



CAMPO Combined Project Call – Instructions _ Updated 6 09 2011

Calculating Safety Impacts

If you are proposing a capital project for funding through the CAMPO Combined Call for Projects, you will provide information related to safety history in the vicinity and the potential safety impacts of the project on page 10 of the application.

Under the safety impacts section, the application form asks for three key pieces of data related to crashes:

- **Injury + Fatal Crashes/Year (2007-2009).** Input historic crashes based on 2007-2009 TxDOT Crash Information System data available from CAMPO through Google Earth or GIS Files. As an alternative, applicants may provide their own data for a similar length of time. The crash data available through CAMPO is described in more detail below.
- **Injury + Fatal Crashes/Year (Projected).** Input an estimate of the crashes/year that would occur after implementation of the project. For maximum points under the safety criteria, applicants should calculate this number using the Roadway Safety Design Model available through TTI. An alternative method can be used as described below.
- **Combined Crash Modification Factor.** Input the “Accident Modification Factor (AMF)” from the TTI Roadway Safety Design Model, or use an alternate method to provide an estimate the crash reduction benefit of the improvement. Any alternate method should provide an estimate of the fatal and injury crashes eliminated per 3 years per mile of the primary project area. Please provide documentation in the attachment.

Crash Data

The following fields are included in the 2007-2009 TxDOT Crash Information System data summarized by CAMPO in the geodatabase and Google Earth files provided on the Call for Projects website. A guide to contents of the fields is included in Appendix A.

<i>Crash Data Attribute</i>	<i>Description</i>
Crash_ID	Crash ID
Crash_Severity	Crash severity (Injury and fatal includes 1-4)
Road_Name	Primary road name
Block_Nbr	Primary road block number
Collsn_ID	Manner of collision
Othr_Factr_ID	Other factor



Using TTI's Roadway Safety Design Model to Calculate Projected Crashes and an Accident Modification Factor for Your Project

The Texas Transportation Institute has developed a spreadsheet-based model that can be used to calculate projected crashes and an accident modification factor for your project. You can access the instructional workbook and spreadsheet for the model here:

http://tcd.tamu.edu/documents/rsd_workbook.htm

The following data is needed as input for most projects:

1. Number of through lanes (both directions combined)
2. Segment Length (mi)
3. Speed Limit (mph)
4. ADT (veh/day)
5. % Trucks in ADT
6. Is horizontal curve present? If so,
 - a. Radius (ft)
 - b. Length of Curve (mi)
7. Lane width (ft)
8. Shoulder Width (ft)
 - a. Generally just right shoulder, but freeways and some rural highways will have left shoulder, too.
9. Median present? If so
 - a. Median Type (grass blvd, fence, concrete barrier, etc.)
 - b. Median width (ft)

The blue fields are input fields, and in most cases the spreadsheet will ask for the current and future condition—this should be filled out based on the current condition and the condition that is forecast to exist after completion of the project. For fields that limit choices, make the choice that most closely resembles the project. **Note:** projects that will add general purpose lanes to a roadway should input the ultimate number of lanes that would result from the project in current column (the spreadsheet does not allow for input of a future number of lanes.)

If your project has significantly different characteristics along its length, you should run separate models for each segment and create a length-weighted average of the results (projected crashes/year; crash modification factor) to input in the CAMPO Call For Projects application.



Using an Alternate Method for Calculating Projected Crashes and Crash Reduction

Other estimates, aside from the TTI Roadway Safety Design Model, of fatal and injury crashes eliminated per 3 years per mile of the primary project area will be accepted. CAMPO staff request that documentation of the methodologies and figures used be provided as an attachment with the application.

Part C of the AASHTO *Highway Safety Manual* provides a predictive method for estimating expected average crash frequency for rural two-lane two-way roads (HSM Chapter 10), rural multilane highways (HSM Chapter 11), and urban and suburban arterials (HSM Chapter 12).

Crash Modification Clearinghouse - <http://www.cmfclearinghouse.org>

The Crash Modification Factors Clearinghouse houses a web-based database of CMFs along with supporting documentation to help transportation engineers identify the most appropriate countermeasure for their safety needs.

Additional Information

If you have questions, please contact Alex Kone at alex.kone@campotexas.org or (512) 974-2529.



Appendix A

ID	Description
CRASH_SEV_ID	
0	UNKNOWN
1	INCAPACITATING INJURY
2	NON-INCAPACITATING
3	POSSIBLE INJURY
4	FATAL
5	NOT INJURED
COLLSN_ID	
1	OMV VEHICLE GOING STRAIGHT
2	OMV VEHICLE TURNING RIGHT
3	OMV VEHICLE TURNING LEFT
4	OMV VEHICLE BACKING
5	OMV OTHER
10	ANGLE - BOTH GOING STRAIGHT
11	ANGLE - ONE STRAIGHT-ONE BACKING
12	ANGLE - ONE STRAIGHT-ONE STOPPED
13	ANGLE - ONE STRAIGHT-ONE RIGHT TURN
14	ANGLE - ONE STRAIGHT-ONE LEFT TURN
15	ANGLE - BOTH RIGHT TURN
16	ANGLE - ONE RIGHT TURN-ONE LEFT TURN
17	ANGLE - ONE RIGHT TURN-ONE STOPPED
18	ANGLE - BOTH LEFT TURN
19	ANGLE - ONE LEFT TURN-ONE STOPPED
20	SD BOTH GOING STRAIGHT-REAR END
21	SD BOTH GOING STRAIGHT-SIDESWIPE
22	SD ONE STRAIGHT-ONE STOPPED
23	SD ONE STRAIGHT-ONE RIGHT TURN
24	SD ONE STRAIGHT-ONE LEFT TURN
25	SD BOTH RIGHT TURN
26	SD ONE RIGHT TURN-ONE LEFT TURN
27	SD ONE RIGHT TURN-ONE STOPPED
28	SD BOTH LEFT TURN
29	SD ONE LEFT TURN-ONE STOPPED
30	OD BOTH GOING STRAIGHT
31	OD ONE STRAIGHT-ONE BACKING
32	OD ONE STRAIGHT-ONE STOPPED
33	OD ONE STRAIGHT-ONE RIGHT TURN
34	OD ONE STRAIGHT-ONE LEFT TURN
35	OD ONE BACKING-ONE STOPPED
36	OD ONE RIGHT TURN-ONE LEFT TURN
37	OD ONE RIGHT TURN-ONE STOPPED
38	OD BOTH LEFT TURNS



39	OD ONE LEFT TURN-ONE STOPPED
40	O ONE STRAIGHT-ONE ENTER OR LEAVE PARKING SPACE
41	O ONE RIGHT TURN-ONE ENTER OR LEAVE PARKING SPACE
42	O ONE LEFT TURN-ONE ENTER OR LEAVE PARKING SPACE
43	O ONE ENTER OR LEAVE PARKING SPACE-ONE STOPPED
44	O BOTH ENTERING OR LEAVING A PARKING SPACE
45	O BOTH BACKING
46	OTHER
48	NOT REPORTED
OTHR_FACTR_ID	
0	NO CODE SHOWN IS APPLICABLE
1	LOST CONTROL OR SKIDDED (ICY OR SLICK ROAD, ETC.)
2	PASSENGER INTERFERED WITH DRIVER
3	ATTENTION DIVERTED FROM DRIVING
4	OPEN DOOR OR OBJECT PROJECTING FROM VEHICLE
5	FOOT SLIPPED OFF BRAKE OR CLUTCH
6	GUSTY WINDS
7	VEHICLE PASSING OR ATTEMPTING TO PASS ON LEFT
8	VEHICLE PASSING OR ATTEMPTING TO PASS ON RIGHT
9	VEHICLE CHANGING LANES
10	ONE VEHICLE PARKED IMPROPER LOCATION
11	ONE VEHICLE FORWARD FROM PARKING
12	ONE VEHICLE BACKWARD FROM PARKING
13	ONE VEHICLE ENTERING DRIVEWAY
14	ONE VEHICLE LEAVING DRIVEWAY
16	VISION OBSTRUCTED BY STANDING OR PARKED VEHICLE
17	VISION OBSTRUCTED BY MOVING VEHICLE
18	VISION OBSTRUCTED BY EMBANKMENT OR LEDGE
19	VISION OBSTRUCTED BY COMMERCIAL SIGN
20	VISION OBSTRUCTED BY HIGHWAY SIGN
21	VISION OBSTRUCTED BY HEADLIGHT OR SUN GLARE
22	VISION OBSTRUCTED BY HILLCREST
23	VISION OBSTRUCTED BY TREES, SHRUBS, WEEDS, ETC.
24	VISION OBSTRUCTED BY OTHER VISUAL OBSTRUCTIONS
25	SWERVED OR VEERED-REASON NOT SPECIFIED
26	SWERVED OR VEERED-FOR SURFACE OR VISIBILITY
27	SWERVED OR VEERED - FOR OFF., FLAGMAN, OR TRF. CTRL. DEVICE
28	SWERVED OR VEERED-AVOIDING PEDESTRIAN, PEDALCYCLIST, ETC. IN ROAD
29	SWERVED OR VEERED-AVOIDING ANIMAL IN ROAD
30	SWERVED OR VEERED-AVOIDING OBJECT IN ROAD
31	SWERVED OR VEERED - AVOID VEH. STOPPED OR MOVING SLOWLY IN TRF. LN.
32	SWERVED OR VEERED-AVOIDING VEHICLE ENTERING ROAD
33	SWERVED OR VEERED-AVOIDING VEH. FROM OPP. DIR. IN WRONG LANE
34	SWERVED OR VEERED-AVOIDING PREVIOUS ACCIDENT



35	SWERVED OR VEERED-AVOIDING VEHICLE PASSING, CHANGING LANES
36	SLOWING/STOPPING-REASON NOT SPECIFIED
37	SLOWING/STOPPING-FOR SURFACE OR VISIBILITY
38	SLOWING/STOPPING - FOR OFF., FLAGMAN, OR TRF. CTRL.
39	SLOWING/STOPPING-FOR PEDESTRIAN, PEDALCYCLIST, ETC. IN ROAD
40	SLOWING/STOPPING-FOR ANIMAL IN ROAD
41	SLOWING/STOPPING-FOR OBJECT IN ROAD
42	SLOWING/STOPPING-FOR TRAFFIC
43	SLOWING/STOPPING-FOR VEHICLE ENTERING ROAD
44	SLOWING/STOPPING-FOR VEHICLE FROM OPPOSITE DIRECTION IN WRONG LANE
45	SLOWING/STOPPING-TO AVOID PREVIOUS ACCIDENT
46	SLOWING/STOPPING-TO MAKE RIGHT TURN
47	SLOWING/STOPPING-TO MAKE LEFT TURN
48	SCHOOL BUS RELATED CRASH
49	CONSTRUCTION - WITHIN POSTED RD. CONST. ZONE (NOT RELATED TO CRASH)
50	CONSTRUCTION-WITHIN POSTED ROAD CONSTRUCTION ZONE (RELATED TO CRASH)
51	CONSTRUCTION - IN OTHER CONST. MAIN. AREA (NOT RELATED TO CRASH)
52	CONSTRUCTION-IN OTHER CONSTRUCTION MAINTENANCE AREA (RELATED TO CRASH)
53	CRASH OCCURRED ON A BEACH
54	NOT APPLICABLE
55	NOT REPORTED
56	ROAD RAGE