



RoadRunner™

Speed over Distance Enforcement



RoadRunner™

RoadRunner™ is an enforcement system based on average speed measurement (speed over distance enforcement). It offers new perspectives to further improve safety while speeding up traffic flow and reducing pollution.

The public considers speed over distance enforcement fairer than enforcement by single fixed camera. A driver has the choice to slow down to the maximum speed in advance to prevent being fined. Fairness is an important factor for policy makers. A strong enforcement policy can only be effective if drivers experience a relation between more safety or improved environmental conditions and speed reduction.

Fairness implicates that all driver categories are subject to the same high "catch" rate of close to 100% under all weather conditions. On some roads, e.g. motorways, different speed limits apply to different vehicles. Loop detectors are used to determine the vehicle class in terms of the applicable speed limit.

Speed over distance enforcement

Automatic Number Plate Recognition (ANPR) is used to determine unique vehicle characteristics. Between two or more measuring points the average vehicle speed is measured, together with the vehicle (speed) classification.

Only when a violation is determined, the related data will be stored using encryption technology to prevent corruption of data.

Section speeds can be measured over a distance of 1500 meter or more. A system can have 8 camera's per measuring point, independent of the driving direction.

Back office

The violation record is sent to a back office facility for further automatic processing. The RoadRunner™ system can be adapted to any type of back office. The interface structure is based on proxy's that are custom made to the local standard.

Variable maximum speed

When variable speed indicators are used RoadRunner™ can be linked to automatically adjust the enforced maximum speed.

This stimulates a homogenous speed and therefore increases the traffic flow in a congested situation. Although the system can be used in any traffic environment, benefits from variable speeds are highest on the motorway and ring roads.

Emission and noise reduction

Another strong argument for speed over distance enforcement is that it can improve the environment for citizens.

On the A13 near Rotterdam (The Netherlands), it was exactly this aspect of speed over distance enforcement, which led to its implementation on a seven-kilometre stretch of road situated near an urban residence.

The maximum speed was reduced from 100 km/h to 80 km/h and at the same time enforced by speed over distance enforcement. The results are a noise reduction of 3.1–5.7 dB(A) in the residential area and an emission reduction of 15-25% NOx per vehicle.



System architecture

The RoadRunner™ platform has been designed with high-quality core technologies and is built with a complete open and flexible system architecture.

The main characteristics of this solution are:

- The system's architecture is independent of the type of OCR software, the camera brand and/or flasher system, the type of detection or the classification system;
- The system components are based on commercial of the shelf equipment;
- The architecture is scalable, meaning that for heavy (motorway) applications different or more components will be used than for e.g. urban applications;
- The software architecture is based on the N-Tier building block structure in order to easily change or extend the system;
- Interfaces to e.g. back offices and variable speed signs are based on proxy's and can be independently adapted to local requirements.

RoadRunner™ is built to accommodate a maximum of 8 camera/IR-flasher units per measuring point. The Matching System can be connected to 2-8 measuring points. For a motorway, the camera/IR-flasher unit is mounted overhead in a gantry. On a secondary road (2 lanes), a pole-mounted system is used.

Licence plate recognition

RoadRunner™ uses one of the most advanced ANPR software programs in the market in combination with a state-of-the-art infrared camera and flasher combination.

The system will recognise vehicles with speed up to 200 km/h, at a peak flow of 5000 vehicle/hr per lane and an average flow of 2000 vehicles/hr per lane.

Extended functionality

The RoadRunner™ platform will also include extended functionality in order to detect vehicle with dangerous goods on board. The OCR module reading license plates can also be used to read the orange "ADR plates" on trucks with dangerous goods.

To add on even more functionality this systems can eventually be upgraded with Weigh In Motion (WIM) information in order to intensively monitor safety on roads.

This enhanced RoadRunner™ system can be used to effectively enforce routes for hazardous goods transports or secure tunnel systems. In case of a tunnel accident, emergency services will know on forehand which dangerous liquids, mate-rial or gas is present in the tunnel. With this knowledge they can immediately organise the right rescue means.



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