Santiago opts for integrated traffic management

Standardisation eases exchange of information on Chilean toll motorway

When Autopista Central was awarded a concession to build and operate one of four urban motorways in the Chilean capital, Santiago, it contracted a consortium formed of Spain’s SICE and Sweden’s Kapsch Traffic (KTS) to implement not only the agreed tolling system, but also that covering the traffic management system. 'By doing that, we effectively transferred integration risks to the consortium,' notes COO Salahdin Yacoubi. 'But that does not mean to say that we were not involved in every stage of the development cycle, because we were! In fact, by working closely with the turnkey contractor, we were able to ensure that the project progressed as smoothly as possible.'

All four concessionaires involved in the Santiago urban motorway network must use the European CEN standard tag and transceiver systems to ensure continuity and ease of inter-change between the individual concessions, although this is the only technological standard that all must adhere too and is set out in the concession contract.

Notwithstanding a common approach to tolling technology, each of the four motorway concessions takes a quite separate approach towards traffic management. Each concession has its own Traffic Control Centre (TCC), with no integration between the four TCCs planned at this early stage.

Nevertheless, information from Autopista Central’s TCC is shared with the city's own traffic management system, which receives the same real time data, including CCTV images, which the concessionaire's own controllers see.

"Our TCC was supplied and put into operation by SICE, which we regard as one of world's top manufacturers of traffic management and traffic control systems, especially in areas such as traffic signals and light coordination," emphasises Yacoubi.

Given that the Autopista Central concession covers just 60km of urban motorway, it was possible to link all peripheral devices run by the TCC by fibre-optic cable, thereby obviating the need to use any form of radio. The company's WAN enables controllers to view 100% of the network using 123 CCTV cameras supplied by Phillips, whilst additionally monitoring vehicle movements at all the access and exit roads through the use of traffic sensors. Traffic flow information on the main highway is also collected every 2km.

'We have a network of 54 variable message panels, supplied by Odeco, Spain, connected to the WAN, which enable us to broadcast travel time and safety recommendations, as well as alerting drivers to other sorts of hazards or delays,' explains Yacoubi.

Incident detection, which makes use of standard detection algorithms, is fully automated and wholly integrated into Autopista Central’s CCTV system. When something untoward is detected, CCTV cameras automatically focus on the area where it has taken place and images from the scene immediately pop up on the video wall in the TCC. The traffic management software then suggests appropriate causes of action, although what then ultimately happens is left to the discretion of the controllers (of which there are four per day time shift and two during the night).

Interestingly, as part of the whole concession agreement, Autopista Central was obliged to install 154 SOS posts the length of the network, although Yacoubi reveals that the increasing availability and usage of mobile phones has effectively made such provision all but redundant; emergency services nowadays are almost wholly summoned by mobile phone.

The urban nature of Autopista Central’s network has also obviated the need to include any weather stations on the motorway, since these would serve little or even no functional purpose.

In terms of analysing overall traffic patterns at any given moment, Yacoubi reveals that monitoring devices pick up data of every kind, allowing controllers to know the density of traffic, the percentage of each type of vehicle on the motorway, not to mention lane occupation and vehicles speed, among other indicators.

"No plans currently exist to share this information with anybody else except the city of Santiago's own TCC," he notes.

There are only two tunnels on the 60km road, of 700m and 500m in length respectively, which can also be remotely monitored from the TCC, where ventilation, gas emissions and traffic conditions are all logged.

"In terms of communicating with drivers wishing to obtain real time information regarding traffic conditions on Autopista Central, we are shortly to start making available live images on our web site. This feed is also to be made available to TV stations, allowing them controlled access to our TCC connection."