Monitoring and data acquisition for the safety related traffic information services
1. Transport Scotland and Traffic Scotland operation and traffic information dissemination

2. Overview of the current situation concerning road safety and safety related traffic information services in Scotland

3. Current examples

4. Future plans and action

5. Summary
Transport Scotland is the national transport agency for Scotland that aims to increase sustainable economic growth through the development of national transport projects and policies.

OBJECTIVES

- Environment
- Economy
- Safety
- Integration
- Accessibility
The operation of the trunk road network covers a broad spectrum of duties that influence road safety on the network, including:

- minor improvement schemes
- maintenance schemes
- winter service
- real time journey information
- variable message signs
- road safety schemes
The plan takes forward the work of Transport Scotland

• by addressing historic accident sites; and

• by identifying measures to address potential accident locations
The plan shows how we are making improvements to road safety by:

- harnessing intelligent solutions
- demonstrating innovation and
- working with partners, whilst sharing best practice with roads authorities across Scotland and throughout Europe.
"A steady reduction in the numbers of those killed and those seriously injured, with the ultimate vision of a future where no-one is killed on Scotland's roads, and the injury rate is much reduced."

The Scottish Government, 2009

- A 40% reduction in the number of people killed or seriously injured (KSI) in road accidents
- A 50% reduction in the number of children killed or seriously injured
- A 10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle kilometres
Traffic Scotland

- forms part of the Network Operator Role within Transport Scotland, alongside the Strategic Road Safety Unit and the Development Management team

- operates and manages Scotland’s driver information and traffic control system

- collects monitors and communicates information on around 15,000 unplanned incidents on the network annually, including breakdowns, accidents and severe weather events, thereby helping to minimise the impact of these incidents on the users of the network

- all the information is provided free of charge at the point of delivery to all users

- Network Operations manages the Traffic Scotland ITS and associated web services
Network Operations uses a wide range of ITS to deliver its three core functions of monitoring, controlling and informing across Scotland’s trunk road network, 24 hours a day, 365 days a year.

Network Operations Objectives are to:

- Improve journey time reliability
- Reduce disruption caused by incidents, roadworks and events
- Minimise the effect of congestion by the provision of alternative route advice
- Promote the ability of travellers to make informed decisions...through the provision of timely credible and accurate travel information
- Improve safety and security for travellers
The Scottish Network

- TS is responsible for overseeing the construction, maintenance and operation of Scotland’s trunk road and motorway network

- 78,772 sq/km²

- 3,500 km of Trunk Roads

- 1,900 bridges and 3,700 other structures

- There are 4 geographical maintenance divisions
Current ITS equipment employed across the network includes:

- 203 fixed variable message signs
- 6 mobile variable message signs
- 499 overhead lane control signals
- 38 combined lane control signal/single line variable message signs
- 60 motorway access control units
- 3 rotating prism signs
- 789 emergency roadside telephones
- 388 hazard warning flashers
- 269 CCTV cameras
- 776 traffic monitoring sites
- 1 ramp metering site
- 17 weather stations
- 38 Bluetooth based journey time monitoring sites
- 326 ANPR based journey time monitoring sites
Use of the data collection equipment

- CCTV/Automatic Number Plate Recognition cameras
- Average Speed Cameras
- Journey time monitoring sites
- Traffic Monitoring sites
- Emergency roadside telephones

To control traffic
- Overhead Lane Control Signals
- Hazard Warning Flashers
- Ramp Metering Sites
- Variable Message Signs

To inform
- Variable Message Signs
- Mobile Variable Message Signs
- Journey Time Monitoring Signs
- Local and commercial radio and national media
- The Traffic Scotland desktop and Traffic Scotland Mobile websites
- Smartphone applications on 95% of all current smartphone platforms
- Traffic Scotland Internet Radio
- RSS feeds and Twitter
Dissemination of information
Dissemination of information

- focussed on the strategic motorway and trunk road networks
- streamed over the internet
- available through the Traffic Scotland desktop and mobile websites as well as on smartphone apps delivering integrated public transport and traffic information on iPhone, Android, Windows Phone, BlackBerry and Kindle fire tablet platforms
- the service currently requires Javascript to be enabled
More ways to access traffic information

RSS Feeds / Twitter

The feeds allow users to get the latest traffic information for the trunk road network in a way that is best suited to their needs. In addition, the Traffic Scotland Twitter service both automatically tweets relevant real-time traffic related information and provides a two-way communication between the user and the provider.

The following feeds are available:

- **Current Incidents**
  Current incidents on the road network e.g. accidents, weather alerts

- **Roadworks**
  Roadworks currently being undertaken on the road network

- **Planned Roadworks**
  Future roadworks on the road network
Multiple ways to access traffic information

- Mobile website
- Mobile Applications
- Travel Information Kiosks
- Traffic Customer Care Line
Traffic Scotland Datex II Service

- Traffic Scotland enables the collection and distribution of real-time traffic information occurring across the Scottish Trunk Road network in order to ensure that the safety and efficiency of the network is maintained.

- Traffic and travel information is made available to other organisations such as local authorities, information providers and other national roads authorities via the Traffic Scotland DATEX2 feed for approved subscribers.

- The data currently published by Traffic Scotland includes:
  - Unplanned Events
  - Roadworks
  - Future Roadworks
  - Traffic Status Data
  - Traffic Status Sites
  - VMS Settings
  - VMS Locations
  - Travel Time Data
  - Travel Time Sites
Weather Information

- Traffic Scotland monitors and collects information about weather events

- Data from road weather monitoring stations provides localised road related weather information at single points on the network; this include:
  
  - Location Name
  - Date Last Updated
  - Road Surface State
  - Road Surface Temperature
  - Air Temperature
  - Wind Speed
  - Wind Direction
  - Precipitation State

- Information, severe weather warnings and police advice is relayed to user via VMS, on the desktop website and mobile applications, internet radio travel information broadcasts and through the Customer Careline
Weather Information

Monitoring and data for the safety related traffic information
BPMD Workshop, Helsinki – 12th September 2013
A9 is Scotland's longest trunk road stretching from central Scotland to the far north.

One of Scotland’s most dangerous roads; 687 motorists were charged for speeding between Perth and Inverness in ten days in August 2013.

“The A9 is one of Scotland’s most important routes, linking Inverness to the rest of the country and it is extremely important that it is as safe as possible for all road users.”

Transport Minister Keith Brown

The multi agency A9 Safety Group has recommended (as part of a wider package of measures) that an average speed camera system is introduced to help cut down on the number of accidents.
Average Speed Cameras System

- The aim is to reduce accidents and fatalities on the road
- It will be the second permanent average speed camera scheme in Scotland
- The second longest system of average speed cameras in the world; after Australia
- Expected to be fully operational in the summer of 2014
- Cost: £2.5 million
• Mandatory variable speed limits will be applied when necessary.

• During incidents or periods of congestion when demand exceeds capacity the system will set signals and message signs to inform and advise drivers to effectively manage incidents and reduce queues.

• Evidence indicates that systems which reduce vehicle queues can reduce accidents resulting in injury by up to 13%.
The new gantry above the M90 Masterton junction in Fife
Implementing a managed motorway network across the Central Belt could significantly reduce the accident rate on the trunk road network. This would reduce the number of accidents occurring in and around Glasgow and Edinburgh especially.

**Phase 1** - variable speed limits, variable message signs, ramp metering at key junctions and average speed enforcement measures

**Phase 2** - additional functionality through further provision of ramp metering and hard shoulder running

**Phase 3** - improved functionality through targeted use of the hard shoulder as an additional ‘managed lane’ for priority vehicles
COMMISSION DELEGATED REGULATION (EU) of 15.5.2013

List of road safety-related events or conditions

- minimum universal traffic information service shall consist of at least one of the following categories:

(a) temporary slippery road;
(b) animal, people, obstacles, debris on the road;
(c) unprotected accident area;
(d) short-term road works;
(e) reduced visibility;
(f) wrong-way driver;
(g) unmanaged blockage of a road;
(h) exceptional weather conditions.

Traffic Scotland currently provides real-time traffic safety-related information including majority of the above categories with the exception of unprotected accident area (each accident area is protected and wrong-way driver (there is no specific system in place).
Best Practices

• Take ownership of information provision at the beginning

• Use of open standard for data sharing

• Use as many sources of dissemination as possible

• Ensure consistency, robustness and timeliness of data being disseminated

• Engage with as many stakeholders as possible (both internally and externally) on what information and services are being provided and what may be useful to them
THANK YOU

Peter Cullen
peter.cullen@transportscotland.gsi.gov.uk

Andrew Reid
andrew.reid@IBIGroup.com