

Example Application from HSIP-Cycle 5 and HR3-Cycle 3

02-Shasta County-2

Countermeasures Used:

R16: Widen shoulder (paved)

Primary reasons this application was selected to show as an Example:

- Location identified as a top priority through a review of crash data using SWITRS data and Crossroads collision database software.
- Simple application
 - Relatively low level of effort needed to find roadway segments with similar crash patterns, develop the project scope, cost and schedule, and complete the application
 - Clear crash diagram and crash data make the application easy to view
- Rural project that used a higher-cost improvement and still ended up with a B/C over 4.0
- Rural project that has an expected benefit for all modes of travel
- For agencies without crash data, this type of project could still be identified and crash data and diagrams could be obtained using UC Berkeley TIMS tools

Changes needed for similar applications in future HSIP calls for projects:

- Better plan and cross section views of proposed improvements
 - The cross section should show the existing condition – either on a separate cross section or added to the one showing the proposed improvements
 - The plan view needs to show where the shoulder/lane transitions are. A common method used is to draw the new lanes and shoulders to scale on an aerial image of the road
 - The plan view and cross section needs to show the R/W in relation to the improvements
 - Remember: applications are Engineering Scoping Documents and they need to clearly convey the overall scope of work
- 2 to 3 photos for each countermeasure in an application would help demonstrate the need for the improvement and confirm that the countermeasure is being applied correctly
- All collisions, including those rear-end and sideswipe collisions mentioned in the application are applicable in the B/C calculation in that the CRF is for ALL types of collisions.
- Side-note: If turn pockets, pull-outs, or other major scope elements are included, they need to be shown on the plan view and may require an additional cross section

APPLICATION FOR HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROGRAM CYCLE 5 AND HIGH RISK RURAL ROADS (HR3) PROGRAM CYCLE 3

APPLICATION SUMMARY

After the application is finalized, please save this PDF form using the exact "Application ID" (shown below) as the file name.

This summary page is filled out automatically once the application is completed.

Application ID: 02-Shasta County-2

Submitted By (Agency):
Shasta County

Caltrans District
02

Application Number
2

Out of
2

Project Location

Olinda Road between Sammy Lane and Greenleaf Lane

Project Description

Widen and pave shoulders.

Countermeasure 1: R16: Widen shoulder (paved)

Countermeasure 2:

Countermeasure 3:

Total Expected Benefit	\$4,267,334.00	Total Project Cost	\$1,000,000.00
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B/C Ratio: 4.27

I. Basic Project Information

Date Caltrans District MPO

Agency County

Total number of applications being submitted by your agency

Application Number (each application must have a unique number)

Contact Person Information

Name (Last, First):

Position/Title of Contact Person

Email: Telephone: Extension:

Address:

City: Zip Code: (Enter only a 5-digit number.)

Project Information

Project Location
-Be Brief (limited to 250 characters)
[-See Instructions](#)

Project Description
-Be Brief (limited to 250 characters)
[-See Instructions](#)

Functional Classification (For Functional Classification and CRS Maps, Visit http://www.dot.ca.gov/hq/tsip/hseb/crs_maps/)

CRS Map ID (e.g. 08E14)

Urban/Rural Area (Visit <http://earth.dot.ca.gov/>)

Eligible for HR3 Funding ([See Instructions](#))

Work on the State Highway System ([See Instructions](#))

Does the project include improvements on the State Highway System?

If no, move on to the next page; If yes, go to the below question.

Is this a joint-funded project with Caltrans?

- If yes, check this box to confirm a formal Letter of Support from Caltrans - District Traffic is attached to the application. The letter should include estimates of cost sharing.
- If no, check this box to confirm a written correspondence from Caltrans District Traffic is attached to the application. The correspondence should indicate that Caltrans does not see issues that would prevent the proposed project from receiving an encroachment permit

Additional Information

1. Is the project focused primarily on "spot location" or "systemic" improvements?

2. Which of the California's Strategic Highway Safety Plan (SHSP) Challenge Areas does the project address primarily?
(For more information on the SHSP and its Challenge Areas, see: <http://www.dot.ca.gov/SHSP/>)

3. How were the safety needs and potential countermeasures for this project **first** identified?

4. What is the primarily mode of travel intended to be benefited by this project?

5. Approximate percentage of project cost going to improvements related to **motorized** travel %

6. Approximate percentage of project cost going to improvements related to **non-motorized** travel %

7. Is the project focused primarily on "Intersection" or "Roadway" improvement?

Miles of Roadway

8. Posted Speed Limit (mph)

9. Average Daily Traffic	ADT (Major Road)	ADT (Minor Road)	Year Collected
(See Instructions)	<input type="text" value="2,500"/>	<input type="text"/>	<input type="text" value="2009"/>

II. Narrative Questions [\(See Instructions\)](#)

These narrative questions are intended to provide additional project details for the application reviewers and project files. Application reviewers will use the information in their “fatal flaw” assessment of the applications, including:

- 1) The project scope is eligible for HSIP and/or HR3 funding;
- 2) The countermeasures used in the B/C ratio calculation are appropriately applied based on the scope of the project;
- 3) The crash data used in the B/C ratio calculation is appropriately applied based on the scope of the project and countermeasures used;
- 4) The costs included in the application represent the likely total project cost necessary to fully construct the proposed scope. If the proposed project is a piece of a larger construction project, the entire scope of the larger project must be identified.
- 5) The application data and attachments are reasonable and meet generally accepted traffic engineering and transportation safety principles.

If significant inconsistencies or errors are found in the application information, the Caltrans reviewers may conclude that the application includes one or more “fatal flaws” and the application will be dropped from further funding considerations. The applicant will be notified of Caltrans findings until after the selection process is complete.

1. Overall Identification of Need

Describe how the agency identified the project as one of its top safety priorities. Was a data-driven, safety evaluation of their entire roadway network completed? (limited to 5,000 characters)

This project was identified as one of the County's top safety priorities through the County's regular review of collision data. CHP Traffic Collision Reports are reviewed on a monthly basis and a collision database is maintained using SWITRS data and Crossroads Collision Database software. All non-DUI fatal and serious injury collisions are subject to timely internal investigation to assess immediate safety needs. On an annual basis the County prepares an internal report reviewing the collision rates on its top 25 highways with the greatest number of collisions. Through the regular review of collision reports and SWITRS data and its annual collision rate assessments, the County is able to continually assess the safety needs of its roadway network.

Olinda Road is one of the top 25 highways in number of collisions in the County roadway system and, as such, is subject to the annual collision rate assessment noted above. Following a fatal collision in 2006 the County has been exercising a focused safety assessment on this road. This assessment led to the application and approval of an HR3 project in 2008 for widened, paved shoulders and guard rail upgrades from the urban limit to Sammy Lane. This proposed HSIP project will be continuous with the previously approved 2008 project.

2. Potential for Proposed Improvements to Correct the Problem

Describe the primary causes of the collisions that have occurred within the project limits. Are there patterns in the crash types? Clearly demonstrate the connection between the problem and the proposed countermeasures utilized in the Benefit/Cost Ratio calculations. (limited to 5,000 characters)

Note: Safety improvements that do not have countermeasures and crash reduction factors identified in the TIMS B/C Calculator can be included in the project scope; they just won't be added to the project's B/C ratio shown in the application.

The primary types of collisions within the project limits are run-off the road collisions. The roadway's existing narrow, unpaved shoulders provide little opportunity for recovery for errant motorists on this high speed rural major collector. Widened paved shoulders will provide additional room for motorist recovery and, as an added benefit, will also provide additional roadway for pedestrians and bicyclists utilizing this popular connector between the bedroom community of Happy Valley and the urban area within the City of Anderson.

3. Crash Data Evaluation

Describe how the limits of the crash data were established to ensure only appropriate crashes were included in the Collision Summary Report(s), Collision Diagram(s) and B/C calculations. Explain how the influence areas for each separate countermeasure were established. (limited to 5,000 characters)

This project takes up where the previously approved 2008 Olinda Road HR3 project ends at Sammy Lane and is essentially centered around the intersecting Chestnut Street, which is the primary local road connecting the adjoining residential area to Olinda Road. The western project limit was chosen as Greenleaf Lane, which serves as the western boundary to the aforementioned residential area. The collision data supports these limits with a majority of the collisions occurring in the vicinity of Chestnut Street.

Only a single countermeasure is proposed for this project, therefore all applicable collision data was applied to this countermeasure. Several rear-end collisions and a sideswipe collision occurring when a vehicle stopped on the shoulder pulled back onto the road were not included in the collision data since they did not appear to be applicable to the countermeasure.

4. Prior attempts to address the Safety Issue

If appropriate, list all other projects/countermeasures that have been (or are being) deployed at this location. Applicants must identify all prior federal HSIP, HR3 or Safe Routes To School (SRTS) funds approved within or directly adjacent to the propose projects limits within the last 5 years. (limited to 5,000 characters)

As noted previously, the 1.8 mile easterly adjoining section of Olinda Road was approved for a HR3 project in 2008. That project, as with this proposed project, is focusing on widened paved shoulders.

5. Total project costs

Describe the process used to establish the total cost for the project. Confirm contingencies for reasonably expected costs, including drainage, environmental, traffic, etc, are included. (limited to 5,000 characters)

Note: For applications with more than one countermeasure used in the B/C calculations, applicants need to describe the logic used to distribute the total project cost to each countermeasure.

The construction item quantities are based on the same structural section that was used for the adjacent aforementioned 2008 widening project. Estimated item prices are derived from bid prices for the County's 2011 Union School HR3 project, which was nearly identical to the proposed project in both size and scope. The total project cost includes a 5% contingency which the County deems to be adequate for a project of this scope and certainty.

III. Project Cost Estimate (See Instructions)

All project costs must be accounted for on this form, even if substantial elements of the overall project are to be funded by other sources.

Round all costs up to the nearest hundred dollars. Once all costs are entered, click "Check Cost Estimate" to perform validation. If errors are detected, they will appear below the button. Click it to check again each time when the costs have been revised.

Phase	Federal Funds	Local/Other Funds ⁽⁷⁾	Total Cost	Federal/Total ⁽⁵⁾	
Preliminary Engineering	Environmental	\$36,000	\$4,000	\$40,000	
	PS&E	\$63,000	\$7,000	\$70,000	
	PE Subtotal⁽²⁾	\$99,000	\$11,000	\$110,000	90%
<input type="checkbox"/> Agency does NOT request federal funds for PE Phase (automatically checked if PE - federal funds is \$0).					
Right of Way	Right of Way Engineering	\$9,000	\$1,000	\$10,000	
	Appraisals, Acquisitions & Utilities	\$81,000	\$9,000	\$90,000	
	ROW Subtotal⁽³⁾	\$90,000	\$10,000	\$100,000	90%
Construction Engineering & Construction	Construction Engineering ⁽⁴⁾	\$36,000	\$4,000	\$40,000	90%
	Construction ⁽¹⁾	\$675,000	\$75,000	\$750,000	90%
	CON Subtotal	\$711,000	\$79,000	\$790,000	
Total Cost⁽⁵⁾⁽⁶⁾⁽⁷⁾		\$900,000	\$100,000	\$1,000,000	

(1) The "Total Construction Cost" (including contingencies) must match the detailed Engineer's Estimate (attached to the application).

(2) "Federal Funds" for Preliminary Engineering may not exceed 25% of the Federal Construction Cost.

(3) "Federal Funds" for Right of Way may not exceed 25% of the Federal Construction Cost.

(4) "Federal Funds" for Construction Engineering may not exceed 15% of the Federal Construction Cost.

(5) "Federal Funds" may not exceed 90% of "Total Cost." This applies to each phase.

(6) "Federal Funds" may not exceed \$900,000.

(7) To maintain efficiencies in the overall Program and Project Management, the total "Federal Funds" must be no less than \$100,000 (see Application Form Instructions for exceptions). If needed, agencies should consider extending the project limits and/or adding other safety improvements in order to increase both the Benefits and Costs.

Check Cost Estimate [Per (2) through (7) above]

Congratulations! No errors have been found in the cost estimate.

IV. Implementation Schedule [\(See Instructions\)](#)

The local agency is expected to deliver the project per Caltrans Local Assistance [safety program delivery requirements](#). In order for the milestones to be calculated correctly, all fields needs to be filled in. For steps that are not applicable, enter "0".

Target Date for the Project's Amendment into the FTIP: 01/01/2013

Time for agency to internally staff project and request PE authorization 1 Month(s)

Typical Time for Caltrans and FHWA to process and approve PE authorization 2 Month(s)

Proposed PE Authorization Date: 04/02/2013 **(PE Authorization Delivery Milestone)**

Will external consultants be required to complete the PE phase of this project? Yes

Additional time needed to the Delivery Process for hiring PE consultant(s) 0 Month(s) (0 - 6)

Time to prepare environmental studies request 1 Month(s)

Time to complete CEQA/NEPA studies/approvals 12 Month(s)

See PES Form in the LAPM for Typical studies and permits

Time to complete the Right of Way Acquisition (federal process) 18 Month(s)

Plan on 18 months minimum for federal process including a condemnation

Time to complete final PS&E documentation 1 Month(s)

Other 0 Month(s)

Expected Completion Date for the PE Phase: 12/01/2015

Time for agency to request CON authorization 1 Month(s)

Typical Time for Caltrans and FHWA to process and approve CON Auth 3 Month(s)

Proposed CON Authorization Date: 03/31/2016 **(CON Authorization Delivery Milestone)**

Time included for the agency's workload-leveling or construction-window needs 0 Month(s)

Time to award contract with CON contractor (following the federal process, including Board/Council approval, advertise, award, execute and mobilize) 3 Month(s)

Time to complete construction 2 Month(s)

Time included for closing the CON contract 6 Month(s)

Other 0 Month(s)

Expected Completion Date for the CON Phase: 02/28/2017

Time to complete the project close-out process 1 Month(s)

Typical Time for Caltrans and FHWA to process and approve project close-out 3 Month(s)

Expected Completion Date for the project Close-Out: 06/29/2017 **(Close-Out Delivery Milestone)**

V. Countermeasures, Crash Data and Benefit/Cost Ratio [\(See Instructions\)](#)

In the process of completing this application, the Local Agency is required to utilize the Benefit/Cost Ratio Calculation Tool that is included in the Safe Transportation research and Education Center (SafeTREC) Transportation Injury Mapping System (TIMS) web site. This **web site** can be assessed at <http://tims.berkeley.edu/>

The final output summary page from TIMS must be included as part of the official application (both electronically and hard copy). The hard copy page must be included in the application following this page.

In order to facilitate the electronic collection and tracking of this data, Caltrans is requiring agencies to manually enter some of the key "input data" and "output data" used in their final TIMS B/C Ratio. *NOTE: If any of the values inputted on this sheet do not match the values from the TIMS B/C Ratio Output Summary sheet, THE APPLICATION WILL BE REJECTED. **Be Careful and confirm the numbers!***

TIMS Application ID: (This ID is generated by this form. TIMS Application ID must match this ID.)

Version (from TIMS) :

Total Project Cost: (This must match the total project cost in Section III.)

Countermeasure Information

Number of countermeasures utilized:

	Countermeasure	% of Total Project Cost
#1:	<input type="text" value="R16: Widen shoulder (paved)"/>	<input type="text" value="100"/> (%)
#2:	<input type="text"/>	<input type="text" value="0"/> (%)
#3:	<input type="text"/>	<input type="text" value="0"/> (%)

B/C Ratio Calculation

	Expected Benefit (Life)	Expected Cost	Resulting B/C
Countermeasure #1	<input type="text" value="\$4,267,334"/>	<input type="text" value="\$1,000,000"/>	<input type="text" value="4.27"/>
Countermeasure #2	<input type="text"/>	<input type="text" value="\$0"/>	<input type="text" value="0.00"/>
Countermeasure #3	<input type="text"/>	<input type="text" value="\$0"/>	<input type="text" value="0.00"/>
Project's Total (Overall)	<input type="text" value="\$4,267,334"/>	<input type="text" value="\$1,000,000"/>	<input type="text" value="4.27"/>

VI. Application Data Verification and Signature [\(See Instructions\)](#)

All HSIP/HR3 applications (hard-copies only) must be signed by a registered engineer or the Agency's Transportation Manager in responsible charge of their Traffic Engineering section. By signing and submitting this application, the engineer/manager is attesting to:

1. All data in the application is accurate and represents the total scope of the planned project.
2. All likely project costs are included in the Total Project Cost (additional federal funds for cost increases will not be approved.)
3. Each countermeasure included represents a minimum of 20% of the Total Project Cost.
4. All crash data is: 1) accurately shown in collision diagram(s) attached to this application; and 2) applied to countermeasures using generally accepted traffic engineering principles.
5. The agency understands the Project Delivery Requirements for the HSIP and HR3 programs and is prepared to deliver the project with these requirements;
6. The agency understands if Caltrans staff determine that any of the above requirements are not met, inaccurate, or fail to meet the program guidelines and application instructions, the application will be rejected and will not be eligible to receive federal safety funding. Due to time constraints in the evaluation process, applicants will not be notified until after the selection process is complete. Refer to Application Form Instructions for more information on "fatal flaws."

Name (Last, First): Title: Engineer License Number

Signature*:

Date:

* Note: This signature is only expected on the two hard copies of the application. The electronic copy of this PDF form must be saved in the original format (NOT a scanned copy) so the application data can be extracted.

Application Attachments [\(See Instructions\)](#)

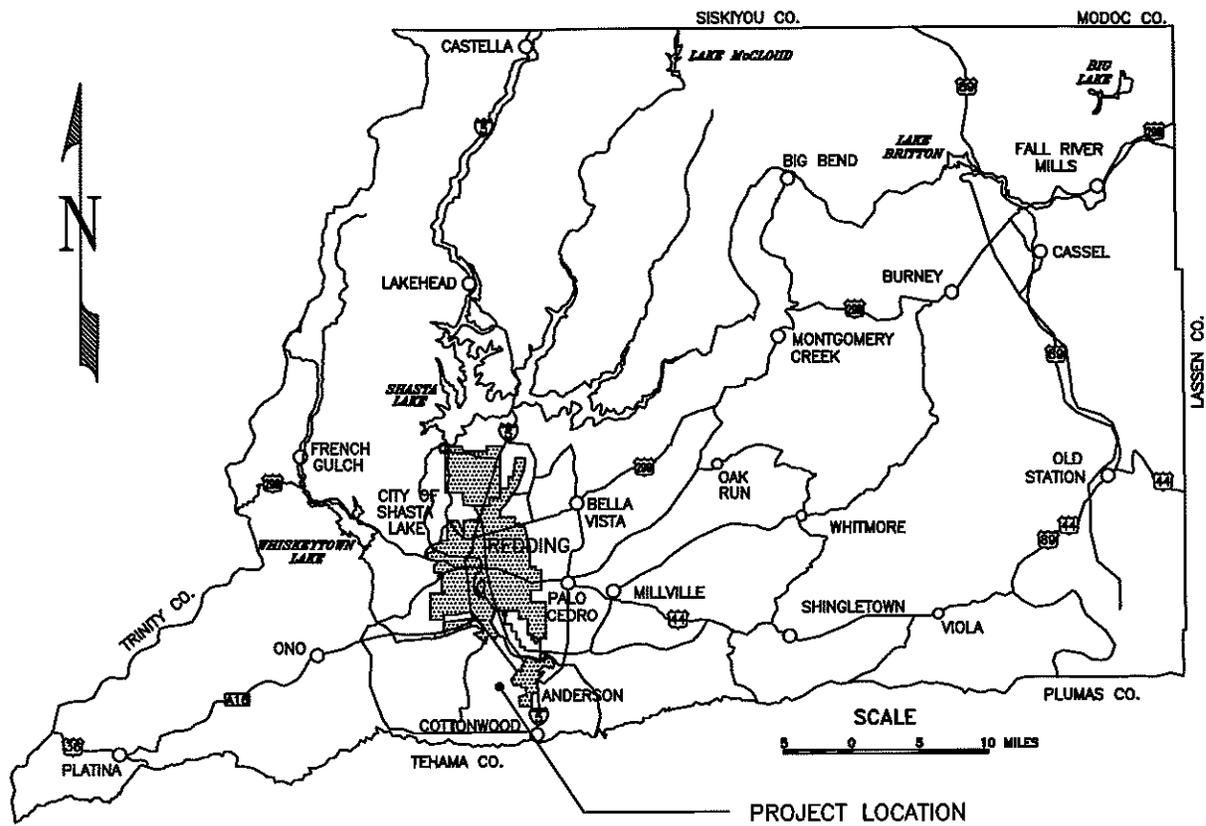
Check all attachments included in this application.

- Vicinity map /Location map (Required)
- Project map showing existing and proposed conditions (Required)
- Collision diagram(s) (Required)
- Collision summary report / list (Required)
- TIMS output summary sheet (Required)
- Detailed Engineer's Estimate (Required)
- Warrant studies (Required when applicable to proposed improvements)
- Letter of Support from Caltrans (Required when applicable)
- Additional narration, documentation, photographs, letters of support, etc.

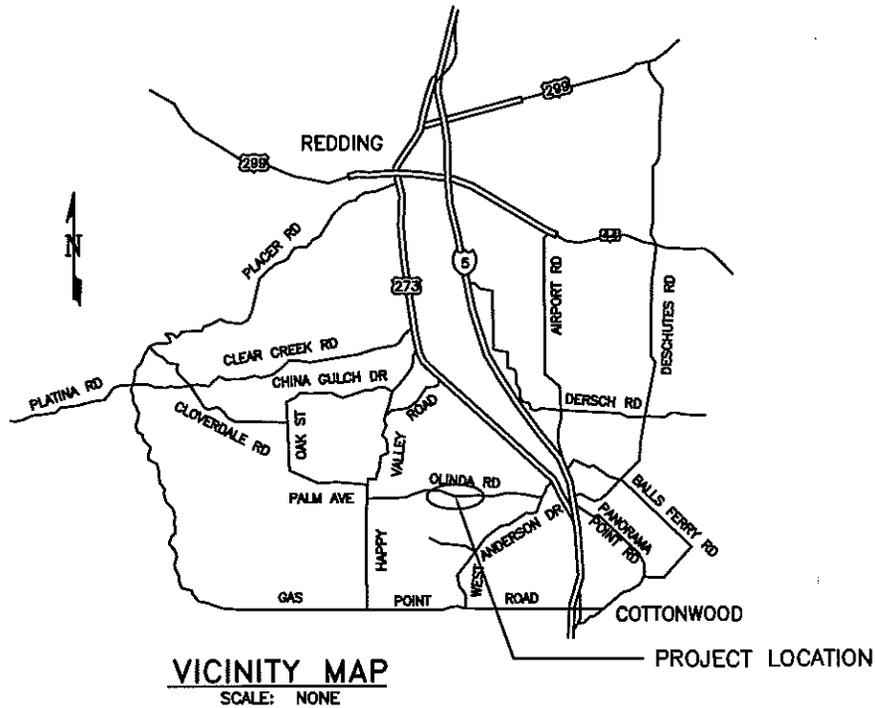
Application Submittal Process

For applications to be included in the final Caltrans review, ranking and selection process, they must follow the exact submittal process identified in the application instructions. Some of the key requirements are as follows:

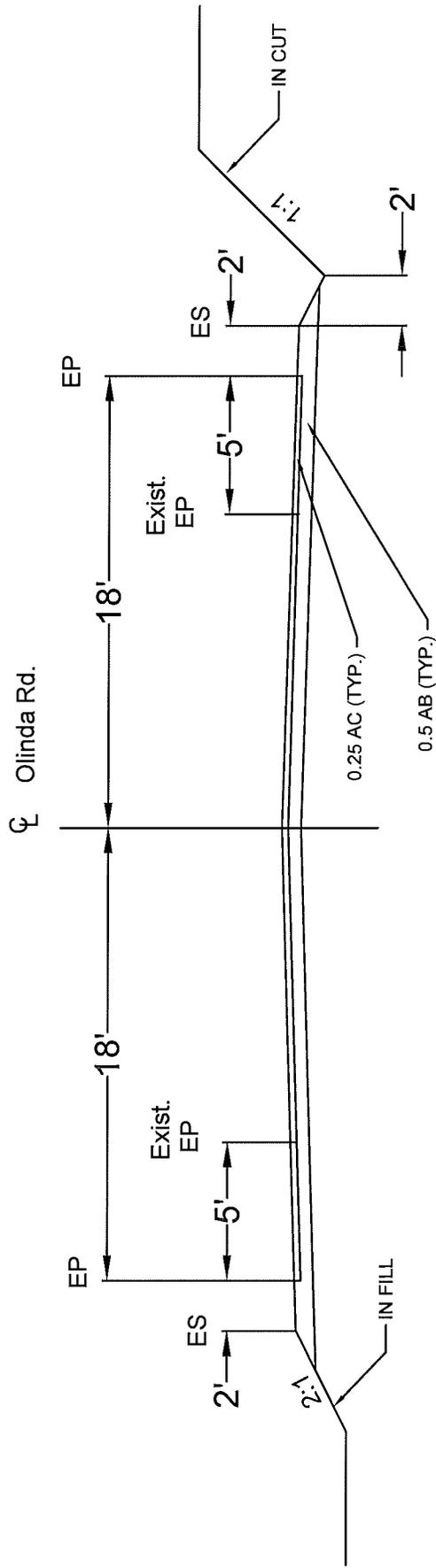
- 1). Submit two (2) original copies of the SIGNED application form and attachments;
- 2). On a CD or flash drive, submit electronic copies of
 - The original PDF form with application data. The file name must match the "Application ID" shown on the cover page. This file will be used to extract the application data. It can not be a scanned or printed copy.
 - Separate electronic PDF files for a scanned copy of signed application form and application attachments.
- 3) The above must be submitted to Caltrans Local Assistance [District Local Assistance Engineer \(DLAE\)](#), by Friday, July 20, 2012.



**LOCATION OF PROJECT
SHASTA COUNTY, CALIFORNIA**



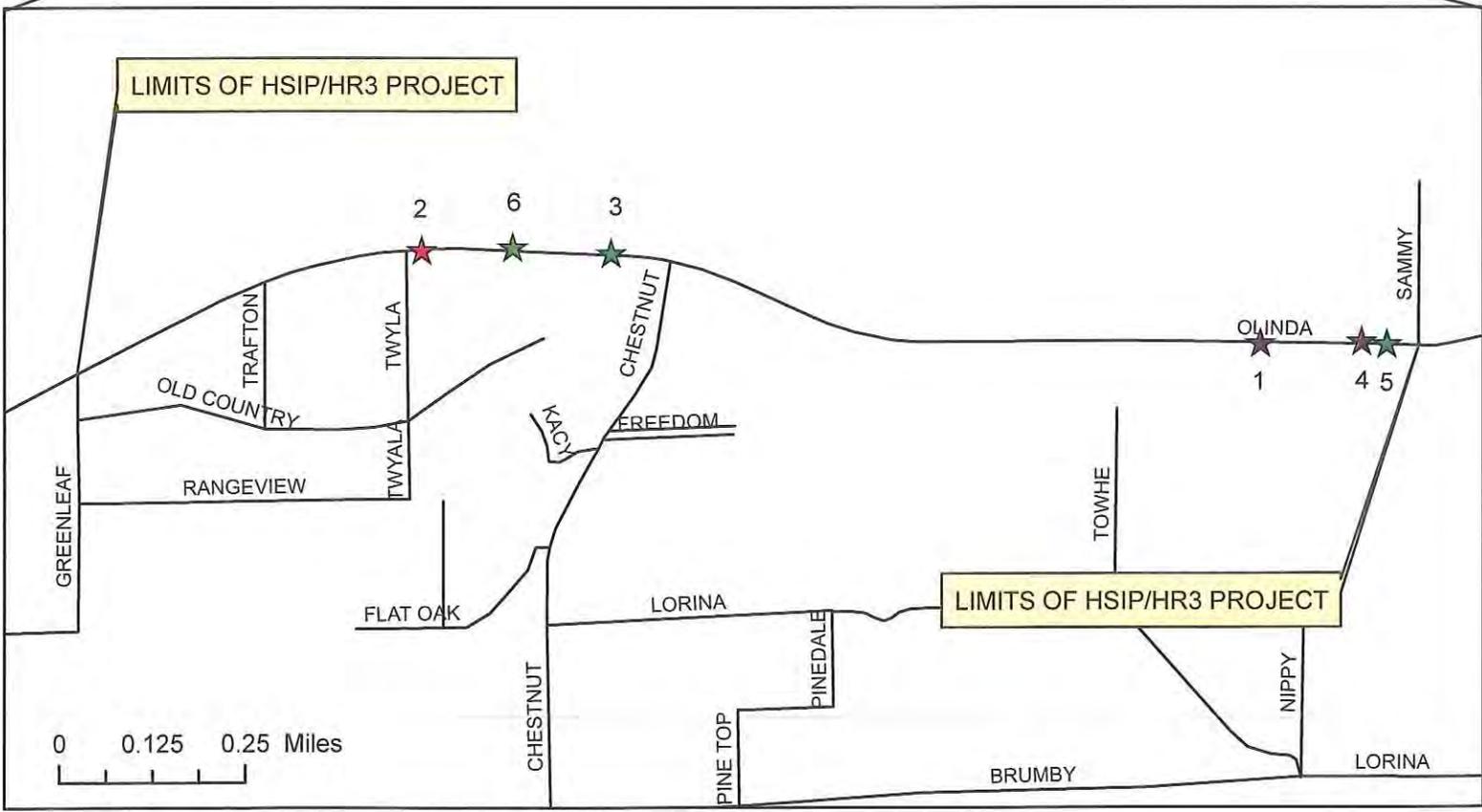
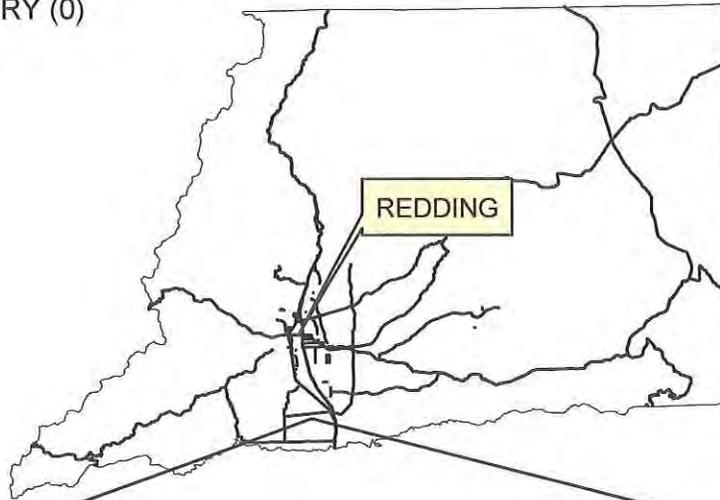
Olinda Road Widening Vicinity Map



TYPICAL SECTION
 SCALE: 1/8"=1'

COLLISION HISTORY

- ★ PROPERTY DAMAGE ONLY (3)
- ★ COMPLAINT OF PAIN (0)
- ★ OTHER VISIBLE INJURY (2)
- ★ SEVERE INJURY (0)
- ★ FATAL (1)



SHASTA COUNTY DEPARTMENT OF PUBLIC WORKS
 OLINDA ROAD COLLISION DIAGRAM, AUGUST 12, 2006-JUNE 30 2012

Shasta County: Olinda Road Collision Summary

Map No.	Date	Case ID No.	Time	Severity	No. Injured	No. Killed	Secondary Road	Distance	Direction	Type	Primary Collision Factor
1	08/12/2006	2780251	2333	3	3	0	Sammy Ln	1116	W	Ran Off Road-Hit Object	Improper Turning Movement
2	12/15/2006	2964812	0935	1	0	1	Twyla Ln	107	E	Ran Off Road-Overturned	Improper Turning Movement
3	04/11/2007	3130217	2305	0	0	0	Chestnut St	411	W	Ran Off Road-Overturned	Improper Turning Movement
4	12/01/2009	4520375	1345	3	1	0	Sammy Ln	378	W	Ran Off Road-Hit Object	Improper Turning Movement
5	09/30/2011	2011090094 *	2025	0	0	0	Chestnut St	5280	E	Ran Off Road-Hit Object	Improper Turning Movement
6	06/05/2012	1206020 *	1436	0	0	0	Chestnut St	1160	W	Ran Off Road-Hit Object	Improper Turning Movement

Totals: Property Damage Only = 3 Fatality = 1 Injury (Severe) = 0 Injury (Other Visible) = 2 Injury (Complaint of Pain) = 0

* No Case ID No, CHP Local Report No. shown

Severity Key

- 0 = Property Damage Only
- 1 = Fatality
- 2 = Injury (Severe)
- 3 = Injury (Other Visible)
- 4 = Injury (Complaint of Pain)

Benefit / Cost Calculation Result

1. Project Information

Application ID: 02-Shasta County-2 Version: 2

2. Countermeasures and Crash Data

• Widen shoulder (paved)

CM Number	Project Type	Crash Type	CRF	Life
R16	Geometric Mod.	All	30	20

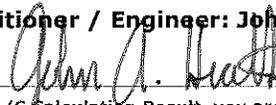
Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
All	1	0	2	0	3	6

Annual Benefit	\$213,367
Life Benefit	\$4,267,334
Cost	\$1,000,000
B/C Ratio	4.27

3. Benefit Cost Result

Total Benefit	\$4,267,334
Total Cost	\$1,000,000
B/C Ratio	4.27

Safety Practitioner / Engineer: John Heath

Signature: 

By signing this B/C Calculation Result, you are attesting to your authority / responsibility at your local agency for this work and you are attesting to the accuracy of the values on this page and that they have been entered into the HSIP Application Form correctly, DO NOT SIGN if any of this is not the case.

Detailed Engineer's Estimate**For Construction Items Only**

Agency	County of Shasta	Date:	06/29/2012		
Project Description	Widen road to add paved shoulders				
Project Location	Olinda Road from Greenleaf Lane to Sammy Lane (HSIP 02-Shasta County-2)				
Prepared by	John Heath				
Item No.	Item Description	Quantity	Units	Unit Cost	Total
1	Clearing and Grubbing	1	LS	\$20,000.00	\$20,000
2	Roadway Excavation	6500	CY	\$20.00	\$130,000
3	Aggregate Base	5410	CY	\$50.00	\$270,500
4	Asphalt Concrete	1800	TON	\$100.00	\$180,000
5	Various Water Pollution Control Items	1	LS	\$10,000.00	\$10,000
6	Various Erosion Control Items	1	LS	\$10,000.00	\$10,000
7	Traffic Control	1	LS	\$60,000.00	\$60,000
8	Construction Area Signs	1	LS	\$2,000.00	\$2,000
11	18" Corrugated Steel Pipe	120	LF	\$50.00	\$6,000
12	12" Corrugated Steel Pipe	600	LF	\$40.00	\$24,000
13	Contingency	1	LS	\$37,500.00	\$37,500
				TOTAL:	\$750,000