

Signalized Intersection “Raw Data” Required from Public Works or DOT

Traffic Engineering Data

1. **Traffic Signed & Sealed Signal Plans of Record** for each intersection effective from the red light camera program began to the current date, and the set of signal plans that were in effect prior to the signal plans in effect when the red light camera program began. There may be many traffic signal plans for a given intersection. Each Traffic Signal Plan contains a drawing of the intersection, including speed and grade on all approaches to the intersection, as well as phase diagrams and timing charts, the latter containing the yellow change and all-red clearance intervals. The signal plan also contains the signature and seal of the licensed professional engineer responsible for the intersection plan.
2. **A copy of logbook from the traffic controller box at each intersection.** The log may be kept online depending on the municipality. This logbook indicates when field engineers put the traffic signal plan into effect on the ground. The field engineers may implement several changes at an intersection at once. One needs to properly associate engineering changes to red light incursions.
 - a. They may increase/decrease the yellow durations.
 - b. They may increase/decrease all-red clearance intervals.
 - c. They may increase/decrease max green.
 - d. They may increase/decrease gap outs.
 - e. They may install detection loops at or near the critical distance.
 - f. They may replace the signal heads with signals which include flashing yellow arrows.
 - g. They may change protected-only left turn phases to protected/permitted or vice-versa.
 - h. There may be a change of speed limit.
3. **Clearance/Time Sheets.** The MUTCD (4D.26 03) requires engineers to set the yellow change intervals to values *determined* by engineering practices. For every signal plan, there must exist a clearance time sheet demonstrating how the engineer computed the yellow change and red clearance intervals for each phase. Because the sheet is an engineering specification, the sheet must be sealed and signed by the traffic engineer who calculated the values. Make sure that all the yellow durations for all the phases have been computed in the timesheet. You may be surprised that not all the yellow change intervals have been computed for all the phases.

For jurisdictions that do not include yellow change intervals in seconds in a Timing Chart on the signal plan itself, the clearance timing sheets become mandatory. Also for such jurisdictions, one should note that it is engineering malpractice to change the yellow change intervals within the lifetime of the traffic signal plan--MUTCD 4D.26 (09).

Red Light Camera Data Required from Jurisdiction

Red Light Camera Citation Data

1. **A spreadsheet (or CSV file)** containing a table containing one row per red light camera citation for the entire period the camera has been running. Each spreadsheet file may contain many sheets. Each sheet represents a highway *approach*. Each sheet contains a table containing hundreds of thousands of rows, each row being one instance of a red light running violation.

The table must have an approach ID associated with it identifying the intersection and direction (NB, WB, EB, SB) the cameras face. Each table must contains these columns:

- a. **Time of violation including date and time (YYYY-MM-DD HH:mm:SS)**
- b. **Time into red**
- c. **Yellow Change Interval (if available. Some companies, like ACS, have this data.)**
- d. **Lane number (identifies, left, through or right lanes)**
- e. **Any other data which would identify a right-turning driver.**
- f. **Speed of vehicle as detected by camera**
- g. **Speed limit of road**
- h. **Status of Citation (e.g., PAID, DISMISSED, NEVER PAID, SENT TO COLLECTIONS, etc.)**
- i. **Zip Code of Owner/Driver of Car (optional)**

Other data required:

- a. **Red Light Camera Delay (aka, grace period).** The time between the light turning red and the activation of the red light camera detection loop. A delay actually entraps more drivers. By law, a car legally enters the intersection when its front bumper enters the intersection on a green or yellow. Consider a car's front bumper enters the intersection on the tail end of a yellow. The car is half in and half out of the intersection. The light turns red. The delay will detect the rear bumper of the car and ticket the legally moving driver. On a 45 mph road, a car travels 19 feet in 0.3 seconds. Many American cars are longer than 19 feet. Therefore it is possible for a car to enter the intersection legally, the red light appear, and the red light camera detector loop activate at detect the car's rear bumper.
- b. **The threshold speed in the right-turn lane.** Cars travelling faster than the threshold speed activate the red light camera for those cars turning right.