How technology is used in our roads and

Considerations for the A9 Dualling Perth to Inverness

CCTV

CCTV is a crucial way of monitoring incidents on any busy road and currently is being used in two locations on the A9. Updating CCTV technology to the latest available versions and placing them in locations where they will be most useful, such as at junctions, is something the engineers planning the A9 have to take into consideration. Technologies such as infer-red systems would allow the CCTV systems to observe their surroundings, even in partial light or in darkness and these are also important to consider.

Variable Message Signs

Gone are the days when signs were fixed and un-changing; now systems can be installed which allow sign's content to be centrally controlled and altered to suit the changing environment and conditions on the road. A central control room can interpret data such as weather conditions and traffic flow and make instant changes to use signs to inform drivers of the road ahead.

Power and Signal

Because of the rugged and varied landscape that the A9 runs through, as well as the remoteness of some of the locations, how to power these variable signs and other technologies has to be carefully planned as well. Renewable sources of energy such as wind and solar, as well as fuel cells to capture and harness this energy are one possible way of overcoming this. With mountainous, uneven terrain surrounding the road, finding locations to place technology where the path of Wi-Fi or Bluetooth won't be disrupted can be as important as the technology itself.

Distributed Acoustic Sensing (DAS)

DAS are cables that run underneath roads which, through sensing vibrations, can provide information about traffic flow and any traffic build-ups. This information can then be used to decide what the signs should read, as well as to observe patterns in traffic disruption.

Vehicle Communications

In an age where we rely on our phones and sat-navs to get around, wouldn't it be wonderful to have information about where traffic flow sent directly to your portable personal device through an app.

Transport planners are turning more and more to Wi-Fi and Bluetooth as a means to communicate directly with drivers and vehicles themselves, rather than relying on signs alone. With Adaptive Cruise Control systems becoming increasingly mainstream and entirely autonomous vehicles on the horizon, direct communication between roads and the vehicles that are driving on them is going to become more and more important. With technology rapidly changing and these changes often being driven by car manufacturers rather than those that plan the roads, it is important that new infrastructure is equipped to adapt to whatever changes lie ahead.