

Solving Intersection Safety Issues

The Problem

Intersection accidents account for 48% of injury related traffic accidents, and generate almost \$101 billion of societal costs each year according to the National Highway Traffic Safety Administration. Despite improved intersection design and more sophisticated applications of traffic engineering measures, the annual toll of human loss due to motor vehicle crashes has not substantially changed in more than 25 years.

The Solution

Siemens ITS and Precision Traffic Systems have combined state of the art intelligent vehicle tracking algorithms, next generation signal controller technology, networking, web application servers, and browser based data access to deliver the premier traffic safety research system available today. Instead of expensive standalone hardware or time consuming manual (intern in the street) counting methods; Siemens ITS and PTS put safety research capability where it belongs – in software on the controller.

SafeSuite Research™ tools enable municipalities to analyze dangerous driving behavior prior to implementing changes in law enforcement or intersection engineering. For the first time, cities can identify and correct intersection safety problems before accidents happen instead of fixing the problems after the accidents occur.

How SafeSuite Research Works

With the Eagle ATCNX and SafeSuite software, customers can now use the traffic signal controller as a platform for collecting intersection statistics on all traffic, including identification of speeding, red light running, and other dangerous driving behavior. Detection zones designed for safety research are placed in each lane of traffic being monitored. With known size and location of the detection zones, the system detects, tracks, and calculates speed, acceleration, and travel time for each vehicle passing through the intersection. Signal state is correlated with vehicle detection events to analyze vehicle behavior during each phase of the signal cycle, and to predict red light violations. The results are made available on browser based reports for both violating and non-violating traffic – providing critical context with which to analyze intersection safety.

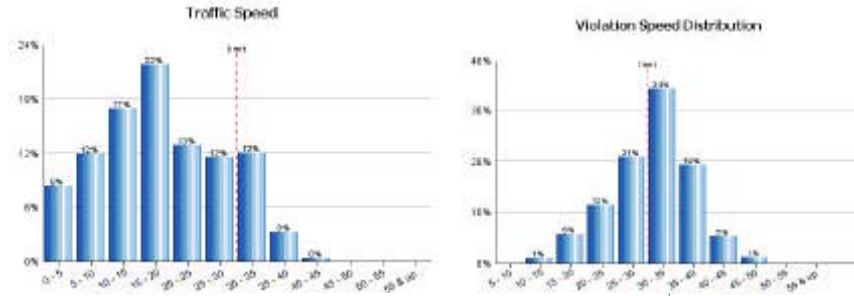
Automated Data Collection and Analysis

Violation and traffic data are collected at the intersection and automatically uploaded across the network to an application server where the data is made available in the form of online reports. All data relating to each violation event is organized at the intersection before transmission, eliminating a costly and time consuming manual data organization effort. Data is collected continuously, allowing users to view up to the minute data from a single intersection, or consolidated data from multiple intersections across weeks, months, or years.

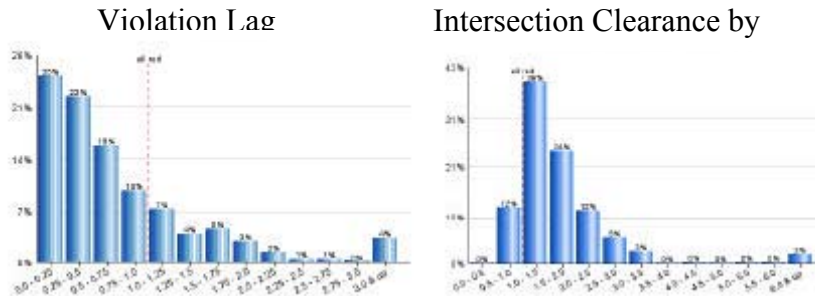
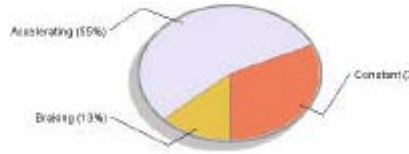
Data collected includes:

- Red light and speed violations - location and direction of violation
- Signal state (R, G, Y) for each vehicle - speed and acceleration
- Date and time of day - views by day, week, month
- Count and speed for all traffic - violation lag and intersection clearance





Acceleration of



24 x 7 data collection and reporting means that cities can collect and review data before, during and after changes in enforcement, signal timing, or other changes which may affect intersection safety. The effect of red light running or collision reduction mitigation measures can be evaluated immediately after implementation and results can be tracked over time. Signal timing changes put in place for traffic flow optimization can now be reviewed from an intersection safety perspective.

With SafeSuite Research software on the Eagle ATCNX, customers can understand the underlying causes of their intersection safety problems, allowing them to make informed decisions and select the most appropriate methods to effect rapid and lasting improvements in intersection safety.

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