

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

06-Tulare County-2

Countermeasures Used:

NS5: Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs

NS6: Upgrade intersection pavement markings (NS.I.)

NS8: Install flashing beacons as advance warning (NS.I.)

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

- Proposed project identified through traffic safety analysis of intersections throughout unincorporated portions of the agency
- Application shows how improvements can be made at locations that don't have any crash history by grouping them with other similar locations but with high crashes
 - Application addresses safety concerns at fifty-two (52) two-way and four-way stop controlled intersections using a combination of three (3) countermeasures
 - It resulted in an overall B/C of over 200
- Simple application with clear scope and crash data that is easy to review and assess
- Applicant only documented fatality and severe injury crashes, which significantly reduced the effort to document and track crashes
- Great example of a project that can be done on a low volume rural roadway and still have a high B/C ratio

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

- The agency could have put more emphasis on the systemic approach. Given the relatively random nature of fatalities and serious injuries, the safety of the overall roadway network can be improved by breaking this project into two, three or more projects and letting the high crash locations help justify similar improvements at locations with similar geometries, traffic volumes, and deficiencies that have not yet experienced severe collisions. For systemic projects, agencies have to balance how many low-crash locations they include in an application between: 1) having a high B/C ratio to ensure they get funded and 2) maximizing the number of locations receiving the improvements.

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: 06-Tulare County-2

Submitted By (Agency):
Tulare County

Caltrans District

06

Application Number

2

Out of

2

Project Location

Various stop controlled intersections throughout unincorporated Tulare County

Project Description

Upgrade intersection signage, traffic markings and install advanced warning flashing beacons at various intersections.

Countermeasure 1: NS5: Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs

Countermeasure 2: NS6: Upgrade intersection pavement markings (NS.I.)

Countermeasure 3: NS8: Install flashing beacons as advance warning (NS.I.)

Total Expected Benefit

201884460

Total Project Cost

\$992,000.00

B/C Ratio:

203.51

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) Yes

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?

The primary type of the "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?

Number of Intersections

8. Posted Speed Limit (mph)

9. Average Daily Traffic (See Instructions)	ADT (Major Road)	ADT (Minor Road)	Year Collected
	<input type="text" value="11,000"/>	<input type="text" value="750"/>	<input type="text" value="2012"/>

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)

Tulare County Resource Management Agency (RMA) conducts ongoing traffic safety analysis of intersections throughout unincorporated portions of Tulare County. Through the use of traffic accident reports from the Statewide Integrated Traffic Records System (SWITRS) and communication with the California Highway Patrol (CHP), RMA staff compiles a database of accident histories sorted by location and accident description. Using this database, areas of high collision concentrations are identified and further reviewed for causes and possible countermeasures to reduce the potential for accidents. The RMA strives to update this compilation of traffic accident history on a continuous basis. Past traffic history is reviewed on a 1 year, 3 year, and long term basis. This allows staff to identify short term and long term patterns of accident history. The data is updated when changes, such as the installation of a new traffic signal or roadway widening, are made to the current roadway conditions.

To identify intersections in need of safety improvements, RMA staff sorted the collision history database and selected stop controlled intersections with a history of fatalities, two or more severe injuries or multiple accidents with one or more severe injuries. This selection process resulted in the identification of 52 intersections located throughout unincorporated Tulare County. These intersections and their associated accident reports were then analyzed for common causes for accidents. Staff visited many of the intersections and reviewed photographs and reports to determine potential causes and countermeasures for the higher than average crash histories. After reviewing the identified intersections, it was concluded that all of the intersections would benefit from a systemic approach to improving the signage and striping at these intersections.

Accident history for the intersections generally identifies causes such as right of way conflicts, failures to stop, erratic maneuvers, and inattention to roadway conditions as the reasons for the majority of the accidents. All of the intersections are located on the flat valley floor where roads are generally two lane and straight. Lengths of roadway between stop controlled intersections and cross traffic are generally long (often more than two miles), and speeds are high. Because of this, vehicle operators often do not expect stop controlled intersections or cross traffic. Additionally, weather conditions such as fog often obscure the placement of stop signs. Much of the County maintained lower volume intersections do not have adequate striping such as stop stencils and stop bars. Deteriorating road surface conditions at intersections often prevents traffic markings from adequately adhering to the road. Additionally, due to budgetary reasons, staff tasked with maintaining traffic markings and signs throughout the County are not able to revisit all intersections and roadways on an annual basis. While the basic requirements of the CAMUTCD are maintained there is very little additional time and resources available to upgrade the traffic signage and markings at these intersections.

In addition to applying the selected countermeasures at intersections with a collision history, the County proposes to construct the safety improvements at various intersections that do not meet the selection criteria, but have similar traffic conditions, similar

existing markings and controls, and similar geometries to the intersections that have shown a history of collisions. The intent of this process is to include in the program intersections that may be just as likely to experience traffic collisions, but for reasons of statistical deviation, may not have experienced actual collisions during the five year period when collision data was reviewed.

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 limits of the proposed project includes 52 intersections in unincorporated Tulare County. The scope of this project includes improvements to the traffic striping and traffic marking at these intersections. For the sake of this project, the intersection is considered the crossing of the two centerlines of the roadway and 550 feet back from the centerline in each direction. Only accidents described as occurring at the intersections are included in the crash history analysis. The causes for these accidents can be generally categorized as right of way conflicts, failures to stop, erratic maneuvers, and inattention to roadway conditions as the reasons for the majority of the accidents. Upon simplification, these causes of accidents can all be described as a lack of awareness to the intersection conditions.

It is the intent of the proposed countermeasures to increase the awareness of the intersection conditions to all drivers. This will be done by improving the intersection traffic markings and the intersection traffic signage. Additionally, in locations where basic signs and striping are deemed inadequate by designers, solar powered flashing warning beacons will be installed to provide increased levels of advanced warning. Improvements to signage will include oversized stop signs, stop ahead warning signs, cross traffic does not stop signs (where applicable) and improved street name signs. These signs will all meet current retroreflectivity standards and will be posted per CAMUTCD requirements. Improvements to traffic striping and markings will include new edgeline and centerline striping, stop bar striping, STOP marking, and STOP AHEAD markings. Where required, minor road surface improvements such as grinding and overlays will be constructed so that traffic markings will adequately adhere to the road surface.

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)

Only crashes listed as occurring at the selected intersections were utilized for the collision summary reports and B/C calculations. Accident history was compared for the previous 5 years of available history. Each crash reviewed is directly related to the intersection, and each of the three countermeasures proposed (improved signage, improved striping and markings, and installation of flashing beacons) are applicable to all types of crashes occurring at an intersection in which they are deployed. Each of these three countermeasure types act to increase the awareness of the vehicle operator to the fact that they are approaching or at an intersection. Thus, with increased awareness of the intersection, drivers should be able to act more predictably, respond quicker, be prepared for cross traffic, and increase levels of attention to the roadway. When an intersection is proposed to be improved as part of this project, all legs of the intersection will receive the appropriate improvements. This will eliminate the problem associated with the unpredictable nature of vehicle accidents.

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)

Basic levels of traffic signage and striping/markings (per CAMUTCD requirements) are provided at all of the intersections proposed. However, the County has not deployed countermeasures beyond this basic requirement. Some of these intersections have received chip seals or other road surface maintenance in the past, but none of these improvements have been as part of any prior federal safety project funding.

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 total project cost for the proposed improvements, as well as any related project costs not associated with the actual safety countermeasures, but required for adequate completion of the project have been included in an engineers preliminary estimate for the project. A 20% contingency was included in the cost estimate to account for unforeseen issues that may arise during the implementation of the project.

The estimate of the project cost has been prepared in adequate detail to establish separate costs for each of the proposed countermeasures. A percentage of the total countermeasure cost (sum of countermeasure only costs) was calculated for each individual countermeasure. This ratio was then used to distribute the remaining (non-countermeasure and contingency) costs from the project into the total project cost for each countermeasure. This was the cost number that was used in the B/C ratio calculation for each countermeasure.

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	\$9,000	\$1,000	\$10,000	
	PS&E	\$20,000	\$3,000	\$23,000	
	PE Subtotal⁽²⁾	\$29,000	\$4,000	\$33,000	88%
<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	\$0	\$0	\$0	
	Appraisals, Acquisitions & Utilities	\$0	\$0	\$0	
	ROW Subtotal⁽³⁾	\$0	\$0	\$0	0%
Construction Engineering & Construction	Construction Engineering ⁽⁴⁾	\$30,000	\$4,000	\$34,000	88%
	Construction ⁽¹⁾	\$832,500	\$92,500	\$925,000	90%
	CON Subtotal	\$862,500	\$96,500	\$959,000	
Total Cost⁽⁵⁾⁽⁶⁾⁽⁷⁾		\$891,500	\$100,500	\$992,000	

(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

2

Month(s)

Typical Time for Caltrans and FHWA to process and approve PE authorization

2

Month(s)

Proposed PE Authorization Date:

05/02/2013

(PE Authorization Delivery Milestone)

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

No

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

4

Month(s)

See PES Form in the LAPM for Typical studies and permits

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

0

Month(s)

Plan on 18 months minimum for federal process including a condemnation

Time to complete final PS&E documentation

6

Month(s)

Other

1

Month(s)

Expected Completion Date for the PE Phase:

05/02/2014

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:

08/31/2014

(CON Authorization Delivery Milestone)

Time included for the agency's workload-leveling or construction-window needs

3

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

4

Month(s)

Time included for closing the CON contract

2

Month(s)

Other

0

Month(s)

Expected Completion Date for the CON Phase:

08/31/2015

Time to complete the project close-out process

3

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:

02/29/2016

(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:	NS5: Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	<input type="text" value="20"/> (%)
#2:	NS6: Upgrade intersection pavement markings (NS.I.)	<input type="text" value="60"/> (%)
#3:	NS8: Install flashing beacons as advance warning (NS.I.)	<input type="text" value="20"/> (%)

B/C Ratio Calculation

	Expected Benefit (Life)	Expected Cost	Resulting B/C
Countermeasure #1	<input type="text" value="\$56,618,820"/>	<input type="text" value="\$198,400"/>	<input type="text" value="285.38"/>
Countermeasure #2	<input type="text" value="\$94,364,700"/>	<input type="text" value="\$595,200"/>	<input type="text" value="158.54"/>
Countermeasure #3	<input type="text" value="\$50,900,940"/>	<input type="text" value="\$198,400"/>	<input type="text" value="256.56"/>
Project's Total (Overall)	<input type="text" value="\$201,884,460"/>	<input type="text" value="\$992,000"/>	<input type="text" value="203.51"/>

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:

Signature*:


Engineer License Number 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.

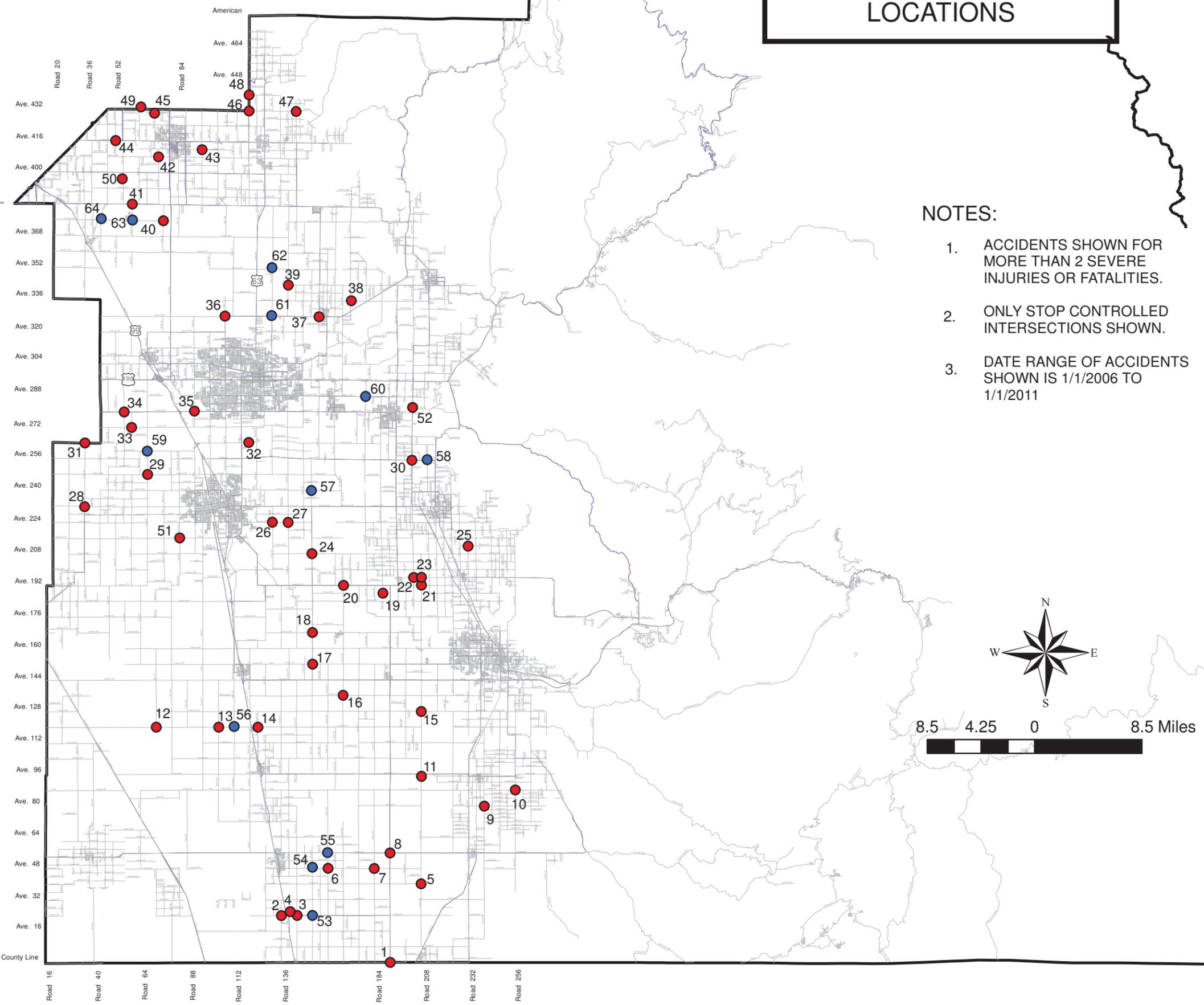
- Vicinity map /Location map (Required)
- Project map showing existing and proposed conditions (Required)
- Collision diagram(s) (Required)
- Collision summary report / list (Required)
- TIMS output summary sheet (Required)
- Detailed Engineer's Estimate (Required)
- Warrant studies (Required when applicable 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.

TULARE COUNTY FATALITY AND SEVERE ACCIDENT INTERSECTION LOCATIONS



- NOTES:**
1. ACCIDENTS SHOWN FOR MORE THAN 2 SEVERE INJURIES OR FATALITIES.
 2. ONLY STOP CONTROLLED INTERSECTIONS SHOWN.
 3. DATE RANGE OF ACCIDENTS SHOWN IS 1/1/2006 TO 1/1/2011

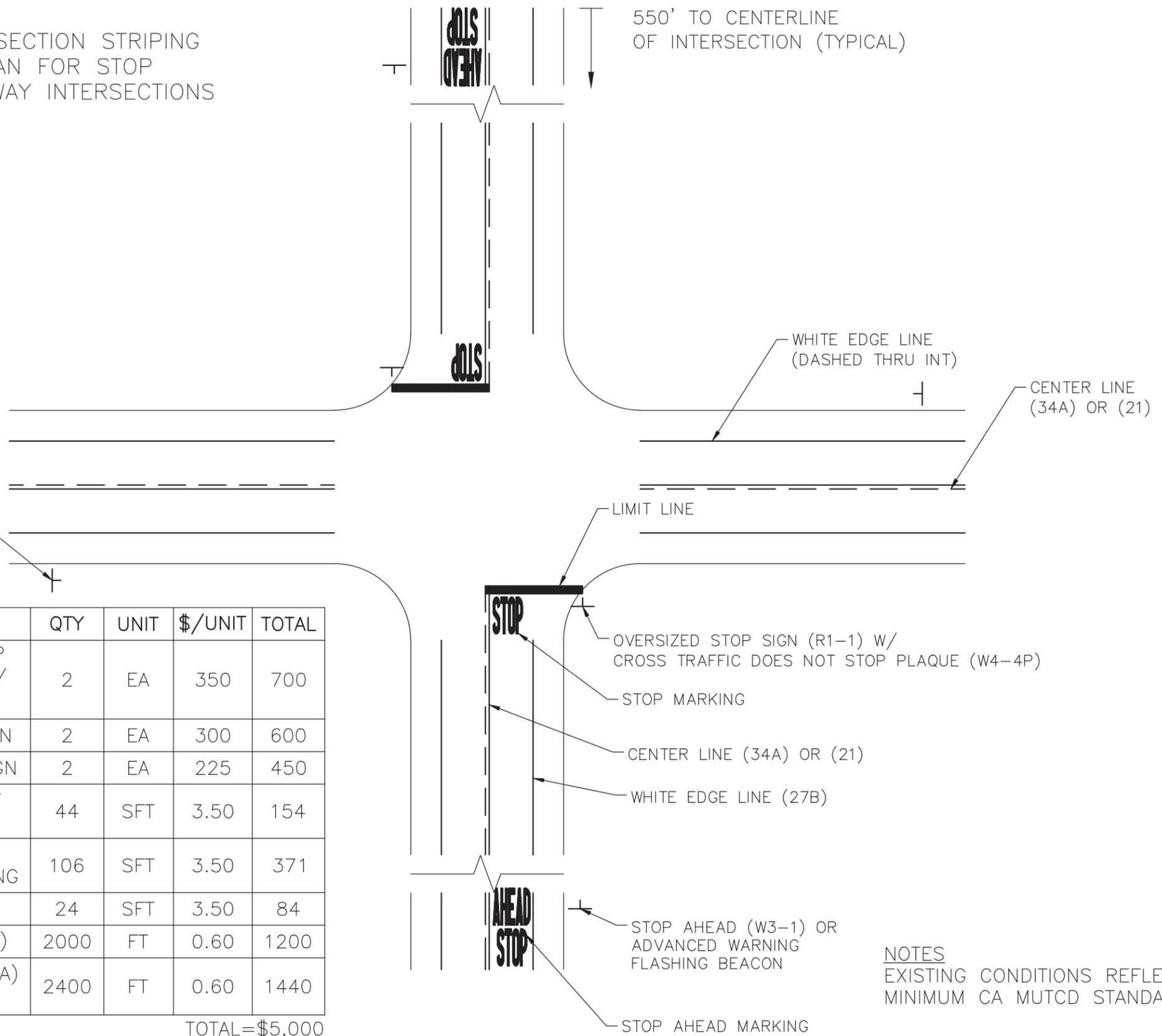
ID#	AVENUE	CROSS ROAD
1	AVENUE 0 (COUNTY LINE RD)	ROAD 192
2	AVENUE 24	ROAD 136
3	AVENUE 24	ROAD 144
4	AVENUE 26	ROAD 140
5	AVENUE 40	ROAD 208
6	AVENUE 48	ROAD 160
7	AVENUE 48	ROAD 184
8	AVENUE 56	ROAD 192
9	AVENUE 80	ROAD 240
10	AVENUE 88	ROAD 256
11	AVENUE 96	ROAD 208
12	AVENUE 120	ROAD 72
13	AVENUE 120	ROAD 104
14	AVENUE 120	ROAD 124
15	AVENUE 128	ROAD 208
16	AVENUE 136	ROAD 168
17	AVENUE 152	ROAD 152
18	AVENUE 168	ROAD 152
19	AVENUE 188	ROAD 188
20	AVENUE 192	ROAD 168
21	AVENUE 192	ROAD 208
22	AVENUE 196	ROAD 204
23	AVENUE 196	ROAD 208
24	AVENUE 208	ROAD 152
25	AVENUE 212	ROAD 232
26	AVENUE 224	ROAD 132
27	AVENUE 224	ROAD 140
28	AVENUE 232	ROAD 36
29	AVENUE 248	ROAD 68
30	AVENUE 256	ROAD 204
31	AVENUE 264	ROAD 36
32	AVENUE 264	ROAD 120
33	AVENUE 272	ROAD 60
34	AVENUE 280	ROAD 56
35	AVENUE 280	ROAD 92 (SHIRK)
36	AVENUE 328	ROAD 108
37	AVENUE 328	ROAD 156
38	AVENUE 336	ROAD 172
39	AVENUE 344	ROAD 140
40	AVENUE 376	ROAD 76
41	AVENUE 384	ROAD 60
42	AVENUE 408	ROAD 74
43	AVENUE 412	ROAD 96
44	AVENUE 416	ROAD 52
45	AVENUE 430	ROAD 72
46	AVENUE 432	ROAD 120
47	AVENUE 432	ROAD 144
48	AVENUE 440	ROAD 120
49	FLORAL AVE	BUTTONWOOD ROAD
50	LAWRENCE AVE	ROAD 56
51	PAIGE AVE	ENTERPRISE ST
52	PALM AVE	SPRUCE ROAD
53	AVENUE 24	ROAD 152
54	AVENUE 48	ROAD 152
55	AVENUE 56	ROAD 160
56	AVENUE 120	ROAD 112
57	AVENUE 240	ROAD 152
58	AVENUE 256	ROAD 212
59	AVENUE 260	ROAD 68
60	AVENUE 288	ROAD 180
61	AVENUE 328	ROAD 132
62	AVENUE 352	ROAD 132
63	AVENUE 376	ROAD 60
64	AVENUE 376	ROAD 44

PROPOSED INTERSECTION STRIPING
AND SIGNAGE PLAN FOR STOP
CONTROLLED 2-WAY INTERSECTIONS

ITEM	QTY	UNIT	\$/UNIT	TOTAL
OVERSIZED STOP SIGN (R1-1) W/ (W4-4P)	2	EA	350	700
STOP AHEAD SIGN	2	EA	300	600
STREET NAME SIGN	2	EA	225	450
STOP PAVEMENT MARKING	44	SFT	3.50	154
STOP AHEAD PAVEMENT MARKING	106	SFT	3.50	371
LIMIT LINE	24	SFT	3.50	84
EDGE LINE (27B)	2000	FT	0.60	1200
CENTER LINE (34A) OR (21)	2400	FT	0.60	1440

TOTAL=\$5,000

CROSS STREET NAME SIGN (ADVANCED)



NOTES
EXISTING CONDITIONS REFLECT
MINIMUM CA MUTCD STANDARDS

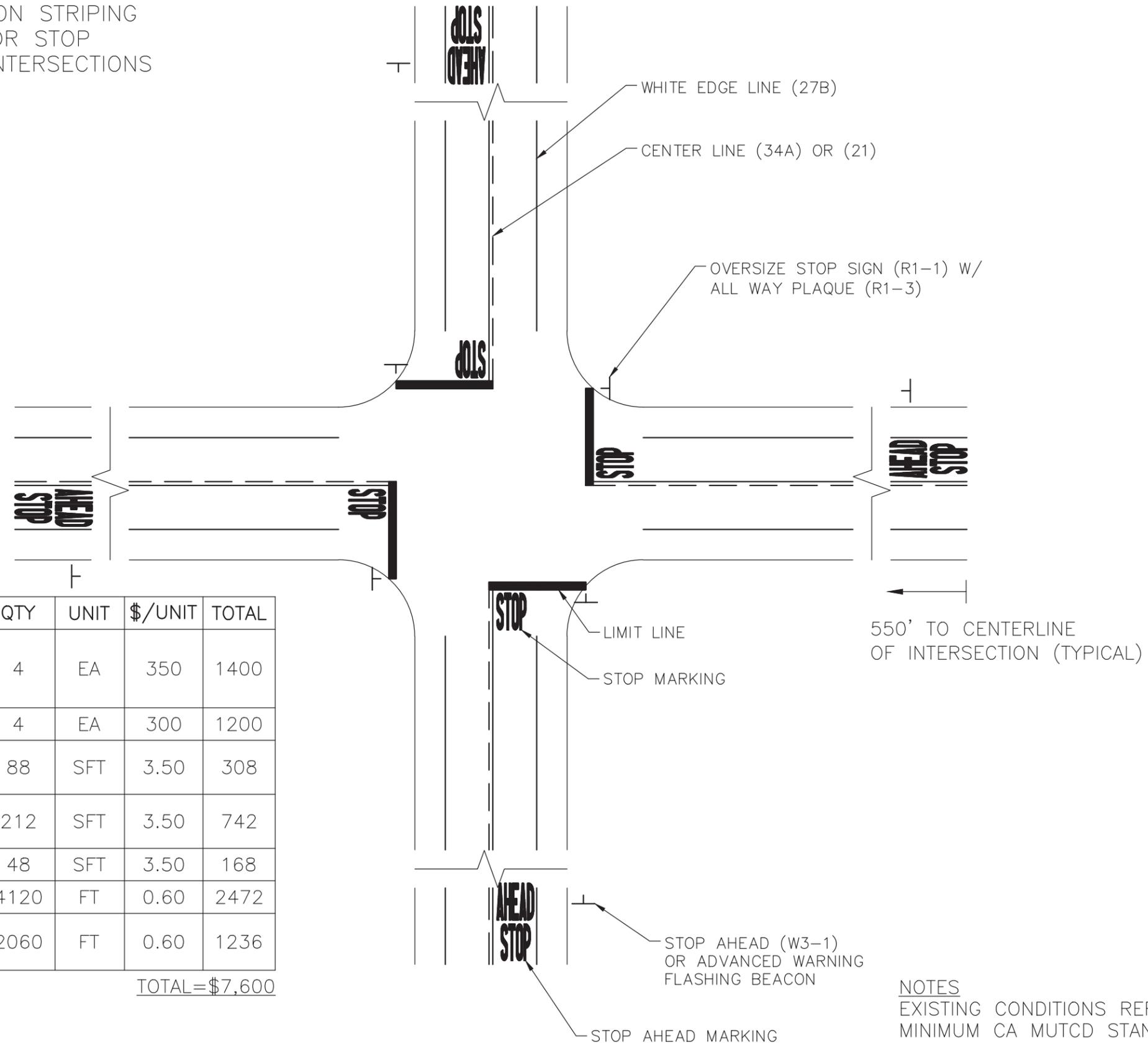
NO.	DESCRIPTION	DATE	BY

TULARE COUNTY
RESOURCE MANAGEMENT AGENCY
5961 SOUTH MOONEY BLVD.
VISALIA, CA 93277

TWO WAY STOP
INTERSECTION EXHIBIT
TULARE COUNTY

SCALE	N.T.S.
DIVISION	DESIGN
JOB NO.	-
DESIGNED	RS
DRAWN	PAO
CHECKED	LY
FILE	INTERSECTIONS.DWG
DATE	06-18-12
SHEET No.	EX1

PROPOSED INTERSECTION STRIPING
AND SIGNAGE PLAN FOR STOP
CONTROLLED 4-WAY INTERSECTIONS



ITEM	QTY	UNIT	\$/UNIT	TOTAL
OVERSIZED STOP SIGN (R1-1) W/ (W4-4P)	4	EA	350	1400
STOP AHEAD SIGN	4	EA	300	1200
STOP PAVEMENT MARKING	88	SFT	3.50	308
STOP AHEAD PAVEMENT MARKING	212	SFT	3.50	742
LIMIT LINE	48	SFT	3.50	168
EDGE LINE (27B)	4120	FT	0.60	2472
CENTER LINE (34A) OR (21)	2060	FT	0.60	1236

TOTAL=\$7,600

NOTES
EXISTING CONDITIONS REFLECT
MINIMUM CA MUTCD STANDARDS

NO.	DESCRIPTION	DATE	BY

TULARE COUNTY
RESOURCE MANAGEMENT AGENCY
5961 SOUTH MOONEY BLVD.
VISALIA, CA 93277

FOUR WAY STOP
INTERSECTION EXHIBIT
TULARE COUNTY

SCALE	N.T.S.
DIVISION	DESIGN
JOB NO.	-
DESIGNED	RS
DRAWN	PAO
CHECKED	LY
FILE	INTERSECTIONS.DWG
DATE	06-18-12
SHEET No.	EX2

2 OF 2

G:\STATRYAN\INTERSECTIONS.DWG 7/11/2012 3:03 PM

Location ID #	Case ID	DATE	TIME	AVENUE	CROSS ROAD	Type of Collision	KILLED	SEVERELY INJURED	OTHERS INJURED	COMPLAINT OF PAIN	PARTIES	INTERSECTION TYPE
1	2524950	2/11/2006	1440	AVENUE 0 (COUNTY LINE RD)	ROAD 192	broadside	1	0	1	0	2	3
2	3271345	7/12/2007	530	AVENUE 24	ROAD 136	broadside	0	2	0	1	2	3
3	3412749	10/25/2007	700	AVENUE 24	ROAD 144	broadside	2	0	0	0	2	2
4	2545933	3/4/2006	1640	AVENUE 26	ROAD 140	broadside	1	2	0	0	2	3
5	3460875	10/20/2007	2500	AVENUE 40	ROAD 208	hit object	1	0	2	0	1	3
6	2839749	9/11/2006	1502	AVENUE 48	ROAD 160	broadside	1	0	0	1	2	3
7	4660693	2/26/2010	720	AVENUE 48	ROAD 184	broadside	2	1	0	1	2	3
8	2890035	10/8/2006	2125	AVENUE 56	ROAD 192	broadside	1	0	0	0	2	2
9	3244333	6/4/2007	1310	AVENUE 80	ROAD 240	broadside	1	3	0	1	2	3
10	4759239	6/22/2010	1135	AVENUE 88	ROAD 256	rear end	0	2	2	0	2	3
11	4898054	9/24/2010	2233	AVENUE 95	ROAD 208	broadside	2	2	2	0	2	3
12	3480340	12/6/2007	1815	AVENUE 120	ROAD 72	broadside	1	0	0	1	2	3
13	3435582	10/20/2007	240	AVENUE 120	ROAD 104	broadside	1	0	0	0	2	3
14	2607180	4/18/2006	630	AVENUE 120	ROAD 124	broadside	0	2	2	0	2	3
15	3138993	3/11/2007	1730	AVENUE 128	ROAD 208	broadside	1	1	0	0	2	3
16	9002903	7/17/2006	600	AVENUE 136	ROAD 168	broadside	1	1	2	0	2	3
17	4251838	5/9/2009	645	AVENUE 152	ROAD 152	broadside	0	1	0	4	2	3
18	4821514	7/18/2010	1915	AVENUE 152	ROAD 152	broadside	0	1	1	0	2	3
18	4392066	1/12/2010	1925	AVENUE 168	ROAD 152	broadside	3	1	0	1	2	3
19	2478104	2/9/2006	25	AVENUE 188	ROAD 188	broadside	1	0	2	3	2	3
20	4297368	6/21/2009	1240	AVENUE 192	ROAD 168	broadside	0	3	0	1	2	3
21	4660502	3/18/2010	1330	AVENUE 192	ROAD 208	broadside	1	0	1	0	2	3
21	4516551	11/13/2009	2240	AVENUE 192	ROAD 208	hit object	1	4	0	0	1	3
22	3361423	8/11/2007	1440	AVENUE 196	ROAD 204	broadside	3	1	0	0	2	3
23	2628404	4/29/2006	1951	AVENUE 196	ROAD 208	broadside	1	0	0	3	2	3
24	3636120	2/7/2008	1420	AVENUE 208	ROAD 152	broadside	0	1	1	0	2	3
24	3792336	6/1/2008	1025	AVENUE 208	ROAD 152	broadside	0	1	0	2	2	3
25	2617943	4/20/2006	620	AVENUE 212	ROAD 232	broadside	1	0	1	0	2	3
26	2701477	6/19/2006	1025	AVENUE 224	ROAD 132	broadside	1	1	0	4	2	3
27	3206853	5/20/2007	1235	AVENUE 224	ROAD 140	broadside	1	3	1	1	2	2
28	3659744	3/24/2008	834	AVENUE 232	ROAD 36	broadside	0	1	3	0	2	3
28	3837658	9/7/2008	2124	AVENUE 232	ROAD 36	broadside	2	0	0	0	2	3
28	4660687	5/26/2010	1754	AVENUE 232	ROAD 36	broadside	2	1	1	0	2	3
29	3557861	2/14/2008	1307	AVENUE 248	ROAD 68	broadside	1	0	1	1	2	3
30	2958958	12/14/2006	1624	AVENUE 256	ROAD 204	head on	1	0	0	0	3	2
31	2756004	7/25/2006	1714	AVENUE 264	ROAD 36	broadside	1	0	0	1	2	3
32	4381348	8/8/2009	1354	AVENUE 264	ROAD 120	broadside	8	0	2	0	2	3
33	2919472	11/5/2006	1335	AVENUE 272	ROAD 60	broadside	3	3	1	0	2	3
34	4726265	6/10/2010	1539	AVENUE 280	ROAD 56	overturned	0	2	0	0	3	3
35	3150636	4/27/2007	1335	AVENUE 280	ROAD 92 (SHIRK)	broadside	0	1	0	1	3	3
35	3945804	10/17/2008	1610	AVENUE 280	ROAD 92 (SHIRK)	broadside	0	1	0	0	2	3
35	4316715	7/15/2009	907	AVENUE 280	ROAD 92 (SHIRK)	broadside	0	1	1	0	2	3
36	3665679	3/20/2008	810	AVENUE 328	ROAD 108	broadside	0	2	3	0	2	2
37	4926302	12/11/2010	1520	AVENUE 328	ROAD 156	broadside	1	0	2	1	2	3
37	3399014	9/22/2007	1610	AVENUE 328	ROAD 156	broadside	3	2	1	0	2	3
38	3063814	2/13/2007	802	AVENUE 336	ROAD 172	broadside	4	0	0	1	2	2
39	3946654	9/25/2008	1505	AVENUE 344	ROAD 140	head on	0	1	0	0	2	3
39	4684570	4/14/2010	617	AVENUE 344	ROAD 140	rear end	0	2	2	1	2	3
40	4415740	9/29/2009	710	AVENUE 376	ROAD 76	sideswipe	0	1	0	1	2	3
40	2710965	6/21/2006	1150	AVENUE 376	ROAD 76	broadside	1	0	0	1	2	3
41	4464163	11/2/2009	920	AVENUE 384	ROAD 60	broadside	0	1	0	0	2	3
41	4030112	1/16/2009	838	AVENUE 384	ROAD 60	broadside	0	1	1	0	2	3
41	2611874	4/22/2006	615	AVENUE 384	ROAD 60	broadside	1	0	0	0	2	3
42	3926226	11/16/2008	1553	AVENUE 408	ROAD 74	broadside	2	0	0	1	2	3
43	2908579	10/26/2006	1005	AVENUE 412	ROAD 96	broadside	1	0	0	1	2	3
44	3809640	5/13/2008	1031	AVENUE 416	ROAD 52	broadside	1	0	3	0	2	3
44	4962363	11/19/2010	1024	AVENUE 416	ROAD 52	broadside	1	0	0	1	2	3
45	4731934	4/26/2010	1615	AVENUE 430	ROAD 72	broadside	1	0	0	0	2	3
46	3816088	7/25/2008	948	AVENUE 432	ROAD 120	hit object	1	0	0	0	2	3
47	3439993	10/29/2007	129	AVENUE 432	ROAD 144	broadside	1	0	1	0	1	3
48	4810043	7/23/2010	1945	AVENUE 440	ROAD 120	broadside	1	0	0	2	2	3
48	2656971	5/19/2006	2120	AVENUE 440	ROAD 120	broadside	1	1	1	0	2	3
49	3230311	6/4/2007	2157	FLORAL AVE	BUTTONWOOD ROAD	broadside	0	3	1	7	2	3
50	3318182	7/29/2007	1954	LAWRENCE AVE	ROAD 56	broadside	1	0	0	3	2	3
51	3040089	1/21/2007	38	PAIGE AVE	ENTERPRISE ST	broadside	1	2	0	1	2	3
52	3956593	12/3/2008	935	PALM AVE	SPRUCE ROAD	broadside	1	0	0	1	2	3
53	n/a	n/a	n/a	AVENUE 24	ROAD 152	projected*	n/a	n/a	n/a	n/a	n/a	3
54	n/a	n/a	n/a	AVENUE 48	ROAD 152	projected*	n/a	n/a	n/a	n/a	n/a	3
55	n/a	n/a	n/a	AVENUE 56	ROAD 160	projected*	n/a	n/a	n/a	n/a	n/a	3
56	n/a	n/a	n/a	AVENUE 120	ROAD 112	projected*	n/a	n/a	n/a	n/a	n/a	3
57	n/a	n/a	n/a	AVENUE 240	ROAD 152	projected*	n/a	n/a	n/a	n/a	n/a	3
58	n/a	n/a	n/a	AVENUE 256	ROAD 212	projected*	n/a	n/a	n/a	n/a	n/a	3
59	n/a	n/a	n/a	AVENUE 260	ROAD 68	projected*	n/a	n/a	n/a	n/a	n/a	3
60	n/a	n/a	n/a	AVENUE 288	ROAD 180	projected*	n/a	n/a	n/a	n/a	n/a	2
61	n/a	n/a	n/a	AVENUE 328	ROAD 132	projected*	n/a	n/a	n/a	n/a	n/a	2
62	n/a	n/a	n/a	AVENUE 352	ROAD 132	projected*	n/a	n/a	n/a	n/a	n/a	3
63	n/a	n/a	n/a	AVENUE 376	ROAD 60	projected*	n/a	n/a	n/a	n/a	n/a	3
64	n/a	n/a	n/a	AVENUE 376	ROAD 44	projected*	n/a	n/a	n/a	n/a	n/a	3
Totals							70	61	42	51	n/a	

	Total	Applicable Collisions per Countermeasure		
		CM NS5	CM NS6	CM NS8
Fatality Collisions	46	46	46	21
Severe Injury Collisions	29	29	29	3
Total # of Collisions	66	66	66	24

Note: Only Collision history occurring between 1/1/2006 and 12/31/2010 was utilized as available on TIMS website. No collisions occurring on State Routes were selected.
 Note: Projected collisions are for intersections with similar traffic conditions, markings, and geometry as intersections with collision occurrences

Selection Criteria:

- Multiple Collision History
- One or more Fatality
- Severe Injuries

Intersection Type:

- Signal 1
- All Way Stop 2
- Two Way Stop 3
- No Stop control 4

Countermeasure Type:

Countermeasure	CM #	CRF	Expected life
Upgrade large/additional stop signs	NS5	15%	10 yr
Upgrade Int. Pavement Markings	NS6	25%	10 yr
Install Flash. beacon as advnc. Wmg.	NS8	30%	10 yr

Preliminary Engineers Estimate

10/1/2012

HSIP Grant Application Intersection Safety Upgrades

Agency: Tulare County Resource Management Agency

Project Description: Intersection Safety Upgrades

Project Location: Various Stop Controlled Intersections throughout Unincorporated Tulare County

Application ID: 06-Tulare County - 2

Item	# of Units	Unit	Unit Cost \$	Total Cost for Item	Portion CM 1 (NS5)		Portion CM 2 (NS6)		Portion CM 3 (NS8)	
					%	\$	%	\$	%	\$
Upgrade Signs (NS5)										
all way stop intersection	7	EA	\$ 2,600.00	\$ 18,200	100%	\$ 18,200				
two way stop intersection	55	EA	\$ 1,750.00	\$ 96,250	100%	\$ 96,250				
Upgrade Striping and Markings (NS6)										
all way stop intersection	7	EA	\$ 5,000.00	\$ 35,000			100%	\$ 35,000		
two way stop intersection	55	EA	\$ 3,250.00	\$ 178,750			100%	\$ 178,750		
Solar Powered Flashing Beacons (NS8)	44	EA	\$ 2,700.00	\$ 118,800					100%	\$ 118,800
Road Surface Preparation	50000	SFT	\$ 4.00	\$ 200,000			100%	\$ 200,000		
Traffic Control	62	EA	\$ 2,000.00	\$ 124,000	33%	\$ 40,920	33%	\$ 40,920	33%	\$ 40,920
Subtotal Construction Items				\$ 771,000		\$ 155,370		\$ 454,670		\$ 159,720
Construction Item Contingency (20%)				\$ 154,200		\$ 26,200		\$ 74,900		\$ 25,300
Total Construction Cost (rounded)				\$ 925,000		\$ 181,570		\$ 529,570		\$ 185,020
					20%	CM1	57%	CM 2	20%	CM 3

Note 1: Preliminary Engineering, Right of way, and Construction Engineering not included

Benefit / Cost Calculation Result

1. Project Information

Application ID	06-Tulare County-2	Version	1
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2. Countermeasures and Crash Data

• Install / upgrade larger or additional stop signs or other intersection warning / regulatory signs

CM Number	Project Type	Crash Type	CRF	Life
NS5	Operation / Warning	All	15	10

Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
All	46	20	0	0	0	66

Annual Benefit	\$5,661,882
Life Benefit	\$56,618,820
Cost	\$ 198,400
B/C Ratio	285.38

• Upgrade intersection pavement markings (NS.I.)

CM Number	Project Type	Crash Type	CRF	Life
NS6	Operation / Warning	All	25	10

Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
All	46	20	0	0	0	66

Annual Benefit	\$9,436,470
Life Benefit	\$94,364,700
Cost	\$ 595,200
B/C Ratio	158.54

• Install flashing beacons as advance warning (NS.I.)

CM Number	Project Type	Crash Type	CRF	Life
NS8	Operation / Warning	All	30	10

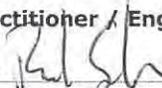
Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
All	21	3	0	0	0	24

Annual Benefit	\$5,090,094
Life Benefit	\$50,900,940
Cost	\$ 198,400
B/C Ratio	256.56

3. Benefit Cost Result

Total Benefit	\$201,884,460
Total Cost	\$992,000
B/C Ratio	203.51

Safety Practitioner / Engineer: reed schenke

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.