



Demand management tailored solutions

Traffic Solutions

SIEMENS



Congestion is becoming an ever-increasing problem on the UK road network. According to the Eddington report, £22bn worth of time will be wasted in England by 2025 due to congested roads. Siemens recognises the issues that affect local authorities relating to the increasing demand placed on road networks and continues to successfully implement congestion reducing schemes.

Utilising the extensive technical and behavioural knowledge gained through trials and live projects, Siemens is the ideal partner to ensure that the most economical and effective solutions are deployed to meet the growth in local traffic demand.

Western Extension Zone (WEZ)

At the end of September 2005, Siemens was awarded the enforcement infrastructure project by Transport for London to extend the existing Central London Congestion Charging Scheme (CLoCCS) westwards. This Western Extension Zone approximately doubled the area covered by the Congestion Charge, using an improved form of technology which offers superior system performance over the original zone equipment.

The benefits of this include:

- Significantly reducing the cost of the communication links
- Avoiding public nuisance and cost caused by laying new fibre optic cables
- Greater resilience, especially to communications failure
- Improved flexibility of data centre location
- Simple future integration with tag and beacon technology (see Urban Charge Point)

The project successfully went live on 19 February 2007.

As systems integrator, Siemens was accountable for the incorporation of the outstation Automatic Number Plate Recognition (ANPR) equipment with the on-street cabinet equipment (including the security aspects and communications) through to the instation equipment and the interface with the core service provider.

Siemens was also responsible for all works on the public highways including management of third party contractors, pole erection, installation and alignment of ANPR cameras, traffic management, ground-truthing and installation of electrical and communications infrastructure.

The ANPR outstation

The chosen outstation solution has a number of combined camera and ANPR processor units mounted on a pole and at the roadside. The capture zones overlap to give continuous coverage across the required capture area. These units combine:

- Mono infrared (IR) camera
- Colour overview camera
- IR illuminator
- ANPR processor
- Data storage security and transmission

The camera/ANPR units have an Ethernet and power connection to the high security roadside cabinet. This houses the communications equipment, a hub, the camera power supplies and a monitoring unit.

The ANPR instation

This is located in a data centre, and has the following functions:

- Monitoring and controlling the outstations
- Running local de-duplication through 'pull' architecture
- Running error and authentication checks on evidential records
- Passing evidential records to the core service provider



Urban Charge Point

An Urban Charge Point (UCP) provides the flexibility to cope with an array of road layouts in an urban environment, maintaining a high level of performance. A UCP also has advantages over a pure ANPR solution, for example:

- It allows the easier flexibility to charge by time of day/direction
- It enables easier payment for the road user
- It offers the possibility of linking together payment for other traffic-related services

A UCP consists of Automatic Number Plate Recognition (ANPR) together with Dedicated Short Range Communications (DSRC) technology. The DSRC technology is made up of a tag and beacon system, with the tag positioned in the vehicle and the beacon mounted on a single pole at the roadside with the ANPR solution. All vehicles are captured by the ANPR whilst tag-equipped vehicles are recognised by the beacon and matched with the ANPR evidential records. Non-equipped vehicles are identified using ANPR only.

Satellite-Based Charging

Road pricing based on satellite technology (GNSS) enables the customer to introduce a fair scheme that can differentiate the charging by time of day, road type, distance driven, vehicle type, emission class and many other variables. The proven Siemens solution offers the following advantages:

- A high level of flexibility and scalability
- No roadside infrastructure required to capture road usage data
- Ease of use for occasional users
- A platform for value added services
- An off the shelf solution

Siemens has been involved in many GNSS projects worldwide including the first GPS/GPRS field trial which took place in the Puget Sound region of Seattle, USA.

The Puget Sound Regional Council set out to ascertain if an off the shelf satellite-based road pricing system could be used to reduce congestion in a large urban area covering over 16,000 sq km. Another objective was to investigate the social behaviour change that road pricing could induce.

Siemens successfully implemented a time distance place road pricing solution within the challenging timeframe, proving the maturity of the technology and the positive behavioural change that can take place.

Siemens has also been heavily involved in other systems globally, ranging from the lorry charging scheme throughout the autobahn network in Germany, to successful trials in Singapore, to comprehensively proving that GNSS-based road pricing can work in dense urban areas through participation in trials held in central London.

In addition to the solutions outlined, Siemens has also been awarded the Low Emission Zone (LEZ) project from Transport for London, launched in February 2008.

With over 30 years' experience in traffic management systems, Siemens combines reliable, robust products with proven delivery to ensure a quality solution.