the 2004 SHOPP for 07/08 FY, \$6,775,000 in the 2006 SHOPP for 08/09 FY	\$ 6,150,000	67	13	4	3	\$ 59,500	\$ (2,250)
Total			12		\$ 8,123,000	\$ 58,477,450	465	\$ 129	63	10	\$ 6,395,129	\$ 1,021,550

¹ Pending on implementation meeting results

INTRODUCTION

California's Current Rest Area System

The state's 87-unit SRRA system was constructed between 1958 and 1984. Construction of the system in current dollars was over \$200 million, or approximately \$3.1 million per unit.

More than 100 million visitors use the system annually; with most rest areas receiving between 1 and 3 million visitors each year (2800 to 8300 users per day). Aliso Creek in San Diego is the most heavily used rest area in California with 6.4 million visitors, for both sides, each year. In comparison, 4 million tourists visit Yosemite National Park annually.

Due to funding constraints, the California Transportation Commission (CTC) directed the Department to defer major capital improvements at the rest areas between 1984 and 2000. This support level resulted in a severely deteriorated system. Due to looming ADA and Cal/OSHA mandates, the Commission directed the Department in 1999 to begin developing projects to bring the system into compliance.

The Department identified rest area system needs and began programming restoration projects beginning in the 2000 SHOPP. The cost for these compliance projects is \$136 million.

California's Vision for the Rest Area System

The Department wishes to launch a program that will bring California's Safety Roadside Rest Area system up to world-class standard and takes maximum advantage of California's dynamic and diverse environment, technology, tourism, history and culture.

The program envisions a system that is far more than a necessary, comfortable stop for weary travelers – though safety will remain its primary function.

The rest area system of the future will serve as:

- An attractive, comfortable place for travelers to rest for their own safety and that of other travelers.
- A “welcome mat” for state and regional tourism, encouraging visitors to take advantage of cultural, historic, natural and scenic attractions.
- A boon to the local and regional economy by directing the motorist off the highway to local communities.
- A highway feature contributing to efficient movement of freight commodities by providing truck stopping opportunities that are responsive to the needs of the goods movement industry and their customers.
- A showcase for environmentally sustainable design and management practices and cutting-edge technology.
- A demonstration of cost-effective partnerships among public agencies and between the public and private sectors.

Current Functional Needs

Completion of currently programmed SHOPP projects will rehabilitate the existing rest area structures and sites to comply with ADA and Cal/OSHA mandates. It will also provide some infrastructure to accommodate limited partnership activities.

- These “Stage I” projects are restoring structures, sidewalks and electrical, water and wastewater systems.
- They will provide full access for the disabled, elderly and those with special needs.
- User safety will be increased through lighting, security cameras and by providing space for the on-site presence of partners such as the CHP, blind vendors, and sheltered workshops.
- Finally, rest rooms are being enlarged to accommodate current and future user demand.

Due to current funding constraints replacement landscaping, and site features such as picnic structures and interpretive displays, as well as increased parking to meet demand, have been deferred from the Stage I projects to Stage II projects.

The Department will seek cost sharing partnerships to provide additional traveler services and ongoing maintenance needs.

RESULTS FROM VA STUDIES

VA studies on seven (7) California’s Safety Roadside Rest Areas (SRRA) within the northern region were conducted in 2006.

- D-6 Warlow SRRA
- D-4 Hunter Hill SRRA
- D-5 Camp Roberts SRRA
- D-5 Shandon SRRA
- D-6 Boron SRRA
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A total of 465 ideas were generated during the Creative Phase of the VA studies. Through the Evaluation Phase, the VA team identified and presented a total of 107 key VA alternatives to address five key functions: *Comply Requirements, Refresh Public, Allow Rest, Enhance Safety and Improve Site.*

A total of 63 VA alternatives were accepted. Implementing these VA alternatives would maintain design intent and reduce initial cost. The total savings of accepted VA alternatives were estimated at \$6.4 million.

Ten additional VA alternatives were conditionally accepted. By implementing these VA alternatives, there would be additional cost savings of \$1,085,000.

Detailed documentation of all the accepted and rejected VA alternatives of each VA study is in the next section of this report.

The following VA alternatives are common and/or can be implemented with every project (some of these alternatives would have a cost savings but most will not because it would be difficult to quantify):

Description
<i>Non-quantifiable VA alternatives:</i>
<ul style="list-style-type: none"> ▪ Use English units in lieu of Metrics
<ul style="list-style-type: none"> ▪ Use contractor outreach in addition to normal advertising
<ul style="list-style-type: none"> ▪ Advertise at the beginning of the year in lieu of at the end
<ul style="list-style-type: none"> ▪ Use General Conditions format specifications to fit building industry
<ul style="list-style-type: none"> ▪ Create additive or deductive bid items
<ul style="list-style-type: none"> ▪ Provide contractor more flexibility of start of construction
<ul style="list-style-type: none"> ▪ Accelerate project to minimize escalation
<ul style="list-style-type: none"> ▪ Consult Maintenance Division for potential contractors
<ul style="list-style-type: none"> ▪ Create a regional contractor database
<ul style="list-style-type: none"> ▪ Educate the public through interpretative displays
<ul style="list-style-type: none"> ▪ Partner with the communities to provide kiosk information monthly
<ul style="list-style-type: none"> ▪ Caltrans/District to complete their design work concurrently with the Architect's work
<i>VA alternatives with cost savings:</i>
<ul style="list-style-type: none"> ▪ State furnished / contractor installed site furniture (CMAS contract)
<ul style="list-style-type: none"> ▪ Use natural gray concrete in lieu of colored concrete
<ul style="list-style-type: none"> ▪ Reduce number of picnic tables
<ul style="list-style-type: none"> ▪ Reduce number of benches
<ul style="list-style-type: none"> ▪ Reduce number of water hydrants
<ul style="list-style-type: none"> ▪ Use stainless steel toilet and lavatory fixtures
<ul style="list-style-type: none"> ▪ Use stainless steel toilet partitions in lieu of tile clad CMU toilet partition except for first partition next to men's urinals

<ul style="list-style-type: none"> ▪ Reduce the amount of paving
<ul style="list-style-type: none"> ▪ Push button flush valves in lieu of sensors flush valves
<ul style="list-style-type: none"> ▪ Prefabricated pre-cast concrete buildings in lieu of conventional construction
<ul style="list-style-type: none"> ▪ Use CMU only
<p><i>Alternatives with Green Design Elements:</i></p>
<ul style="list-style-type: none"> ▪ Reduce the amount of paving
<ul style="list-style-type: none"> ▪ Stabilized decomposed granite in selected areas lieu of concrete
<ul style="list-style-type: none"> ▪ Add electric car charging stations; use solar powered if possible
<ul style="list-style-type: none"> ▪ Reduce 3 foot-candle lighting area to pedestrian walkways only
<ul style="list-style-type: none"> ▪ Push button flush valves in lieu of sensors flush valves
<ul style="list-style-type: none"> ▪ Install photovoltaic panels on shed roofs
<ul style="list-style-type: none"> ▪ Prefabricated pre-cast concrete buildings in lieu of conventional construction
<ul style="list-style-type: none"> ▪ Install photovoltaic panels on comfort station roofs
<ul style="list-style-type: none"> ▪ Use composite plastic recycled materials for picnic shelters
<ul style="list-style-type: none"> ▪ Use permeable paving (pedestrian paving)

Detailed documentation of all the accepted and rejected VA alternatives of each VA study is in the next section.

WARLOW SAFETY ROADSIDE REST AREA

GENERAL

Project KP and EA: 06-TUL-99-KP 83.5(PM 51.9) EA 06-432000

Number of Units: 1, Northbound

Project type: Tear-down and rebuild

Programmed Amount: \$2,215,000 in the 2004 SHOPP for the 04/05 FY¹
\$3,713,000 in the 2006 SHOPP for the 07/08 FY

Estimated construction cost: \$3,200,000²

Accepted VA Savings: \$231,600

Proposed Capacity of Restroom: Men's: 6 water closets and urinals, 3 lavatories
Women's: 8 water closets, 4 lavatories
ADA Stalls: 2 men, 2 women

Included facilities: Maintenance Crew Room, CHP office and Vending.

¹: The project has now been programmed in the 2006 SHOPP at \$3.6 million construction.

²: The project construction was allocated at the August 2005 CTC Meeting for \$2,215,000 in State Highway Operations Protection Program (SHOPP) funds. The project was advertised on August 12, 2005. Bids were opened on October 12, 2005. There were two bids at 16% and 55% over the Engineer's Estimate. The apparent low bidder requested, and was granted, relief of bid on October 26, 2005. The amount needed to award, based on the second bidder, was \$3,321,000. On October 20, 2005 the District recommended Award of Contract for this project pending allocation of supplemental funds by delegation authority by the CTC. Subsequently the CTC denied the request for supplemental funds on November 16, 2005 and recommended that this contract not be awarded for the reason that the low bid was too costly.

PROJECT DESCRIPTION

This proposed project is to rehabilitate the existing single unit Safety Roadside Rest Area serving both northbound and southbound on route 99, in Tulare County, California.

Existing Facility

Due to the increased use of Route 99 and aging facilities, this rest area is in need of rehabilitation or replacement. The existing facilities have aged well beyond their intended life. Improvements are necessary to comply with the American Disabilities Act (ADA) requirement mandates. Restroom access, telephones, picnic tables and signage, parking stall markings, walks, and curbs are not in compliance. Improvements to bring the rest area into compliance with current codes, regulations, and laws according to the guidelines stated in Design Information Bulletin 82 Pedestrian Accessibility Guidelines for Highway Projects. In addition, improvements are necessary to comply with Caltrans agreement with the CHP. There's an existing vending facility.

Original Design Concept (*Proposed Improvements*)

In conformance to Director's Policy DP-22 Context Sensitive Solutions, the project was designed to meet the transportation goals in harmony with community goals and natural environments. The project is designed on an agricultural theme to conform to the rural agricultural location. The Project Team followed headquarters Landscape Architecture Program suggestions and direction for a less institutional and more thematic design. The final design incorporated these elements in to industry standard traditional construction using simple building materials (steel, concrete, plywood, and aluminum).

The improvements/rehabilitation will be within existing Right of Way, and the works include the following:

- Demolition and replacement of existing comfort station
- Construction of Maintenance storage and crew room/CHP facilities
- Upgrade and expand information displays. Replace public telephones
- Provide staging area for vending facilities
- Upgrade water treatment system. Upgrade sanitary sewer system
- Replace "core" paving around new buildings
- Upgrade electrical services. Upgrade "core" and parking lighting
- Re-stripe truck parking (includes minor paving repairs)
- Replace site signage. Replace site furniture
- Provide ADA stalls in restrooms

PERFORMANCE CRITERIA

Specific performance criteria were developed in cooperation with the designers and stakeholders. These criteria were weighted, using a paired comparison approach, which resulted in the criteria used to evaluate ideas and alternative concepts. These criteria are identified later in this section under the heading Performance and Value Improvement.

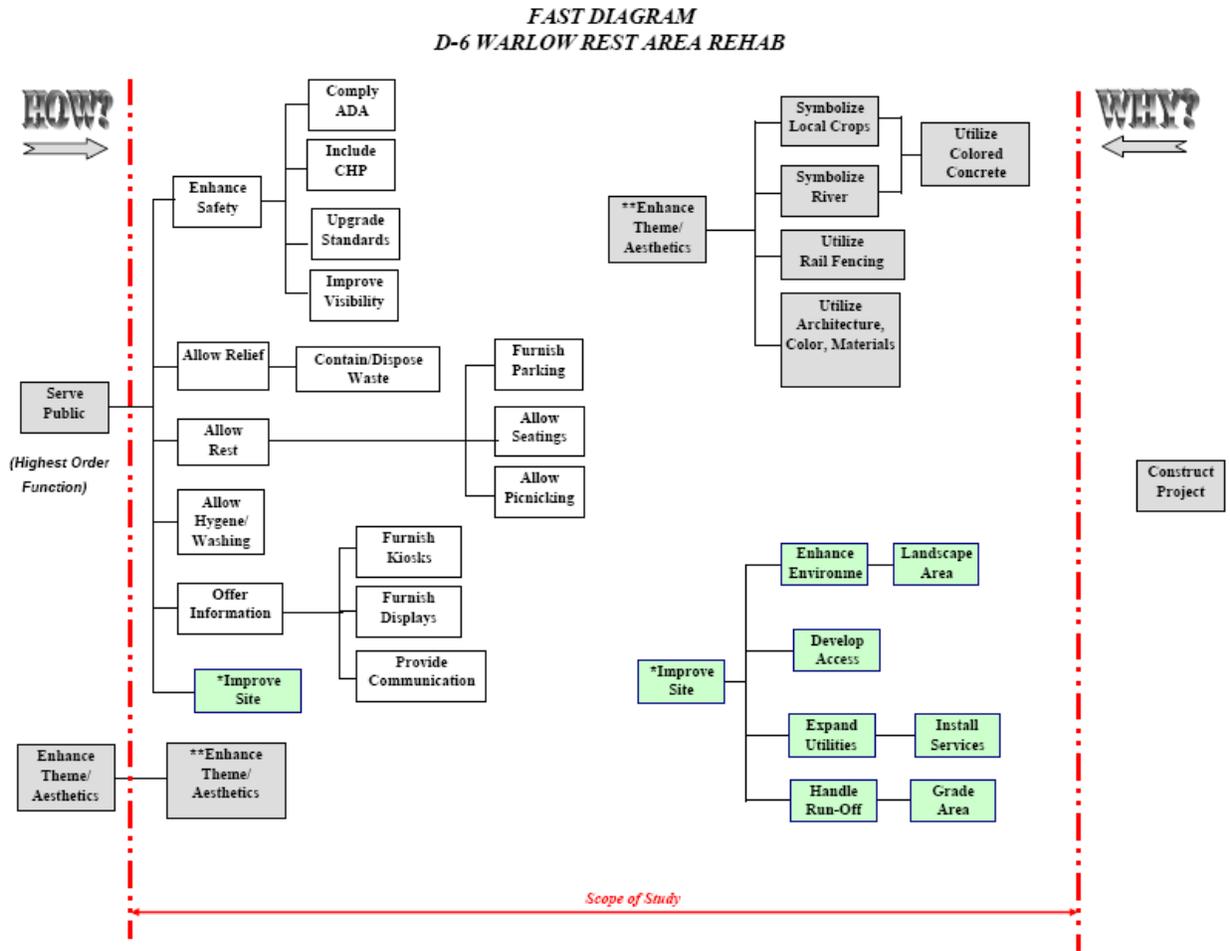
The PDT identified the following performance criteria as essential to the success of the project:

- Maintainability
- Contract Bid-ability
- Schedule Impacts
- Public Acceptance
- Stakeholder Acceptance
- Constructability
- Context Appropriate

PERFORMANCE CRITERIA MATRIX							Caltrans	
<i>D-6 Warlow Rest Area Rehab, EA 432001</i>								
							TOTAL	%
<u>Maintainability</u>	A	a	a	a	a/e	a	5.5	26%
<u>Context Appropriate</u>	B	b/c	b/d	b/e	b/f	b	3.0	14%
<u>Stakeholder Acceptance</u>	C	c/d	c	c	c	c	4.0	19%
<u>Public Acceptance</u>	D	e	f	g			1.0	5%
a More Important	<u>Constructability</u>	E	e/f	e			3.5	17%
a/b Equal Importance	<u>Contract Bid-ability</u>	F	f				3.0	14%
	<u>Schedule Impact</u>	G					1.0	5%
							21.0	1.0

FUNCTIONS

The team defined the highest order functions of this project as *Serve Public*. Key basic functions include *Enhance Safety*, *Allow Relief/Rest*, *Improve Site* and *Enhance Theme/Aesthetics*. Analysis of the functions helped the team focus on the purpose and need of the project and, consequently, how to craft alternative concepts that would provide the required functions.



VA STUDY RESULTS

The VA team identified twenty-eight key VA alternatives that were considered to address the functions of *Serve Public, Enhance Safety and Enhance Theme/Aesthetics*.

Fourteen VA alternatives were accepted. Implementing these VA alternatives would maintain design intent and reduce initial cost. The total potential savings of accepted VA alternatives are estimated at \$231,600 with performance improvement of +17% and added 26% in value improvements.

Two additional VA alternatives were conditionally accepted. Both alternatives will be included as “Additive Bid” items.

Accepted Alternatives:

Alternative Number	Description	Potential Savings	Performance
6.0	State furnishes “site furnishings”.	\$1,800	+5%
	These items can be purchased by Caltrans at a reduced price through an existing CMAS contract, and then installed by the contractor.		
7.1	Eliminate entrance rail fence.	\$46,400	+3%
	Entrance rail fence does not serve any practical function; however, it reinforces Context Appropriate Theme.		
8.0	Use 4” concrete in lieu of 6” for walkway.	\$106,000	+6%
	The walkway can be reduced from 6” thick to 4” because there is no heavy equipment or vehicles expected to be riding the walkway. The walkway would be use by pedestrians only and 4” pavement is sufficient to support the loading.		
10.2	Use standard site lighting, in lieu of electrolier (MH3), in the truck parking area (Approximately 50%).	\$67,492	-2%
	Standard lighting would provide sufficient light to illuminate areas at a lower cost for the materials. However, using standard site lighting will reduce aesthetics in the truck parking area.		
13.0	Reduce two water faucets.	\$9,856	+6%
	Four faucets are equally spaced to provide equal convenience for all parking spaces. By eliminating two facets there will still be water available, inconvenience should not be noticeable.		
Other non-quantifiable VA alternatives are listed below:			

14.0	Use English units in lieu of Metrics.	N/A	+19%
15.0	Use contractor outreach in additional to normal advertising.	N/A	+16%
16.0	Advertise at the beginning of the year in lieu of at the end.	N/A	+11%
17.0	Use General Conditions format specifications to fit building industry.	N/A	+14%
18.0	Create additive bid items.	N/A	+19%
19.0	Provide contractor more flexibility of start of construction.	N/A	+16%
20.0	Accelerate project to minimize escalation.	N/A	+4%
23.0	Consult Maintenance Division for potential contractors.	N/A	+5%
24.0	Create a “regional contractor data base”.	N/A	+16%

Conditionally Accepted Alternatives:

Alternative Number	Description	Potential Savings	Performance
1.0	Use natural gray concrete in lieu of colored concrete.	\$135,200	+7%
	The color in the concrete is to provide variation and richness in the paving surface enhancing the site aesthetic. The colors represent various items that interpret elements of the valley and agriculture. Eliminating the color and enhanced textures will not be at the level the public has come to expect from municipal and private public spaces.		
2.0	Eliminate colored aggregate in River path and use varying finishes.	\$32,600	+7%
	The colored aggregate in the concrete is to provide variation and richness in the paving surface enhancing the site aesthetic. The colors represent streams and rivers providing necessary water to the valley and agriculture. Eliminating the aggregate will make interpretation of the river concept more difficult. However, the costs associated to initial cost and maintenance are reduced.		

Rejected Alternatives:

Alternative Number	Description	Reasons for Rejection
3.0	Reduce seat walls by 50%.	<ul style="list-style-type: none"> ▪ The original feature is important to the context sensitive aspects of the project. The exterior aesthetics should be given more weight than interior aesthetics. ▪ The function of seat walls should not be eliminated.
4.0	Revise roof system (eliminate 2nd tier canopy roof).	<ul style="list-style-type: none"> ▪ The original feature is important to the context sensitive aspects of the project. The exterior aesthetics should be given more weight than interior aesthetics. ▪ Small savings for sacrificing aesthetics.
5.0	Replace site signs with standardized signs.	<ul style="list-style-type: none"> ▪ Custom signs do not normally attract graffiti. ▪ Will use custom design. However, it will be replaced with standardized signs should the custom sign is damaged.
7.2	Eliminate all cedar rail fence.	<ul style="list-style-type: none"> ▪ In favor of Alternative 7.1. ▪ The original feature is important to the context sensitive aspects of the project. The exterior aesthetics should be given more weight than interior aesthetics.
9.0	Eliminate demolition of existing shade structures.	<ul style="list-style-type: none"> ▪ The original feature is important to the context sensitive aspects of the project. The exterior aesthetics should be given more weight than interior aesthetics. ▪ Existing shade structures are in bad shape.
10.1	Use standard site lighting in lieu of electrolier (MH3).	<ul style="list-style-type: none"> ▪ In favor of Alternative 10.2.
10.3	Keep the existing two high mast lights, and eliminate 4 site lights.	<ul style="list-style-type: none"> ▪ In favor of Alternative 10.2.
11.0	Eliminate floor tiles.	<ul style="list-style-type: none"> ▪ Floor sealant need to be reapplied every so often, maintenance issue.
12.0	Eliminate wall tiles except wet walls.	<ul style="list-style-type: none"> ▪ Context sensitive and maintenance issue. ▪ Additional re-design efforts and associated cost.

21.0	Hire consultant to provide construction management services.	<ul style="list-style-type: none"> ▪ This may add another level of approvals in the line of communication between a contractor and Caltrans. All Caltrans process and procedures would still be required.
22.0	Hire consultant to provide bid advertisement.	<ul style="list-style-type: none"> ▪ This may add another level of approvals in the line of communication between a contractor and Caltrans. All Caltrans process and procedures would still be required.
25.0	Advertise project on local newspaper.	<ul style="list-style-type: none"> ▪ This is not applicable to this type of construction.

IDEA EVALUATION

EVALUATION PROCESS

The VA team, as a group, generated and evaluated ideas on how to perform the various functions. The idea list was grouped by function. While ideas on the overall project were evaluated as a group, ideas relating to a specific technical discipline may have been evaluated by the responsible team member.

The team compared each of the ideas with the original concept for each of the key evaluative criteria to determine whether it was better, equal to, or worse than the original concept. The team reached a consensus on the ranking of the idea. High-ranked ideas would be developed further; low-ranked ones would be dropped from further consideration.

All of the ideas that were generated during the creative phase using brainstorming techniques were recorded on the following Creative Ideas Evaluation forms. These ideas were discussed and the advantages and disadvantages of each were listed.

Note: Symbols and number used in the form are as follows:

Ranking Scale: 5-3 = Most Likely to be Developed 1-2 = Least likely to be developed

Evaluation Criteria: Significant Improvement +2, +1, 0, -1, -2 Significant Degradation

WD = Withdraw RQ = Required DS = Design Suggestion

M = Maintainability ST: Stakeholder Acceptance C: Constructability

CB: Contract Bid-ability CA: Context Appropriate

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
1	Use English units in lieu of Metric.	0	0	+2	+2	0	<ul style="list-style-type: none"> • Will attract more bidders • Will have fewer contract change orders 	<ul style="list-style-type: none"> • Need to revise the plans and specs • Potential higher support and escalated costs • May delay project delivery • Require acceptance by HQ OE 	+1	4
2	Use contractor outreach in lieu of normal advertising.	0	+1	0	+2	0	<ul style="list-style-type: none"> • Will attract more bidders • Will have more competitive bids • Will have fewer contract change orders 	<ul style="list-style-type: none"> • Will require research • May delay project delivery 	+2	5
3	Advertise at the beginning of the year in lieu of at the end.	0	+1	0	+1	0	<ul style="list-style-type: none"> • Will attract more bidders • Will have more competitive bids 	<ul style="list-style-type: none"> • May have to delay project advertising, therefore, project delivery • Potential higher support and escalated costs 	+1	4

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
4	Use General Conditions format specifications to fit building industry.	0	0	0	+2	0	<ul style="list-style-type: none"> • Will attract more bidders • Will have more competitive bids • Will have fewer contract change orders 	<ul style="list-style-type: none"> • Potential higher support and escalated costs • May delay project delivery • Unfamiliarity to District OE 	+2	5
5	Create additive bid items.	0	+1	+1	+2	+1	<ul style="list-style-type: none"> • Will have more competitive bids • Potential to add contract items 	<ul style="list-style-type: none"> • Potential higher support and escalated costs • May delay project delivery • Unfamiliarity to HQ & District OE 	+1	4
6	Provide contractor more flexibility of start of construction.	0	0	+1	+2	0	<ul style="list-style-type: none"> • Will attract more bidders • Will have more competitive bids 	<ul style="list-style-type: none"> • Potential delay of project delivery 	+1	4
7	Accelerate project to minimize escalation.	0	+1	0	0	+1	<ul style="list-style-type: none"> • Potential cost savings 	<ul style="list-style-type: none"> • Impacts support schedule 	+1	4

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
8	Hire consultant to provide construction management services.	0	0	+1	+2	0	<ul style="list-style-type: none"> Potential cost savings May attract more bidders May have more competitive bids 	<ul style="list-style-type: none"> Consultant and oversight fees Consultant unfamiliar with Caltrans processes and standards May have opposition from the Union 	+1	4
9	Hire consultant to provide bid advertisement.	0	0	+1	+2	0	<ul style="list-style-type: none"> Potential cost savings May attract more bidders May have more competitive bids 	<ul style="list-style-type: none"> Consultant and oversight fees Consultant unfamiliar with Caltrans processes and standards May have opposition from the Union 	+1	4
10	Consult Maintenance Division for potential contractors.	+1	0	+1	+2	0	<ul style="list-style-type: none"> Potential cost savings May attract more bidders May have more competitive bids 	<ul style="list-style-type: none"> Will require research May delay project delivery 	+1	4
11	Provide training to contractors to bid on Caltrans' building works.	0	+1	+1	+2	0	<ul style="list-style-type: none"> Potential cost savings Will attract more bidders Will have more competitive bids Will have fewer contract change orders 	<ul style="list-style-type: none"> Needs to set up training May need to hire consultant to conduct the training May delay project delivery 	+1	DS

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
12	Use regular concrete in lieu of colored concrete.	+1	-1	+1	0	-2	<ul style="list-style-type: none"> Reduces cost Ease of maintenance 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs 	+1	4
13	Eliminate colored aggregate in River path and use varying finishes.	+1	-1	+1	0	-2	<ul style="list-style-type: none"> Reduces cost Ease of maintenance 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs 	+1	4
14	Reduce seat walls by 50%.	0	-1	+1	0	-1	<ul style="list-style-type: none"> Reduces cost Ease of maintenance 	<ul style="list-style-type: none"> Less seating areas Allows pedestrian traffic through landscape areas Need to revise the plans and specs 	+1	4
15	Revise roof system (eliminate 2 nd tier canopy roof).	+1	-1	+1	+1	-2	<ul style="list-style-type: none"> Reduces cost Ease of maintenance 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs 	+1	4

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
16	State furnish site and entrance signs.	0	0	+1	+2	0	<ul style="list-style-type: none"> Reduces cost 	<ul style="list-style-type: none"> Need to revise the plans and specs Higher support costs 	+1	DS
17	Replace site signs with standardized signs.	+1	-1	+1	+1	-2	<ul style="list-style-type: none"> Reduces cost Ease of maintenance 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs 	+1	4
18	State furnish "site furnishings".	0	0	+1	+2	0	<ul style="list-style-type: none"> Reduces cost 	<ul style="list-style-type: none"> Need to revise the plans and specs 	+1	4
19	Build comfort stations only with minimal site work.	-1	-1	+1	+1	-2	<ul style="list-style-type: none"> Reduces cost Reduces construction time 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Will increase maintenance 	+2	3
20	Eliminate entrance rail fence.	+1	-1	+1	+1	-2	<ul style="list-style-type: none"> Reduces cost Reduces maintenance 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs 	+1	4

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
21	Eliminate all cedar rail fence.	+1	-1	+1	+1	-2	<ul style="list-style-type: none"> Reduces cost Reduces maintenance 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs 	+1	4
22	Use AC for walkway in lieu of concrete.	-2	-1	+1	0	-2				WD
23	Eliminate Class 2 Aggregate Base (with 6" concrete).	-1	0	+1	+1	0	<ul style="list-style-type: none"> Reduces cost Faster construction 	<ul style="list-style-type: none"> Possibility of settlement and cracking 	+1	3
24	Use 4" concrete in lieu of 6" for walkway.	0	0	0	0	0	<ul style="list-style-type: none"> Reduces cost 	<ul style="list-style-type: none"> None apparent 	+1	5
25	Use CMU in lieu of steel walls assembly.	+1	-1	+1	+1	-2	<ul style="list-style-type: none"> Reduces cost Decreases working days Eliminates some interior tile work 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Increases support cost 	+1	2

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
26	Eliminate demolition of existing shade structures.	0	-1	+1	+1	-2	<ul style="list-style-type: none"> Reduces cost Decreases working days Less disposal 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Increases support cost 	+1	4
27	Use pre-fab structure in lieu of current design.	+1	-1	+1	+1	-2	<ul style="list-style-type: none"> Reduces cost Decreases working days 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Increases support cost 	+1	2
28	Defer landscaping (planting and plant establishment) as a separate contract.	-1	-1	+1	+1	-2	<ul style="list-style-type: none"> Reduces cost Decreases working days 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Increases support cost Increases maintenance 	+1	2

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
29	Eliminate replacement of perimeter wire mesh fence.	-1	-1	+1	+1	-1	<ul style="list-style-type: none"> Reduces cost 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Increases support cost Increases maintenance 	+1	2
30	Leave existing parking bumpers in place.	0	0	+1	+1	0	<ul style="list-style-type: none"> Reduces cost 	<ul style="list-style-type: none"> Need to revise the plans and specs 	+1	2
31	Use standard site lighting in lieu of electrolier (MH3).	+1	0	0	0	-2	<ul style="list-style-type: none"> Reduces cost Reduces maintenance 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Increases support cost 	+1	4
32	Use standard site lighting, in lieu of electrolier (MH3), in the truck parking area (Approximately 50%).	+1	0	0	0	-1	<ul style="list-style-type: none"> Reduces cost Reduces maintenance 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Increases support cost 	+1	4

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
33	Keep the existing two high mast lights, and eliminate 4 site lights.	+1	0	+1	+1	-1	<ul style="list-style-type: none"> Reduces cost Reduces maintenance 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Increases support cost 	+1	4
34	Eliminate floor tiles.	+1	0	+1	+1	-1	<ul style="list-style-type: none"> Reduces cost Reduces maintenance Reduces working days 	<ul style="list-style-type: none"> Reduces aesthetics Need to revise the plans and specs Increases support cost 	+1	4
35	Eliminate wall tiles except wet walls.	+1	0	+1	+1	-1	<ul style="list-style-type: none"> Reduces cost Reduces maintenance Reduces working days 	<ul style="list-style-type: none"> Reduces aesthetics Does not satisfy Context Appropriate design Need to revise the plans and specs Increases support cost 	+1	4
36	Eliminate subsurface drainage system.	-2	0	+1	+1	0				WD
37	Eliminate CHP office.	-2	-1	+1	0	0				WD

CREATIVE IDEAS EVALUATION							<i>Caltrans</i>			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		M	ST	C	CB	CA				
38	Site furnishings to be installed at later date (by other contracts).	-2	-1	+1	+1	-2	<ul style="list-style-type: none"> • Reduces cost • Decreases working days 	<ul style="list-style-type: none"> • Reduces aesthetics • Does not satisfy Context Appropriate design • Need to revise the plans and specs • Increases support cost • Increases maintenance 	+1	2
39	Reduce two water faucets.	+1	-1	0	0	0	<ul style="list-style-type: none"> • Reduces cost 	<ul style="list-style-type: none"> • Decreases accessibility to water sources 	+1	4
40	Eliminate shade structures for water system.	-1	0	+1	+1	0	<ul style="list-style-type: none"> • Reduces cost 	<ul style="list-style-type: none"> • Increases maintenance 	+1	1
41	Create a “regional contractor data base”.	0	+1	0	+2	0	<ul style="list-style-type: none"> • Will attract more bidders • Will have more competitive bids 	<ul style="list-style-type: none"> • Will require research • May delay project delivery 	+2	5
42	Advertise project on local newspaper.	0	+1	0	+2	0	<ul style="list-style-type: none"> • Will attract more bidders • Will have more competitive bids 	<ul style="list-style-type: none"> • Will require research • May delay project delivery 	+2	5

BORON SAFETY ROADSIDE REST AREA

GENERAL

Project KP and EA: 06-Kern-58, KP R223.7 (PM R139) EA 06-463001

Number of Units: 2, eastbound and westbound

Project type: Tear-down and rebuild

Programmed Amount: \$5,131,000 in the 2004 SHOPP for the 05/06 FY
\$9,981,000 in the 2006 SHOPP for the 07/08 FY

Estimated construction cost: \$14,945,000

Accepted VA Savings: \$3,295,429

Proposed Capacity of Restroom: EB: Men's: 2 regular stalls, 4 urinals, 2 ADA stalls
Women's: 10 regular stalls, 2 ADA stalls

WB: Men's: 2 regular stalls, 4 urinals, 2 ADA stalls
Women's: 10 regular stalls, 2 ADA stalls

Included Facilities: Maintenance Crew Room, CHP office and Vending on both directions

PROJECT DESCRIPTION

The Boron Rest area is located in the Mohave Desert area of eastern Kern County on Route 58 near the small desert community of Boron. It is approximately 14.5 kilometers (9 miles) west of Kramer Junction (US 395) and 42 kilometers (27 miles) east of the community of Mohave. This segment of Route 58 is a 4-lane controlled access freeway.

This is the only SRRA on Route 58. The next nearest SRRA is located 117 km (73 miles) away on Route 15 to the east, and over 233 km (145 miles) away on Route 99 to the west. The average rainfall in the area is 12.7 centimeters (5 inches) and the temperature ranges from a low of 9.4 C (15 degrees F) in the winter to a high of 37.7 – 43.3 C (100 -110 F) in the summer.

Existing Facility

The proposed project rehabilitates the Boron Safety Roadside Rest Area (SRRA), Americans with Disabilities Act (ADA) deficiencies, upgrade and repair existing eastbound and westbound facilities to improve site safety, and to reduce continual maintenance efforts for repairing items that are outdated or excessively costly to maintain.

Original Design Concept (*Proposed Improvements*)

The work includes replacing the comfort station facilities to expand capacity, upgrade for ADA compliance, add a maintenance crew room and CHP office space, renovate the eastbound well and pump,

install a new well and pump for the westbound facility, upgrade telephone and electrical, replace/add ADA compliant picnic tables, reduce tripping hazards, decertify the abandoned septic system, and replace benches and trash receptacles. All work will be completed in the existing right of way.

The architectural façade is an aerospace theme, reflecting the industry within the region. The facility also needs to accommodate extreme temperatures in the area as well as strong winds. The design approach, as presented and agreed to by the local communities, includes a “wing” look for the roof structure as well as a protected core area from the elements.

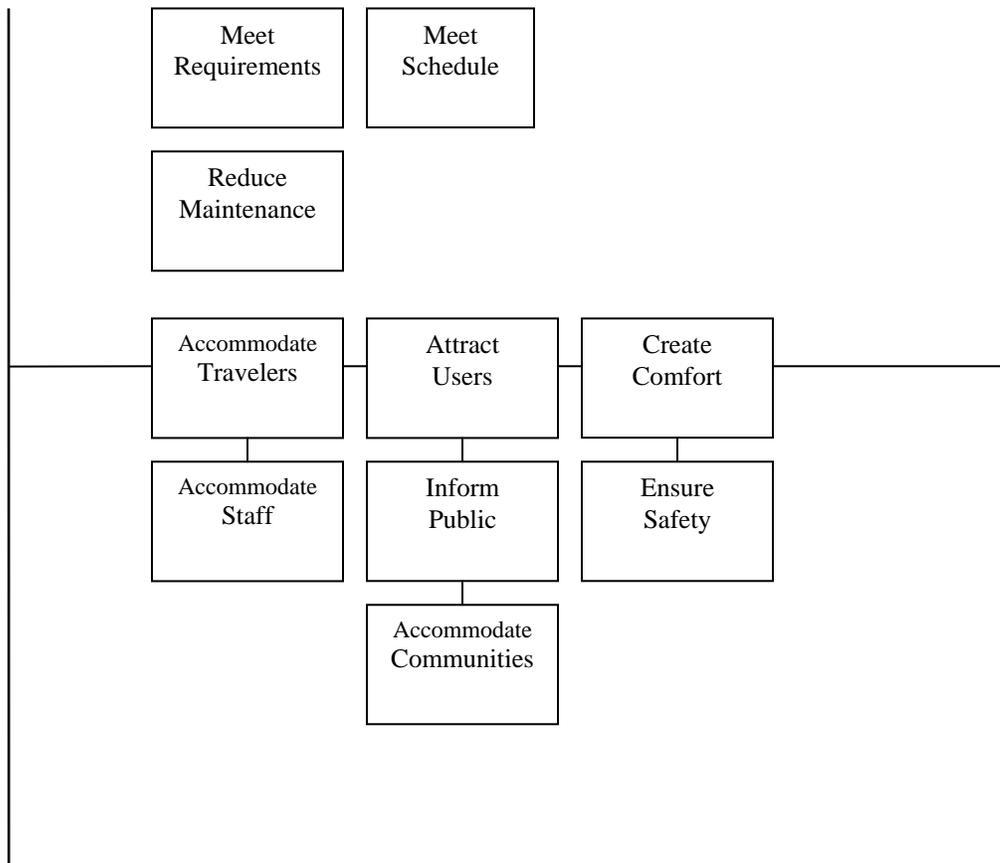
PERFORMANCE CRITERIA

Specific performance criteria were developed in cooperation with the designers and stakeholders. These criteria were weighted, using a paired comparison approach, which resulted in the criteria used to evaluate ideas and alternative concepts. These criteria are identified later in this section under the heading Performance and Value Improvement.

Performance Measurement was not performed in this VA study.

FUNCTIONS

Using function analysis and Function Analysis System Technique (FAST) diagramming, the team looked for opportunities to change the project's concept design and supported the need and purpose identified in the project report. The team defined the basic function of this project as *Accommodate Travelers*. Key secondary functions include *Accommodate Staff*, *Attract Users*, *Inform Public*, *Create Comfort*, *Ensure Safety*, and *Accommodate Communities*. Analysis of the functions intended to be performed by the project helped the team focus on the purpose and need of the project and, consequently, how to craft alternative concepts that would provide the required function.



VA STUDY RESULTS

18 VA alternatives were accepted, resulting in an estimated cost savings of \$4,445,429. Performance measures were not used for this project.

Accepted Alternatives

Alt. No.	Description	Potential Savings Initial
1.0	Used a Standard Metal Seam Roof Two alternative design options were presented to maintain the context of the area. During the implementation meeting, the team chose to accept the standard metal seam roof proposal but chose a simpler shed type with a flat roof. The potential savings reflects this change from the original alternative.	\$2,000,000
2.0	Eliminate Polycarbonate Panels in the Ceilings This eliminates the panels that would be used in a fabric roof system.	\$234,420
3.0	Reduce Fixture Count by 50% The current fixture count is over designed at this facility. The implementation team agreed that a reduction was needed but it is less than the proposed 50%. The potential savings reflects this change from the original alternative.	\$425,250
5.0	Reduce Concrete Seating by 50% The location of the current concrete seating is located in areas not completely protected from the core area. This idea will not reduce the performance to the project site.	\$69,576
6.0	Remove Natural Stone Veneer, Use CMU Only This alternative changes the context solution of using natural stone to using CMU and the CMU can be done in a manner that is consistent with the context sensitivity of the site.	\$618,000
8.0	Construct a Separate Shade Structure from the Comfort Station Roof System The roof structure is extremely expensive if it also includes providing the additional shade on the site. This idea looks to providing separate shade structures which also allows for more flexibility in the roof system design.	Savings is Unknown
9.1	Delete Colored Concrete in Walkways This alternative deletes the colored admixture but must also incorporate a way to deal with glare issues.	\$73,183
10.0	Reduce Footprint of the Building Reconfiguring the existing footprint would allow for a more effective use of the space while still accommodating the necessary building functions.	\$800,000
11.0	Educate the Public through Interpretative Displays	\$0

This expands the current opportunities for interpretive displays with other agencies and organizations that help support the context theme of the project location. This would include encouraging participation of the military and aerospace agencies to augment the Caltrans' standard interpretive partners.

- | | | |
|-------------|--|-----------------------------|
| 12.0 | Partner with the Communities to Provide Kiosk Information Monthly | \$0 |
| | This alternative merely validates this as an important feature to the rest area. This provides an opportunity for Caltrans' sister agencies to furnish, monitor and maintain local information on a timely basis that will be informative to the traveling public as well as attract them to their local communities. | |
| 13.0 | Straighten CMU Walls at the Walkway | \$Savings is Unknown |
| | It is a more cost effective approach to remove the curved walls in the current design. With the new approach to the roof system, this will match much the new design more effectively. | |
| 15.0 | Provide and Alternative Energy Display for Education Purposes | \$0 |
| | This will show Caltrans' commitment to resource conservation helps to educate the public and allows for partnerships with companies in the energy industry. | |
| 16.0 | Caltrans/District to Complete their Design Work Concurrently with the Architect's Work | \$0 |
| | This improves the current work processes within Caltrans by having the District and Structures schedule their portions of the work at the same time. This will take some behavioral changes and strong project management to ensure that comments can be tracked and a single point of contact maintained to track the schedule. This would help to shorten the contract drawing development time and eliminate last minute surprises, mistakes and schedule overruns. | |
| 17.0 | Delete Photovoltaic on Roof | \$225,000 |
| | This idea will help to reduce project costs. The potential savings reflects this change from the original alternative. | |
| 18.0 | Reduce the Height of the Roof Structure | \$Savings is Unknown |
| | This reduces the original design of the airfoil roof type; however, with the change to a standard roof system, this alternative should be incorporated into the design. | |
| 19.0 | Provide Ambient Light | \$0 |
| | This alternative identifies the importance of providing ambient light in the building structures and should be included in the new design. | |

Rejected Alternatives

Alt. No.	Description	Reason for Rejection
4.0	Eliminate the vending area	Circumstances do not warrant eliminating this area. It was determined that it is needed in this area.
7.0	Bid the Project by 5/1/07 to Begin Construction by 7/1/07	Although it is desired that the project be constructed as soon as possible. It is not feasible for this project to get completed this early.
9.2	Remove colored concrete and replace with texture	Rejected in favor of 9.1
19.0	Concurrent reviews with division of State Architect	<p>The State Fire Marshall requires a complete PS&E package for review and this cannot be performed with concurrent reviews, so time would not be saved in trying to accomplish this.</p> <p>This will be a mute point since Caltrans will be self-certified in approximately 1 to 2 months.</p>

IDEA EVALUATION

EVALUATION PROCESS

The VA team, as a group, generated and evaluated ideas on how to perform the various functions. The idea list was grouped by function. While ideas on the overall project were evaluated as a group, ideas relating to a specific technical discipline may have been evaluated by the responsible team member.

The team compared each of the ideas with the original concept for each of the key evaluative criteria to determine whether it was better, equal to, or worse than the original concept. The team reached a consensus on the ranking of the idea. High-ranked ideas would be developed further; low-ranked ones would be dropped from further consideration.

All of the ideas that were generated during the creative phase using brainstorming techniques were recorded on the following Creative Ideas Evaluation forms. These ideas were discussed and the advantages and disadvantages of each were listed.

Note: Symbols and number used in the form are as follows:

Ranking Scale: 5-3 = Most Likely to be Developed 1-2 = Least likely to be developed

Evaluation Criteria: Significant Cost Reduction +2, +1, 0, -1, -2 Significant Cost Increase

WD = Withdraw RQ = Required DS = Design Suggestion

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
INFORM PUBLIC					
IP-1	Partner with communities to provide kiosk information monthly	<ul style="list-style-type: none"> Helps develop strong partnerships with local communities, helps market local community events, educate the public, ownership of the community to help reduce vandalism 	<ul style="list-style-type: none"> The community actually committing to keeping the information current, oversight issues with Caltrans and appropriate information 	0	5
IP-2	Educate the public through interpretative displays (hardscape); natural and cultural	<ul style="list-style-type: none"> Provides additional public service, fosters relationships with local agencies, extends the travelers stay at the rest stop and appeals to both adults and children 	<ul style="list-style-type: none"> Vandalism, liability due to injury, staff time to obtain the displays 	0	4
IP-3	Provide an alternative energy display for educational purposes	<ul style="list-style-type: none"> Continues to show Caltrans' commitment to resource conservation, educates the public, California is a lead in the "green" built industry, cooperative agreement with the energy industry 	<ul style="list-style-type: none"> Vandalism, potential long term maintenance 	0	5
ACCOMMODATE STAFF					
AS-1	Provide on-site residence for full time maintenance	<ul style="list-style-type: none"> Improved security and safety, could reduce possible maintenance closures 	<ul style="list-style-type: none"> Increased long term costs, initial costs for building 	-2	1

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
CREATE COMFORT					
CC-1	Add water feature	<ul style="list-style-type: none"> Cooling effect in the area, adds interest to the area 	<ul style="list-style-type: none"> Maintenance issues, vandalism, increased liability 	-2	4
CC-2	Provide a misting/fogging system in core area only	<ul style="list-style-type: none"> Cooling effect in the area, increases physical comfort 	<ul style="list-style-type: none"> Maintenance issues, long term life cycle costs 	-1	5
CC-3	Allow cars to park closer to the facility	<ul style="list-style-type: none"> Shorter walk to the comfort station 	<ul style="list-style-type: none"> No budget in current scope 		OS
CC-4	Provide electrical service in the parking lot for trucks	<ul style="list-style-type: none"> More trucker friendly approach to the site, reduces engine emissions 	<ul style="list-style-type: none"> No budget in current scope 		OS
CC-5	Air condition the restrooms	<ul style="list-style-type: none"> Create more comfort 	<ul style="list-style-type: none"> Promotes longer stops, no budget in current scope, not per standards 	-2	OS
CC-6	Soften the interiors in the restrooms	<ul style="list-style-type: none"> Make more inviting, create comfort 			AB D
CC-7	Improve the pet area and make ADA compliant	<ul style="list-style-type: none"> Make traveler friendly, meets requirements 	<ul style="list-style-type: none"> No budget in current scope 	-1	DS
CC-8	Add on-demand hot water system to restrooms	<ul style="list-style-type: none"> Improves comfort, more user friendly 		-1	3
MEET SCHEDULE					

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
MS-1	Bid project by 5/1/07 to begin construction by 7/1/07	<ul style="list-style-type: none"> Getting the improvements completed sooner, meet customer needs, reduced maintenance issues, potential savings in escalation costs 		0	5
MS-2	Reduce review periods within Caltrans	<ul style="list-style-type: none"> To meet the schedule, might accelerate 	<ul style="list-style-type: none"> Current Caltrans procedures and personal commitment 	0	5
MS-3	Have concurrent reviews with the State Architect and Fire Marshall; have the entire package	<ul style="list-style-type: none"> Help meet the schedule, might accelerate the schedule 	<ul style="list-style-type: none"> There can't be any design changes 	0	5
MS-4	Caltrans District to complete the site work concurrently with the architect's work so that all plans are completed at the same time	<ul style="list-style-type: none"> Help meet the schedule, might accelerate the schedule 	<ul style="list-style-type: none"> There can't be any design changes 	0	5
MS-5	Improve internal communications	<ul style="list-style-type: none"> Help meet the schedule, might accelerate the schedule, help to build the team, improve the design 		0	DS
MS-6	Final decision on concept by 8/15/06	<ul style="list-style-type: none"> Required to meet the schedule 		0	5
MS-7	Do a site adapt plan using the Valley Wells plan	<ul style="list-style-type: none"> Savings of time to go to bid, design is already approved 	<ul style="list-style-type: none"> Not site specific design, building access is from a single side, 	+2	3
MS-8	Have the kick off meeting with STV	<ul style="list-style-type: none"> Build the team, improve communication, meet the schedule, better design 		0	DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
ATTRACT USERS					
AU-1	Ensure there is roadside signage in both directions well before the rest area	<ul style="list-style-type: none"> Signage would stipulate services available at the site 			OS
AU-2	Provide an aesthetically pleasing entry sign (non-standard)	<ul style="list-style-type: none"> Attract more interest, more welcoming, non-institutional 	<ul style="list-style-type: none"> Not a traditional Caltrans' approach 	0	DS
AU-3	Light the entire site				AB D
AU-4	Provide vending				AB D
AU-5	Provide landscaping with more trees (an oasis approach)	<ul style="list-style-type: none"> More inviting, cooler environment, more shade 	<ul style="list-style-type: none"> Maintenance issues, life cycle costs increased 	-1	OS
AU-6	Provide WiFi	<ul style="list-style-type: none"> Meet public expectations, convenience 	<ul style="list-style-type: none"> Truckers staying too long (turnover issue) 	0	DS
STRUCTURAL					
S-1	Use standing seam metal roof	<ul style="list-style-type: none"> Long term durability, standard building product, familiarity with maintenance 	<ul style="list-style-type: none"> Might not meet Context Solutions 	+2	4
S-2	Provide ambient light in the structure with the standing seam metal roof	<ul style="list-style-type: none"> Reduce electrical consumption, better visibility 	<ul style="list-style-type: none"> Maintenance issues, more heat gain 	-1	4
S-3	Remove stone veneer, use CMU only		<ul style="list-style-type: none"> Not in context 	+2	4

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-4	Reduce the overall height of the roof structure		▪ Less context visibility	+1	4
S-6	Change exterior wall to masonry with no insulation	▪ Improves durability		+1	4
S-7	Eliminate polycarbonate panels in the ceiling				4
S-8	Change aluminum louvers to galvanized steel	▪ More durable, will not require painting	▪ Aesthetic concerns, will require paint to suppress industrial appearance	0	3
S-9	Straighten walls at walk-thrus	▪ Speed construction time	▪ Context issues	+2	4
S-10	Change the roof overhang supports to “V”	▪ Improves appearance		+1	3
S-11	Eliminate roof overhang supports	▪ Removes climbing devices, improve appearance, improves circulation		+1	3
S-12	Delete photo voltaic in roof		▪ Increased life cycle costs, not being a responsible partner in conservation efforts	+2	5
S-13	Green built (LEED)	▪ Following the governor’s direction (Executive Order S-20-04), following the vision from the Director, environmentally sound		-1	DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-14	Use prefabricated buildings	<ul style="list-style-type: none"> Speed to construct, speed to design 	<ul style="list-style-type: none"> Potentially difficult to meet context, not Caltrans standard, potential increase in life cycle cost, limitation of materials 	+2	2
S-15	Use Rastra block in lieu of CMU	<ul style="list-style-type: none"> Meets green built 	<ul style="list-style-type: none"> Sole source vendor 	0	
S-16	Construct shade areas separate from the roof structure (simplify)	<ul style="list-style-type: none"> Simplifies the building structure 	<ul style="list-style-type: none"> Increases supports 	0	4
S-17	Use an actual airplane wing as the roof structure	<ul style="list-style-type: none"> Simplifies the building structure, context sensitive 	<ul style="list-style-type: none"> Never been done before, the structural value is undetermined 		3
S-18	Use an existing 737 airplane on site as the facility, making the necessary changes to accommodate restrooms				1
S-19	Reduce overhang to no more than 10' (coupled with S-16)	<ul style="list-style-type: none"> Simplified building structure 	<ul style="list-style-type: none"> Requires separate shade structures 	+1	4
S-20	Reduce footprint of the building	<ul style="list-style-type: none"> Economy of design 		+2	5
S-21	Reconsider the Hanger concept		<ul style="list-style-type: none"> Delay to the schedule, need community "buy in" 	0	1
S-22	Change roof structure to a straight-line roof system (remove curve)	<ul style="list-style-type: none"> Simplified roof structure 	<ul style="list-style-type: none"> Changes the context, detracts from the visual effect or looks like a mistake 	+1	4

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
MECHANICAL (PLUMBING & HVAC)					
M-1	Use infrared burial mount flush system	<ul style="list-style-type: none"> Reduces vandalism, reduces maintenance 		0	DS
M-2	Reduce the number of plumbing fixtures by 50% in both facilities	<ul style="list-style-type: none"> Reduces maintenance and future replacement costs 		+2	5
M-3	Use individual wall mount sinks	<ul style="list-style-type: none"> Eliminates liability hazards, less service intensive 		0	DS
M-4	Use Bradley ½ round trough sinks	<ul style="list-style-type: none"> Simplifies plumbing requirements 			DS
M-5	Use compost instead of plumbing	<ul style="list-style-type: none"> No hook up to new sewer 	<ul style="list-style-type: none"> May not meet demand, non-standard, long term maintenance issues 		1
M-6	Use waterless urinals	<ul style="list-style-type: none"> Environmentally sound, save water 	<ul style="list-style-type: none"> Odor challenges, maintenance intensive 	0	1
M-7	Use trough urinals	<ul style="list-style-type: none"> Simplifies plumbing 	<ul style="list-style-type: none"> Not within code 	0	1
M-8	Arrange restrooms so they use the natural wind for ventilation				DS
M-9	Add heating to restrooms	<ul style="list-style-type: none"> Increases comfort 	<ul style="list-style-type: none"> Increases duration of use, additional maintenance costs 	-1	3
M-10	Add ceiling fans to increase ventilation	<ul style="list-style-type: none"> Increases comfort, helps remove odor 	<ul style="list-style-type: none"> Increased vandalism, maintenance costs 	-1	DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
M-11	Add flush mounted turbines to increase ventilation	<ul style="list-style-type: none"> Increases comfort, helps remove odor 	<ul style="list-style-type: none"> Maintenance costs 		
M-12	Use the natural shape of the roof using ducts to pull air out of the restrooms	<ul style="list-style-type: none"> Increases comfort, helps remove odor 		0	DS
ELECTRICAL					
E-1	Use exterior high mast lights near the buildings	<ul style="list-style-type: none"> Increases security and safety 	<ul style="list-style-type: none"> Distracts driving traffic, excessive light level for pedestrians 	0	2
E-2	Light the Yucca tree	<ul style="list-style-type: none"> Improve ambiance, feature native vegetation 	<ul style="list-style-type: none"> Vandalism 	0	DS
GENERAL CATEGORY					
GC-1	Add doors to the restroom	<ul style="list-style-type: none"> Facilitates maintenance 	<ul style="list-style-type: none"> 	-1	DS
GC-2	Capture wind for power source	<ul style="list-style-type: none"> Represents “green” built, wind energy companies as a demonstration-type project 	<ul style="list-style-type: none"> Never been done with Caltrans, administrative efforts to develop 	0	5
GC-3	Look for alternative funding sources to help fund additional items; i.e. CalEdison, CalPUC Program, Savings by Design			+1	DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
GC-4	Recycle/Reuse materials from the existing facilities	<ul style="list-style-type: none"> Valuable resource not available, keeps in context with existing shade structures 	<ul style="list-style-type: none"> Challenges with potential abatement issues with materials 		AB D
GC-5	Use concrete in lieu of tile on the walls in restrooms		<ul style="list-style-type: none"> Higher maintenance costs, reduced light transmission 	+1	DS
GC-6	Use pervious concrete in walkways	<ul style="list-style-type: none"> Environmentally sound 			OS
GC-7	Add fencing to prevent camping	<ul style="list-style-type: none"> Prevents current camping 		-1	OS
GC-9	Add concrete bollards to prevent camping	<ul style="list-style-type: none"> Prevents current camping 		-1	OS
GC-10	Add driveway to maintenance storage area	<ul style="list-style-type: none"> Ensures access 		-1	DS
GC-11	Eliminate the vending area		<ul style="list-style-type: none"> Reduces services 	+2	4
GC-12	Move drinking fountains into the protected area				AB D
GC-13	Reconfigure footprint for more efficient use of space			0	DS
GC-14	Bid work with alternatives to include some of the Phase II work in the Phase I			0	DS
GC-15	Remove the colored walkways and provide alternate texturing		<ul style="list-style-type: none"> Potential increased glare 	+1	4
GC-16	Delete colored concrete for walkways		<ul style="list-style-type: none"> Potential increased glare 	+1	4

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
GC-17	Reduce the quantity of concrete seat walls by 50%		<ul style="list-style-type: none"> ▪ Reduction in seating 	+1	4
GC-18	Use alternative materials for seat walls	<ul style="list-style-type: none"> ▪ Matching the building materials, maintains seating capacity 	<ul style="list-style-type: none"> ▪ Increased maintenance costs 	0	DS
GC-19	Recommend A+B contracting to help promote getting the project done more quickly	<ul style="list-style-type: none"> ▪ Promotes early completion 		0	DS
GC-20	Do contractor outreach to include advertising to building contractors, i.e. McGraw Hill, and Building Exchanges	<ul style="list-style-type: none"> ▪ Promotes competitive bidding and multiple bidders 		0	DS
GC-21	Use root barrier to avoid future lawsuits by eliminating trip hazards	<ul style="list-style-type: none"> ▪ Eliminates liability issues, standard practice 			DS

COALINGA-AVENAL SAFETY ROADSIDE REST AREA

GENERAL

Project PM and EA: 06-FRE-5-PM 1.4 EA 06-A9800

Number of Units: 2, northbound and southbound

Project type: Tear-down and rebuild

Programmed Amount: \$9,985,000 in the 2006 SHOPP for the 09/10 FY

Estimated construction cost: \$10,700,000

Accepted VA Savings: \$873,000

Proposed Capacity of Restroom: NB: Men's: 10 water closet and urinals with 6 lavatories; Women's: 16 water closets and 9 lavatories.

SB: Men's: 10 water closet and urinals with 6 lavatories; Women's: 16 water closets and 9 lavatories.

ADA Stalls: two men's, two women's, both directions

Included Facilities: Maintenance Crew Room, CHP office and Vending on both directions.

PROJECT DESCRIPTION

The proposed project is to rehabilitate the existing northbound and southbound facilities at the Coalinga-Avenal Safety Roadside Rest Area (SRRA) on Route 5, in Fresno County. The proposed project is in conformance with the California Safety Roadside Rest Area Master Plan and its program goals.

Existing Facility

The rehabilitation of the Coalinga-Avenal SRRA is needed to bring the facility in compliance with legislated standards. The Coalinga-Avenal SRRA does not currently meet levels of accessibility as defined by ADA and DIB 82-03 (must comply with updated DB). The facility is also in violation of Cal OSHA requirements to provide appropriate facilities to maintenance workers at the rest area. A new break room and additional storage rooms are needed. The existing mechanical room is too small to accommodate storage. Maintenance personnel are also currently using this mechanical room inappropriately as a break room.

The comfort station has exceeded its designed capacity in use. The comfort station structure itself is in disrepair, requiring a substantial amount of expense to keep the facility open and available to the public. The current vending structure no longer meets the needs of the blind vending operation. This building needs additional storage, a sink, adequate ventilation, and a separate electrical panel accessible by maintenance.

The two picnic table shade structures need to be replaced. The wooden benches on the picnic tables are splintering and need to be replaced. The concrete walkway has areas of cracking and has buckled in places and needs to be replaced. The irrigation system is in poor condition and needs to be replaced. Site

lighting needs improvement to enhance safety and security. These light standards are out-dated making them expensive to replace when damaged.

Original Design Concept (*Proposed Improvements*)

The existing comfort station building will be demolished and replaced with two larger restroom buildings in approximately the same location. The new buildings will be in compliance with current ADA and Health, Safety and Building codes, regulations and laws. The project will include expansion of the number of toilet fixtures to meet the 20-year user demand (calculated on for travel in both westbound and eastbound traffic both directions).

A new facility to house a CHP office and crew room will be added to the site. The vending kiosk already exists and will be demolished and incorporated into the new building. Vending facilities, a commitment to service facilities at this location by the Business Enterprise Program (Blind Vending) has been confirmed. The architectural style of the new structures, signage and other site furnishings will be in accordance with the approved conceptual themes and the schematic plans.

PERFORMANCE CRITERIA

Specific performance criteria were developed in cooperation with the designers and stakeholders. These criteria were weighted, using a paired comparison approach, which resulted in the criteria used to evaluate ideas and alternative concepts. These criteria are identified later in this section under the heading Performance and Value Improvement.

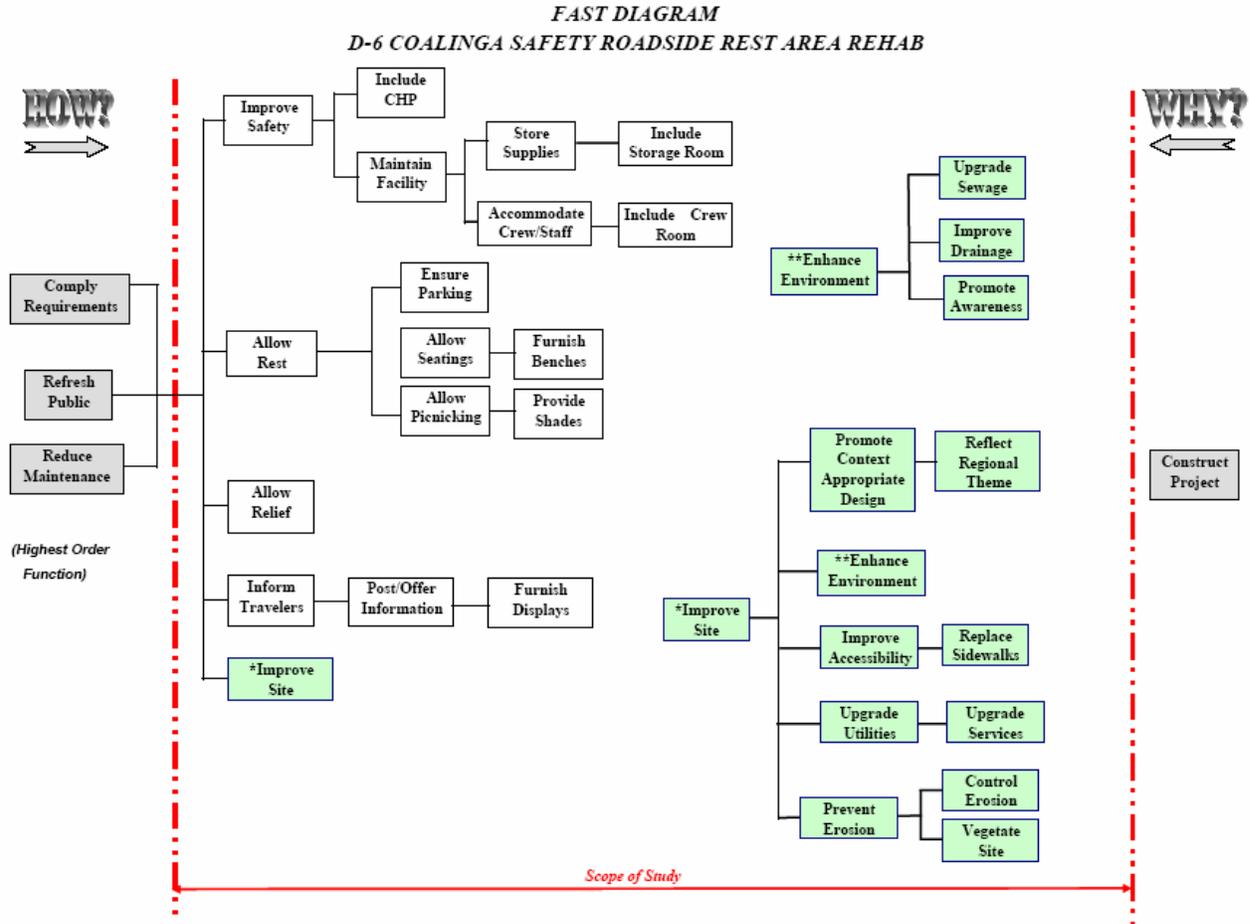
The PDT identified the following performance criteria as essential to the success of the project:

- Maintainability
- Contract Bid-ability
- Schedule Impacts
- Public Acceptance
- Stakeholder Acceptance
- Constructability
- Context Appropriate

PERFORMANCE CRITERIA MATRIX						Caltrans		
<i>D-6 Coalinga Safety Roadside Rest Area Rehab, EA 0A9800</i>								
						TOTAL	%	
<u>Maintainability</u>	A	a	a	a/d	a/e	f	4.0	19%
<u>Context Appropriate</u>	B		c	b/d	e	f	1.5	7%
<u>Stakeholder Acceptance</u>	C			c	e	c/f	3.5	16%
<u>Public Acceptance</u>	D				e	f	2.0	10%
a More Important	<u>Constructability</u>	E				e/f	5.0	24%
a/b Equal Importance	<u>Schedule Impact</u>	F					5.0	24%
							21.0	1.0

FUNCTIONS

Using function analysis and Function Analysis System Technique (FAST) diagramming, the team defined the highest order function of this project as *Refresh Public, Comply Requirements and Reduce Maintenance*. Key basic functions include *Improve Safety, Allow Relief/Rest, Inform Travelers, and Improve Site*. Analysis of the functions helped the team focus on the purpose and need of the project and, consequently, how to craft alternative concepts that would provide the required functions.



VA STUDY RESULTS

The VA team identified eighteen key VA alternatives that were considered to address five key functions: *Comply Requirements, Refresh Public, Allow Rest, Enhance Safety and Improve Site.*

Twelve VA alternatives were accepted. Implementing these VA alternatives would maintain design intent and reduce initial cost. The total potential savings of accepted VA alternatives are estimated at \$873,000 with performance improvement of 32% and added 45% in value improvements.

Two additional VA alternatives were conditionally accepted. By implementing these VA alternatives, there would be additional savings in the initial cost by \$1,320,000, and the overall performance would be improved by 20%, and added 38% in value improvements.

Accepted Alternatives:

Alternative Number	Description	Potential Savings	Performance
1.0	State furnished / contractor installed site furniture. (CMAS contract)	\$19,000	+2%
	These site furnishings can be purchased by Caltrans at a reduced price through an existing CMAS contract that will be installed by the contractor. This process will require some increased coordination with the Resident Engineer. The selections are limited and may result in less aesthetic site amenities. State furnished site amenities will cost less to purchase.		
2.0	Delete concrete stain	\$139,000	+5%
	Original proposal was to stain new concrete paving to represent conventional paths used by agricultural type machinery or transport. Also, the stain would delineate specific areas for specific functions as represented by the theme. Deleting the concrete stain would result in a substantial savings. Texturing of the concrete may accomplished original concept and provide interest for specific areas as well as function as a delineation method for the different areas.		
3.0	Reduce number of picnic tables	\$35,000	+7%
	The existing picnic tables are only occasionally used by patrons of the rest area. The tables throughout the site and the picnic overhead structures are in such disrepair that they appear to be un-inviting to guests. The tables outside of the covered areas are located without proper space definition so as to be uncomfortable to use. With proper location, picnic tables may be a valuable site amenity. However, a reduction in the number of picnic tables is not anticipated to affect the user of the facility.		
4.0	Reduce number of benches	\$15,000	+7%
	A reduction in the number of benches is not anticipated to affect the users of the facility.		
6.0	Reduce number of hose bibs	\$14,000	+7%

	There are eight existing hose bibs on site (each direction), with some not functioning. The current concept identifies four hose bibs per rest area each direction. There has been no negative input from the public due to the non-functional hose bib. It has been determined that two would be sufficient.		
9.0	Reconfigure building layout and reduce size of roof canopy	\$444,000	+7%
	The original design consists of multiple separate structures that house the building functions under a single large canopy structure. Combining these building functions into 2 separate structures with their own shed roofs will allow the size reduction of the large canopy structure by approximately 50% thus reducing the construction costs of not only the buildings but also the roof canopy structure. An additional benefit of combining the building functions will be improved pedestrian circulation and patron orientation.		
11.0	Use stainless steel toilet and lavatory fixtures	(\$4,000)	+5%
	The standard design for comfort station plumbing fixtures is vitreous china. These fixtures are highly susceptible to vandalism and have to be replaced when broken. Stainless steel plumbing fixtures are virtually impervious to damage and can be repaired if damaged. Even though the initial costs of the stainless steel fixtures is greater than the virtuous china, the life cycle costs of the stainless steel will be realized in a short period of time.		
12.0	Stainless steel toilet partitions in lieu of tile cladded CMU toiler partitions	\$23,000	-6%
	The current design utilizes 6 toilet partitions consisting of 6” wide, 6’ high CMU walls with tile cladding with the remaining toilet partitions in the men’s and women’s restrooms being stainless steel partitions. The CMU partitions have a high initial cost but are easy to clean, maintain and repair. The majority of vandalism to toilet partitions occurs at the location between the last urinal and first toilet in the men’s restrooms. If the CMU partition is installed at these locations only and stainless steel partitions are installed at the remaining locations in the men’s and women’s restrooms a significant savings could be utilized.		
Per the direction of Mr. Keith Robinson, HQ Principal Landscape Architect, the VA team had identified the following VA alternatives which included “green” design elements and were accepted by the decision makers:			
13.0	Reduce the amount of paving	\$260,000	+15%
	After reviewing the site layout and locations of the proposed buildings, it was determined that some space could be reduced by doing a more detail site plan, and consolidating the multiple buildings into two structures (ref. Alt. 9.0). The size of the canopy could be reduced and the paved area could be decreased from 14,200 square feet to 9,000 square feet.		

16.0	Reduce 3 foot-candle lighting area to pedestrian walkways only	\$9,000	+14%
	It was intended to construct 19 three-foot bollard candle lights in the grass areas to illuminate these areas. It was decided that some money can be saved by removing these lights, and use the proposed pole lights to illuminate these areas.		
17.0	Push button flush valves in lieu of sensors flush valves	\$5,000	+6%
	The current design utilizes motion sensor activated flush valves at the urinals and toilet fixtures. These have the potential to be easy vandalized by damaging the sensor eye of the mechanism. The alternative would be to install the more vandal resistant push bottom activated flush valves at the urinals and toilets in lieu of the motion sensor flush valves. The push button valves have a lower initial cost and are easily repaired or replaced when damaged.		
18.0	Install photovoltaic panels on shed roofs	(\$86,000)	0%
	The installation of the photovoltaic panels will not only provide energy for the electrical facilities within the buildings, but will also serve to illustrate alternate power usage and provides an opportunity for interpretive information to the public. In addition there is also the potential to obtain LEED certification.		

Conditionally Accepted Alternatives:

8.0	Prefabricated pre-cast concrete buildings in lieu of conventional construction	\$1,274,000	+17%
	<p>Precast concrete modular restrooms can save time in both the design and construction schedules. Pre-plumbed units are fabricated off-site and can be easily connected to water and sewer on site. Interior partitions, fixtures and accessories are installed at the plant thereby improving quality control. Context appropriate exterior textures and corrugated metal can be added to the pre-cast concrete to conform to the Farmland Fresh design theme for this site. Ceramic tile walls and floors will be added. Maintainability and durability should not be compromised by this design.</p> <p>Allowing contractors to bid modular restroom structures as an alternate may open up bid competition and may result in lower prices for the conventional masonry and steel construction as the base bid. Design and construction schedules should be reduced by this approach. The potential additional savings achieved by schedule reduction has not been taken into account in the cost analysis.</p> <p>This site is prone to expansive soils and may need to be over excavated and suitable materials placed beneath foundations and concrete slabs on grade. The modular restrooms would come to the site with a structural (suspended) concrete floor that would not require placement of fill under the floor slabs. Foundation walls or piers placed on suitable soil material will need to</p>		

	be in place prior to setting the modular units.		
14.0	Stabilized decomposed granite in selected areas lieu of stained concrete	\$46,000	+6%
	The current design utilizes an expansive amount of stained concrete for circulation paths and for large open areas. The proposal is to reduce this amount of concrete while maintaining the circulation paths and open spaces. Stabilized decomposed granite would be used in lieu of the stained concrete. It is anticipated that approximately 25% of the concrete can be replaced with the decomposed granite. The decomposed granite would reduce cost, provide a permeable surface in selected areas, and would serve to break up the large expanses of concrete paving. Interest would also be provided with this alternative paving in terms of texture and color.		

Rejected Alternatives:

Alternative Number	Description	Reasons for Rejection
5.0	Structure mounted lighting in lieu of pole mounted fixtures	<ul style="list-style-type: none"> ▪ This option will require a lighting feasibility study will to determine that pedestrian areas receive adequate level of light and that safety is not compromised.
7.0	Delete pressure reducing valve	<ul style="list-style-type: none"> ▪ This has been an on-going maintenance issue with pressure from water hammer. ▪ There is no history or records of water system correction, not a good idea to eliminate the pressure reducing valve.
10.0	Use “farmhouse sink” in lieu of multiple lavatories with concealed piping in pipe chase	<ul style="list-style-type: none"> ▪ The hidden plumbing idea is a good one and can be implemented with individual sinks. ▪ Damage to a single larger sink will reduce washing activities. Individual sinks can continue to function if one is damaged. Small sinks are easier and less costly to replace.
15.0	Add electric car charging stations. Use solar powered if possible	<ul style="list-style-type: none"> ▪ Are there enough electric vehicles to justify this? Hybrids and Hydrogen seem to be the future. ▪ The rest area is located at a remote area, and electric cars can not reach long distance.

IDEA EVALUATION

EVALUATION PROCESS

The VA team, as a group, generated and evaluated ideas on how to perform the various functions. The idea list was grouped by function. While ideas on the overall project were evaluated as a group, ideas relating to a specific technical discipline may have been evaluated by the responsible team member.

The team compared each of the ideas with the original concept for each of the key evaluative criteria to determine whether it was better, equal to, or worse than the original concept. The team reached a consensus on the ranking of the idea. High-ranked ideas would be developed further; low-ranked ones would be dropped from further consideration.

All of the ideas that were generated during the creative phase using brainstorming techniques were recorded on the following Creative Ideas Evaluation forms. These ideas were discussed and the advantages and disadvantages of each were listed.

Note: Symbols and number used in the form are as follows:

Ranking Scale: 5-3 = Most Likely to be Developed 1-2 = Least likely to be developed

Evaluation Criteria: Significant Improvement +2, +1, 0, -1, -2 Significant Degradation

WD = Withdraw RQ = Required DS = Design Suggestion

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
SITE					
S-1	State furnished / contractor installed site furniture. (CMAS contract)	<ul style="list-style-type: none"> Reduces cost Easily replaced if damaged 	<ul style="list-style-type: none"> Restricted in design 	+1	4
S-2	Reduce the amount of paving. (combine w/A-8)	<ul style="list-style-type: none"> Reduces cost Reduces heat, glare & run-off Meets part of green criteria Increases landscaping 	<ul style="list-style-type: none"> Increases maintenance Increases damage to landscaped areas 	+1	
S-3	Increase the amount of turf.	<ul style="list-style-type: none"> Increases landscaping Increases cooling effect Recharge groundwater Trap for silt & blowing sand 	<ul style="list-style-type: none"> Increases maintenance Might increase potential for making paths in landscaped areas 	+1	DS
S-4	Restrict landscape scope to Phase 1 priorities.				RQ
S-5	Retain existing trees not impacted by construction.				DS
S-6	Reduce amount of concrete stain.	<ul style="list-style-type: none"> Reduces cost Reduce construction time 	<ul style="list-style-type: none"> Reduce aesthetic Deviates from design concept Increased glare 	+1	4
S-7	Incorporate ability to receive bid additive alternates.				DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-8	Utilize general conditions and specifications specifically for building contractors.				DS
S-9	Contractor outreach in addition to normal advertising.				DS
S-10	Allow appropriate time for bidding and award.				DS
S-11	Provide options for delayed start time in contract documents.				DS
S-12	Identify and define pet area.				RQ
S-13	Pave whole site except for pet area.				WD
S-14	Use copper pipe in lieu of brass in pipe chase.	<ul style="list-style-type: none"> • Reduces repairs • May reduce closure days 		0	DS
S-15	Consider multiple pet areas.	<ul style="list-style-type: none"> • Easier access • Restricts unwanted use of site areas 	<ul style="list-style-type: none"> • Additional signage 		DS
S-16	Consider connection to municipal sewer discharge in lieu of sewage ponds.				WD
S-17	Reduce number of picnic tables.	<ul style="list-style-type: none"> • Reduces cost 	<ul style="list-style-type: none"> • Reduces site amenities • More trash throughout site 	+1	4

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-18	Reduce number of benches.	<ul style="list-style-type: none"> Reduces cost 	<ul style="list-style-type: none"> Reduces site amenities 	+1	4
S-19	Benches in lieu of seat walls.	<ul style="list-style-type: none"> Reduces cost 	<ul style="list-style-type: none"> Doesn't promote the theme 	+1	DS
S-20	Relocate information panels to core area	<ul style="list-style-type: none"> More visible location for users Closer proximity to restroom access 	<ul style="list-style-type: none"> Potential for crowding Encourages loitering 	0	DS
S-21	Move picnic tables under roof, eliminate picnic shelters (combined w/A-19).	<ul style="list-style-type: none"> Reduces cost Better utilization of large roof canopy 	<ul style="list-style-type: none"> Potential for crowding 	+1	
S-22	Divert rainwater from roof to adjacent landscaping.	<ul style="list-style-type: none"> Promotes green design Potential to decrease water need Potential to educate public 	<ul style="list-style-type: none"> Cost increase May increase maintenance 	-1	DS
S-23	Use photovoltaic panels on picnic shelters.	<ul style="list-style-type: none"> Reduces life cycle cost Promotes green design 	<ul style="list-style-type: none"> Increased initial cost May increase maintenance May not be compatible with design theme 	-1	DS
S-24	Add electric car charging stations. Use solar powered if possible.	<ul style="list-style-type: none"> Promotes green design Follows the department vision. Caltrans electric vehicles will have location for charging Good public relations Help educate public. 	<ul style="list-style-type: none"> Modest additional cost. 	-1	4

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-25	Add truck idling stations.	<ul style="list-style-type: none"> Promotes green design Follows the department vision. Good public relations Help educate public Reduces truck emissions 	<ul style="list-style-type: none"> Additional cost Long term maintenance cost 	-1	3
S-26	Consider dust harvesting.				WD
S-27	Investigate wind energy applications.				WD
S-28	Recycle demolished construction materials.				DS
S-29	Fund interpretive displays through TEA funding.				DS
S-30	Structure mounted lighting in lieu of pole mounted fixtures.	<ul style="list-style-type: none"> Reduces cost Reduces vandalism Reduces visual clutter 	<ul style="list-style-type: none"> Structural configuration restricts location of fixtures. 	+1	4
S-31	Textured concrete in lieu of stained concrete.	<ul style="list-style-type: none"> Reduces cost Helps with traction Reduces glare Easier to construct 	<ul style="list-style-type: none"> May not be compatible with theme 	+1	DS
S-32	Stabilized decomposed granite in selected areas lieu of stained concrete.	<ul style="list-style-type: none"> Reduces cost Permeability Color capability Promotes the vision. 	<ul style="list-style-type: none"> None apparent 	+1	4

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-33	Reduce hose bibs from 4 to 2.	<ul style="list-style-type: none"> • Reduce cost 	<ul style="list-style-type: none"> • Reduces convenience 	+1	4
S-34	Reduce 3.0 footcandle lighting area to pedestrian walkways only.	<ul style="list-style-type: none"> • Reduces cost • Directs pedestrian travel • Reduces energy • Reduces light pollution 	<ul style="list-style-type: none"> • Restricts pedestrian travel 	+1	4
S-35	Use standard recycling bin in lieu of “propane tank.”	<ul style="list-style-type: none"> • Reduces cost 			DS
S-36	Use standard design hose bibs in lieu of custom.	<ul style="list-style-type: none"> • Reduces cost 	<ul style="list-style-type: none"> • Doesn’t follow theme 	+1	DS
S-37	Standardize site amenities for all rest areas.	<ul style="list-style-type: none"> • Reduces cost statewide 			DS
S-38	Standardized site signage in lieu of custom bollard lighted signs.	<ul style="list-style-type: none"> • Reduces cost • Reduces energy • Ease of construction 	<ul style="list-style-type: none"> • Doesn’t follow theme 	+2	DS
S-39	Pole mounted fixtures in lieu of bollards for perimeter lighting.	<ul style="list-style-type: none"> • Fewer fixtures • Easier to maintain 		+1	DS
S-40	Confirm need for lighting bollards.				DS
S-41	Delete pressure reducing valve.	<ul style="list-style-type: none"> • No longer required. 	<ul style="list-style-type: none"> • None apparent 	+1	4
S-42	Investigate repair of bladder tanks.				DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
ARCHITECTURE					
A-1	Prefabricated pre-cast concrete buildings in lieu of conventional construction.	<ul style="list-style-type: none"> Reduces cost Reduces design and construction schedules Reduces rest area closure time May increase bid competition 	<ul style="list-style-type: none"> New construction method to Caltrans Potentially less aesthetic 	+1	4
A-2	Reduce size of roof canopy structure.	<ul style="list-style-type: none"> Reduces cost Reduces construction time Improves pedestrian scale 	<ul style="list-style-type: none"> Reduces protection from elements 	+2	4
A-3	Combine footprint of multiple buildings. (combine with A-2).	<ul style="list-style-type: none"> Reduce cost Fewer places to hide Potential to consolidate like activities 	<ul style="list-style-type: none"> May not reflect the theme 	+1	
A-4	Provide opportunities for natural light.				DS
A-5	Central restroom access in lieu of current design.				DS
A-6	Use pre-engineered structure for roof canopy.				DS
A-7	Relocate vending area to vending storage building.	<ul style="list-style-type: none"> Reduce cost Potential to consolidate like activities 	<ul style="list-style-type: none"> Decentralizes the vending function 	0	DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
A-8	Reduce paving under canopy (Combine w/S-2).	<ul style="list-style-type: none"> Reduces cost More permeable area 	<ul style="list-style-type: none"> May require more maintenance 	+1	4
A-9	Use “farmhouse sink” in lieu of multiple lavatories with concealed piping in pipe chase.	<ul style="list-style-type: none"> More appropriate to theme Reduces vandalism Less maintenance 	<ul style="list-style-type: none"> Slight increase in initial cost 	-1	4
A-10	Single occupancy toilets in lieu of men’s and women’s restrooms with common sink area.	<ul style="list-style-type: none"> Reduce amount of lavatories More privacy 	<ul style="list-style-type: none"> Lockable restroom may promote unwanted behavior 	-1	3
A-11	Use stainless steel toilet and lavatory fixtures.	<ul style="list-style-type: none"> Reduces vandalism Less maintenance Appropriate to the theme 	<ul style="list-style-type: none"> High initial cost 	-1	4
A-12	Eliminate mirrors at men’s restrooms.	<ul style="list-style-type: none"> Reduces cost Reduces vandalism 	<ul style="list-style-type: none"> Less grooming opportunity 	+1	DS
A-13	Block end toilet partition and stainless steel in lieu of all block partitions.	<ul style="list-style-type: none"> Reduces initial cost Easier to construct 	<ul style="list-style-type: none"> More maintenance May create more vandalism 	+1	4
A-14	Push button flush valves in lieu of electronic sensors.	<ul style="list-style-type: none"> Less maintenance Less initial and life-cycle cost 	<ul style="list-style-type: none"> Hygiene issues Potential for non-flushing 	+1	4
A-15	Combination soap, sink and dry in lieu of current standard.	<ul style="list-style-type: none"> Reduces life-cycle cost 	<ul style="list-style-type: none"> Higher initial cost 		DS
A-16	Solar hot water for CHP and Vending.	<ul style="list-style-type: none"> Reduces life-cycle costs Promotes green design 	<ul style="list-style-type: none"> Higher initial cost Increased maintenance 	-1	DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
A-17	Use photovoltaics at shed roofs.	<ul style="list-style-type: none"> • Reduces life-cycle costs • Promotes green design 	<ul style="list-style-type: none"> • Higher initial cost • Increased maintenance • May visually detract from roof design 	-1	4
A-18	Reduce height of roof (combine w/A-19).	<ul style="list-style-type: none"> • Reduces cost • Improves pedestrian scale 	<ul style="list-style-type: none"> • None apparent 	+1	
A-19	Reconfigure building layout and make raised breezeway roof.	<ul style="list-style-type: none"> • Reduces cost • Improves pedestrian scale 	<ul style="list-style-type: none"> • None apparent 	+1	4

HUNTER HILL SAFETY ROADSIDE REST AREA

GENERAL

Project KP and EA: 04-SOL-80-KP 10.6/10.9 (PM 6.6/6.8) EA: 04-299001

Number of Units: 1, westbound

Project type: Tear-down and rebuild

Programmed Amount: \$6,042,000 in the 2004 SHOPP for the 06/07 FY
\$8,217,000 in the 2006 SHOPP for the 08/09 FY

Estimated construction cost: \$7,497,450

Accepted VA Savings: \$669,000

Proposed Capacity of Restroom: Two Men's: 2 regular stalls, 3 urinals
Two Women's: 7 regular stalls
Two family restrooms
ADA stalls: two men, two women

Included Facilities: Maintenance Crew Room, CHP office and Vending.

PROJECT DESCRIPTION

This project will correct Americans with Disabilities Act (ADA) deficiencies and upgrade the existing single-unit Hunter Hill Safety Roadside Rest Area (SRRA) located in Solano County in Vallejo on the westbound side of Route 80, approximately 0.8 kilometers north of the Route 80/37 separation.

Existing Facility

The area to be upgraded is 0.9 hectares in size and includes required ADA improvements, removal of the existing comfort station, installation of a new comfort station building with increased capacity and storage, provision of a new maintenance on-site employee break room, a new California Highway Patrol (CHP) office, and landscape and paving improvements. The project includes modifications to the existing sanitary and water systems, and creation of vending machine facilities.

Caltrans' Transition Plan committed Caltrans to complying with ADA (Americans with Disabilities Act) by 2008, therefore this project was initiated. It was originally constructed in 1967 with a projected useful life of 20 years. In 1983, auxiliary restrooms were added to the existing comfort station for disabled use, however it does not meet current ADA standards. Currently, maintenance staff is using the storage room as their break room, which violates California Occupational Safety and Health Administration (Cal OSHA) standards and therefore no longer meets the needs of a SRRA in the year 2005 and beyond. For the proposed project, the scope of improvements will be restricted to compliance with Federal Highway Administration (FHWA), ADA, Cal-OSHA, State of California (including Title VI), and Caltrans' Design Information Bulletin No. 82.03 requirements (must comply with updated DB), reduction of maintenance, improvement of operations, and to insure non-discrimination in design and operation.

Original Design Concept (*Proposed Improvements*)

The existing comfort station will be removed. A new comfort station with two women's restrooms; two men's restrooms and two family restrooms will be added to facilitate the needs of disabled persons who travel with attendants of the opposite gender. The building will be constructed closer to the parking lot. A heated and air-conditioned CHP office, and a vending storage room will be built at the entrance of the comfort station plaza. A janitor's room will be built as a part of the restroom area. The heated and air-conditioned employee break room, and a storage room will be constructed below the comfort station. A room for electrical and communication panels will be constructed adjoining the store room below the plaza.

The comfort station will be constructed with porcelain ceramic tile flooring on concrete slab floors. The exterior walls and retaining walls will be poured in place concrete. Between the comfort station and the CHP office there will be a plaza an open vestibule for sixteen display cases, wall space for three telephones, a bench, and two drinking fountains.

Each of the two women's restrooms will have seven toilets, four sinks, and accessories. All exposed plumbing fixtures will be vitreous china (porcelain). The toilet stall partitions will be tile clad over concrete walls and will have stainless steel finish stall doors. There will be multiple roof lines creating a sense of movement and allowing natural ventilation through clearstory openings. Men's restrooms are similarly equipped except that there are two toilets, three urinals and three sinks in each room. A baby changing station is included in both the men's and women's restrooms. Utility chases, 1.8 meter wide, and adequate utility rooms for maintenance supplies will be provided between banks of toilets and lavatories.

PERFORMANCE CRITERIA

Specific performance criteria were developed in cooperation with the designers and stakeholders. These criteria were weighted, using a paired comparison approach, which resulted in the criteria used to evaluate ideas and alternative concepts. These criteria are identified later in this section under the heading Performance and Value Improvement.

The PDT identified the following performance criteria as essential to the success of the project:

- ◆ Project Schedule
- ◆ Context Sensitive Theme
- ◆ Impact to User Group
- ◆ Longevity, Sustainability, & Maintenance

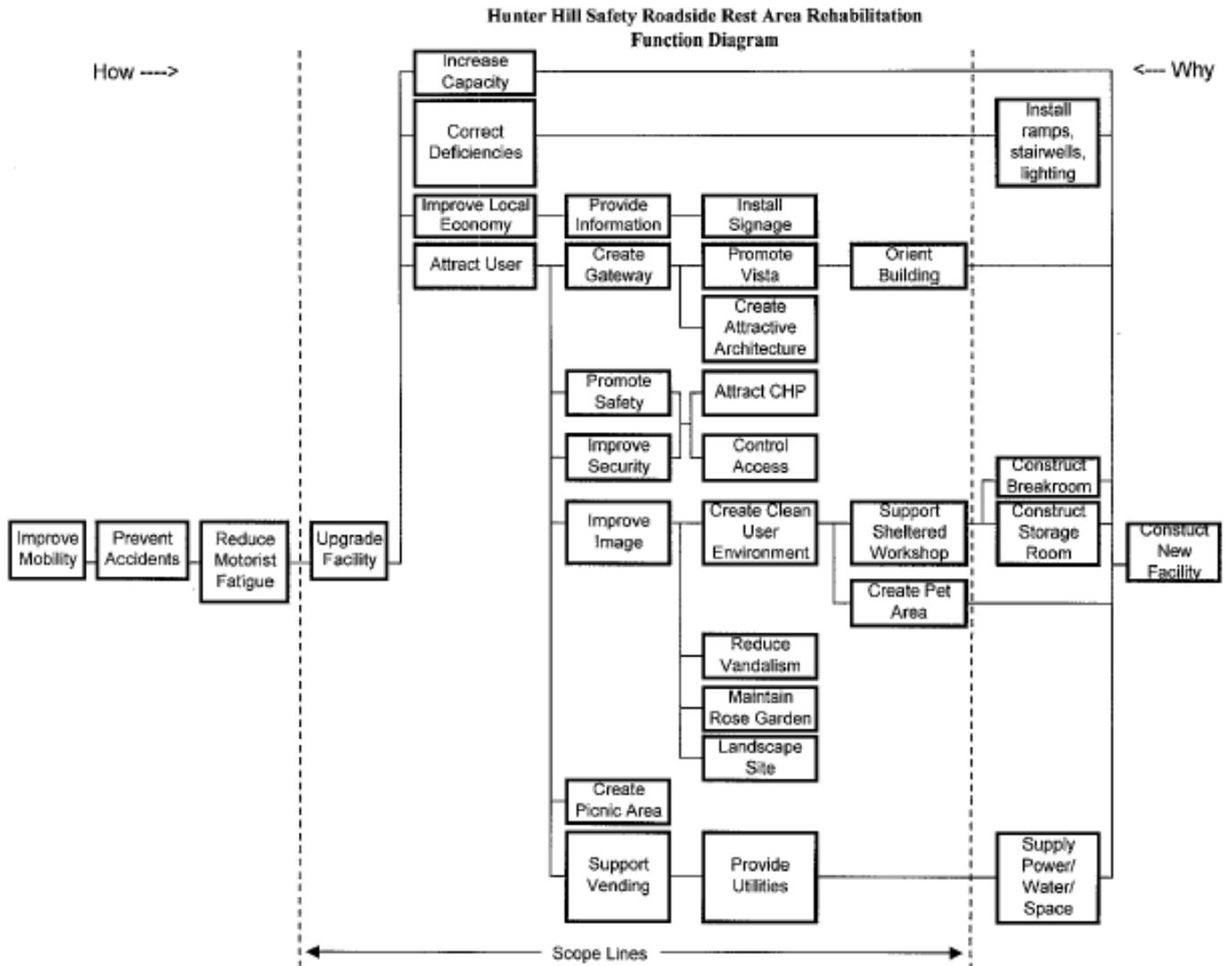
PERFORMANCE CRITERIA MATRIX <i>Hunter Hill Roadside Rest Area</i>	Caltrans
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				TOTAL	%	
Project Schedule	A	a	a/c	a	2.5	42%
Context Sensitive Theme		B	b/c	b	1.5	25%
Impact to User Group			C	d	1.0	17%
Longevity, Sustainability, Maintenance				D	1.0	17%

a	More Important (score 1)		Totals	6.0	100%
a/b	Equal Importance (score ½ each)				

FUNCTIONS

Using function analysis and Function Analysis System Technique (FAST) diagramming, the team defined the basic functions of this project as Create Gateway, Correct Deficiencies, Increase Capacity, and Improve Site Circulation. Key secondary functions include Reduce Vandalism and Coordinate With Overlay Project. Analysis of the functions intended to be performed by the project, helped the team focus on the purpose and need of the project and, consequently, how to identify alternative concepts that would still meet the required functions or justification for questioning the benefits and purpose of a particular project aspect.



VA STUDY RESULTS

The VA team developed twelve alternatives for value improvement to the project during the VA study. Utilizing the results as presented in the Preliminary Value Analysis Study Report, the project team selected which alternatives to accept and implement into the project design.

Eight VA alternatives were accepted as a result of this study. The combined cost savings potential from these alternatives is approximately \$669,000 in initial cost savings. However, the alternatives decrease the project’s overall performance by 11% over the original design.

A summary list of the accepted VA alternatives is provided below:

Accepted VA Alternatives

Alt	Idea	Alternative Title / Description	1st cost savings (or cost)
2.0	CG-17	Utilize a precast concrete seat with tube steel supports in lieu of the cast-in-place concrete bench in the new restroom facility	\$0
3.0	CG-20	Replace cast-in-place toilet partitions with CMU walls	\$17,000
4.0	CG-26	Eliminate recessed blockout at each toilet fixture	\$10,000
5.0	CG-28	Construct restroom graphic/sign using recessed cast-in instead of raised cast-in-place concrete	\$0
6.0	M-1	Establish contractor outreach program to encourage bids	Comment
7.0	M-6	Investigate cost associated with the truck water line and faucet	\$17,000
8.0	M-11	Cut off foundation of the wooden ramp piers and picnic structures at grade in lieu of total demolition	\$31,000
	CD-5	Move the scope of work to rehab the picnic area to Phase II and provide ADA picnic area at the plaza level in the interim	\$594,000

Rejected VA Alternatives

Alt. No.	Idea Description	Reason for Rejection
1.0	Utilize metal louvers in lieu of custom galvanized grates	Suggested alternative does not match roof slope design, requires redesign of wall panel openings, and detracts from aesthetic design concept. Grates at men’s room exterior wall could be implemented.
9.0	Construct a steel frame and metal decking in lieu of the cast-in-place concrete roof	Reduces architectural gateway to ineffectual level, heat load is increased due to metal vs. concrete thus limiting the comfort level of the natural ventilation (i.e. no HVAC)

IDEA EVALUATION

EVALUATION PROCESS

The VA team, as a group, generated and evaluated ideas on how to perform the various functions. The idea list was grouped by function. While ideas on the overall project were evaluated as a group, ideas relating to a specific technical discipline may have been evaluated by the responsible team member.

The team compared each of the ideas with the original concept for each of the key evaluative criteria to determine whether it was better, equal to, or worse than the original concept. The team reached a consensus on the ranking of the idea. High-ranked ideas would be developed further; low-ranked ones would be dropped from further consideration.

All of the ideas that were generated during the creative phase using brainstorming techniques were recorded on the following Creative Ideas Evaluation forms. These ideas were discussed and the advantages and disadvantages of each were listed.

Note: Symbols and number used in the form are as follows:

Ranking Scale: 5-3 = Most Likely to be Developed 1-2 = Least likely to be developed

Evaluation Criteria: Significant Cost Reduction +2, +1, 0, -1, -2 Significant Cost Increase

PS = Project Schedule CST = Context Sensitive Theme UG = Impact to User Group

LSM = Longevity, Sustainability, Maintenance

WD = Withdraw RQ = Required DS = Design Suggestion

File No	Function	Idea No	Idea	Performance Criteria				\$	Advantages	Disadvantages	Rank	Comment
				PS	CST	UG	LSM					
1	CG	1	Form partnership with surrounding businesses for information to user	0	+1	+1	-1		Working with surrounding businesses creates improved understanding of CST Increases information, thus increasing service to users	May increase maintenance efforts to replace business information at rest area	5	
2	CG	2	Advertise services at rest area from private businesses								5	Combine with previous
3	CG	3	Establish branding or logo linked to bay area								1	WD
4	CG	4	Construct box for structure	-2	-2	0	-1			Requires significant redesign Eliminates CST Introduces additional building materials that would need to be maintained	1	
5	CG	5	Establish new theme for architecture context	-2	0	0	0			Requires significant redesign	1	
6	CG	6	Relocate building on site to alternative location	-2	0	-1	-1			Requires significant redesign Reduces convenience and safety to user by increasing distance from parking lot Impacts Waters of the U.S. May increase vandalism potential	1	
7	CG	7	Install coin-operated viewers/binoculars at viewing area								1	WD
8	CG	8	Enhance entry experience by increasing landscape								1	WD
9	CG	9	Use colored concrete for building	0	+1	0	-1	-1	May improve connection to surroundings	May require some maintenance to cover vandalism	1	
10	CG	10	Develop rest area into user-friendly California welcome center	-1	+1	+2	-1		Improves communications to users Improves connection to surroundings	Out of scope of project Requires maintenance to maintain information counter May increase size of building	5	
11	CG	11	Vary color, finish, etc. of modules in lieu of offsets	-2	-2	0	-1			Requires significant redesign Reduces CST Requires maintenance of colors and finishes	1	

File No	Function	Idea No	Idea	Performance Criteria					\$	Advantages	Disadvantages	Rank	Comment
				PS	CST	UG	LSM						
12	CG	12	Combine roofs of modules to create fewer separate roof plates	-2	-2	0	-1			Requires significant redesign Eliminates visual interest provided by roofs Reduces natural ventilation	2		
13	CG	13	Construct building using framed construction and stucco	-2	-1	0	-2	+1		Requires significant redesign Reduces visual interest of building Reduces sustainability by reducing material durability	1		
14	CG	14	Utilize cement board and framing in lieu of cast-in-place concrete	-2	-1	0	-2	+1		Requires significant redesign Reduces visual interest of building Reduces sustainability by reducing material durability	1		
15	CG	15	Utilize fiberglass reinforced concrete with metal frame in lieu of cast-in-place	-2	-1	0	-2	+1		Requires significant redesign Reduces visual interest of building Reduces sustainability by reducing material durability	1		
16	CG	16	Install metal louvers in lieu of hot dipped galvanized, standardize louvers size and shapes	-1	-1	0	-1	+1	Improves constructability	Does not match roof slope Requires redesign Detracts from aesthetic design concept May increase potential for vandalism	8		
17	CG	17	Replace cast-in-place bench with concrete seat with tube steel support	0	0	0	+1	+1	Improves constructability Improves ability to replace when damaged		7		
18	CG	18	Reduce extent of overhangs at rake of roofs	-1	-1	0	-1	0		Increases heat load on building by reducing shading Reduces aesthetic context of building Requires redesign	2		

File No	Function	Idea No	Idea	Performance Criteria					\$	Advantages	Disadvantages	Rank	Comment
				PS	CST	UG	LSM						
19	CG	19	Straighten walls at façade	-1	-1	0	-1	+1		Improves constructability	Increases heat load on building by reducing shading Reduces aesthetic context of building Requires redesign	2	
20	CG	20	Replace cast-in-place with concrete masonry unit	-2	-1	0	-1	+1			Requires redesign Changes appearance of building Complicates angular wall sections construction Requires maintenance of mortar joints	8	
21	CG	21	Replace ceramic tile with epoxy painted concrete	0	-1	0	-1	+1			Ceramic tile is more durable and easier to clean	2	
22	CG	22	Install solar energy features to roof	-1	+1	0	-1			Improves environmental demonstration options	Requires maintenance of panels	5	Limited energy uses at facility
23	CG	23	Use solar power for well pump									5	Combine with previous
24	CG	24	Install elevator in lieu of ramps for ADA	-1	0	0	-2	-1			Requires significant maintenance Requires enclosure of elevators Potential for elevators to not function	1	
25	CG	25	Install artwork to building exterior	0	+1	0	-1			Improves connection to surroundings	Requires maintenance personnel to maintain art	4	
26	CD	1	Eliminate stairs from site	-1	0	-2	0	+1			Reduces site circulation convenience Conflicts with ADA best practices	4	
27	CD	2	Construct sidewalk to picnic area in lieu of ramp									1	WD
28	CD	3	Relocate building to adjacent to picnic area and parking lot									1	Combine with previous
29	CD	4	Utilize access from back of picnic area in lieu of front parking lot access	-1	0	-2	0	+1			Reduces convenience to user Removes access from consolidated location May conflict with code	1	

File No	Function	Idea No	Idea	Performance Criteria					\$	Advantages	Disadvantages	Rank	Comment
				PS	CST	UG	LSM						
30	CD	5	Pave over existing sidewalks in lieu of remove and replace	-1	-1	-1	-2	+1			Changes connection of site layout to building Requires maintenance of dilapidated albeit repaved sidewalks	7	
31	CD	6	Construct ADA compliant picnic at upper grade, rehab lower level as part of Phase II	-1	0	-2	0	+1	Conforms project to phase I direction mandates		Temporarily reduces picnic area capacity Requires closing of picnic areas	7	
32	CD	7	Spot fix ADA non-compliant areas of sidewalk to picnic area in lieu of remove and replace	-1	-1	-1	-2	+1			Changes connection of site layout to building Requires maintenance of dilapidated albeit repaved sidewalks	4	
33	CD	8	Reconfigure ramp to use conventional switchbacks and eliminate planters	-1	-1	0	+1	+1	Eliminates maintenance related to planters		Requires redesign Reduces aesthetics by eliminating planters	2	
34	CD	9	Eliminate intermediate set of stairs at ramp									1	Combine with previous
35	CD	10	Eliminate balcony at landing of ramp	0	-1	0	0				Eliminates isolated viewing area	1	
36	IC	1	Reduce number of toilets being provided	-1	0	-2	+1				Significantly impacts the ability of facility to meet functional capacity requirements Requires redesign	2	
37	IC	2	Eliminate family restrooms	-1	0	-2	+1				Reduces ability and convenience of facility to provide functionality to all users	4	
38	IC	3	Authorize truck parking on east bound side of highway									5	WD
39	IC	4	Install port-a-potties on east side of I-80									5	WD
40	IC	5	Calculate toilet capacity based on parking lot capacity	-1	0	-2	+1		Reduces number of fixtures to maintain		Significantly impacts the ability of facility to meet functional capacity requirements Requires redesign	1	
41	IC	6	Construct larger water holding tank	-2	0	0	-2		Aligns water storage with other rest area facilities Reduces pumping frequency requirements to fill tank		Requires maintenance to maintain a separate building	1	

File No	Function	Idea No	Idea	Performance Criteria					\$	Advantages	Disadvantages	Rank	Comment
				PS	CST	UG	LSM						
42	IC	7	Connect rest area to city water in lieu of water tank	-2	0	+1	+2	-2		Increases dependability of water supply	Conflicts with environmental clearance	5	
43	IC	8	Install waterless urinals in lieu of water tank	0	0	-1	-2			Reduces water requirements	Requires replacement of cartridges	1	
44	IC	9	Construct separate building for holding tank									1	Combine with previous
45	IC	10	Construct holding tank on roof	-2	-2	0	-2				Introduces visual obstacle on exterior Requires maintenance personnel to access roof Requires redesign	1	
46	IC	11	Install port-a-potties in picnic area in addition to new facility									1	WD
47	IC	12	Issue maintenance contract for water holding system	0	0	0	+2	-1		Removes effort from Caltrans responsibility		5	Out of scope of project, requires separate money and district maintenance review
48	IC	13	Construct underground storage tank uphill from facility	-2	0	0	+1	-2			Introduces work with unstable soil conditions Requires redesign May require engineered fill	1	
49	IC	14	Construct smaller water tanks dedicated to each restroom module	-1	0	0	-2			Reduces structural load related to water tank	Requires maintenance personnel to maintain separate tanks Requires space for multiple tanks at each module	1	
50	IC	15	Construct multi-story building									1	WD
51	SC	1	Leave existing pathways in place									4	Combine with previous
52	SC	2	Construct vehicle return loop in parking lot	-2	0	+1	0				Add parking lot work where none currently exists Conflicts with Phase I mandate	5	
53	SC	3	Construct parking garage structure									1	WD
54	SC	4	Construct for valet parking									1	WD
55	SC	5	Install vehicle lifts in parking lot stalls									1	WD

File No	Function	Idea No	Idea	Performance Criteria					\$	Advantages	Disadvantages	Rank	Comment
				PS	CST	UG	LSM						
56	SC	6	Install meters on parking stalls								1	WD	
57	RV	1	Utilize port-a-potties only in lieu of facility								1	WD	
58	RV	2	Install "dummy" cameras and monitoring devices	0	0	+1	+1		Reduces potential for vandalism Improves perception of safety		5		
59	RV	3	Install graffiti encourage location								1	WD	
60	RV	4	Eliminate ceramic tile in men's restroom use finished concrete								1	Combine with previous	
61	RV	5	Staff a rest area attendant on site								5	WD	
62	RV	6	Establish vandalism reduction program								5	Out of scope of project. Make recommendation to district maintenance	
63	RV	7	Establish reward program for vandalism reporting								5	Out of scope of project. Make recommendation to district maintenance	
64	RV	8	Establish an "Adopt a Rest Area" program								1	Out of scope of project. Make recommendation to district maintenance	
65	RV	9	Combine wash and waste facilities								1	WD	
66	C	1	Combine resident engineer's office from A/C overlay and Hunter Hill projects								1	Make recommendation to Caltrans construction	
67	C	2	Leave port-a-potties for temporary facilities after construction								1	WD	

File No	Function	Idea No	Idea	Performance Criteria					\$	Advantages	Disadvantages	Rank	Comment
				PS	CST	UG	LSM						
68	C	3	Confirm location and impact to culvert running beneath new facility								5	Completed	
69	M	1	Establish contractor outreach program to encourage bids	0	0	0	0		Improves bidding pool, thus competitive atmosphere		8		
70	M	2	Utilize A+B Bidding for project								5	WD	
71	M	3	Remove landscaping and irrigation at picnic area to Phase II								2	Combine with previous	
72	M	4	Utilize additive bid items for any Phase II appropriate items								5	Conflicts with Caltrans contracting	
73	M	5	Separate irrigation water from treatment system							Requires separate holding tank and pumping system	4		
74	M	6	Investigate cost associated with truck water line and faucet	0	0	-1	+1		Eliminates unnecessary and limited use item from project		6		
75	M	7	Install misters on building exterior								1	WD	
76	M	8	Remove all A/C pavement and related costs from cost estimate								5	Comment	
77	M	9	Eliminate vending storage from building						Reduces SF of facility	Potentially prevents vendor support of facility	1		
78	M	10	Advertise project at most beneficial time								5	Comment	
79	M	11	Cut off foundations of picnic shelters and ramp piers at grade in lieu of total removal	0	0	0	+1		Reduces construction complexities		7		
80	M	12	Consider using additive bid items for select project aspects (finishes, walkways, etc.)								5	Combine with previous	
81	M	13	Limit landscaping to Phase I parameters, areas disturbed by construction, and mitigation of removed trees	0	-1	-1	+1		Complies with Phase I mandate	Eliminates use of picnic area Reduces site aesthetics	7		
82	M	14	Construct Structure over picnic area as Phase I	0	+1	+1	0		Improves usability of picnic area		7		
83	CG	26	Eliminate recessed block-out at each toilet fixture						Improves maintenance of fixtures by eliminating constricted space	Conflicts with standard fixture sizes and installation	8		
84	CG	27	Eliminate clerestory windows at CHP office							Reduces aesthetics and natural lighting of CHP	2		
85	CG	28	Revise restroom graphic figure/sign construction to metal and reduce size	0	0	0	0				6		
86	CG	29	Construct a steel frame and metal decking in lieu of the cast in place concrete roof	-2	-2	0	-1	+2		Requires redesign Conflicts with architectural theme	7		

CAMP ROBERTS SAFETY ROADSIDE REST AREA

GENERAL

Project KP and EA: 5 MON-101, KP R5.0 NB, R8.3 SB (PM R3.11 NB, R514 SB) EA 05-464101

Number of Units: 2, northbound and southbound

Project type: Tear-down and rebuild

Programmed Amount: \$4,025,000,000 in the SHOPP for the 05/06 FY
\$7,427,000 in the SHOPP for the 07/08 FY

Estimated construction cost: \$7,840,000

Potential VA Savings: \$856,000¹

Proposed Capacity of Restroom: NB: Men's: 4 regular stalls, 4 urinals, 2 ADA, 1 family;
Women's: 8 regular stalls, 2 ADA, 1 family.

SB: Men's: Men's: 4 regular stalls, 4 urinals, 2 ADA, 1 family;
Women's: 8 regular stalls, 2 ADA, 1 family.
1 CHP bathroom (SB only)

Included Facilities: Maintenance Crew Room, CHP office in southbound side only.
No vending on either side.

¹: Implementation has not been held, final decisions have not been made.

PROJECT DESCRIPTION

This project will implement the first phase of an anticipated multi-phase plan to upgrade the existing Camp Roberts Safety Roadside Rest Area (SRRRA) on Route 101 in Monterey County. This project will replace existing buildings on both the north and southbound sides with new comfort stations and will include improvements to site furnishings and landscape amenities in order to meet current health and building codes, Americans with Disabilities Act (ADA) standards, to improve site safety, to solve some user capacity issues, and to reduce the burden placed on maintenance by existing components that are worn out, inefficient or excessively costly to maintain.

The Camp Roberts SRRRA is split into two existing locations. The northbound and southbound sites are approximately 3 kilometers apart on State Route 101 in Monterey County. The property adjoining the SRRAs is part of the Camp Roberts Military Reservation and consists primarily of undeveloped open land which extends for roughly 8 kilometers both north and south of the SRRRA. The nearest SRRRA's are Gaviota, approximately 228 kilometers to the south, and Shandon on Route 46, 54 kilometers to the east.

The original Camp Roberts Safety Roadside Rest Area was opened to the public in 1969. The facilities serve the general traveling public and transportation industry for rest, leisure and informational purposes. Annually, the southbound Camp Roberts Safety Roadside Rest Area receives 819,060 visitors and the

northbound site receives 682,550 visitors. Based on estimated future ADT's, this number is expected to increase to 1,541,760 visitors southbound and 1,284,800 visitors northbound by the year 2024, 20 years from 2004, the proposed construction date of this project.

The popularity of the central coast of California as a travel destination has increased steadily since the opening of Camp Roberts. Today the central coast wine grape region, and the Paso Robles area in particular, is one of the largest draws, as well as other nearby attractions such as Hearst Castle San Simeon State Park and numerous historic California Missions. The region's agricultural and commercial trucking traffic has grown along with the population of the area, with the expansion of the local winery industry, and with other farming operations connecting to destinations north and south.

The Camp Roberts SRRA is over 30 years old and no longer adequately meets the needs of its users. The size and condition of the existing buildings has been determined to be inadequate and not worth the costly repairs necessary to meet the demands of the 20-year master plan.

Original Design Concept (*Proposed Improvements*)

Work will include demolition and replacement of existing comfort stations with new expanded restroom facilities; striping, signing and sidewalk ramp upgrades for accessible parking spaces; repair of existing walkways as well as construction of revitalized pedestrian core areas; construction of new maintenance equipment storage buildings, a breakroom building for Caltrans maintenance personnel and sheltered workshop employees, with office facilities for the California Highway Patrol (CHP), and repairs and replacements to the electrical, sewer and water infrastructure which supports those facilities.

Site amenities for rest, convenience, and activity opportunities will include rehabilitating the information kiosk, historic displays, and new picnic tables, benches, lighting, landscaping and irrigation systems. Design of new buildings and outdoor features will be site specific and will fit the vernacular rural vineyard and agricultural character of the area.

The design style will be reminiscent of California wine country architecture and will incorporate local stone to blend with existing site features to remain. All new construction materials and site furnishings will enhance the aesthetic identity of the SRRA and will emphasize low-maintenance, vandal-resistant, energy efficient, and 'green' or recycled resources.

PERFORMANCE CRITERIA

Specific performance criteria were developed in cooperation with the designers and stakeholders. These criteria were weighted, using a paired comparison approach, which resulted in the criteria used to evaluate ideas and alternative concepts. These criteria are identified later in this section under the heading Performance and Value Improvement.

The PDT identified the following performance criteria as essential to the success of the project:

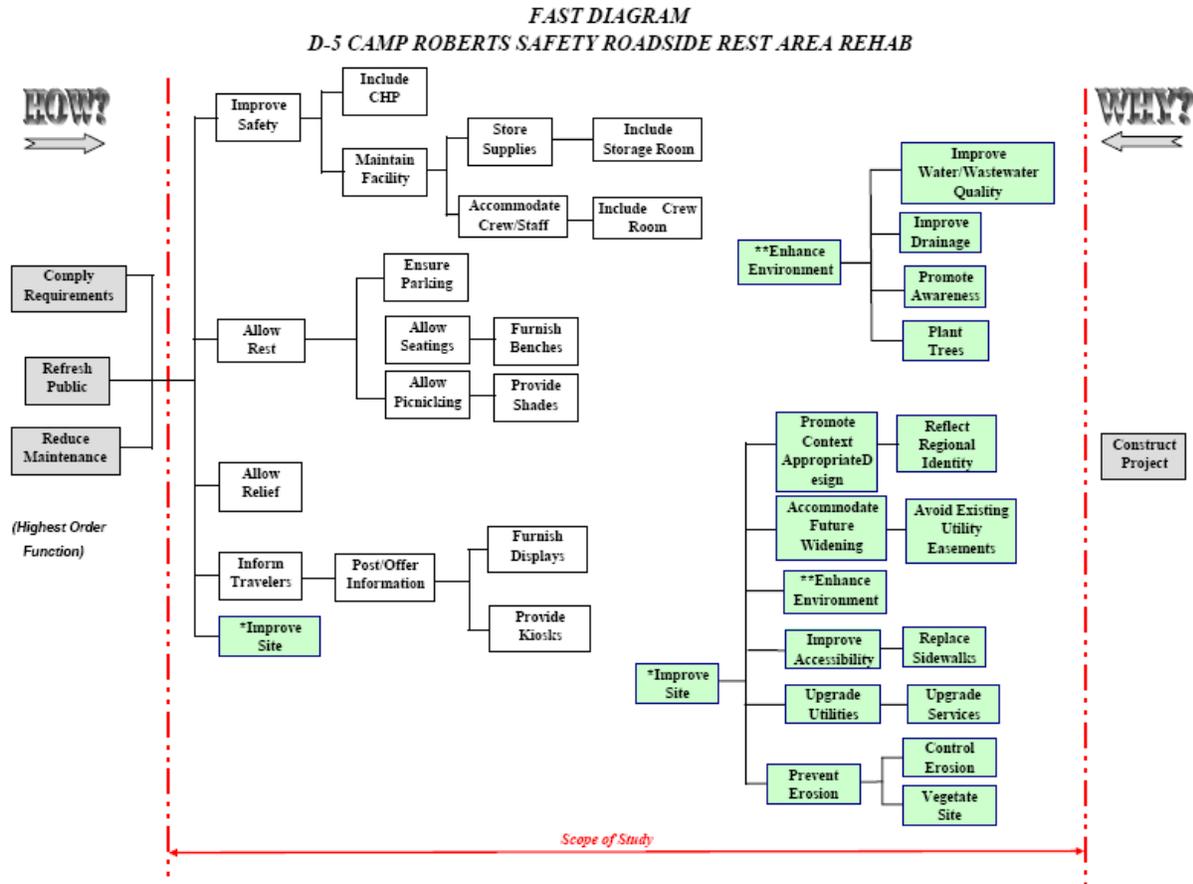
- Maintainability
- Schedule Impact
- Contract Bid-ability
- Stakeholder / Public Acceptance
- Constructability
- Context Appropriateness

PERFORMANCE CRITERIA MATRIX <i>D-5 Camp Roberts Safety Roadside Rest Area Rehab, EA 464101</i>	Caltrans
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							TOTAL	%
<u>Maintainability</u>	A	b	a	a	e	f	2.0	13%
<u>Context Appropriate</u>	B		b/c	b	b/e	b	4.0	27%
<u>Stakeholder/Public Acceptance</u>	C		c	e	f		1.5	10%
<u>Constructability</u>	D			d/e	f		0.5	3%
<u>Schedule Impact</u>	E				f		3.0	20%
<u>Contract Bid-ability</u>	F						4.0	27%
	G							0%
a	More Important							0%
a/b	Equal Importance							0%
							15.0	1.0

FUNCTIONS

Using function analysis and Function Analysis System Technique (FAST) diagramming, the team defined the highest order function of this project as *Refresh Public, Comply Requirements and Reduce Maintenance*. Key basic functions include *Improve Safety, Allow Relief/Rest, Inform Travelers, and Improve Site*. Analysis of the functions helped the team focus on the purpose and need of the project and, consequently, how to craft alternative concepts that would provide the required functions.



VA STUDY RESULTS

The VA team developed 18 alternatives to address four key functions: *Refresh Public*, *Allow Rest*, *Enhance Safety* and *Improve Site*. All of the alternatives maintain functionality, performance improvements, and most of the alternatives offer reduction of initial costs as well.

Note: Implementation Meeting has not been conducted yet. No final decisions have been made.

Proposed VA Alternatives:

Alternative Number	Description	Potential Savings	Performance
1.0	Omit exposed, seeded glass aggregate from the concrete flatwork and foyer at comfort stations.	\$10,000	+3%
	The use of this paving could be perceived as unnecessary and costly. However, the glass aggregate in the concrete was used to provide a variation in the paving surface providing a visual cue to help direct users to the main circulation path through the comfort station. This paving also utilized a recycled material.		
2.0	Reduce thickness of concrete pedestrian pavement section from 6” to 4”.	\$112,000	+2%
3.0	Reduce number of site lights.	\$47,000	+1%
4.0	Eliminate urn or donated by others.	\$5,500	-6%
	The use of these elements could be perceived as unnecessary to meet Stage 1 goals, or as “gold plated”, and costly even though they are a relatively inexpensive item. However, these urns are used to provide privacy screens, focal elements, and help direct users to the comfort station entrances. These may be good items to have donated by the local community or tourist industry as a partnership.		
5.0	Reduce thickness of decomposed granite for Maintenance parking area.	\$29,000	+2%
6.0	Redesign detail of hose bibs/hydrants and change to concrete standard design with drainage.	\$11,000	+4%
7.0	Use stainless steel partitions in lieu of block except for first partition next to men’s urinals.	\$103,000	-13%
8.0	Use pre-engineered wood trusses in lieu of steel structure at comfort stations.	\$251,000	+17%
	The steel roof structure design is complex and costly to fabricate. The weight of the steel was reported to have added to the thickness of some of the concrete masonry bearing walls. A pre-engineered wood roof structure will be easier to fabricate and is a more conventional type of construction. The exterior design with the central clerestory feature will not be		

	<p>compromised by this alternative. The interior ceiling appearance will be similar to the current design, but with no exposed rafters except at the foyer. Roof system re-design will be minimized since the detailed design of pre-engineered trusses is done by the truss manufacturer after the contract is awarded.</p> <p>This alternative can also be applied to CHP/Crew Building (potential savings of \$33,000), Storage Building (potential savings of \$86,000) and Display Kiosk structure (potential savings of \$26,000).</p>		
9.1	Use split face CMU in lieu of simulated masonry.	\$55,000	-1%
9.2	Reduce amount of stone veneer to key locations (i.e., entrance area)	\$14,000	-8%
10.0	Reduce number of precast concrete columns at comfort stations.	\$44,000	+3%
	<p>The original proposal calls for the installation of 30 non-support precast columns per comfort station. These columns provide an architectural treatment which reflects the wine country, Tuscany appearance to the structure. This alternative proposes to delete 12 columns per comfort station. The locations of these 12 columns are 1) within the foyer, 2) at each end of the building and at the entrances to the foyer. The deletion of these columns would not alter the architectural appearance of the building because these locations are not that visible.</p>		
11.0	Reduce size of glass block areas.	\$9,000	+2%
	<p>Glass block is a high cost item estimated at \$62 / sf installed. Any reduction in the glass block used will result in an incremental cost savings. A reduction in the size of the glass block areas may improve privacy at night when the restrooms are illuminated. An analysis of natural light should be made to make sure there is sufficient area to provide the lighting levels anticipated.</p>		
12.0	Omit exterior storage (patio) and crew locker room at CHP/Crew Building.	\$92,000	+1%
	<p>The original concept consists of the construction of a combined CHP and crew building consisting of a 960 sqft containing a CHP office and restroom, Manager's office, crew room, locker room and exterior storage area (patio). This alternative proposes to eliminate the locker room and exterior storage area (patio). This change will reduce the square footage of the building from 960 sqft to 664 sqft, a reduction of 296 sqft (approximately 31%). The exterior storage area (patio) current provides a covered and secured storage area and presently housing components of the heat pump. This area is not a simple covered area (covered patio) but effectively an all weather room with security grilles covering window type opening. While providing security for the heat pump it appears to do this at a high cost that could be accomplished by a small chain link fence enclosure.</p>		
13.0	Use pre-engineered wood trusses in lieu of steel structure.	\$33,000	+21%
14.0	Reduce number of precast concrete columns.	\$8,000	+2%

15.0	Use wood frame wall and roof structure in lieu of masonry and steel structure.	\$86,000	+14%
16.0	Eliminate precast concrete columns.	\$22,000	+5%
17.0	Use wood frame in lieu of masonry and steel structure.	\$26,000	+10%

IDEA EVALUATION

EVALUATION PROCESS

The VA team, as a group, generated and evaluated ideas on how to perform the various functions. The idea list was grouped by function. While ideas on the overall project were evaluated as a group, ideas relating to a specific technical discipline may have been evaluated by the responsible team member.

The team compared each of the ideas with the original concept for each of the key evaluative criteria to determine whether it was better, equal to, or worse than the original concept. The team reached a consensus on the ranking of the idea. High-ranked ideas would be developed further; low-ranked ones would be dropped from further consideration.

All of the ideas that were generated during the creative phase using brainstorming techniques were recorded on the following Creative Ideas Evaluation forms. These ideas were discussed and the advantages and disadvantages of each were listed.

Note: Symbols and number used in the form are as follows:

Ranking Scale: 5-3 = Most Likely to be Developed 1-2 = Least likely to be developed

Evaluation Criteria: Significant Improvement +2, +1, 0, -1, -2 Significant Degradation

WD = Withdraw RQ = Required DS = Design Suggestion

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
G-1	Use English in lieu of metric system.	<ul style="list-style-type: none"> Increases bidder pool Industry standard 	<ul style="list-style-type: none"> Additional resource Additional design time 	RQ
G-2	Identify additive bid items.	<ul style="list-style-type: none"> Provides strategy of awarding a bid Potential to add items deleted due to cost concern Better utilization of fund 	<ul style="list-style-type: none"> Perception of bid shopping New to Caltrans and no procedure developed 	DS
G-3	Reduce number of plan sheets (approximately 50%) and modify NB & SB site layout to be consistent.	<ul style="list-style-type: none"> Reduces redundancy Reduces negative perception of complexity of the project May increase more bidders Conserves resources 	<ul style="list-style-type: none"> Additional resource Additional design time 	DS
G-3a	Re-package plan sheets, i.e., NB for the first 200 sheets and SB on the 2 nd package.	<ul style="list-style-type: none"> Reduces redundancy Reduces negative perception of complexity of the project May increase more bidders Conserves resources 	<ul style="list-style-type: none"> Additional resource Additional design time 	DS
G-4	Bidder Outreach: Contact SLO Builder's Association, plans to plan rooms, pre-job walk thru.	<ul style="list-style-type: none"> Increases bidder pool May receive better bids 	<ul style="list-style-type: none"> None apparent 	DS
G-5	Use General Conditions in lieu of Special Provisions for District items.	<ul style="list-style-type: none"> General Conditions are industry standard 	<ul style="list-style-type: none"> No General Conditions been developed. 	DS

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
G-6	Use delayed start contract (90 days)	<ul style="list-style-type: none"> • Reduces time related overhead (TRO) • Potentially increases bidder pool • Allows ample review time for material submittal 	<ul style="list-style-type: none"> • None apparent 	RQ
G-7	Do not advertise at the end of the year			DS
G-8	2 contracts in lieu of one			WD
G-9	Combine contract with Shandon project			WD
G-10	Educate bidders on time related overhead (TRO)			DS
G-11	Delete TRO and CPM			WD
G-12	Re-evaluate total working days			DS
G-13	Reduce plant establishment period	<ul style="list-style-type: none"> • Reduces initial cost 	<ul style="list-style-type: none"> • Potential loss of material (lessons learned) • Shelter Workshop staff is not equipped or able to establish plants 	WD
G-14	Consider using A+B contracting method			WD

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
G-15	Accelerate delivery to minimize escalation			DS
G-16	Minimize re-design and un-resourced effort			RQ
SITE WORK				
S-1	Omit exposed, seeded glass aggregate from the concrete flatwork and foyer at comfort station	<ul style="list-style-type: none"> • Reduces cost • Ease of construction 	<ul style="list-style-type: none"> • Eliminating recycled material • Reduces visual circulation emphasis • Can not be added later 	4
S-2	Reduce thickness of concrete pedestrian pavement section from 6" to 4"	<ul style="list-style-type: none"> • Reduces cost 	<ul style="list-style-type: none"> • Durability 	4
S-3	Clarify location of doweled joints in concrete sidewalk	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	DS
S-4	Alternative to currently specified decorative tree grate	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	WD
S-5	Relocate historic plaque in lieu of moving entire stone monument.	<ul style="list-style-type: none"> • Reduces cost 	<ul style="list-style-type: none"> • Requires to verify with historic society for rules 	DS
S-6	Site furnishings by CMAS	<ul style="list-style-type: none"> • Potentially reduces cost • 	<ul style="list-style-type: none"> • 	DS
S-7	Reduce number of site lights.	<ul style="list-style-type: none"> • Reduces cost • Reduces construction effort 	<ul style="list-style-type: none"> • Requires further investigation 	4

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
S-8	Use standard site lighting fixtures.	<ul style="list-style-type: none"> Potentially reduces cost 	<ul style="list-style-type: none"> Reduces “regional” consistency 	3
S-9	Omit stone veneer raised pedestal at site lighting.	<ul style="list-style-type: none"> Reduces cost Reduces construction effort 	<ul style="list-style-type: none"> Loss of continuity of design Reduces “regional” consistency 	DS
S-10	Modify interpretive display to free standing sign panels.	<ul style="list-style-type: none"> Reduces cost Reduces construction effort 	<ul style="list-style-type: none"> Loss of continuity of design Reduces “regional” consistency 	3
S-11	Use CMU in lieu of concrete core for interpretive display, make it narrower.	<ul style="list-style-type: none"> Reduces cost Reduces construction effort 	<ul style="list-style-type: none"> None apparent 	3
S-11a	Use split face in lieu of concrete with veneer for interpretive display, make it narrower.	<ul style="list-style-type: none"> Reduces cost Reduces construction effort Consistency with other potential VA building element changes 	<ul style="list-style-type: none"> None apparent 	DS
S-12	Alternative to split rail fence detail.	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Insufficient cost savings 	WD
S-13	Eliminate urn or donated by others.	<ul style="list-style-type: none"> Reduces “gold plated” perception Donation promotes partnership 	<ul style="list-style-type: none"> Lose of original concept of “privacy screen” 	4
S-14	Explore other functional alternatives to the urn (<i>See S-13</i>).	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	(<i>See S-13</i>)
S-15	Add additional site directional signage.	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	DS

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
S-16	Evaluate Stage 1 & Stage 2 landscape scope of work.	•	•	DS
S-17	Use aggregate base in lieu of decomposed granite for Maintenance parking area.	• DG is more stable and less expensive	• Aggregate base displaces easier	2
S-17a	Reduce thickness of decomposed granite for Maintenance parking area.	• Reduces cross section • Reduces cost	• None apparent	4
S-18	Explore seeded grasses in lieu of sod.	•		WD
S-19	Reduce amount of turf area.	• Reduces water usage	• Turf area already reduced • Requires alternative material treatment • Less desirable • Increases pesticide uses	WD
S-20	Provide utility stub-outs for future vending area to be constructed by others.	• Reduces State spending • Less disruptions for stub-outs • Promotes partnership	• Blind Enterprise Program (BEP) funding unlikely • Construction by other later is more disruptive to the site • Minor re-design required	DS
S-21	Redesign detail of hose bibs/hydrants and change to concrete standard design with drainage.	• Reduces cost • More durable	• None apparent	4

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
COMFORT STATIONS				
A-1	Use stainless steel partitions in lieu of block except for first partition next to men's urinals.	<ul style="list-style-type: none"> Reduces initial cost 	<ul style="list-style-type: none"> Increases long term maintenance costs 	4
A-2	Use pre-engineered wood trusses in lieu of steel structure.	<ul style="list-style-type: none"> Reduces cost Improves constructability Attracts more contractors/bidders Can conceal conduits 	<ul style="list-style-type: none"> Slight changes to aesthetics Re-design efforts 	5
A-3	Use identical building plan for both northbound & southbound.			DS
A-4	Use split face CMU in lieu of simulated masonry.	<ul style="list-style-type: none"> Reduces cost Improves constructability 	<ul style="list-style-type: none"> Changes to aesthetics 	4
A-4a	Reduce amount of stone veneer to key locations (i.e., entrance area)	<ul style="list-style-type: none"> Reduces cost Improves constructability 	<ul style="list-style-type: none"> Some changes to aesthetics 	4
A-5	Use wood frame construction.			WD
A-6	Delete 1 family assisted restroom.	<ul style="list-style-type: none"> Reduces cost Eliminates "lockable" rooms 	<ul style="list-style-type: none"> Does not meet public expectation 	3
A-7	Alternatives for glass block.	<ul style="list-style-type: none"> Specification needs revision 		3

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
A-8	Consider alternatives for the precast concrete columns.			3
A-9	Reduce number of precast concrete columns	<ul style="list-style-type: none"> • Slight cost reduction • Improves constructability 	<ul style="list-style-type: none"> • Changes to aesthetics (maybe positive) 	4
A-10	Reduce size of glass block areas.	<ul style="list-style-type: none"> • Slight cost reduction • Improves constructability • Improves privacy 	<ul style="list-style-type: none"> • Changes to aesthetics (maybe positive) 	5
A-11	Revise octagonal foyer element to a rectangle.			WD
A-12	Reduce number of clerestory openings.			DS
A-13	Add screens or louvers to floor openings.			DS
A-14	Reduce amount of wall tiles.	<ul style="list-style-type: none"> • Slight cost reduction • Improves constructability 	<ul style="list-style-type: none"> • Increases maintenance • Changes to aesthetics 	3
A-15	Delete glass block sidelights adjacent to doors.	<ul style="list-style-type: none"> • Slight cost reduction • Improves constructability 	<ul style="list-style-type: none"> • None apparent 	3
A-16	Consider prefabricated glass block installation.			DS
A-17	Clarify masonry specification regarding bond and joint treatment.			DS

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
A-18	Consider 8 x 8 x 16 stacked bond for CMU in lieu of scored CMU.			DS
A-19	Not used.			
A-20	Evaluate control joint detail at CMU lintels.			DS
A-21	Make standard size openings for wrought iron grilles.			DS
A-22	Eliminate clerestory element from restroom wings.			WD
A-23	Use continuous monolithic sink in lieu of individual lavatories.			WD
A-24	Use pipe chase mounted lighting in lieu of current design.			WD
A-25	Add vending area to Comfort Station Building.			WD
CHP/CREW BUILDING				
A-26	Omit exterior storage (patio) and crew locker room.	<ul style="list-style-type: none"> • Cost reduction • Improves constructability • Un-needed function area 	<ul style="list-style-type: none"> • Re-design effort 	4

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
A-27	Use wood frame wall construction.			WD
A-28	Redesign Manager's area.			DS
A-29	Add vending area to CHP / Crew Building.			DS
A-30	Use pre-engineered wood trusses in lieu of steel structure	<ul style="list-style-type: none"> • Reduces cost • Improves constructability • Attracts more contractors/bidders • Can conceal conduits 	<ul style="list-style-type: none"> • Slight changes to aesthetics • Re-design efforts 	4
A-31	Consider 8 x 8 x 16 stacked bond for CMU in lieu of scored CMU			DS
A-32	Look at alternatives to current double roof design			DS
A-33	Reduce number of precast concrete columns	<ul style="list-style-type: none"> • Slight cost reduction • Improves constructability 	<ul style="list-style-type: none"> • Changes to aesthetics (maybe positive) 	4
A-34	Change glass block to conventional widows.	<ul style="list-style-type: none"> • Reduces cost • Improves constructability • More compatible to function of the building 	<ul style="list-style-type: none"> • Re-design efforts 	4
STORAGE BUILDING				

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
A-35	Use split face CMU in lieu of simulated masonry	<ul style="list-style-type: none"> • Reduces cost • Improves constructability 	<ul style="list-style-type: none"> • More expensive than wood frame construction 	3
A-36	Use wood frame wall and roof structure in lieu of masonry and steel structure	<ul style="list-style-type: none"> • Reduces cost • Improves constructability • Attracts more contractors/bidders • Can conceal conduits 	<ul style="list-style-type: none"> • Slight changes to aesthetics • Re-design efforts 	5
A-37	Move storage function to CHP / Crew Building and eliminate Storage Building on SB side	<ul style="list-style-type: none"> • Consolidates buildings • Reduces cost 	<ul style="list-style-type: none"> • Well protection changes • Maintenance issues • Cost per square footage for Storage in CHP Building is higher 	3
A-38	Evaluate well enclosure structure options			DS
A-39	Eliminate precast concrete columns.	<ul style="list-style-type: none"> • Slight cost reduction • Improves constructability 	<ul style="list-style-type: none"> • Changes to aesthetics (maybe positive) 	4
DISPLAY KIOSK				
A-40	Delete masonry walls, use free standing display panels			DS
A-41	Omit weathervane or donated by others			DS

CREATIVE IDEAS EVALUATION			Caltrans	
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	Rank
A-42	Use wood frame in lieu of masonry and steel structure	<ul style="list-style-type: none"> • Reduces cost • Improves constructability • Attracts more contractors/bidders • Can conceal conduits 	<ul style="list-style-type: none"> • Slight changes to aesthetics • Re-design efforts 	5

PHILIP S. RAINE SAFETY ROADSIDE REST AREA

GENERAL

Project KP and EA: 06-TUL-99-KP 36.05(PM 22.4) EA 06-0A9700

Number of Units: 2, northbound and southbound

Project type: Rehab

Programmed Amount: \$8,123,000 in the 2006 SHOPP for the 09/10 FY¹

Estimated construction cost: \$8,145,000

Accepted VA Savings: \$1,266,600

Proposed Capacity of Restroom: NB: Men's: 10 water closet and urinals with 6 lavatories; Women's: 16 water closets and 9 lavatories.

SB: Men's: 10 water closet and urinals with 6 lavatories; Women's: 16 water closets and 9 lavatories.

ADA stalls: two men, four women, both directions

Included Facilities: Maintenance Crew Room, CHP office and Vending on both directions

¹: One of the basic assumptions for the VA Study was that the funding was limited to the programmed SHOPP funding which as a result reduced the amount of GreenStop design items that could be added to the project. However, since the completion of the VA Study by the Team, the project has been included on the Final Candidate List for the Route 99 Bond program with an additional \$10 million. The District is now actively incorporating additional GreenStop features in the project. We are also incorporating VA Study alternatives in the project. The GreenStop features and VA Alternatives are documented in the Project Report currently being finalized.

PROJECT DESCRIPTION

This project was initiated to upgrade the existing facilities that do not meet current ADA and Cal OSHA requirements. The purpose of this project is to improve "public health, safety, security, accessibility by persons with disabilities, and the operational maintainability" of the existing rest area. Federal guidelines require compliance with ADA and Cal OSHA by the 2008/2009 fiscal year. The Project Report was signed on February 14, 2007.

The project is located along Route 99, in the valley floor of the Central Valley, between the Sierra Nevada Mountains to the east and the Coastal Mountains to the west. There is no other SRRA along Route 99 south of Philip S. Raine SRRA. The nearest SRRA to the south is Tejon Pass in Kern County, which is approximately 75 miles south. On the north side, the C.H. Warlow SRRA is located approximately 30 miles away from Philip S. Raine SRRA on Route 99.

Existing Facility

The rest area was originally built in 1965. Its original design consisted of small restroom facilities and a

parking lot. It was reconstructed 19 years later, in 1984, providing new building facilities and additional parking to serve the general traveling public and transportation industry. The facilities include comfort stations with restrooms, public telephones, drinking fountains, information displays, picnic tables, parking lots, pet areas, and lawn areas which total approximately 29.65 acres (11.6 acres – NB facility and 18 acres – SB facility). Vending machines were added in recent years.

The existing facility provides parking for cars, trucks, buses and RVs. It can accommodate approximately 78 cars and 40 long vehicles in each direction.

The Philip S. Raine Safety Roadside Rest Area is over 20 years old. It was designed prior to many of the new ADA requirements. Although some efforts have been made to bring the facility up to code, it is still lacking in safety and ADA compliance and needs to be upgraded. In addition, the facility is showing the following signs of deterioration:

Restrooms:

- Roofs/Ceiling – signs of dry rot on the roof and leaks around the skylights are a constant problem for maintenance
- Lighting – interior lighting gets vandalized constantly
- Stall doors – some stall doors are missing, doorknobs are too high
- Mirrors – constantly getting vandalized/scratched
- Fixtures – toilets, sinks, and plumbing are not working properly

Mechanical Room:

- Roll-up door – not Fire Marshall approved
- Mechanical room – used as lunchroom/office space

Picnic Shelters:

- Benches/Tables – missing benches, chipped tables
- Shade structure – signs of dry rot

Site Work:

- Sidewalks – cracked, not wide enough at HC ramps
- Landscape areas – missing plants
- Decomposed granite – area has eroded, 3” drop from adjacent sidewalk
- Lighting – needs to be upgraded
- Raised planters – missing plants, planter cap, irrigation
- Irrigation – needs upgrade

Sewage System:

- Pumps – one pump is not working, second pump is in constant need of repair

Maintenance

The rest area is currently maintained by Caltrans forces, with the assistance of the Porterville Shelter Workshop. Maintenance has identified some on-going issues that go beyond the scope of routine maintenance as follows:

- Restrooms – Maintenance has expressed concern about the roofs not draining properly at the skylights, where most of the leaks occur. The men’s restrooms on the NB comfort station do not have doors and the plumbing needs to be redone. In addition, on-going vandalism of the light fixtures inside the comfort station, make it hard for maintenance to keep up with the repairs.
- Sewage System – another item of concern is the sewage system. Currently only one out of the two pumps is working and is in constant need of repair. Corrosion has caused the guides to separate from the wall. These pumps serve both the northbound and southbound comfort stations.
- Landscape – the existing landscape is also an issue of concern. Many plants have died or deteriorated due to age. The decomposed granite in some areas has eroded away, creating about a three-inch drop from the adjacent walkways, which is a safety concern. Furthermore, the existing irrigation system is old and is not working properly.

Original Design Concept (Proposed Improvements)

The alternatives considered are as follows (*please see note¹ in page 1 for current status*):

Project Study Report (PSR) Alternative – Rehabilitation and expansion of existing comfort stations to meet safety, ADA, and Cal OSHA standards. This alternative would include the rehabilitation of all existing comfort stations and the expansion of one of the existing comfort stations on each side to provide additional restroom facilities for women. A new building would include the maintenance crew room and CHP office. The estimated cost for this alternative is \$8,145,000. The VA team was directed to use this alternative as the baseline.

PSR Alternative + Additional Funds: In addition to all elements in PSR, this alternative would also include few “green” design elements, i.e., photovoltaic canopies, waterless urinals, interpretive designs, etc. The estimated cost for this alternative is \$9,800,000.

Caltrans Tear Down Alternative: This alternative would provide a new “typical” comfort station on each side to fulfill the need for additional restroom facilities, CHP office and maintenance crew room. The estimated cost for this alternative is \$16,000,000.

“GreenStop Design” Alternative: There has been a lot of interest by a valley group regarding the future of this and other rest areas in the Central Valley. The Great Valley Center has prepared a report titled ‘The Future of Rest’, which identifies goals and elements of a 21st century rest area. A “GreenStop” Design Competition, which focused on the Philip S. Raine Safety Roadside Rest Area, was completed. Their goal was to implement improvements at this rest area. This would involve incorporating improvements that are above and beyond the scope of what is fiscally prudent on this project into the preferred alternative. The implementation of the “GreenStop” design concept would be based on additional funding being made available. The estimated cost for this alternative is \$27,200,000.

PERFORMANCE CRITERIA

The PDT identified the following performance criteria as essential to the success of the project:

- Maintainability
- Public Acceptance
- Schedule Impacts
- Stakeholder Acceptance
- Constructability
- Green Design

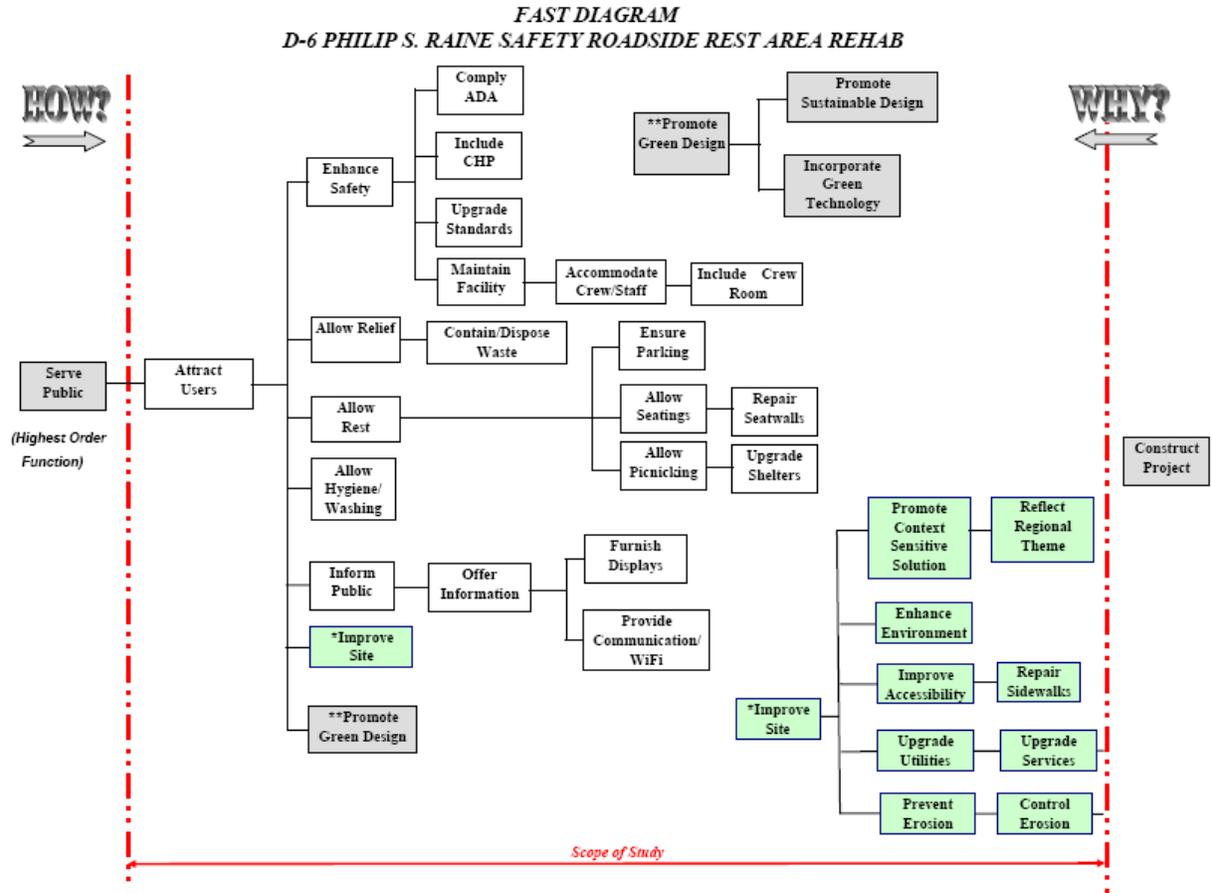
PERFORMANCE CRITERIA MATRIX <i>D-6 Philip S. Raine Safety Roadside Rest Area Rehab, EA 0A9700</i>	Caltrans
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								TOTAL	%	
<u>Maintainability</u>	A	b	c	a	a/e	f			1.5	10%
<u>Green Design</u>	B		b/c	b	b	b			4.5	30%
<u>Stakeholder Acceptance</u>	C			c	c	c			4.5	30%
<u>Public Acceptance</u>	D				d	d/f			1.5	10%
<u>Constructability</u>	E					f			0.5	3%
<u>Schedule Impact</u>	F								2.5	17%
	G									0%
	H									0%
								15.0	1.0	

a	More Important
a/b	Equal Importance

FUNCTIONS

Using function analysis and Function Analysis System Technique (FAST) diagramming, the team defined the highest order function of this project as *Serve Public*. Key basic functions include *Attract Users*, *Enhance Safety*, *Allow Relief/Rest*, *Inform Public*, *Improve Site* and *Promote Green Design*. Analysis of the functions helped the team focus on the purpose and need of the project and, consequently, how to craft alternative concepts that would provide the required functions.



VA STUDY RESULTS

The VA team identified eighteen key VA alternatives that were considered to address the functions of *Serve Public, Attract Users, Enhance Safety and Promote Green Design*.

Seven VA alternatives were accepted. Implementing these VA alternatives would maintain design intent and reduce initial cost. The total potential savings of accepted VA alternatives are estimated at \$1,266,600 with performance improvement of 93% and added 128% in value improvements.

Three additional VA alternatives were conditionally accepted. By implementing these VA alternatives, there would be an increase in the initial cost by \$464,000. However, the overall performance would be improved by 54%, and added 46% in value improvements.

Note: One of the basic assumptions for the VA Study was that the funding was limited to the programmed SHOPP funding which as a result reduced the amount of GreenStop design items that could be added to the project. However, since the completion of the VA Study by the Team, the project has been included on the Final Candidate List for the Route 99 Bond program with an additional \$10 million. The District is now actively incorporating additional GreenStop features in the project. We are also incorporating VA Study alternatives in the project. The GreenStop features and VA Alternatives are documented in the Project Report currently being finalized.

Accepted Alternatives:

Alternative Number	Description	Potential Savings	Performance
1.3	Incorporate Green Design (pre-fab concrete modular restrooms)	\$811,485	+90%
	Pre-fab concrete modular restrooms can save time in both the design and construction schedules. Pre-plumbed units are fabricated off-site with and can be connected to a septic system or with sewage holding tanks. Interior partitions, fixtures and accessories are installed at the plant thereby improving quality control. Exteriors of modular restrooms may need to be modified to better conform to context appropriate designs for this location.		
2.0	Eliminate mirrors (1 per sink).	\$9,563	+1%
	Restroom mirrors are routinely vandalized by the public at rest areas. Mirrors are typically scratched, broken or covered with graffiti and are not usable. Mirror replacement can be a significant maintenance expense at some locations.		
3.0	Use concrete panel partitions	(\$37,800)	-3%
	The initial cost is similar for both products, (stainless steel or concrete partitions). The benefit of concrete is in the ability for damage to be repaired with patching. Something that Maintenance can do. The drawback is the appearance of the partition. It becomes degraded as repairs are made.		

5.1	Install photovoltaic panels on the existing comfort station roofs	(\$48,600)	+68%
	<p>The use of photovoltaic panels is a fairly common application to reduce energy consumption. Panels can be easily accommodated on the comfort stations. There is the potential to generate excess energy that can be sold back to the utility company. This would also be an educational element to inform the public about solar power through interpretive panels located on-site.</p> <p>Although there will be increased maintenance and initial cost, the life cycle of energy savings should offset these costs over 20 years.</p>		
10.0	State furnish “site furnishing”	\$58,995	+4%
	<p>These items can be purchased by Caltrans at a reduced price through an existing CMAS contract, then installed by the contractor. Will require some increased coordination with Resident Engineer. May result in less aesthetic site amenities. State furnished site amenities will cost less to purchase.</p>		
13.0	Limit planting to the core area	\$477,090	+25%
	<p>PSR identified rehabilitating all planting and irrigation facilities. Current program guidelines will only fund planting and irrigation damaged or removed by construction activities. Small wetland planting will be constructed using collected rainwater. Full landscape rehabilitation will be included in Phase II, which may include expanding the wetland area.</p>		
14.0	Put concrete caps on seatwalls in lieu of wood	(\$5,184)	+34%
	<p>PSR identified replace the wood seat in kind. Concrete will be more durable, easier to maintain and maintains appearance.</p>		

Conditionally Accepted Alternatives:

Alternative Number	Description	Potential Savings	Performance
7.2	Use composite plastic recycled materials for picnic shelters	(\$506,250)	+45%
	<p>The existing wood trellis functions to provide filtered shade for the use of the picnic tables and benches at the picnic shelter. The original design is to replace the existing wooden trellis with like-in-kind, new wooden members. The alternative is to use composite plastic recycled materials instead of wood to construct a replacement for the trellis roof. The use of this composite material would require less maintenance resulting in a long term savings, would be more durable, and would provide a longer life span for the trellis roof.</p>		

9.0	Combine CHP/Crew functions with comfort station expansion, in lieu of independent building	\$164,000	+38%
	The combination of buildings and functions will have less impact on site overall specifically having no public functions attached to the back side of public buildings would make the site more user friendly in terms of orientation. Cost savings will be from limiting extra non-specific space in buildings and from running utilities to the new site.		
12.0	Use permeable paving (pedestrian paving)	(\$121,973)	+104%
	PSR alternative identified replacing and repairing all pedestrian paving. Proposed permeable paving alternative will allow for greater stormwater infiltration. Permeable paving will cost more to install initially and may require more maintenance. Use of permeable paving will increase the use of green design elements.		

Rejected Alternatives:

Alternative Number	Description	Reasons for Rejection
1.1	Tear down existing comfort station and replace with “green” design	<ul style="list-style-type: none"> ▪ With this alternative we would be paying an additional \$3.2 million to have a “green” result in appearance only Demolishing existing buildings and disposing of demo material is not “green”. Funds for an additional \$3.2 million are very hard to obtain. Construction would be complex.
1.2	Use Caltrans typical design process.	<ul style="list-style-type: none"> ▪ Current buildings are adequate ▪ Too many unknowns
4.0	Use communal sink area at building exterior	<ul style="list-style-type: none"> ▪ This will be problematic to maintenance due to the communal sink prone to clogging
5.2	Construct a free standing roof over existing roof to accommodate photovoltaic panels.	<ul style="list-style-type: none"> ▪ In favor of Alternative 5.1 ▪ Too costly at this time
6.0	Use indirect external mounted lighting for interior illumination	<ul style="list-style-type: none"> ▪ Very high maintenance issue when lights need to be changed – getting up to the clerestory to replace the light (up a ladder, along the lower roof)

7.1	Use metal trellis in lieu of wood	<ul style="list-style-type: none"> ▪ In favor of Alternative 7.2
8.0	Install photovoltaic on picnic shelter canopy	<ul style="list-style-type: none"> ▪ Increased potential for vandalism. Picnic shelters are not energy use areas. More show than go
11.0	Eliminate RV dump and lift station	<ul style="list-style-type: none"> ▪ RVs would elect to dump regardless if RV dump is available

IDEA EVALUATION

EVALUATION PROCESS

The VA team, as a group, generated and evaluated ideas on how to perform the various functions. The idea list was grouped by function. While ideas on the overall project were evaluated as a group, ideas relating to a specific technical discipline may have been evaluated by the responsible team member.

The team compared each of the ideas with the original concept for each of the key evaluative criteria to determine whether it was better, equal to, or worse than the original concept. The team reached a consensus on the ranking of the idea. High-ranked ideas would be developed further; low-ranked ones would be dropped from further consideration.

All of the ideas that were generated during the creative phase using brainstorming techniques were recorded on the following Creative Ideas Evaluation forms. These ideas were discussed and the advantages and disadvantages of each were listed.

Note: Symbols and number used in the form are as follows:

Ranking Scale: 5-3 = Most Likely to be Developed 1-2 = Least likely to be developed

Evaluation Criteria: Significant Improvement +2, +1, 0, -1, -2 Significant Degradation

G = Green Design St: Stakeholder Acceptance Sc: Schedule Impact

P: Public Acceptance M: Maintainability

WD = Withdraw RQ = Required DS = Design Suggestion

CREATIVE IDEAS EVALUATION							Caltrans			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		G	St	Sc	P	M				
CS-1	Tear down existing comfort station and replace with "Green" design.	+2	+1	0	+2	+2				
CS-2	Use Caltrans' typical design process.	-2	0	0	+1	+2	<ul style="list-style-type: none"> Allows context appropriate design Extends life of the facility 	<ul style="list-style-type: none"> May not satisfy stakeholders 	0	4
CS-3	Incorporate Green Design (pre-fab concrete modular restrooms).	+2	+1	+1	-1	0	<ul style="list-style-type: none"> Shortens design time Shortens construction time Meets Green design goals 	<ul style="list-style-type: none"> May not achieve context appropriate design 	-1	4
CS-4	No build. Close the rest area.	-2	-2	+2	-2	+2				WD
CS-5	Raise speed limit and spread rest area farther apart.									WD
CS-6	Eliminate mirrors (1 per sink).	0	0	0	-1	+1	<ul style="list-style-type: none"> Eliminates vandalism Reduces maintenance 	<ul style="list-style-type: none"> Potential negative public feedback 	+1	4
CS-7	Tile only on plumbing wall.	0	0	+1	0	+1	<ul style="list-style-type: none"> Reduces construction time Reduces cost 	<ul style="list-style-type: none"> Aesthetics 	+1	3

CREATIVE IDEAS EVALUATION							Caltrans			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		G	St	Sc	P	M				
CS-8	Use concrete floor in lieu of tile.	+1	+1	+1	-1	-1	<ul style="list-style-type: none"> Reduces cost Reduces construction time 	<ul style="list-style-type: none"> Maintenance Aesthetics 	+1	2
CS-9	Use concrete panel partitions.	0	-1	0	0	+1	<ul style="list-style-type: none"> Ease of maintenance 	<ul style="list-style-type: none"> Aesthetics 	+1	4
CS-10	Use communal sink area at building exterior.	+1	0	0	-1	+1	<ul style="list-style-type: none"> Decreases number of lavs Reduces maintenance Reduces interior floor space Reduces cost 	<ul style="list-style-type: none"> Social learning curve 	+1	4
CS-11	Use communal sink area at building interior.	+1	0	0	0	+1	<ul style="list-style-type: none"> Decreases number of lavs Reduces maintenance Reduces cost 	<ul style="list-style-type: none"> Social learning curve 	+1	3
CS-12	Utilize modular building for toilet capacity increase.	+1	+1	+1	0	0	<ul style="list-style-type: none"> Shortens design time Shortens construction time Meets Green design goals 	<ul style="list-style-type: none"> May not achieve context appropriate design Difficult to match the existing 	+1	2
CS-13	Install photovoltaic panels on the comfort station roofs.	+2	+2	0	+1	-2	<ul style="list-style-type: none"> Meets Green design goals Reduces energy consumption 	<ul style="list-style-type: none"> Cost Revision of roof configuration required 	-1	4

CREATIVE IDEAS EVALUATION							Caltrans			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		G	St	Sc	P	M				
CS-14	Construct a free standing roof over existing roof to accommodate photovoltaic panels.	+2	+2	-1	+1	-2	<ul style="list-style-type: none"> Meets Green design goals Reduces energy consumption Be able to incorporate with the existing building with a new look 	<ul style="list-style-type: none"> Cost 	-1	5
CS-15	Use indirect external mounted lighting for interior illumination.	+2	0	0	0	+1	<ul style="list-style-type: none"> Reduces vandalism Better quality of lighting Potential for solar source 	<ul style="list-style-type: none"> Potential maintenance issue 	0	4
CS-16	Use natural light (sky light or clerestory).	+2	+2	0	+1	-1			0	RQ
CS-17	Use natural ventilation.	+2	+1	0	+1	+1			+1	RQ
CS-18	Add forced air ventilation.	-1	-1	0	+1	-2			-1	WD
CS-19	Use portable power wash unit for daily cleaning.	-1	-1	0	+1	+1	<ul style="list-style-type: none"> Facilitates cleaning 	<ul style="list-style-type: none"> Uses more water 	-1	2
PS	Upgrade Picnic Shelters (wood trellis) (Provide Shade, Allow Picnicking) (\$550,000).									
PS-1	Use pre-fab picnic shelters.	-1	0	+1	0	+1	<ul style="list-style-type: none"> Fab off site 	<ul style="list-style-type: none"> Demolition of existing 	-1	2

CREATIVE IDEAS EVALUATION								Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		G	St	Sc	P	M				
PS-2	Use metal trellis in lieu of wood.	-2	0	0	0	+1	<ul style="list-style-type: none"> • Less maintenance • More durable 	<ul style="list-style-type: none"> • Cost • Not Green design 	-1	4
PS-3	Install photovoltaic on picnic shelter canopy.	+2	+1	0	+1	-1	<ul style="list-style-type: none"> • Green design • Reduces energy consumption • More interpretive 	<ul style="list-style-type: none"> • Cost • Possible vandalism 	-1	4
PS-4	Use composite plastic recycled materials for picnic shelters.	+1	+1	0	+1	+1	<ul style="list-style-type: none"> • Less maintenance • More durable • Green design 	<ul style="list-style-type: none"> • Cost 	0	4
PS-5	Remove shelters and plant trees.	+2	+1	-1	-2	0	<ul style="list-style-type: none"> • Green design • Less cost 	<ul style="list-style-type: none"> • Demolition of shelters • Takes long time to have shade 	+1	2
PS-6	Use picnic shelters for Farmer's Market stalls.	+2	+1	0	+1	0			0	DS
CC	Construct new CHP/Crew buildings (Promote Security Presence, Deter Crimes) (\$350,000).									
CC-1	Utilize modular building for CHP/Crew buildings.	+2	+1	+1	+1	0	<ul style="list-style-type: none"> • Shortens design time • Shortens construction time • Meets Green design goals • Less cost 	<ul style="list-style-type: none"> • May not achieve context appropriate design • Difficult to match the existing architecture 	+1	3

CREATIVE IDEAS EVALUATION							Caltrans			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		G	St	Sc	P	M				
CC-2	Combine CHP/Crew functions with comfort station expansion, in lieu of independent building.	+1	+1	0	+1	0	<ul style="list-style-type: none"> • Less cost • Matches architecture • Less site disturbance 	<ul style="list-style-type: none"> • The existing site may not be able to accommodate expansion 	+1	4
CC-3	Combine CHP/Crew functions as one room.									WD
CC-4	Install CCTV with onsite recording device.									DS
CC-5	Post surveillance signs.									DS
SF	Replace Site Furnishing.									
SF-1	State furnish "site furnishing".	-1	0	0	0	0	<ul style="list-style-type: none"> • Reduces cost 	<ul style="list-style-type: none"> • May not meet aesthetics of the site 	+1	4
WF	Maintain Wi-Fi (done already) (Allow Internet Access) (\$10,000).									
WF-1	Re-evaluate cost of "Wi-Fi technology".									DS
SS	Upgrade Septic System (\$200,000).									

CREATIVE IDEAS EVALUATION								Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		G	St	Sc	P	M				
SS-1	Eliminate RV dump and lift station.	+1	+1	+1	-1	+2	<ul style="list-style-type: none"> Reduces cost Reduces maintenance Reduces potential illegal dumping 	<ul style="list-style-type: none"> Public expectation Demolition cost 	+2	5
LT	Upgrade lighting (\$400,000) (Illuminate Area, Enhance Security).									
LT-1	Use solar lighting.	+2	+1	0	+1	-1	<ul style="list-style-type: none"> Green design Reduces energy consumption 	<ul style="list-style-type: none"> More maintenance Additional initial cost 	-1	4
LT-2	Light the site from the existing structures in lieu of adding poles.	0	0	0	0	+1			+1	DS
LT-3	Re-evaluate lighting budget (from \$400,000 to \$300,000).									DS
CW	Replace concrete flat work (\$400,000) (Comply ADA, Accommodate Accessible Path).									
CW-1	Use permeable paving (pedestrian paving).	+2	+1	0	+1	-1	<ul style="list-style-type: none"> Green design Easier to repair 	<ul style="list-style-type: none"> Additional initial cost May require more ongoing maintenance 	-1	4
CW-2	Replace concrete only where necessary.	0	0	+1	0	0	<ul style="list-style-type: none"> Reduces cost 	<ul style="list-style-type: none"> Difficult matching the new and old 	+1	3

CREATIVE IDEAS EVALUATION							Caltrans			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		G	St	Sc	P	M				
CW-3	Reduce two paths from truck parking to the core area.									DS
CW-4	Reduce amount of concrete sidewalk adjacent to truck parking area.	+1	+1	0	0	+1	<ul style="list-style-type: none"> Reduces amount non-permeable surface Reduces cost 	<ul style="list-style-type: none"> Demolition cost 	0	DS
CW-5	Enhance pet area.									DS
CW-6	Use stabilized decomposed granite for perimeter walkway paving.	+2	+1	0	0	-1			0	DS
PI	Maintain Planting and Irrigation (\$510,000) (Enhance Environment).									
PI-1	Defer planting and irrigation enhancement to Phase 2.	0	-1	-1	-1	-1			+2	RQ
PI-2	Limit planting to the core area.	+1	+2	0	+2	0	<ul style="list-style-type: none"> Meets State program Incorporates Green design Makes funds available for other Green elements 	<ul style="list-style-type: none"> Other areas will be deferred to Phase 2 	+1	4
SW	Repair Seatwalls (\$40,000) (Allow Rest, Direct Circulation)									

CREATIVE IDEAS EVALUATION							Caltrans			
No.	IDEA DESCRIPTION (FUNCTION)	Performance Criteria					Advantages	Disadvantages	\$	Rank
		G	St	Sc	P	M				
SW-1	Put concrete caps on seatwalls, in lieu of wood.	0	+1	0	+1	+1	<ul style="list-style-type: none"> • Maintainability • Durability • Comfort 	<ul style="list-style-type: none"> • Cost 	-1	4
EC	Provide permanent erosion control (\$260,000) (Prevent Erosion).									
EC-1	Use vegetation as permanent erosion control.	+1	0	0	+1	-1	<ul style="list-style-type: none"> • Helps to define pedestrian areas • Better public appearance • More finished appearance than dirt 	<ul style="list-style-type: none"> • Requires supplemental watering system • Additional initial cost 	-1	DS
EC-2	Reduce area of site disturbance.	+1	0	0	0	0			+1	RQ

SHANDON SAFETY ROADSIDE REST AREA

GENERAL

Project KP and EA: 05-SLO-46-79.74(PM 49.55) EA 05-0F7101

Number of Units: 1, eastbound

Project type: Tear-down and rebuild

Programmed Amount: \$4,502,000 in the 2004 SHOPP for the 07/08 FY
\$6,775,000 in the 2006 SHOPP for the 08/09 FY

Estimated construction cost: \$6,150,000

Accepted VA Savings: \$59,000

Proposed Capacity of Restroom: Men's: 2 regular stalls, 4 urinals, 2 ADA, 1 family
Women's: 6 regular stalls, 2 ADA, 1 family

Included Facilities: Maintenance Crew Room, CHP office, equipment storage building and Vending.

PROJECT DESCRIPTION

This project consists of replacement of the existing comfort station building with two larger restroom buildings and the addition of a separate CHP/maintenance crew/storage building, an information kiosk, and a vending building. It would repair and/or replace all existing site features and utilities that are worn out, inefficient or costly to maintain. New or upgraded facilities would meet current ADA standards, improve user safety, increase restroom capacity and reduce maintenance costs. The project would not increase parking capacity. The SRRA site is approximately 4.5 hectares (11 acres) in size. All proposed work would be done within the existing SRRA right of way and new facilities would be sited to avoid potential future conflict with Route 46 widening and existing easements for underground utilities.

Existing Facility

The Shandon SRRA was opened to the public in 1979 to serve the needs of the traveling public and the transportation industry for rest, leisure and informational purposes. This project was initiated because the aging SRRA is not in compliance with current ADA access requirements and building codes and does not meet user demand. The Shandon SRRA receives approximately 650,000 visitors annually.

The size of the existing comfort station is inadequate and it has been determined by Structures Architecture that the condition of the existing building is not worth the cost of retrofit necessary to meet current ADA standards and building and seismic codes. The comfort station and the associated leach field are severely lacking in meeting user capacity needs. No vending at the existing site.

The Shandon SRRA is currently under a maintenance contract with NCI Sheltered Workshop at an approximate annual cost of \$46,400. The contract will be up for renewal in June of 2007. Caltrans Maintenance spends an additional \$40,000 every year for Caltrans maintenance staff and restroom supplies, and approximately \$9,000 on minor repairs.

Original Design Concept (*Proposed Improvements*)

The existing comfort station building will be demolished and replaced with two larger restroom buildings in approximately the same location. The new buildings will be in compliance with current ADA and Health, Safety and Building codes, regulations and laws. The project will include expansion of the number of toilet fixtures to meet the 20-year user demand (calculated on both westbound and eastbound traffic), including a differential for more women's or family fixtures, and a maintenance storage area. The septic and well water systems will be upgraded and expanded as needed to accommodate the additional restrooms. Grading and drainage problems will be corrected in the pedestrian core and leach field areas.

A new facility to house a CHP office, a rest area manager's office, crew room, and an equipment storage building will be added to the site. Vending facilities will be accommodated a commitment to service facilities at this location by the Business Enterprise Program (Blind Vending) has been confirmed. The architectural style of the new structures, signage and other site furnishings will be in accordance with the approved conceptual themes and the schematic plans.

PERFORMANCE CRITERIA

Specific performance criteria were developed in cooperation with the designers and stakeholders. These criteria were weighted, using a paired comparison approach, which resulted in the criteria used to evaluate ideas and alternative concepts. These criteria are identified later in this section under the heading Performance and Value Improvement.

The PDT identified the following performance criteria as essential to the success of the project:

- Maintainability
- Public Acceptance
- Contract Biddability
- Stakeholder Acceptance
- Constructability
- Context Appropriateness

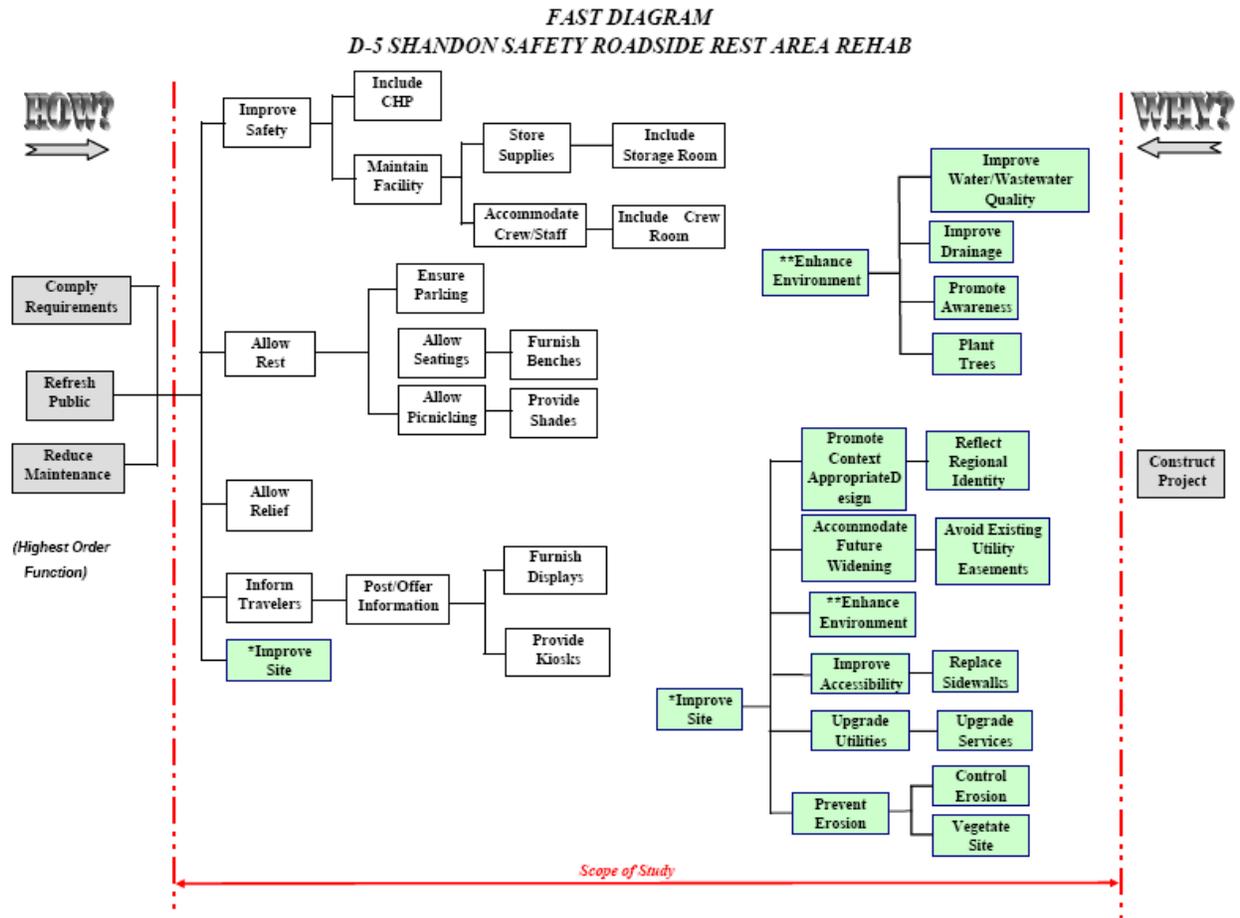
PERFORMANCE CRITERIA MATRIX <i>D-5 Shandon Safety Roadside Rest Area Rehab, EA 0F7100</i>	Caltrans
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								TOTAL	%
<u>Maintainability</u>	A	a/b	a	d	a	a	a	4.5	21%
<u>Context Appropriate</u>	B		b	b/d	b	b	b	5.0	24%
<u>Stakeholder Acceptance</u>	C		d	e	c/f	c		1.5	7%
<u>Public Acceptance</u>	D			d	d	d		5.5	26%
<u>Constructability</u>	E				e	e/g		2.5	12%
<u>Schedule Impact</u>	F					g		0.5	2%
<u>Contract Bid-ability</u>	G							1.5	7%
	H								0%
								21.0	1.0

a	More Important
a/b	Equal Importance

FUNCTIONS

Using function analysis and Function Analysis System Technique (FAST) diagramming, the team defined the highest order function of this project as *Refresh Public, Comply Requirements and Reduce Maintenance*. Key basic functions include *Improve Safety, Allow Relief/Rest, Inform Travelers, and Improve Site*. Analysis of the functions helped the team focus on the purpose and need of the project and, consequently, how to craft alternative concepts that would provide the required functions.



VA STUDY RESULTS

The VA team identified thirteen key VA alternatives that were considered to address four critical functions: *Refresh Public*, *Allow Rest*, *Enhance Safety* and *Improve Site*.

Four VA alternatives were accepted. Implementing these VA alternatives would maintain design intent, reduce maintenance and incorporate more green elements to the project but would increase initial cost. The estimated increase of initial costs of accepted VA alternatives are estimated at \$59,500 with performance improvement of 7% and added 6% in value improvements.

Three additional VA alternatives were conditionally accepted. By implementing these VA alternatives, there would be an increase in the initial cost by \$2,250; however, the overall performance would be improved by 12%, and added 11% in value improvements.

Accepted Alternatives:

Alternative Number	Description	Potential Savings	Performance
6.0	Install photovoltaic panels on comfort station & CHP/crew building roofs	(\$85,000)	+2%
	The installation of the photovoltaic panels will not only provide energy for the electrical facilities within the buildings but will also serve to illustrate alternate power usage and provides an opportunity for interpretive information to the public. Solar power is especially appropriate in the Shandon area. In addition there is also the potential to obtain LEED certification.		
7.0	Use external, or pipe chase mounted lighting for interior illumination	N/A	+5%
	Surface mounted lighting fixtures within the restroom are routinely vandalized requiring repair or replacement. With the installation of the light fixtures in the pipe chase, fixtures will not be accessible to vandals. This results in a cost savings over time. Replacement of burned out light bulbs will be easier and can be accomplished without closing that portion of the restroom. Lighting performance will need to be analyzed in order to assure that code required lighting levels will be achieved by this design.		
10.0	Reduce number of hose bibs/hydrants and change to concrete support	\$8,000	+5%
	There are three existing hose bibs/hydrants on site, with one not functioning. There has been no negative input from the public due to the non-functional hose bib/hydrant. It has been determined that two would be sufficient. The original design had metal support for the hose bibs/hydrants. It was determined that changing to a concrete support for the two remaining facilities would result in a significant cost savings.		

12.0	Alternative design at information kiosk to allow unobstructed view below panels	\$17,500	+5%
	The current display kiosk design contains solid walls that potentially can allow someone to hide behind creating a non-secure environment. With the provision of constructing openings in the walls below the display panels an unobstructed view is created thus eliminating the ability to hide behind the walls.		

Conditionally Accepted Alternatives:

Alternative Number	Description	Potential Savings	Performance
2.0	Seal coat (fog seal) and re-stripe existing public parking	(\$43,000)	+12%
	There are concerns of public perception of spending \$ 6.2 million dollars and making no pavement improvements. Fog seal will give the existing parking lots a new appearance and add approximately 3-5 year life to the pavement until future improvements are completed. For a minimal cost, re-striping of the existing and overflow truck parking will organize the truck parking lot.		
4.0	Eliminate ceramic wall tile except at wet wall	\$46,000	+12%
	Simple interior wall treatment is consistent with the rustic design and represents a considerable cost savings for overall project. The tiles retained on the wet wall meets the code requirement for non-absorptive surface. Concrete masonry surface would be sealed or painted to provide a cleanable surface.		
11.0	Add facility sign at site entrance	(\$5,250)	+7%
	The custom signs would offer improved visibility for travelers looking for the rest area. This on-site signage is especially important for westbound traffic, because of the reduced sight distance. The proposed entrance signage reinforces the rural feeling of the roadside rest buildings and promotes visitor acceptance.		

Rejected Alternatives:

Alternative Number	Description	Reasons for Rejection
1.0	Reduce thickness of concrete flatwork from 6" to 4". Reduce thickness of base	<ul style="list-style-type: none"> ▪ Reducing base depth may not be desirable due to expansive soils per materials lab ▪ Cost savings are very minimal ▪ Maintenance issue

3.0	Add electric charging stations with solar	<ul style="list-style-type: none"> ▪ There are less demand on electric cars ▪ May consider leaving conduit for future electric circuits ▪ This project site is in a very remote area, very difficult for electric cars to get to ▪ Too many unknowns
5.0	Consider “farm house” sink design for lavatories. Conceal all piping in pipe chase	<ul style="list-style-type: none"> ▪ One clog means all the sink space is out of service. With individual sinks, if one is clogged the other(s) are still functional. Can’t we incorporate the same concept of hiding the plumbing behind a wall to reduce vandalism with individual sinks too? ▪ Individual single sinks can be repaired more easily/less expensively than one large sink
8.1	Consider pre-fabricated concrete restroom structures	<ul style="list-style-type: none"> ▪ This project is far into the PS&E phase ▪ Need more detail regarding durability/life cycle costs. Floor plan sketches of how the modular buildings would work would allow the reviewers and decision makers to have enough knowledge to make a better informed decision ▪ Perhaps a parallel design process for the standard building design would be appropriate to maintain project schedule while more investigation is being done on the modular system
8.2	Delete metal ceiling and use underside of structural roof deck	<ul style="list-style-type: none"> ▪ Major maintenance concerns ▪ The exposed trusses and possibly utilities could be an attractive nuisance
9.0	Use pre-fabricated building for CHP /crew building	<ul style="list-style-type: none"> ▪ Same as 8.1

IDEA EVALUATION

EVALUATION PROCESS

The VA team, as a group, generated and evaluated ideas on how to perform the various functions. The idea list was grouped by function. While ideas on the overall project were evaluated as a group, ideas relating to a specific technical discipline may have been evaluated by the responsible team member.

The team compared each of the ideas with the original concept for each of the key evaluative criteria to determine whether it was better, equal to, or worse than the original concept. The team reached a consensus on the ranking of the idea. High-ranked ideas would be developed further; low-ranked ones would be dropped from further consideration.

All of the ideas that were generated during the creative phase using brainstorming techniques were recorded on the following Creative Ideas Evaluation forms. These ideas were discussed and the advantages and disadvantages of each were listed.

Note: Symbols and number used in the form are as follows:

Ranking Scale: 5-3 = Most Likely to be Developed 1-2 = Least likely to be developed

Evaluation Criteria: Significant Cost Reduction +2, +1, 0, -1, -2 Significant Cost Increase

WD = Withdraw RQ = Required DS = Design Suggestion

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
SITE					
S-1	Temporary shade structures until trees mature at picnic areas.				WD
S-2	Incorporate photovoltaic for power, lighting and air conditioning.	<ul style="list-style-type: none"> • Save on monthly energy costs • Energy conservation measure • Conforms to GreenStop design • Interpretive opportunity • Follows Visions for Rest Areas • Offers potential for partnership with Blind Enterprise Program • Potential for utility rebates • Easily accommodated in the present design 	<ul style="list-style-type: none"> • New technology unfamiliar to maintenance • Higher initial costs • Still requires power redundancy 	-1	DS
S-3	Conduct contractor outreach in addition to normal advertising.	<ul style="list-style-type: none"> • More competitive bids 			DS
S-4	Modify general conditions and specifications specific to building projects.				DS
S-5	Reduce amount of paved areas.	<ul style="list-style-type: none"> • Reduces concrete material costs • Reduces heat sink • Possibility for points with water board 	<ul style="list-style-type: none"> • Increase in planting costs • Challenge to accommodate circulation 	+1	DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-6	Reduce thickness of concrete flatwork from 6” to 4”. Reduce thickness of base.	<ul style="list-style-type: none"> Reduces concrete material costs 	<ul style="list-style-type: none"> Potential constructability issue 	+2	5
S-7	Properly advertise the project to building contractors.				DS
S-8	Provide option for delayed start time in contract documents.				DS
S-9	Create additive bid items.				DS
S-10	Investigate alternatives to nitrogen treatment system.				DS
S-11	Revise site grading to eliminate sewage lift station.	<ul style="list-style-type: none"> Eliminates need for lift station Less long term maintenance 	<ul style="list-style-type: none"> More disturbed area Potential staging issues May affect percolation rate, too near ground water 	0	3
S-12	Improve visibility of the rest area from the highway.	<ul style="list-style-type: none"> Encourages use Enhance safety May be able to achieve with an existing design element Enhancement to regional identity 	<ul style="list-style-type: none"> Potential extra cost 	-1	DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-13	Seal coat (fog seal) and re-stripe existing public parking.	<ul style="list-style-type: none"> • Improve traffic circulation • Protects periphery • Improves perception of finished project • Increase pavement life • Controls dust in wind prone area • Potential for closure to save money for maintenance 	<ul style="list-style-type: none"> • Item not in scope • Additional cost • Can be accomplished by maintenance funds 	-1	4
S-14	Explore alternative fencing / barrier / berm options to cedar split rail.	<ul style="list-style-type: none"> • Restricts truck parking • Ease of maintenance • Enhance aesthetics 	<ul style="list-style-type: none"> • Additional initial cost • Potential truck damage & replacement cost 	0	DS
S-15	Revise leach field layout to allow more overflow truck parking.	<ul style="list-style-type: none"> • Allow additional truck parking 	<ul style="list-style-type: none"> • Proximity to well • May need to tear out existing asphalt 		DS
S-16	Provide temporary truck parking at abandoned leach field.				WD
S-17	Provide bollard protection at sidewalks at parking lot.	<ul style="list-style-type: none"> • Protect pedestrians from errant vehicles 	<ul style="list-style-type: none"> • High cost compared to low incidence 		WD
S-18	Concrete hydrants in lieu of metal (<i>combine with A-24</i>).	<ul style="list-style-type: none"> • Lower cost, less maintenance 	<ul style="list-style-type: none"> • None apparent 	+1	5
S-19	Delete tree protection.	<ul style="list-style-type: none"> • Lower cost • More natural appearance 	<ul style="list-style-type: none"> • Potential for tree replacement • Loss of aesthetic • Maintenance needs to remove 	0	3

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-20	CMAS contract for site furnishings.	<ul style="list-style-type: none"> Assumed lower cost 	<ul style="list-style-type: none"> Aesthetics 	+1	DS
S-21	Explore alternatives to light pole fixture.	<ul style="list-style-type: none"> Assumed lower cost 	<ul style="list-style-type: none"> Aesthetics Deviation from District preference Maintenance is familiar with selected fixture and has replacement stock 	+1	DS
S-22	Add electric charging stations with solar.	<ul style="list-style-type: none"> Caltrans vehicles have more charging locations Sustainable design idea Good public relations 	<ul style="list-style-type: none"> Additional cost 	-1	5
S-23	Interpretive displays funded through TEA Funds.				DS
S-24	Evaluate alternative site signage.	<ul style="list-style-type: none"> Lower cost 	<ul style="list-style-type: none"> Less aesthetic Content restricted to English speaking visitors 	+1	3
S-25	Use artificial turf in lieu of sod.		<ul style="list-style-type: none"> Poor public perception 		WD
S-26	Reduce 12 month plant establishment period.				WD
S-27	Delete area drain at comfort station rain gutter.	<ul style="list-style-type: none"> Reduce pedestrian hazard Reduce maintenance 	<ul style="list-style-type: none"> Rain runoff at edge of roof 	+1	DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
S-28	Better interface between Caltrans Construction and DES.				DS
S-29	Allow more site visits for Architecture.				DS
S-30	Improve submittal review process.				DS
S-31	Include District Maintenance in design review, walk thru and progress inspections.				DS
S-32	Use solar energy to power site lighting.	<ul style="list-style-type: none"> • Saves energy & monthly utility cost • Demonstrate sustainability • Backup power source during power failures 	<ul style="list-style-type: none"> • Non-standard repair 	-1	DS
S-33	Consider permeable paving for core concrete areas.	<ul style="list-style-type: none"> • Reduces amount of surface run-off 	<ul style="list-style-type: none"> • Additional cost • Rain is not an issue 	-2	3
S-34	Add exterior receptacle for portable generator.				DS
ARCHITECTURAL					
A-1	Re-orient restroom entries.	<ul style="list-style-type: none"> • Puts other door closer to public access • Improves user expectation 	<ul style="list-style-type: none"> • Design time & resources 	0	3

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
A-2	Relocate CHP closer to the rest area entrance.				WD
A-3	Stainless steel partitions in lieu of tile covered CMU.	<ul style="list-style-type: none"> • Cost savings • Easier to construct 	<ul style="list-style-type: none"> • Less durability • Poor public perception • Not as vandal resistant 	+1	3
A-4	Eliminate ceramic wall tile except at wet wall.	<ul style="list-style-type: none"> • Reduces cost • Less maintenance 	<ul style="list-style-type: none"> • None apparent 	+1	4
A-5	Use sealed concrete in lieu of ceramic floor tile.		<ul style="list-style-type: none"> • Need to re-apply sealer on a regular basis 		WD
A-6	Alternative exterior finishes for veneer materials.				DS
A-7	Exterior communal lavatories in lieu of individual lavatories.	<ul style="list-style-type: none"> • Fewer sinks to maintain • Potential savings of building square footage 	<ul style="list-style-type: none"> • Not conducive to hand washing • No privacy 		WD
A-8	Consider “farm house” sink design for lavatories.	<ul style="list-style-type: none"> • Meets original concept 	<ul style="list-style-type: none"> • Potential ADA & code issues 	0	4
A-9	Conceal all piping in pipe chase (<i>combine with A-8</i>).	<ul style="list-style-type: none"> • Protects piping from vandals • Ease of maintenance 	<ul style="list-style-type: none"> • None apparent 		4
A-10	Urination wall (tile wall with trench) in lieu of individual urinals.	<ul style="list-style-type: none"> • Potential water savings 	<ul style="list-style-type: none"> • More difficult to clean • Potential odor issue 		DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
A-11	Install photovoltaic panels on comfort station & CHP/crew building roofs (combine with #2).	<ul style="list-style-type: none"> • Save on monthly energy costs • Energy conservation measure • Conforms to GreenStop design • Interpretive opportunity • Follows Visions for Rest Areas • Potential for utility rebates • Easily accommodated in the present design 	<ul style="list-style-type: none"> • New technology unfamiliar to maintenance • Higher initial costs • Still requires power redundancy 	-1	5
A-12	Use external, or pipe chase mounted lighting for interior illumination.	<ul style="list-style-type: none"> • Less prone to vandalism • Easier to maintain 	<ul style="list-style-type: none"> • Potential loss of lighting levels 	0	4
A-13	Consider pre-fabricated concrete restroom structures.	<ul style="list-style-type: none"> • Reduces cost • Ease of construction • Reduces construction time • Reduces closure time • Increases bid competition 	<ul style="list-style-type: none"> • Potentially less aesthetic • Lot of unknowns for Caltrans 	+2	5
A-14	Consider row of single occupancy restrooms.		<ul style="list-style-type: none"> • More lavatories than required by code • Security issue 		WD
A-15	Use pre-fabricated building for CHP / Crew Building.	<ul style="list-style-type: none"> • Reduces cost • Ease of construction • Reduces construction time • Reduces closure time • Increases bid competition 	<ul style="list-style-type: none"> • Potentially less aesthetic • Lot of unknowns for Caltrans 	+2	5

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
A-16	Eliminate nesting areas under roof.				DS
A-17	Extend curved roof over pipe chase.				WD
A-18	Standardize curved roof structural elements between all buildings.				DS
A-19	Consider straight line roof design.				WD
A-20	Delete metal ceiling and use underside of structural roof deck.	<ul style="list-style-type: none"> • Cost savings 	<ul style="list-style-type: none"> • No fasteners through the metal deck • Concealing conduit 	+1	4
A-21	Specify operable windows.				DS
A-22	Reduce number of public telephones.	<ul style="list-style-type: none"> • Reduces monthly cost 			DS
A-23	Reduce number of drinking fountains.				DS
A-24	Reduce hose bibs from three to two.	<ul style="list-style-type: none"> • Cost savings 	<ul style="list-style-type: none"> • None apparent 	+1	5
A-25	Push button in lieu of electronic flush / lav control alternatives.	<ul style="list-style-type: none"> • Promotes hygiene • Automatically flushes 	<ul style="list-style-type: none"> • Not familiar with maintenance 	+1	DS
A-26	Silo roof at vending kiosk in lieu of square roof.	<ul style="list-style-type: none"> • Promotes regional identity 	<ul style="list-style-type: none"> • Increased cost 		DS

CREATIVE IDEAS EVALUATION			Caltrans		
No.	IDEA DESCRIPTION (FUNCTION)	Advantages	Disadvantages	\$	Rank
A-27	Add facility sign at site entrance.	<ul style="list-style-type: none"> Increases visibility Promotes use Opportunity to promote regional identity 	<ul style="list-style-type: none"> Modest cost increase 	-1	4
A-28	Reduce fascia depth at vending machines to facilitate removal. Make fascia a permeable grille.				DS
A-29	Alternative design at information kiosk to allow unobstructed view below panels.	<ul style="list-style-type: none"> Enhances security Reduces cost 	<ul style="list-style-type: none"> None apparent 	+1	5
A-30	Use corrugated metal exterior at vending kiosk in lieu of masonry.	<ul style="list-style-type: none"> Reduces cost Keeping with regional identity Opportunity to vary height of buildings 	<ul style="list-style-type: none"> None apparent 	+1	DS
A-31	Add CHP / Crew Building functions as an addition to comfort station buildings.		<ul style="list-style-type: none"> Site restrictions 		WD
A-32	Add new anti-graffiti coating to exterior walls.				DS
A-33	Use larger size ceramic tiles for flooring.				DS