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

12-Orange-2

Countermeasures Used:

NS18: Install pedestrian crossing (with enhanced safety features / curb-extensions)

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

- Simple application which shows how intersection improvements can be applied at numerous locations in an application.
- This application could easily be completed using TIMS data for those agencies that currently do not have their own crash databases and analysis tools.

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

- Application would be much clearer with a vicinity map or plan view showing all locations and having locations numbered. Then all other plan views and collision diagrams could include these numbers for the ease of reviews.
- This application primarily focuses on locations with a past history of pedestrian and bike collisions. There is nothing wrong with this approach. However, it is just as important to note that if the applicant knows of similar intersections with similar roadway geometrics, features, traffic volumes and pedestrian and bike volumes, they may want to include them in the scope of work. The agency would need to balance the increased scope and funding with the risk of having a lower B/C ratio and the possibility that the project may not be selected for funding.

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: 12-Orange-2

Submitted By (Agency):
Orange

Caltrans District	Application Number	Out of
12	2	5

Project Location

14 uncontrolled intersections within the City of Orange.

Project Description

Install enhanced pedestrian crossings and solar powered warning flashers.

Countermeasure 1: NS18: Install pedestrian crossing (with enhanced safety features / curb-extensions)

Countermeasure 2:

Countermeasure 3: NS18: Install pedestrian crossing (with enhanced safety features / curb-extensions)

Total Expected Benefit $3,363,846.00 **Total Project Cost** $246,700.00

B/C Ratio: 13.64

I. Basic Project Information

Date: Jul 20, 2012 Caltrans District: 12 MPO: SCAG

Agency: Orange County: Orange County

Total number of applications being submitted by your agency: 5

Application Number (each application must have a unique number): 2

Contact Person Information

Name (*Last, First*): Keys, Douglas

Position/Title of Contact Person: Transportation Analyst

Email: dkeys@cityoforange.org Telephone: (714) 744-5540 Extension: 5643

Address: 300 East Chapman Avenue

City: Orange Zip Code: CA 92866 (Enter only a 5-digit number.)

Project Information

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

14 uncontrolled intersections within the City of Orange.

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

Install enhanced pedestrian crossings and solar powered warning flashers.

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

CRS Map ID (e.g. 08E14): 14V52

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

Eligible for HR3 Funding *(See Instructions)* No

Work on the State Highway System *(See Instructions)*

Does the project include improvements on the State Highway System? No

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? Systemic

The primary type of the "systemic" improvements: Install/Improve Signing

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/)

8: Make Walking and Street Crossing Safer

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

Jurisdiction-wide safety analysis

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

Pedestrians

5. Approximate percentage of project cost going to improvements related to **motorized** travel 0 %

6. Approximate percentage of project cost going to improvements related to **non-motorized** travel 100 %

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

Intersection

Number of Intersections 14

8. Posted Speed Limit (mph) 40

9. Average Daily Traffic *(See Instructions)*

ADT (Major Road)	ADT (Minor Road)	Year Collected
25,000	1,800	2010

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 Pedestrian/Bicycle safety project meets the qualifications for the HSIP.
In the City of Orange, there are intersections that allow for pedestrian crossings that are not controlled. Typically, these uncontrolled intersections are located at the confluence of a major arterial and a smaller minor street. While crossing the minor street is simple, crossing the larger major arterial can create safety issues for pedestrians and bicycles.
Using accident report data, City staff was able to determine the locations of the uncontrolled intersections within the city that have a history of pedestrian and bicycle related accidents.
Fourteen intersections have been identified as being uncontrolled and having a history of pedestrian related accidents. These intersections are excellent candidates for the installation of pedestrian crossings with enhanced safety features (NS 18). High Visibility cross-walks and Solar powered Pedestrian Warning Flashers will be the enhanced safety features utilized at these intersections.
The fourteen intersections are as follows:
1. Main Street and Maple Avenue
2. Prospect Street and Maple Avenue
3. Collins Avenue and Lemon Street
4. Chapman Avenue and Citrus Street
5. Chapman Avenue and Cypress Street
6. Chapman Avenue and Pixley Street
7. Chapman Avenue and Pepper Street
8. Chapman Avenue and Lester Street
9. Almond Avenue and Olive Street
10. Glassell Street and Mayfair Avenue
11. Glassell Street and Rose Avenue
12. Spring Avenue and Virage Street
13. Spring Avenue and Seranado Street
14. Cambridge Street and Adams Avenue

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.

Since this application is related to pedestrian crossing enhancements, all accident reports used here must involve either pedestrians or bicyclists. The Primary Collision Factor (PCF) for accidents occurring at these uncontrolled intersections is "Pedestrian Right-of-way Violation". A clear pattern of crash types exists at these uncontrolled intersections, in that the accidents typically occur as the pedestrian (or bicycle) is attempting to cross the major arterial. Approaching vehicles are unaware that a pedestrian or bicycle is trying to cross the intersection.
The installation of High Visibility cross-walks and Solar powered Pedestrian Warning Flashers at the fourteen uncontrolled intersections will improve safety for pedestrians and bicycles by alerting on-coming vehicles that the cross-walk is occupied.

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)

Since the proposed countermeasure to improve safety at these uncontrolled intersections is the installation of Pedestrian Warning Flashers, the only accident data included in this application is related to pedestrians and bicycles.

The City maintained Accident database allows for a variety of parameters to be used when searching for accident reports. The query used in the Collision Summary Report for this application, called for "Intersection Related Pedestrian and Bicycle Accidents" at each of the fourteen project intersections.

The Collision Summary Report and Collision Diagrams for the fourteen project intersections are included in this funding request.

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)

Previous attempts to address concerns regarding pedestrian and bicycle safety at uncontrolled intersections involve the deployment of focused enforcement by the City of Orange Police Department at the intersections with the highest instances of vehicle/ pedestrian conflicts. However, police resources are not effectively being utilized with this type of focused enforcement effort. Their presence at these intersections takes them away from other police related efforts.
The installation of High Visibility cross-walks and Solar Powered Pedestrian Warning Flashers will improve the safety of the uncontrolled intersections and allow police personnel to more effectively utilize their time.
No Federal funding has been previously used at any of the fourteen uncontrolled intersections in this application.

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.

Construction costs for this project are based on estimates provided by the manufacturers of the flashing beacon hardware, and Striping Contractors.
The costs for Engineering are based on the costs incurred for similar projects.
All contingencies are consistent with the rates accepted by Caltrans for Federal Funds.

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	$4,500	$500	$5,000	
	PS&E	$22,500	$2,500	$25,000	
	PE Subtotal(2)	**$27,000**	**$3,000**	**$30,000**	**90%**
	☐ Agency does NOT request **federal** funds for PE Phase (automatically checked if PE - federal funds is $0).				
Right of Way	Right of Way Engineering				
	Appraisals, Acquisitions & Utilities				
	ROW Subtotal(3)				**0%**
Construction Engineering & Construction	Construction Engineering(4)	$25,200	$2,800	$28,000	**90%**
	Construction(1)	$169,800	$18,900	$188,700	**90%**
	CON Subtotal	**$195,000**	**$21,700**	**$216,700**	
	Total Cost(5)(6)(7)	**$222,000**	**$24,700**	**$246,700**	

(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	4	Month(s)	
Typical Time for Caltrans and FHWA to process and approve PE authorization	2	Month(s)	
Proposed PE Authorization Date:	**07/02/2013**		**(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	3	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	3	Month(s)	
Other	0	Month(s)	
Expected Completion Date for the PE Phase:	**01/30/2014**		
Time for agency to request CON authorization	2	Month(s)	
Typical Time for Caltrans and FHWA to process and approve CON Auth	3	Month(s)	
Proposed CON Authorization Date:	**07/01/2014**		**(CON Authorization Delivery Milestone)**
Time included for the agency's workload-leveling or construction-window needs	2	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	6	Month(s)	
Time included for closing the CON contract	2	Month(s)	
Other	0	Month(s)	
Expected Completion Date for the CON Phase:	**07/31/2015**		
Time to complete the project close-out process	2	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:	**12/30/2015**		**(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: **12-Orange-2** (This ID is generated by this form. TIMS Application ID must match this ID.)

Version (from TIMS) : **1**

Total Project Cost: $246,700 (This must match the total project cost in Section III.)

Countermeasure Information

Number of countermeasures utilized: 1

	Countermeasure	% of Total Project Cost
#1:	NS18: Install pedestrian crossing (with enhanced safety features / curb-extensions)	0 (%)
#2:		0 (%)
#3:	NS18: Install pedestrian crossing (with enhanced safety features / curb-extensions)	100 (%)

B/C Ratio Calculation

	Expected Benefit (Life)	Expected Cost	Resulting B/C
Countermeasure #1		$0	0.00
Countermeasure #2		$0	0.00
Countermeasure #3	$3,363,846	$246,700	13.64
Project's Total (Overall)	**$3,363,846**	**$246,700**	**13.64**

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)*: Farahani, Amir

Title: City Traffic Engineer

Engineer License Number: C54235

Signature*:

Date: Jul 20, 2012

* 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

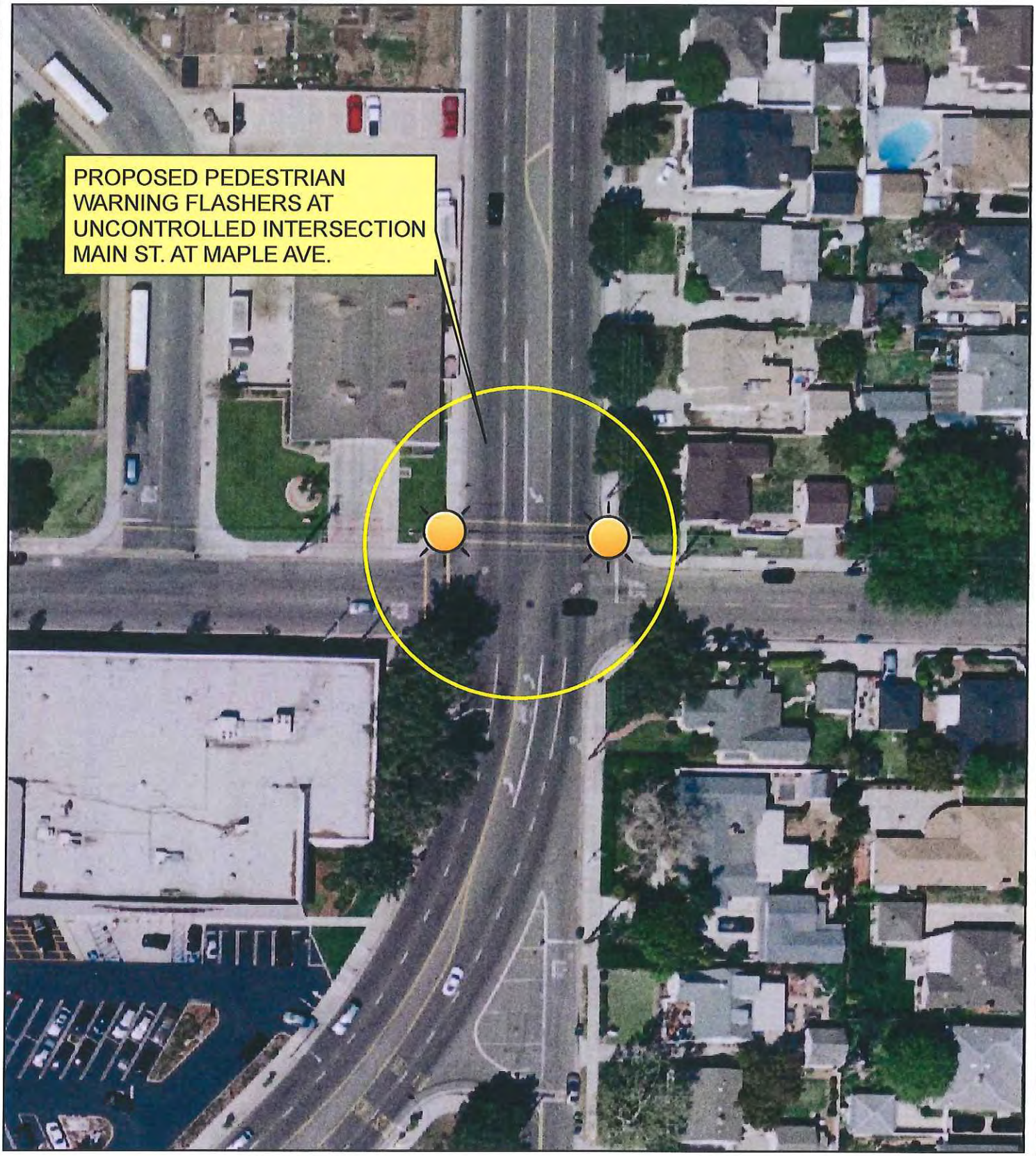
For applications to be included in the final Caltrans review, ranking and selection process, they must follow the exact submittal process identified in the application instructions. Some of the key requirements are as follows:

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.



Legend

Pedestrian Warning Flasher

City of Orange

Project Location
Main St. and Maple Ave.

NOT TO SCALE

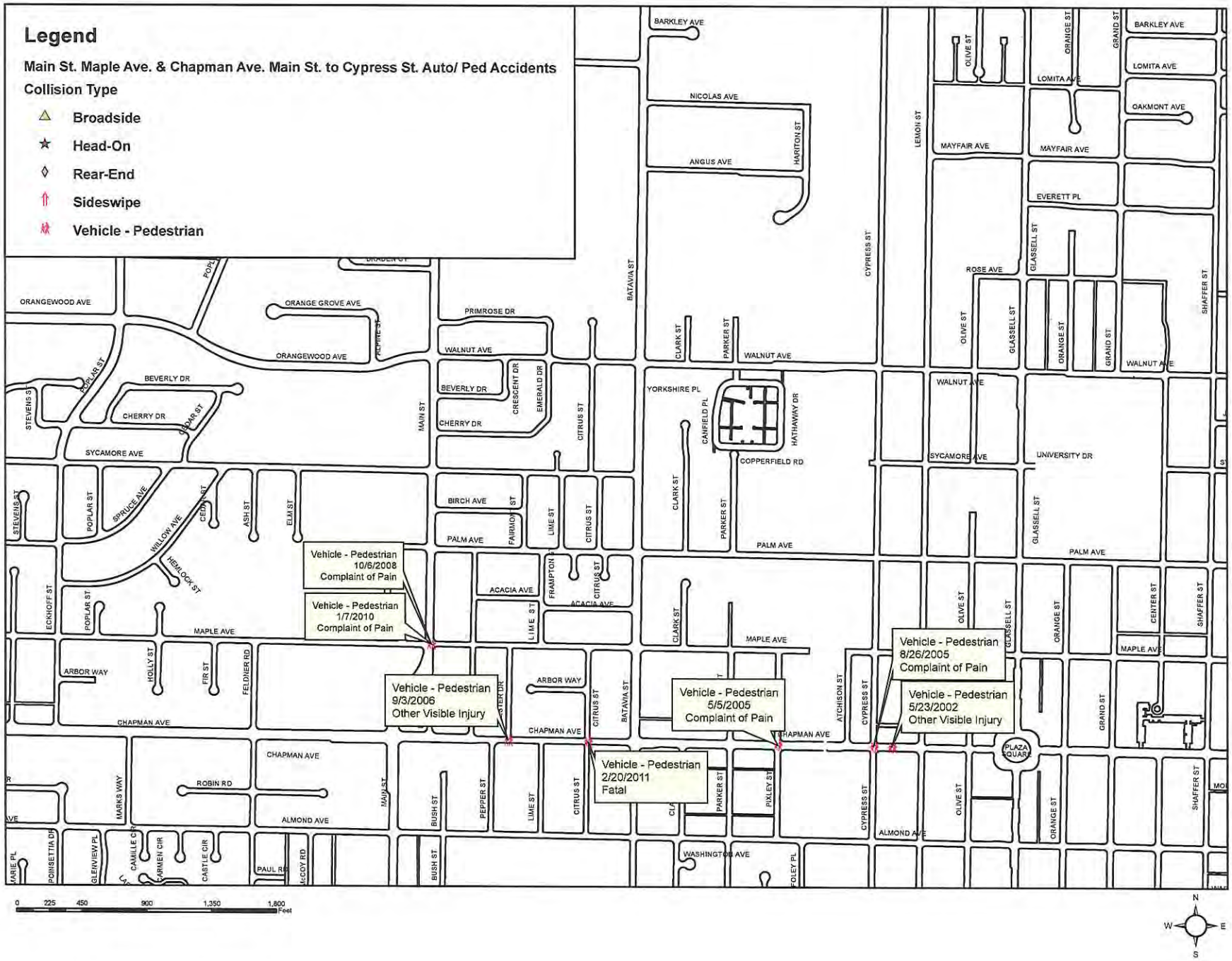
Legend

Pedestrian Warning Flasher

City of Orange

Project Location
Cambridge St. and Adams Ave.

NOT TO SCALE


Legend
Main St. Maple Ave. & Chapman Ave. Main St. to Cypress St. Auto/ Ped Accidents
Collision Type
Broadside
Head-On
Rear-End
Sideswipe
Vehicle - Pedestrian
Vehicle - Pedestrian 10/6/2008 Complaint of Pain
Vehicle - Pedestrian 1/7/2010 Complaint of Pain
Vehicle - Pedestrian 9/3/2006 Other Visible Injury
Vehicle - Pedestrian 2/20/2011 Fatal
Vehicle - Pedestrian 5/5/2005 Complaint of Pain
Vehicle - Pedestrian 8/26/2005 Complaint of Pain
Vehicle - Pedestrian 5/23/2002 Other Visible Injury
BARKLEY AVE
NICOLAS AVE
ANGUS AVE
HARITON ST
LOMITA AVE
OAKMONT AVE
MAYFAIR AVE
EVERETT PL
ROSE AVE
ORANGEWOOD AVE
ORANGE GROVE AVE
PRIMROSE DR
WALNUT AVE
BEVERLY DR
CHERRY DR
SYCAMORE AVE
YORKSHIRE PL
COPPERFIELD RD
UNIVERSITY DR
BIRCH AVE
PALM AVE
ACACIA AVE
MAPLE AVE
ARBOR WAY
CHAPMAN AVE
ROBIN RD
ALMOND AVE
WASHINGTON AVE
PLAZA SQUARE
BATAVIA ST
CYPRESS ST
LEMON ST
OLIVE ST
ORANGE ST
GRAND ST
GLASSELL ST
SHAFFER ST
CENTER ST
MAIN ST
CITRUS ST
LIME ST
CLARK ST
PARKER ST
CANFIELD PL
HATHAWAY DR
CRESCENT DR
EMERALD DR
FRAMPTON ST
FAIRMONT ST
STEVENS ST
POPLAR ST
SPRUCE AVE
WILLOW AVE
HEMLOCK ST
CEDAR ST
ASH ST
ELM ST
ECKHOFF ST
HOLLY ST
FIR ST
FELDNER RD
MARKS WAY
POINSETTIA DR
GLENVIEW PL
CAMILLE CIR
CARMEN CIR
CASTLE CIR
PAUL RD
McCOY RD
BUSH ST
PEPPER ST
PIXLEY ST
FOLEY PL
ATCHISON ST
0 225 450 900 1,350 1,800 Feet
N
W
E
S

City of Orange
Traffic Engineering Department
Collision Report Summary

5/31/2012

Date Range Reported: 1/1/02 - 1/31/12

Total Number of Collisions: 2

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.
T08-100317	10/6/08	21:07	Main St & Maple Av	0'	In Int.	Vehicle - Pedestrian	Pedestrian	South	Other	East	Proceeding Straight	Unknown	1	0
T10-010246	1/7/10	21:09	Main St & Maple Av	0'	In Int.	Vehicle - Pedestrian	Pedestrian	West	Proceeding Straight	North	Proceeding Straight	Ped R/W Violation	1	0

Injuries C.O.P. for both Accidents

Benefit / Cost Calculation Result

1. Project Information

Application ID	12-Orange-2	Version	1

2. Countermeasures and Crash Data

- **Install pedestrian crossing (with enhanced safety features / curb-extensions)**

CM Number	Project Type	Crash Type	CRF	Life
NS18	Ped and Bike	Ped & Bike	35	20

Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
Ped & Bike	1	1	4	6	0	12

Annual Benefit	$168,192
Life Benefit	$3,363,846
Cost	$ 246,700
B/C Ratio	**13.64**

3. Benefit Cost Result

Total Benefit	$3,363,846
Total Cost	$246,700
B/C Ratio	**13.64**

Safety Practitioner / Engineer: Doug Keys

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: City of Orange	**Application ID:** 12-Orange-2	**Date:**	20-Jul-12
Project Description	Pedestrian Warning Flashers at Uncontrolled Intersections		
Project Location	14 Uncontrolled Intersections in The City of Orange		
Prepared by	Douglas Keys		

Item No.	Item Description	Quantity	Units	Unit Cost	Total	% to CM #1 %	% to CM #1 $	% to CM #2 %	% to CM #2 $	% to CM #3 %	% to CM #3 $
1	Solar Powered Flashing Beacons (Pair)	14	ea	$6,150.00	$86,100	100	$86,100				
2	1A Pole (15')	28	ea	$800.00	$22,400	100	$22,400				
3	Pole Foundation	28	ea	$1,500.00	$42,000	100	$42,000				
4	Thermoplastic Cross-walk	840	lf	$1.95	$1,638	100	$1,638				
5	PED XING Legends (8' White Letters)	70	ea	$30.00	$2,100	100	$2,100				
6	SLOW SCHOOL XING Legends (8' Yellow Letters)	28	ea	$30.00	$840	100	$840				
7	Signs W11-2/W16-7P (PED Cross-walk)	16	ea	$250.00	$4,000	100	$4,000				
8	Signs W11-2/W16-9P (PED Advanced)	16	ea	$250.00	$4,000	100	$4,000				
9	Signs S1-5/W16-7P (SCHOOL Cross-walk)	2	ea	$250.00	$500	100	$500				
10	Signs S1-5/W16-9P (SCHOOL Advanced)	2	ea	$250.00	$500	100	$500				
11			ea			100					
12			ea			100					
13			ls			100					
14			ea			100					
15			ea			100					
16			ls			100					
17			ls			100					
18			ea			100					
19			ls			100					
	Sub Total of Construction Items:				**$164,078**		$164,078				
	Construction Item Contingencies (% of Con Items) :			**15**	24,612	100%	CM #1		CM #2		CM #3
	Total Construction Items:				**188,690**						

Note: 1. "Preliminary Engineering", "Right of Way", and "Construction Engineering" costs are accounted for in the Application Form.

2. See the Application Instructions for more details on the requirement that all Countermeasures (CM) used in the Benefit / Cost ratio calculations represent a minimum of 20% of the total cost of the Construction Items. The Engineer's Estimate will be used to verify this.