Signalling the Future

We stand on the threshold of a rapid technology leap for traffic systems. Cities in the Middle East and around the world need to evaluate their traffic infrastructure, says **Jon Newhard**, CEO of Trafficware.

Starting with the 2017 model year, large automobile manufacturers have announced their flagship cars will offer new connected vehicle features. If results are as favourable as the early returns, and auto manufacturers launch products like Audi's award-winning Signal Assistance programme, the next few years could bring a rapid technology leap for traffic systems.

Cities in the Middle East and around the world need to evaluate their traffic infrastructure. Are they ready? Can their traffic management systems perform the necessary functions, including communicating with the cars on the road? True "Smart Cities" that are ready for this wave of technology will be rewarded with improved safety and improved efficiency along their transportation networks.

Earlier this year one of two smart city pilots came online outside of the San Francisco Bay Area in the US. In a joint effort with the City of Walnut Creek and multiple transportation authorities, they deployed cutting-edge technology that allows all 100 of the city's traffic signals to talk to smartphones through a free application called EnLighten, available for Android and iPhone users.

The app operates through a link with the city's digitally controlled traffic signal system data via the City's ATMS central management system and converts that into meaningful driver information.

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No driver involvement

A few seconds before a red traffic light changes to green, the app will notify a driver through an audio alert. The functionality requires no driver involvement and conforms to local laws regarding cell phone use while driving. City officials hope the technology will help smooth traffic and encourage drivers to pay more attention at busy intersections.

The new traffic technology application was designed to help distracted drivers, and city officials believe that by opening its roadways to technology it makes streets safer in the future. While it is understandable that no city really wants to be first with new technology, none wants to be last either. The City has been eager to see the benefits of this application, since the technology could be widely deployed if it proves successful in improving safety at intersections.

Located in the heart of Silicon Valley and home to Stanford University, the City of Palo Alto's new Smart Vehicle Module is part of their Traffic Signal System Upgrade. The current Smart Vehicle Data technology will expand the type of data available for these systems, and all data will be transmitted in a raw (non-proprietary) file format.

Palo Alto has designed its Smart Vehicle Data Exporter so that their ATMS system data will be exported to an external gateway (open data server), located outside the City's firewall. The public may access this server and query specific traffic signal data quickly and securely, without directly accessing the City's traffic signal network. Likewise, major European, American and Asian auto manufacturers are using this data format in the design of their vehicle-to-infrastructure ("V2I") offerings. The real-time data is then transmitted to the vehicle and provides a number of safety features and conveniences for the driver.

Data provided by signal controllers, sensors, and central management software or advanced traffic management systems (ATMS) is used by an aggregator/distributor to predict and time-calibrate the state of the traffic signal, so auto manufacturers can incorporate the benefits of this knowledge into their telematics and in-vehicle information systems.

For the Gulf region, the implications of smart roads are threefold. First, the need for a central management system that can communicate to the standards being used by the automotive community. The second is for traffic data networks that can handle the data flow needed for connected vehicles. Lastly, smart cities need to be able to translate traffic data into a consumable format for in-vehicle information systems. □