



Caltrans Division of Research,  
Innovation and System Information

# Research



# Results



Transportation  
Safety and  
Mobility

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**Project Title:**

TASAS (Traffic Accident Surveillance and Analysis System) and Injury Data Base Development

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## TASAS (Traffic Accident Surveillance and Analysis System) and Injury Data Base Development

Streamline and digitize the process of Caltrans collision post-mile coding, data extraction from TCRs (Traffic Collision Reports) for populating the TASAS database and other applications.

### WHAT WAS THE NEED?

The Caltrans Coding Branch annually processes approximately 200,000 TCRs and assigns them specific location values. The collision detail information is then transferred to Statewide Integrated Traffic Records System (SWITRS) and TASAS accident databases. There was a need to explore development of methods to extract data from TCRs and automate or semi-automate the collision postmile coding and sequence of events coding of TCRs. The purpose of this research study was to determine the extent to which TASAS accident data can be processed automatically and develop a system that could potentially assist in the processing of TCRs.

### WHAT WAS OUR GOAL?

The goal of this project was to explore development of methods that would facilitate data extraction from TCRs and automate or semi-automate the collision postmile coding and sequence of events coding of TCRs. This research study also investigated automatic population of other items in the TASAS accident database including generating accident summaries, latitude and longitude information for the collision location.



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## WHAT DID WE DO?

This project performed research on the methods of streamlining and digitizing the process of data extraction from TCRs and the level at which the collision post-mile coding and sequence of events coding of TCRs can be automated for populating the TASAS accident database. This research project has developed a "Traffic Collision Reports Processing (TCRPRO)" web tool for data extraction from TCRs and the postmile coding and sequence of events coding of TCRs.

## WHAT WAS THE OUTCOME?

This research project has developed a TCRPRO software system that can successfully extract certain data contained in the eTCRs (electronic TCRs) provided by CHP. This functionality has the following positive benefits:

- TCRPRO can perform location coding with certain degree of accuracy.
- TCRPRO can perform much of the sequence of events coding for simple two-party collisions except for the lane of travel (in which the collision occurred) in cases where the lane numbering is not standard such as when there are High Occupancy Vehicle (HOV) lanes.
- TCRPRO extracts the "Summary" data from Narrative section in the eTCRs. This automated collection of Summary text will be able to replace labor intensive methods of manually extracting the Summary for subsequent utilization.
- TCRPRO determines the Global Positioning System (GPS) coordinates (Latitude and Longitude) using its internal Linear Referencing System (LRS) based on the Location code of the eTCR.

- TCRPRO can return the corresponding highway inventory information at a given postmile value on a given highway in a county, using location code and the "Clean Roads File" to extract TASAS variables such as the median type, barrier type, access controls and number of lanes (both left and right).
- The capability of extracting any data field from eTCR sets up a framework where the contents of all eTCRs can be made accessible to any application outside of the location coding and sequence of events coding functionality.

## WHAT IS THE BENEFIT?

This project has resulted in the following benefits:

1. An automated method to extract the "Summary" portion from the Narrative section in the eTCRs and relaying it to Caltrans by means of a web service. This automated collection of the Summary text will be able to replace labor intensive methods of manually extracting the Summary for subsequent utilization.
2. A computerized system for automated or semi-automated extraction of some of the TASAS data from eTCRs and high-quality pdf files of TCRs.
3. A computerized system for automated or semi-automated collision post mile coding and partial sequence of events coding of TCRs.
4. An improved process for linking collision data to Caltrans Geospatial Linear Referencing System for TASAS database.

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