Future Intelligent Transport Systems Strategy 2017 to 2022

Transport Scotland

Research and Consultation Summary Report

B2270500-DOC-008 | 2.0

25 July 2017

Future Intelligent Transport Systems Strategy 2017 to 2022

Project No:	B2270500
Document Title:	Research and Consultation Summary Report
Document No.:	B2270500-DOC-008
Revision:	2.0
Date:	25 July 2017
Client Name:	Transport Scotland
Client No:	
Project Manager:	Stephen Craig
Author:	Stephen Craig
File Name:	B2270500-DOC-008 Research and Consultation Summary Report Rev 2

Jacobs U.K. Limited

95 Bothwell Street
Glasgow G2 7HX
United Kingdom

T +44 (0)141 243 8000

www.jacobs.com

Document history and status

Revision	Date	Description	By	Review	Approved
1.0	07.07.17	For Transport Scotland Review & Comment	SC	PG / DV	SC
2.0	25.07.17	For Transport Scotland Approval	SC	PG / DV	SC

Contents

Executive Summary

Transport Scotland is developing a Future Intelligent Transport Systems (ITS) Strategy, for the period 2017 to 2022, incorporating emerging technology whilst still maximising immediate return on investment. In developing the ITS Strategy, the identification of customer needs has been a key focus of the work. Workshops, research into approaches taken by other authorities in developing an ITS Strategy around the world, and focus groups and telephone interviews have all been carried out to support the development of the strategy.

Transport Scotland first held a workshop with staff and representatives from their key stakeholders to ensure that their opinions were canvassed before substantive work began on the development of the ITS Strategy. The workshop focused on the existing ITS offering and reviewed this against a number of key questions and future outcomes. The workshop confirmed that there is an appetite for innovation, but also reinforced that the safety of the traveling public is of paramount importance. There is a real understanding that now, perhaps more than ever before, change is coming due to in-vehicle systems and how data can be processed and information disseminated.

To provide contemporaneous context for the ITS Strategy a review of other national and state level ITS strategies, action plans and reports issued since 2010 was undertaken to determine best practice. The outcome of each of the reviews was then collated in a summary report with the good practice in developing an ITS Strategy and the characteristics of a good ITS Strategy being embedded in the ongoing work.

Transport Scotland also recognised that an early component of the development of the ITS Strategy needed to include a period of stakeholder engagement and the identification of future requirements. This stakeholder engagement focused on two key areas: the needs of the road user customer; and the needs of internal and external data users and necessitated the appointment of a specialist market research company.

In order to gather perceptions of current ITS provision and future needs, a number of focus group sessions were developed and conducted at locations across the country (Glasgow, Dunfermline and Inverness). This spread of geographic locations ensured that responses were captured from both urban and rural communities and in parts of Scotland that experience different levels of ITS provision. Other characteristics such as age, employment status, gender and usage of the trunk road network were also selected.

In parallel with the road user customer focus groups, a survey (via telephone interviews and collated responses to an email questionnaire) of subscribers to Transport Scotland's data feeds was also undertaken. This has given Transport Scotland a better understanding of how their data customers consume the data, what datasets are of particular importance to them and to what extent (if at all) Transport Scotland is collecting and making available data that no one is using.

1. Introduction

1.1 Purpose of Report

Transport Scotland is developing a new Future ITS Strategy, for the period 2017 to 2022, incorporating emerging technology whilst still maximising immediate return on investment.

In developing the ITS Strategy, the identification of customer needs has been a key focus of the work. This has been accomplished in the following ways:

- A workshop was held with key stakeholders, contractors and existing technology providers to review the existing ITS vision;
- A review of other national and state level ITS strategies, action plans and reports issued since 2010 was carried out;

A specialist market research company was commissioned to:

- Undertake a number of focus group sessions, at locations around the country, to gather their perceptions of current ITS provision and their future needs;
- A telephone survey / email questionnaire of data subscribers to Transport Scotland feeds was carried out.

This report provides a summary of this research and consultation that has aided the development of the ITS Strategy.

1.2 Structure of Report

Chapter 2 details the proceedings and findings of the workshop.

Chapter 3 contains an overview of the review of other ITS Strategies.

Chapter 4 is a summary of the focus group output.

Chapter 5 includes the summary of the data subscribers' survey / questionnaire.

The annexes to the summary report provide the complete documents referenced in each of the preceding chapters and those created as part of the specialist market research.

2. Intelligent Transport Systems Strategy Workshop

2.1 Objectives of the Workshop

To engage Transport Scotland's key ITS suppliers and ensure their opinions were canvassed before substantive work began on the development of the ITS Strategy.

2.2 Participants

The workshop was held on 30th August 2016 with key Transport Scotland staff and representatives from the following selected stakeholders:

- Traffic Scotland Systems Contractor (TSSC) – Cubic Transportation Systems / IBI Group;
- Traffic Scotland Operations and Infrastructure Services Contractor (TSOIS) – Amey;
- Jacobs U.K Limited, Transport Scotland's consultant responsible for the preparation of the ITS Strategy.

2.3 Purpose and Format

The workshop focused on a number of key areas: Solutions, Features and Services; and set out to review the existing ITS vision against the following questions:

- What does Transport Scotland need to retain and improve?
- What needs to be done to move to where Transport Scotland aspires to be?
- How can Transport Scotland get best value from innovation?
- How could Transport Scotland get better service / applications from the Private Sector?

The workshop also considered the current 'state of the art'.

2.4 Presentations Made

Presentations were delivered to provide a scene setting of the short and medium term priorities, these covered the following topics:

- Developing a new ITS Strategy for Scotland – Andrew Davidson, National Operations Manager: Transport Scotland;
- Traffic Scotland System – Cubic / IBI;
- Control Room Services – Amey;
- Technology Maintenance – Amey;
- Information Services – Cubic / IBI.

2.5 Outcome

The workshop confirmed that there is an appetite for innovation, but also reinforced that the safety of the traveling public is of paramount importance. There is a real understanding that now, perhaps more than ever before, change is coming due to in-vehicle systems and how data can be processed and information disseminated.

Annex A provides a summary of the workshop output.

3. Review of Intelligent Transport Systems Strategies

3.1 Objectives of the Review

To provide contemporaneous context for the Transport Scotland ITS Strategy a review of other national and state level ITS strategies, action plans and reports issued since 2010 was undertaken to determine best practice.

3.2 Methodology

24 documents from Europe, North America and Australasia that were sourced through web searches or through Transport Scotland contacts have been reviewed in detail. They were identified as either being an ITS Strategy, a component of an ITS Strategy or a complementary document to a Strategy. A further 21 documents identified were considered to have little or no relevance to ITS, or were actually reports on ITS achievements rather than strategies and were not subjected to detailed review.

3.3 Detailed Report

B2270500-DOC-007 Review of ITS Strategies Rev 1 – March 2017 provides a comprehensive record of the review of ITS strategies and is included as Annex B.

The review report details the methodology used to source the various strategies and action plans and contains a list of documents reviewed, and where applicable web links to the source documents. It describes the structured form based review methodology used for the national and regional strategies and provides a general discussion on the documents reviewed; their coverage (technically and temporally) and the future predictions of the state of the art reviews. Short precis of the individual documents highlighting objectives and themes covered are provided including the relevance to the objectives for the Transport Scotland review. The 24 two-page forms with the details of the individual strategy reviews are also included.

3.4 Findings

3.4.1 General

The reviews highlighted that no single approach is favoured: some concentrate on the relatively near future as action plans; and others take a wider view looking towards desired longer term outcomes. In some cases the ITS Strategy has been a springboard for smaller documents focussed on strategic themes or web-site content that reflects an evolving strategy.

All strategies are sub-divided in some way across a set of themes, some of which are strategic and some delivery facing. In general the strategic theme approach is more understandable to the reader.

3.4.2 Good Practice in Developing an Intelligent Transport Systems Strategy

Within many of the strategies, sometimes supplemented by other documents and papers and through web-sites, there are a number of areas of good practice that are common. These can be summarised as follows:

- **Reflection of political need** – economic, environmental, technical, research and transport policies;
- **Reaction to defined user needs** – end users, organisational users and user communities and groupings;
- **Technology advancement** – ITS exists because of technological advances, it continues to advance and ITS should keep up. Connected, cooperative and autonomous vehicles; smart cities, big data analytics, cloud computing; the growth of smart phones, mobile devices and the capability and capacity of communications are all cited as strategy drivers;

- **Cognisance of all of the transport sector (even if the strategy is specifically inter-urban)** – a bigger picture, looking at connections, modal change, and in newer strategies an understanding of concepts such as Mobility as a Service (MaaS);
- **Setting a horizon** – some put a time period on the validity of the strategy, others commit to reviewing after a certain period (Finland is a good example);
- **Setting out who is to be involved** – the majority of strategies talk about collaboration and consensus. It is clear that the better, more open and ambitious strategies are also those that have moved away from the public sector setting out what they want to see as outputs to a more user-centre outcome based set of goals. To varying extents strategies identify active stakeholder working groups and management structures for delivery.

3.4.3 Key Characteristics of Good Intelligent Transport Systems Strategies

Three things are apparent from this review:

1. Having a good, formal strategy gives impetus to collaborative working that leads to active strategies;

2. Canvassing user and stakeholder needs and involving them brings clarity of purpose; and

3. A distinct public/private sector management board or leadership group provides focus and direction.

Where new technologies are advancing into the market, for example the increasing solid foundation of vehicle systems, it is important for public authorities as main sponsors of ITS Strategies to address the subject pro-actively to enable the full benefits of the technology to be realised.

There is good evidence that in countries where the ITS Strategy is reviewed regularly it appears to be adaptable and facilitates achievable action plans for deployment.

4. Focus Group Consultation – Understanding the Needs of Users

4.1 Objectives for the Focus Group Exercise

Transport Scotland commissioned a specialist market research company to develop and conduct a number of focus group sessions at locations across the country (Glasgow, Dunfermline and Inverness) to gather their perceptions of current ITS provision and their future needs. The rationale behind choosing the three different geographical locations was to ensure that responses were captured from both urban and rural communities and in parts of Scotland that experience different levels of ITS provision. The research also aimed to include people with different experiences and backgrounds i.e. characteristics such as age, employment status, gender and users of the trunk road network.

4.2 Background and Methodology

The aims of the focus groups were to provide information that would support the development of the ITS Strategy with an informed view on:

- What do we currently do well?
- What do others do better?
- What should we do in the future?

4.2.1 Subject Areas

The subject areas for the focus groups were as follows:

1) Key sources of travel information
    a) Information sources used when planning ahead
    b) Information sources used on route
2) Use of Transport Scotland Information Sources
    a) Traffic Scotland Website
    b) Traffic Scotland Social Media / Smartphone Apps
    c) Transport Scotland information / other information sources
    d) The impact of travel information
3) Driver Information Signs
    a) Recall of driver information signs
    b) The role of driver information signs
4) Future Needs

4.3 Summary of Findings

The focus groups yielded valuable information across a range of ITS areas, including how people feel about the information made available through Variable Message Signs (VMS), social media, satellite navigation systems, smartphone apps, websites and radio broadcasts. It has given an interesting insight into how people journey plan and what preferences they have for consuming traffic and travel information.

The focus of peoples' concerns are around journey times and journey time reliability; the desire for a safe and efficient transport network available when they want to travel; and accurate, up-to-date and reliable sources of travel information available across a variety of media platforms.

Annex C presents the Focus Group Consultation Report provided as a summary of the work undertaken.

5. Data Subscriber Survey Output

5.1 Objectives for the Survey

Transport Scotland collects and uses a huge range of data in the course of operating its ITS services. Much of this data is made freely available to people and organisations who have a use for it via DATEX II feeds and through the National Traffic Data Service (NTDS).

In developing the ITS Strategy, Jacobs engaged the services of independent market researchers Research Resource who undertook telephone interviews and collated responses to an email questionnaire with subscribers to Transport Scotland's data feeds. This was to help us to understand how they consume the data, what datasets are of particular importance to them and to what extent (if at all) Transport Scotland is collecting and making available data that no one is using.

5.2 Research Methodology

Transport Scotland issued an email to all DATEX II feed subscribers requesting permission to be contacted about the survey. The majority of positive respondents requested contact by email with the rest preferring telephone.

The questionnaire comprised of three sections. The first section was on background information such as why the organisation originally applied to use data feeds from Traffic Scotland and about the ease of signing up to access the data. The second asked respondents about their current data usage, for example which data feeds they currently and actively use, how they use this data and how they would rate the data feeds. Respondents were also asked about the benefits to their organisation of having this data, what they would do in the absence of the data, any suggestions for improvement and their reasons for no longer using certain data feeds (if this is the case). The final section was asked of dormant users who were currently not using any of the data feeds. They were asked for opinions on the data feeds they did use and why they no longer use these data feeds.

5.3 Summary of Findings

In general, the main reasons for using the DATEX II feeds were to information share via feeds such as unplanned events, roadworks, traffic status, VMS messages, travel time data and to add live camera images to either a website or app. The absence of this data would therefore have a knock on effect of not being able to provide travel information or to have to access it via a different source or install additional roadside equipment.

It was noted that the most commonly used feed was the live traffic cameras.

Respondents reported that the availability of the data feeds offered benefits to their organisation and allowed them to enhance the information that they provide to their customers.

A number of areas for improvement were suggested regarding the format of the RSS (Really Simple Syndication) structure, comparisons to Highways England provision in relation to unplanned events, download of live camera images via FTP rather than HTTP, camera refresh times. Specific responses also included requesting more availability of fused data and of machine readable data.

Annex D presents the DATEX II Stakeholder Survey Report provided as a summary of the work undertaken.

Annex A. Intelligent Transport Systems Strategy Workshop 30th August 2016 – Record of Output

Transport Scotland ITS Strategy Workshop – 30.08.2016

Transport Scotland has requested that Jacobs prepare an Intelligent Transport Systems (ITS) Strategy for the period 2016-2026 including the production of an initial five year Action Plan. This strategy will review the maturity of the ITS implemented to date across the network; the current planned ITS delivery on existing schemes; future planned ITS upgrades and; provide a longer term strategy for the delivery of ITS on the network.

A workshop held with Transport Scotland staff and selected key stakeholders on 30th August 2016. The purpose of the workshop was to review the existing ITS vision across Network Operations, Cubic / IBI as the Traffic Scotland Systems Contractor (TSSC) and Amey as the Traffic Scotland Operations and Infrastructure Services (TSOIS) Contractor.

The purpose of this document is to record the: ideas raised during the post-it note session on Solutions, Features and Services; the points raised during the flip-chart sessions on Expectations and the group sessions on:

- What do we want to retain and improve?
- What needs to be done to move to where we aspire to be?
- How can we get best value from innovation?
- How could we get better service/applications from the private sector?
- State of the Art and Concluding Remarks.

Brain Storming Session on Solutions, Features & Services:

The following notes are a direct copy of the post-it note ideas submitted by the meeting attendees.

Solutions:

- Diversion and Load Balancing direction info (on street, in car)
- Clear and structured strategy
- Utilising and maximising existing asset
- Flexibility for innovation
- Wider deployment of intelligent road stud technology to increase safety and reduce night time accidents
- Autonomous (vehicles?)
- Connected vehicles
- Public transport
- Network wide integration of ITS and road lighting through real time traffic detection and dynamic lighting control
- Need for new traffic detecting equipment
- Closer collaboration with industry and academia
- Opportunity to review business as usual-fix current issues
- An ICT strategy covering consolidation and refresh of systems
- TS assets power supplies, cable heads
- Facilitate renewables growth
- Integrated systems and reporting facilities
- Improved network monitoring and alerting
- Integrated systems
- Collaborative design involving liaison with end users
- Signing campaigns (tourist, whisky, other economy benefiting industries)
- Low emission restrictions (smoother flow, lower speeds)
- Quantification of benefits of using ITS
- In car, location specific info (virtual VMS, route guidance)
- Most up to date comparisons taken to what is available in a world-market
- Integration with existing design standards or advising development of standards/regulations and guidance
- Definition of how we measure network performance
- Improved data sharing/collection/processing
- Personalised and dynamic travel updates through new in vehicle technologies
- Improved social media interaction with road users
- Consider linking CCTV to ERT with auto move to active call without need to operator intervention
- Improved interface to current services (e.g. operational process; external users)
- Must support emission reduction across carbon CO2 and Air NOx/pm
- Improved control of traffic during high winds at exposed locations
- Data access from a user perspective should be straight forward and from a common platform
- “No boundaries” so let’s be brave e.g. driverless vehicles have been coming for a while now but feels we’re at a tipping point
- Drones and use of? How will this impact/improve safety monitoring technology in manpower
- Smart motorway solutions to curb congestion and arrest traffic growth
- Funding strategy to replace “aged” obsolete assets
- Proper asset management
- Informed development decisions
- Improved asset management
- To integrate with other road policies

- Managed motorways
- Park and ride
- Integrate Police Scotland in Traffic Scotland “command & control”
- System interaction of both operations and maintenance

Features

- Stated vision; how ambitious do ministries want to be
- List of short medium and long term actions and the lead owners
- Operational enhancements (CCTV alerting, JT alerting, alerting fusion)
- Availability? E.g. website DR plus TSBF functions
- Correct ITS in station architecture/renewal?
- Single consumer access point for all transport info
- ITS strategy to cover end-to-end travel with inclusion of local authority journeys too.
- Making better use of existing data and analysis to pre-empt/plan and dynamically plan
- Journey Personalisation
- World leading
- Take a risk
- Integrated use of existing assets on TRN
- ITS must help reduce congestion and improve traffic flow (this will result in better fuel efficiency and thus lower emissions)
- Adaptable to future technologies
- Clear goals with specific timeline for delivery
- Keep it simple and achievable
- Google like search engine for information e.g. “how many closures were due to flood”
- Simple integrated user interface
- What to keep/ditch or partner with others to generate more value (monitor, control, inform)
- Smart cities – existing asset and services provide good platform – lighting/TS
- Accessibility to information
- Reporting facilities for records to permit analysis and understand
- User interface
- Timely
- Appropriate/personal
- Integrated (more intelligent) use of existing assets or TRN

Services

- Can we improve predicted delay times when creating incident (15mins, 30 mins etc.)
- Can we monetise its benefits e.g. FRC scheme
- Incident management; high winds, overweight vehicles, flooding and landslides
- Customer focused service
- Informed and delivered to the customer in a productive manner in whatever platform is current at the time
- Collaboration between organisations, systems and single points to source information
- Using ITS to reduce CO2 emissions and pollution
- Role of agency – connecting transport services – cities
- Reliability of service delivery is dependent on field equipment and systems reliability
- Innovative equipment taking lead from industry specialists as well as best parts from other countries
- Readily available information that crosses all forms of transport
- Collaboration with L.A traffic information for cross boundary/seamless travel info
- Improving customer experience – choice of travel – transport mode – information dissemination

- Understanding of technological changes on user behaviour accessing information
- Understanding what information users want. Prioritise need and have a framework to structure info
- Operational experience – transport view across Scotland –Linked view through integrated systems and shared data
- Clear output objectives; Operational – Tactical – Strategic
- Appropriate partnership with other stakeholders
- Information feeds – Website services (JTS, weather, future events)
- As own service or as open data
- Clarity on journey time service
- ANPR camera network combined with DVSA database to help model vehicle movements and emission profile
- Provide joined up information with other services e.g. local authorities
- Services to be underpinned by a realistic budget
- Partnership with commercial providers of JT and congestion data more info to public RE costs of various journeys time/environment
- Planned maintenance monthly 3, 6, 9 & 12 visits
- Fault response just in time
- Personalised information for public/users
- AMS – ITS linked to OC assets – improve/reduce damage through third party contracts – resurfacing etc
- Improvement to disaster recovery – links to resilience
- Comparison of transport modes
- Existing information providers; Share/partner/complete
- Connected vehicles – V2V – V2I – when do we need to plan for it and how?
- Journey time
- Text to speech, personalised and dynamic travel updates through providing data to in-vehicle suppliers
- Social media interaction with media
- Investigation of traffic message channel feature on RDS radio and DAB as a real radio service in view of “Traffic Scotland radio”
- Expand CCTV to rural areas
- Confirm if continue to provide data services and website breadth and depth
- Streamline data availability analysis and reporting for operations, for customers, for value added services providers
- Review data service do we need to provide/collect
- Is there value in the data?
- PFI and DBFO – ITS provision
- Improved contracts to improve value for money
- Understanding of what other suppliers can and how we work together e.g. Google

Other

- Asset renewal – Ditch ERTs?; Replace lane control
- Validate – need for ITS data collection and publication
- ITS strategy focus on Traffic Scotland or transport/multi-mode?
- Confirm – current services to provide (roadside VMS deployments funding for VMS/CCTV)
- Innovation stream (funding and R+D projects)
- How do we show the benefits of ITS to the Scottish economy?
- Maintaining an ageing asset (obsolete equipment, gantry size and legibility)
- Strengths, weaknesses, opportunity, threats, analysis of the different services areas
- ITS 2026 generates strategic marketing plan to sell ministerial buy in
- Transport policy – national budget – strategy implementation

- Data – who gathers it? Who analyses it? Who uses it? Who pays for it?
- Standards for gantries/VMS – Fife ITS vs Glasgow – Mandatory vs advisory variable speed limits
- What is TS role in informing managing the future traveller?
- What do TS see as their future role?
- “National” agency? Operator? Facilitator?
- Where do we go with web services? (T.S. website, social media, Roadworks information etc.)
- Expectations? A strategy that has engaged with the end-user in some way – is that feasible?
- Help to prepare for driverless vehicles
- Example of balance – major investment already done in ANPR/Bluetooth, got to get involved with private sector whilst beneficially from the public investment
- Do we need a full consultation process to under-score what services are wanted, before confirming what to provide?
- Are there possible revenue streams for ITS infrastructure (Ducts available? Fibre capacity etc.)
- Radical pitch or presentation of ITS requires a marketing view in order to sell to ministers (too many technical engineers guiding the journey)
- How to embed cost benefit process info project selection and automatic benefit value review calculations)
- What has not worked in the previous ITS strategy and why? Don’t repeat mistakes or address barriers
- Users want personalised services – will TS be involved
- Data coverage
- What are the problems we are trying to address?

Expectations:

The following notes are the expectations of all workshop attendees:

- Customer expectations and needs
- Mission statement
- National metrics
- Winter/planning/response/weather
- TSRGD opportunities
- Blue sky thinking – push boundaries
- Crazy ideas – disruptive elements
- Other ways can deliver for customer – other systems/suppliers
- Sustainability metrics
- Procurement of required infrastructure and services
- Roadwork safety – install – maintain
- Shared ownership of strategy
- Flexibility
- Measure/Tangible benefits
- “Open data”
- ITS congress building on
- Innovation – existing technology
- Vision – structures/principles
- Safety camera role
- Existing infrastructure – weather
- Standards linkage
- Policy linkage
- Integrated transport – Transport/Traffic Scotland
- Information services direction
- Emissions C02
- Low emission zones
- Safety and efficiency
- Journey time and reliability and demand management
- Collaboration
- Funding/deliverable – spending review
- Road safety contribution
- Boundarylessness
- Best value of innovation
- Better cross team working
- Equipment/system reliability new and existing
- Maintain all existing equipment or focus on areas of current need?
- Budget constraints vs vision
- Fixed roadside infrastructure vs virtual/in-vehicle
- How is it sold to ministers/stakeholders? In relation to competing pressures, is ITS “sexy”?
- Retain – VMS capability/infrastructure – information services
- Improve – messaging/types of VMS used – additional data feeds – work with other providers understand their data developments – information structures user experience

Group Sessions:

What do we want to retain and improve?

- What are Network Operations requirements?
- How long do we need to continue to install, and maintain existing, infrastructure?
- VMS installations are / were funded by Europe, this will reduce / stop, therefore do we not install anymore?
- Retain/maintain existing roadside infrastructure until no longer required – how to ensure not creating social exclusion if removing

What needs to be done to move to where we aspire to be?

- Establish who our customer is
- What does the customer expect from our service
- Use the information and available technology to guide the strategy?
- Compare services with the private sector information (do we add value)
- Gap analysis of existing data and information
- Is there opportunity for data sharing?
- Connectivity of rural / blackspot areas
- Scottish Government Digital agenda
- Will Transport Scotland be doing the same thing in 5 years?
- Social Inclusion
- Compete / Partner / Share + sell data
- DATEX feed and users of services, do we understand who uses it and the value they place on it
- How ambitious do we want to be?
- Capture good work undertaken to date
- Acknowledge on-road systems will remain and will continue to be deployed
- Local road integration
- Maintenance – increase reliability and availability of assets
- Business processes – do they need to change?
- Integration of systems at TSNCC to provide simplified reporting of issues across all media

How can we get best value from innovation?

- What do TS require?
- What do the customer/users require?
- What does private sector provide?
- What added value can we bring?
- Discussion with private sector
- What should TS allow Private Sector to provide?
- Issues – private sector provision stops!
- Engagement with Private Sector (partnership) – memo of understanding – mutual benefit – qualitative rather than commercial – who are they? (groups)
- Development of the website to improve user perception is a quick hit / easy win. Review user experience based on current expectations from a website
- Focus is on data and infrastructure but important to prioritise available budget
- Benefit Cost Ratio has traditionally been difficult to apply to the network but important to try and find a way (IBI quote – Hong Kong)
- STAG review of technology projects
- Synergy to smart / integrated ticketing and therefore ability to tailor journeys (account based travel)

- What about the whole journey? A huge percentage will start / finish on the local authority network hence no coverage but Google does
- Replace ITS as the terminology as a PR exercise (tainted brand – mobility eco-system / MaaS / 'Smart')
- Improve cross team working with Major Projects to obtain benefits from ITS deployment
- Presentation: Vision to Ministers; delivery strategy holds the detail
- What could private sector provide if information was available e.g. live availability information for Park and Ride; real time bus information

How could we get better service/applications from the private sector?

- Ascertain and regularly refresh user perceptions and expectations – adapt our strategy to suit
- Need to consolidate and integrate existing systems to simplify operational and user experience
- Collaborative working with private sector to deliver best possible solutions moving forward
- Focus needs to remain on roadside infrastructure/VMS etc as much as back office information systems operating it
- Move towards providing incident management and other data to private sector providers to inform end users (Google etc.)
- Is BCR for ITS interventions pushed enough?
- Are there other political motivations to pursue schemes/initiatives?
- Data availability is fragmented and exists on different platforms. Difficult and time consuming for the end user to assimilate and make use of
- Automated Vehicles are here – what will TS need to do to facilitate? – security – design standards (*infrastructure required, maintenance, operational procedures)*
- Smart mobility – seamless integrated info – RT/disruption – MaaS/payment, options
- Connectivity – rural – comms
- Connected Vehicles – to users, from users – benefits to TS/SG (*low carbon)*
- A lot of good stuff out there but…Technologies looking for a home? – optimistic selling vs tried and tested
- Early adoption can be expensive and leave you with out of date hardware
- Should we be meeting our need but only use solutions that are proven but slightly "behind the curve"
- Implementation of new technology can be heavy on staff resource
- Develop a distinct R&D/innovation team and budget
- Risk sharing by partnering with other road authorities and academia
- Who are the private sector organisations?
- What are the implications of Open Data?
- We need to define what we want from the Private Sector
- Analyse how users plan their journeys – what do they want and where do they go for it?
- There is a moratorium on market research but perhaps this needs to be lifted
- What is the vehicle industry doing (BMW / Audi / Google / TESLA / Apple…)
- Does Transport Scotland want evolution or revolution?
- Social Inclusion / Users / Non-Users / Information Policy
- Can data from private sector be trusted?
- Who holds the liability for the data e.g. missed flight (more reason to use private sector to provide outputs)
- Need to control how the information is provided to customers. Currently available from several sources e.g. Traffic Scotland website & Twitter; Broadcast companies; Operating Companies websites. Information provided can vary
- Rural comms – broadband budgets?

State of the Art

- East / West divide – east has modern infrastructure via FRC but west does not (apart from M8 refurb as part of M8 / M73 / etc
- Added value if we could demonstrate / monetise the value of the corridor improvements i.e. FRC Controlled Motorway / less bumps etc through traffic management
- Managed Motorway Group has mainly looked as BHSR however there is a view that senior management direction is required (M77 / M8 / M80)
- How can / does ITS support carbon reduction/air quality?
- ITS Strategy linkage to NTS
- Connected vehicles – data to users and from users re traffic/weather conditions; potholes

Concluding Remarks

The strategy may be either holding or revolutionary but that it must be adaptable whichever.

There may be clear 'tipping points' i.e. years 1 – 3, 4 – 6 and 7 – 10 but the strategy must be adaptable and fleet of foot.

Annex B. Review of Intelligent Transport Systems Strategies

ITS Strategy for Scotland

Transport Scotland

Review of ITS Strategies

B2270500-DOC-007 | 2

25 July 2017

ITS Strategy for Scotland

Project No:	B2270500
Document Title:	Review of ITS Strategies
Document No.:	B2270500-DOC-007
Revision:	2
Date:	25 July 2017
Client Name:	Transport Scotland
Client No:	
Project Manager:	Stephen Craig
Author:	Paul Grayston
File Name:	\\SALFIL03\Highways\Technology\8 - Scotland\ITS Strategy\Review of Strategies\Report\ITS Strategies Review v2.docx

Jacobs U.K. Limited

5 First Street
Manchester M15 4GU
United Kingdom
T +44 (0)161 235 6000
F +44 (0)161 235 6001
www.jacobs.com

Document history and status

Revision	Date	Description	By	Review	Approved
1	17 Mar 17	Issued for comment	PG	SC	PG
2	25 Jul 17	For Inclusion in Research & Consultation Report – does not include relevant review sheets.	SC	PG	SC

Contents

Executive Summary

Transport Scotland is developing a new Intelligent Transport Systems (ITS) Strategy, incorporating emerging technology whilst still maximising immediate return on investment. As part of this, a review of other national and state level ITS strategies, action plans and reports issued since 2010 has been undertaken to determine best practice.

24 documents from Europe, North America and Australasia that were sourced through web searches or through Transport Scotland contacts have been reviewed in detail. They were identified as either being an ITS Strategy, a component of an ITS Strategy or a complementary document to a Strategy. A further 21 documents identified were considered to have little or no relevance to ITS, or were actually reports on ITS achievements rather than strategies and were not subjected to detailed review.

The review highlighted that no single approach is favoured: some concentrate on the relatively near future as action plans; and others take a wider view looking towards desired longer term outcomes. In some cases the ITS Strategy has been a springboard for smaller documents focussed on strategic themes or web-site content that reflects an evolving strategy.

All strategies are sub-divided in some way across a set of themes, some of which are strategic and some delivery facing. In general the strategic theme approach is more understandable to the reader.

Three features are isolated as good practice for the creation of an ITS Strategy:

1. Having a good, formal strategy gives impetus to collaborative working that leads to active strategies;
2. Canvassing user and stakeholder needs and involving them brings clarity of purpose; and
3. A distinct public/private sector management board or leadership group provides focus and direction.

Where new technologies are advancing into the market, for example the increasing solid foundation of vehicle systems, it is important for public authorities as main sponsors of ITS Strategies to address the subject pro-actively to enable the full benefits of the technology to be realised.

There is good evidence that in countries where the ITS Strategy is reviewed regularly it appears to be adaptable and facilitates achievable action plans for deployment.

Most strategies recognised that there was a policy driver from government, usually a flow down from an overall transport policy, including for European nations EC policy. Top level transport strategy goals and themes are used as the basis for the structuring of the ITS Strategy; it maybe that this approach makes the ITS “sell” to politicians and senior officers in government easier.

In all of the newer strategies there was a clear acknowledgement of change in the sector due to new technologies and/or changing political priorities e.g. C-ITS, Autonomous Vehicles, Green/environmental issues, the potential for far greater insight into traffic and transport through Big Data and Cloud Computing.

ITS benefits are explained in limited detail. Using short case studies or quoting from published research is a common technique. Some of this may reflect the fact that strategic thinking usually comes before business case development.

Although some of the strategies are in part Action Plans, generally “solutions” are not proposed.

1. Introduction

1.1 Purpose of Review

This review has been conducted as part of work undertaken by Jacobs for Transport Scotland to create an ITS Strategy for trunk roads in Scotland.

The report informs Transport Scotland of approaches taken by, and areas of interest within, ITS Strategies and Action Plans produced in recent years by transportation authorities across the world. The review has also been informed by a number of relevant state of the art reviews and forecasts, particularly in the fields of mobile telecommunication, big data analytics and connected and autonomous vehicles.

1.2 Structure of Report

Chapter 2 details the methodology used to source the various strategies and action plans. It contains a list of documents reviewed, and where applicable web links (valid in January 2017) to the source documents. It also describes the structured form based review methodology used for the national and regional strategies.

Chapter 3 provides a general discussion on the documents reviewed, their coverage (technically and temporally) and the future predictions of the state of the art reviews. This is subsequently expanded to cover the types of Strategy produced and what the expectations and uses of the strategies are (or in some cases have been). Short precis of the individual documents highlighting objectives and themes covered are provided leading in to a section covering the relevance to the objectives for the Transport Scotland review.

Chapter 4 is a conclusion and review of the research.

2. Methodology and Coverage

2.1 Sourcing of ITS Strategy documents

2.1.1 Sources of ITS Strategies

In general National, State or Regional ITS Strategies are by their nature publically available documents. Many of these are available in hard-copy format, are given out at conferences and exhibitions and can be sourced using a web search.

Often countries have used the hosting of an ITS World or European Congress as the catalyst for their production. Strategies and Action Plans have also been produced as a direct response to, or as a result of, policy making. In Europe EU Directive 2010/40/EU[1] and the Action Plan adopted by the European Commission in 2008 sought to accelerate deployment of innovative transport technologies across Europe. As a consequence ITS National Reports were required from member states which galvanised several to create strategies and action plans. Similarly in the United States and Australia national policy has resulted in state level documents.

2.1.2 Selection of ITS Strategies for Review

ITS Strategy documents were sourced through web searches using key words (e.g. Intelligent+Transport+Systems, Strategy, <Countryname>, Action Plan). National ITS organisation websites were also sought out and links followed from a variety of blogs, papers and industry publications.

Further assistance was provided by Transport Scotland who approached other members of the Streetwise Group (England, Wales, Northern Ireland and the Republic of Ireland).

The overarching requirements for documents included in the review were that the document:

a) is in English;

b) was produced since 2008;

c) has, at least in part, a strategic nature – this allowed the inclusion of action plans and reviews which provided indications of future intent;

d) might have some relevance / transferability to Scotland – for instance there are similarities with road networks and issues to be addressed in the Nordic countries and New Zealand, but not necessarily with developing countries such as India, China and South Africa and South America.

In the case of The Netherlands a number of English language documents that relate to ITS Strategy, some of which are relatively short brochure sheets, have been included. In the absence of a formal document for the Republic of Ireland a PowerPoint presentation on ITS Policy and Strategy made at a conference has been included.

[1] http://ec.europa.eu/transport/themes/its/road/action_plan_en

2.3 Review Methodology

All documents were printed out rather than viewed on screen to understand their look and feel. All documents were reviewed by at least two people. Reviewers independently read through each document and recorded their comments using a six-section two-page form to record:

1. Key conclusions of review – A succinct view, covering:
    - What proportion of the document is, for example:
        i. A plan of action;
        ii. A statement of intent;
        iii. A strategic vision;
        iv. A brochure;
        v. A state of the art think piece.
    - Does it set targets, is it deliverable?
    - What does it link into (nationally, at EU level etc)?
2. Associated documents – these could be directly related documents such as national transport strategies.
3. Strategic Themes addressed.
4. Useful insights quotes / references – things that can add weight to the strategy by direct quote or linking as evidence.
5. Other Information – e.g. comments on presentation, ease of understanding the document, relevance etc.

The first reviewer was responsible for creating the content of the form, with subsequent reviewers modifying as necessary. Ad-hoc discussions took place to agree content of each form between the reviewers.

All forms underwent a final review to ensure a consistency of style.

2.4 Documents Reviewed

Table 2.1 lists the 24 documents that have been reviewed in this exercise. All web links were checked as being accurate on 26 January 2017.

A further 21 documents were also considered. They were rejected for the survey due to three main reasons:

- ITS is only referred to as a very small component of a larger transport or government strategy and no conclusions or useful indicators of ITS strategy could be gleaned;
- The document is out of date, for example in the period covered;
- The document is a report, either one produced to meet Directive 2010/40/EU or at a national level to report on what has been done with ITS, not what strategy there is for future ITS.

Figure 2-1 shows the time periods covered by the different strategies.

In the case of Austria this is shown as a dotted line as it is apparent from the web search that their Strategy is considered as live and supported by a web site where incremental updates may be recorded. For the Republic of Ireland the dotted line is an indication as no formal document is available.

For the EU the dotted line to 2015 indicates the policy direction, post 2015 the C-ITS Strategy.

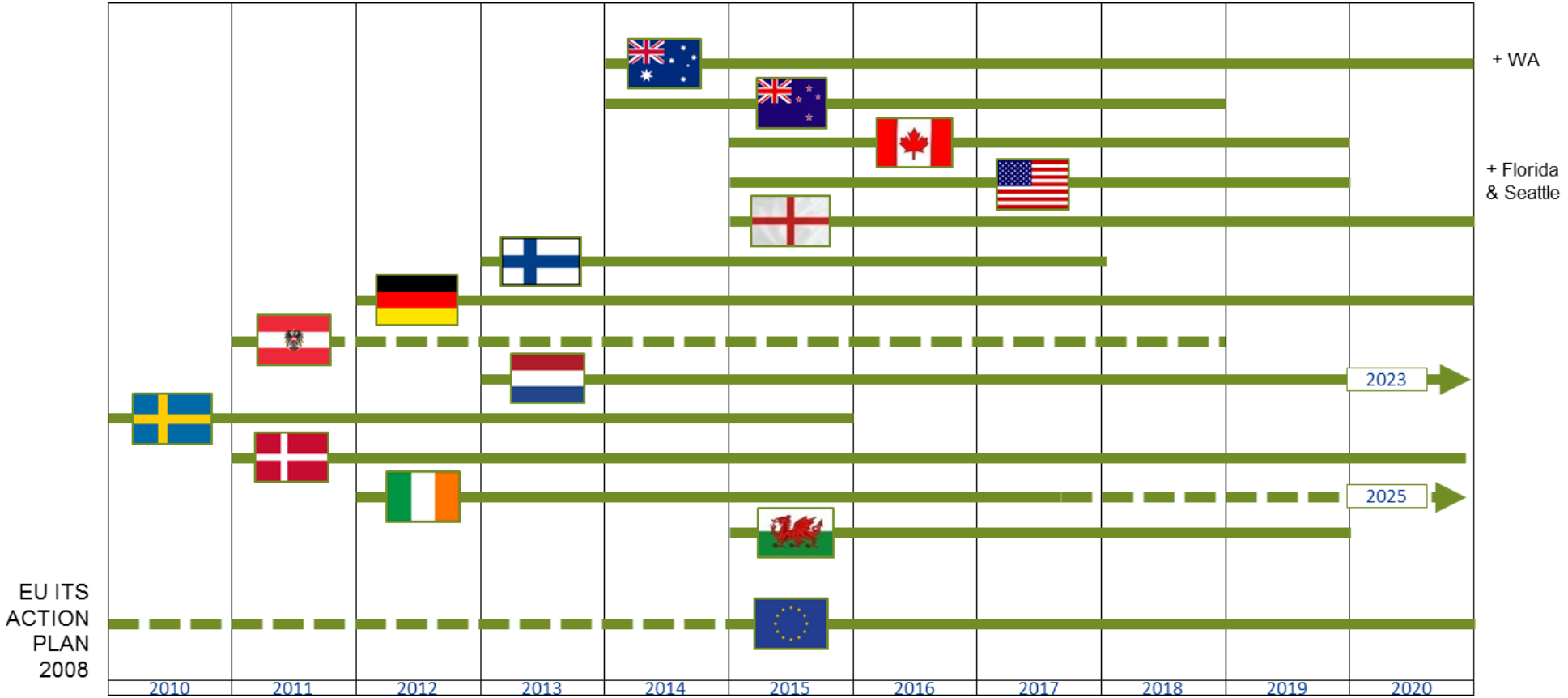
Table 2.1: ITS Strategy Documents Reviewed

Country / Location		Ref.	Published	Horizon	Title	Web link
Austria		AT01	2011		Strategy for the Implementation of an Intelligent Transport System in Austria	https://www.bmvit.gv.at/en/service/publications/downloads/itsactionplan.pdf
Australia (Western Australia)		AU01	2015		Connected Vehicles: Are we ready?	https://www.mainroads.wa.gov.au/Documents/Connect%20Vehicles%20Web.RCN-D15%5E23413758.PDF
Australia		AU02	2012	2017	National Intelligent Transport Systems Industry Strategy 2012-2017	http://www.seeits.eu/docs/Related/national_action_plans/Australian_ITS_industry_strategy%20(en).PDF
Australia		AU03	2012		Policy Framework for Intelligent Transport Systems in Australia	http://transportinfrastructurecouncil.gov.au/publications/files/ITS_Framework.pdf
Australia (Western Australia)		AU04	2014	2020	Intelligent Transport Systems Master Plan	https://www.mainroads.wa.gov.au/Documents/ITS%20Master%20Plan%20(Sep%202014)_Final.RCN-D14%5E23521079.PDF
Canada		CA01	2015	2019	Smart Transportation for a Smart Nation, A Vision and Strategy for ITS in Canada	https://www.itscanada.ca/files/Strategic_plan_Summary_EN.pdf
Denmark		DK01	2011	2020	Danish strategy for ITS	http://vejdirektoratet.dk/DA/vejsektor/samarbejde/nationalt/Documents/A5%20rapport%20engelsk_web.pdf
England		EN01	2015	2020?	Operational Technology Strategy 2015	https://www.contractsfinder.service.gov.uk/Notice/Attachment/c1d1a827-83c2-40b3-95dc-4c92fb96b200
European		EU01	2016	2019	A European strategy on Cooperative Intelligent Transport Systems, a milestone towards cooperative, connected and automated mobility	http://ec.europa.eu/europe2020/pdf/europe2020stocktaking_en.pdf

Finland		FN01	2013	2017	Intelligence in Transport and Wisdom in Mobility	https://www.lvm.fi/documents/20181/799943/Intelligence+in+Transport+and+Wisdom+in+Mobility+Finlands+Second+Generation+Intelligent+Strategy+for+Transport/ba5a1095-d82f-4d02-b90c-eefb9f6d043c?version=1.0
Germany		GE01	2012	2020	ITS Action Plan for the Roads	http://www.bmvi.de/SharedDocs/EN/Documents/LA/its-action-plan-roads.pdf?__blob=publicationFile
Netherlands		NL01	2013	2017	ITS-Plan the Netherlands	http://ec.europa.eu/transport/sites/transport/files/themes/its/road/action_plan/doc/2012-its-plan-the-netherlands-2013-2017.pdf
Netherlands		NL02	2016	2020	Horizon Rijkswaterstaat	https://staticresources.rijkswaterstaat.nl/binaries/Horizon%20Rijkswaterstaat%202020_tcm21-95317.pdf
Netherlands		NL03	2013	2023	Better informed on the road	http://www.transport-research.info/sites/default/files/project/documents/20151019_112030_35962_Engelse_versie_BGOW_2015_klein.pdf
Netherlands		NL04	2014		Optimising Use of Intelligent Mobility	http://www.beterbenutten.nl/assets/upload/files/Optimising%20Use%20of%20Intelligent%20Mobility.pdf
Netherlands		NL05	2015	2018	Optimising Use ITS Smarter, better and more pleasant travel	http://www.beterbenutten.nl/assets/upload/files/The-7-Themes-of-Beter-Benutten-ITS-to-2017.pdf
New Zealand		NZ01	2014	2018	Intelligent Transport Systems Technology Action Plan	http://www.transport.govt.nz/assets/Uploads/Our-Work/Documents/ITS-technology-action-plan-2014.pdf
New Zealand		NZ02	2014	2018	NZ Transport Agency position statement on intelligent transport systems	https://www.nzta.govt.nz/assets/resources/intelligent-transport-systems/docs/nz-transport-agency-intelligent-transport-systems.pdf

Republic of Ireland		RI01	2015	2025	Intelligent Transport Systems	http://www.tii.ie/tii-library/conference_and_seminar_related_materials/national-roads-conference/nra-national-roads-conference-2014/2.7_David-Laoide-Kemp_NRA-ITS-Policy-2015-2025.pdf
Sweden		SE01	2010		Multimodal ITS strategy and action plan for Sweden	http://its-sweden.se/wp-content/uploads/2013/07/summary_multimodal_its_strategy_and_action_plan_for_sweden-1.pdf
USA		US01	2015	2019	ITS Strategic Plan	http://www.its.dot.gov/strategicplan/
USA (Florida)		US02	2014	2025	Florida's Intelligent Transportation Systems Strategic Plan	http://www.fdot.gov/traffic/its/Projects_Deploy/Strategic_Plan/ITS_Strategic_Plan_FINAL_v2_2014.pdf
USA (Seattle)		US03	2010	2020	ITS Strategic Plan - Seattle	https://www.seattle.gov/transportation/docs/its/ITSStrategicPlan20102020.pdf
Wales		WA01	2015	2020	Welsh Government ITS Strategy 2015-2020	Unpublished remains in draft. **Not for circulation**.

Figure 2-1 : Timelines of ITS Strategies



3. Discussion

3.1 Sift Result and Analysis

45 documents were identified in the literature search as being relevant in some way to an ITS Strategy. Some are quite clearly ITS Strategies, others wider transport strategies and work plans, and some turned out to be reports on existing ITS investment.

The review sift of the documents reduced the list to 24 documents with some substance that could be regarded as ITS Strategy for the main review (see Table 2.1). A number of documents left out of the main review were wider strategies and only make passing reference to ITS. Other documents not taken forward to the main review contained little strategic thinking, and were regarded by the reviewers more as scheme or investment plan publicity.

Review sheets for these 24 documents were prepared with the following common format:

- Key conclusions;
- Associated documents;
- Themes addressed;
- Useful insights and innovations;
- Useful quotes and references; and
- Other information.

3.2 High Level Commentary

In 2012 EU countries were required to produce documents that were, or were based upon, reports to the European Commission to satisfy Article 17.2 of Directive 2010/40/EU which required a report on activities envisaged for the deployment of ITS from each Member States. For some member states (e.g. Republic of Ireland – see RI01) this provided an opportunity to describe context and user need that was driving an ongoing Strategy. In others (e.g. Germany, Austria, Denmark) the need to think about reporting to the EU was an important factor in producing a separate and distinct ITS Strategy. In the UK, the Department for Transport (DfT) produced the report[2] *'Intelligent Transport Systems in the UK - Report on Information on National ITS actions envisaged over a five year period'* which contained a number of example projects from Scotland. However, this reported on progress to data and planned actions to complete, and because it refers to committed projects does not constitute a Strategy.

In the case of the Netherlands there were five documents addressing different topics and all were reviewed separately. As with Germany and Austria there is evidence of other documentation in the national language on official websites. Australia, New Zealand, and the Republic of Ireland also have several documents that contribute part of an overall picture. In the cases of Australia and New Zealand it is clear that thinking developed over time as consultation and acquisition of knowledge progressed.

The United States Department of Transportation (USDOT) ITS Strategy is notable for its clear direction and for the detailed appendices covering the comprehensive stakeholder consultation conducted as part of its production.

The rationale for producing an ITS Strategy has often been so that ITS is seen by policy makers, stakeholders and the general public as being part of the overall transport policy. This is most pronounced in the case of Florida where the ITS themes are directly related back to those of the Florida Department of Transport (FDOT) Transport Plan. However, there is also clear hierarchy with national strategies to be seen in the documents from Australia, New Zealand, Finland, Germany, Austria, and to an extent Wales. The Canadian document is notable

[2] http://ec.europa.eu/transport/sites/transport/files/themes/its/road/action_plan/doc/2012-united-kingdom-its-5-year-plan-2012_en.pdf

as it has been produced by ITS Canada and is actually quite limited in its outlook but does provide policy and user need context.

In the cases of Austria and Sweden the ITS Strategy has been a direct result of having hosted an ITS Europe Congress and is also a factor in the Republic of Ireland and Finnish Strategies.

The 12 page European Commission (Ref EU01) *'A European strategy on Cooperative Intelligent Transport Systems, a milestone towards cooperative, connected and automated mobility'* is a slightly different, but all the same very important document in that it is concerned with one theme.

Investigations were made into ITS Strategies for France, Spain, Portugal, Czech Republic and Romania that identified national websites but with limited (at least obviously and/or in English) definitive statements.

3.3 Commentary on Strategy Content

In virtually all of the strategies it was recorded, or strongly alluded to, that user need (end-users and organisations) is a key driver for its production. This is most pronounced in the USDOT strategy which contains a large amount of the consultation detail in an appendix.

Most strategies recognised that there was a policy driver from government, usually a flow down from an overall transport policy, including for European nations EC policy. Top level transport strategy goals and themes are used as the basis for the structuring of the ITS Strategy; it maybe that this approach makes the ITS "sell" to politicians and senior officers in government easier.

In all of the newer strategies there was a clear acknowledgement of change in the sector due to new technologies and/or changing political priorities e.g. C-ITS, Autonomous Vehicles, Green/environmental issues, the potential for far greater insight into traffic and transport through Big Data and Cloud Computing.

ITS benefits are explained in limited detail. Using short case studies or quoting from published research is a common technique. Some of this may reflect the fact that strategic thinking usually comes before business case development.

Although some of the strategies are in part Action Plans, generally "solutions" are not proposed. The Finnish document is interesting in that it is the second iteration of their strategy and therefore reflects on previous progress whilst identifying future potential activity.

The focus of each of the strategies reflect the responsibilities of the sponsoring organisation, and in general this leads to a focus on inter-urban roads, with only a few strategies encompassing city/urban road and public transport.Table 3.1 highlights a number of notable characteristics of some of the strategies.

Table 3.1 : Characteristics of ITS Strategies

Characteristic	Strategies seen in	Typical examples
Industry Leaders	Finland, Netherlands	• Structured expected outcome descriptions • Clear indication of body of knowledge already existing • Investment commitment
Strategy links to Plans / Programmes	Wales Florida Republic of Ireland	• Strategy is a means to create a plan for action that then is costed and programmed over a period. • Approach might be seen to limit innovation
Consultation essential	USA New Zealand	• This approach is the way to supported success • Collaboration is at the heart of the strategy – this includes management structures where the public sector role is

Characteristic	Strategies seen in	Typical examples
		defined, and may not be as a leader • New technology sometimes needs new ways of thinking – consultation gathers this knowledge
Strategy is an ongoing process	Austria, Finland, Seattle, Germany	• Strategy is a new iteration of an existing strategy • Operational and management models in place to advance the strategy and the programmes that result • Evidence of high degree of collaboration – reports, web sites, active management structures / boards
Strategy presents a vision of the future	England, Netherlands, Finland, Australia, EC, Republic of Ireland, Canada	• Uses horizons and / or roadmaps to describe where the strategy should lead and what benefits it should result in • Degree of clarity on the factors that shape the vision
Pure Strategy	Germany, Austria, Denmark, Sweden	Similar to above but also: • Generally thematically led • Reasoned arguments and context given to the strategy • Can be seen as part of a policy package
Background to wider strategy and policy context	Western Australia, USA, Finland, Netherlands, New Zealand	• Good strategic context for ITS • Clearly fits into a wider picture, be it federally arranged or national objectives for transport

3.4 Keeping the Strategy Active

It is quite noticeable that in countries where the perception is that they are in the leading pack (e.g. Austria, Finland Netherlands, US) that a central part of the strategy is the creation of an active Management Board or Committee that includes public and private sector. The New Zealand strategy elaborates how this collaborative approach should work, highlighting that organisations have various roles to play. Figure 3-1 reproduces the roles the New Zealand Transport Agency (NZTA) could take within different streams of the strategy.

Figure 3-1 - Table of ITS Strategy Roles for Public Authority from NZ Positon Statement on ITS (Ref NZ02)

INVESTMENT LEAD	**PLANNING AND INVESTMENT PARTNER**	**REGULATOR**	**FACILITATOR**	**INFLUENCER**	**FOLLOWER** (REACTIVE)
Main provider of the investment needed to make the benefits of intelligent transport systems a reality. May choose to invest directly, or indirectly with or through others	Invests in intelligent transport systems-related asset to make their benefits a reality. Not the lead investor	Sets standards and governance mechanisms to hold the sector to account for compliance	Steps in proactively to facilitate sector alignment. Has no formal governance authority, but informally adopts the leadership role to deliver the best possible mix and benefits of intelligent transport systems technologies	Proactively influences sector practice and behaviour to deliver the best possible mix and benefits of intelligent transport systems	Stays informed of progress and developments – reacts to market.
***Example** Active network management*	***Example** Network data*	***Example** Advanced vehicle safety systems*	***Example** Greater use of in-vehicle telematics, active fleet management and self-monitoring by freight operators*	***Example** Traveller information applications*	***Example** Smart phone developments*

This inclusive and collaborative approach which ensures that all stakeholders are involved is common. For example in Germany their ITS Strategy is the product of the ITS Advisory Council. It comprises representatives from:

- the Federal Government;
- the federal states;
- local authorities;
- the electrical industry;
- the automotive industry;
- the information and communications technology industry;
- ITS organizations;
- broadcasting corporations;
- standardization bodies;
- the scientific and research community;
- regulatory authorities;
- user associations.

3.5 Strategic Themes

All of the strategies frame their proposals around a set of themes. Themes provide focus and distinction within the Strategy that give reassurance that key aspects (e.g. Connected Vehicles, Environmental concerns) have prominence.

Strategic Theme descriptions vary, as is illustrated in Figure 3-2. In many European countries the EC Themes have been the starting point, though the headings vary across member states. In other strategies the themes are taken from a national or state transport strategy or action plan. Florida is a good example of this approach.

Figure 3-2: A Selection of Theme Headings

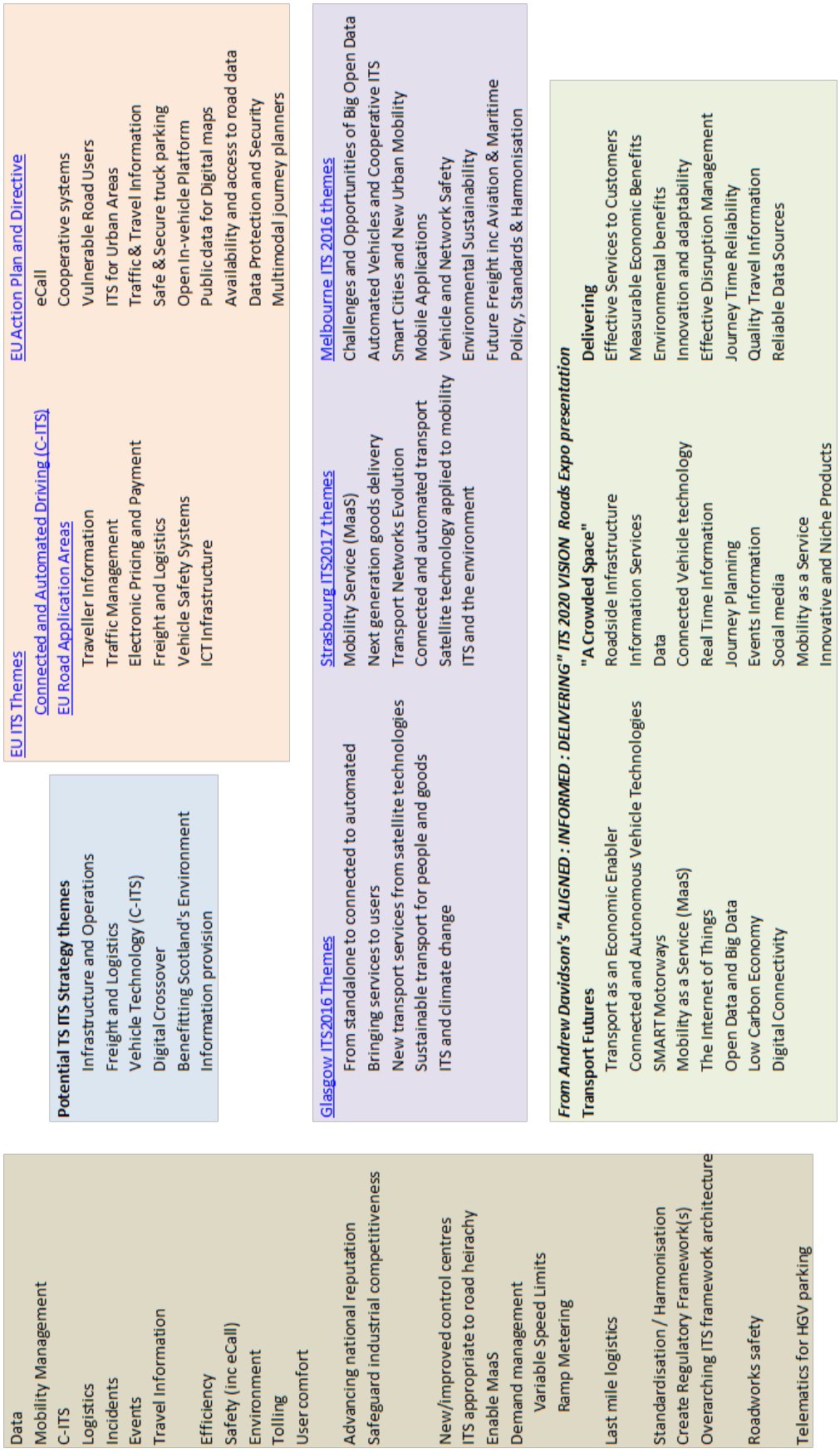


Figure 3-3 is a diagram that is repeated throughout the USDOT Strategy for what it calls the 'ITS Program'. It a device used to emphasise how their strategy fits in with overall policy, user need and the direction of technological development. There is a hierarchical structure that has two key priorities which the themes and program categories (Connected Vehicles, Automation, Emerging Capabilities, Enterprise Data, Interoperability, and Accelerating Deployment) are cross referenced. In Figure 3-4 a table is used to show how this relates to the Strategic Themes. [Map-21 (Moving Ahead for Progress in the 21st Century Act) is the bill authorising federal transportation spending in 2013 and 2014 signed by President Obama in July 2012].

The USDOT Strategy sets the direction for research, development and adoption, so giving confidence about deployment, which in the majority of cases is at state level.

Figure 3-3: Overview diagram from USDOT ITS Strategy

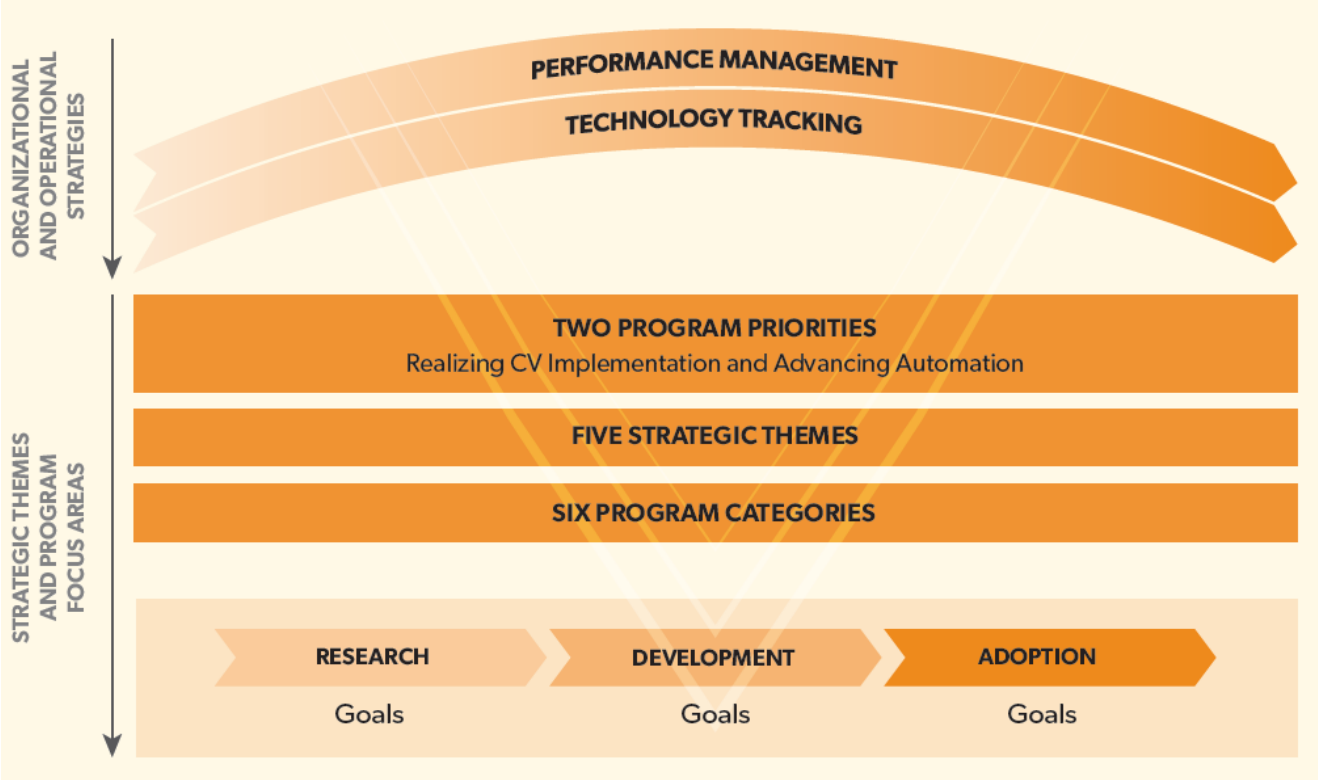


Figure 3-4: How USDOT Strategic Themes cross reference with wider strategic goals

ITS Strategic Plan Strategic Themes	USDOT Strategic Goal Areas						Map-21
	Safety	State of Good Repair	Economic Competitiveness	Livable Communities	Security, Preparedness and Related	Environmental Sustainability	
Enable Safer Vehicles and Roadways	✓	✓	✓	✓	✓		✓
Enhance Mobility	✓	✓	✓	✓	✓	✓	✓
Limit Environmental Impacts			✓	✓		✓	✓
Promote Innovation	✓		✓		✓	✓	✓
Support Transportation System Information Sharing	✓	✓	✓	✓	✓		✓

2 Please note that cells without checks do not indicate a discrete divergence from previously established strategy.

3.6 Good Practice in Developing an ITS Strategy

Within many of the strategies, sometimes supplemented by other documents and papers and through web-sites, there are a number of areas of good practice that are common. These can be summarised as follows:

- **Reflection of political need** – economic, environmental, technical, research and transport policies;
- **Reaction to defined user needs** – end users, organisational users and user communities and groupings;
- **Technology advancement** – ITS exists because of technological advances, it continues to advance and ITS should keep up. Connected, cooperative and autonomous vehicles; smart cities, big data analytics, cloud computing; the growth of smart phones, mobile devices and the capability and capacity of communications are all cited as strategy drivers;
- **Cognisance of all of the transport sector (even if the strategy is specifically inter-urban)** – a bigger picture, looking at connections, modal change, and in newer strategies an understanding of concepts such as MaaS;
- **Setting a horizon** – some put a time period on the validity of the strategy, others commit to reviewing after a certain period (Finland is a good example);
- **Setting out who is to be involved** – the majority of strategies talk about collaboration and consensus. It is clear that the better, more open and ambitious strategies are also those that have moved away from the public sector setting out what they want to see as outputs to a more user-centre outcome based set of goals. To varying extents strategies identify active stakeholder working groups and management structures for delivery.

The best practice building blocks and process around creating a strong ITS Strategy are summarised in Figure 3-5.

Figure 3-5: Best practice in developing ITS Strategic Themes

4. Conclusions

4.1 Key Characteristics of Good ITS Strategies

Three things are apparent from this review:

1) Having a good, formal strategy gives impetus to collaborative working that leads to active and evolving strategies;
2) Canvassing user and stakeholder needs and involving them brings clarity of purpose;
3) A distinct public/private sector management board or leadership group provides focus and direction.

Where new technologies are advancing into the market, for example the increasing solid foundation of vehicle systems, it is important for public authorities as main sponsors of ITS Strategies to address the subject pro-actively to enable the full benefits of the technology to be realised.

There is good evidence that in countries where the ITS Strategy is reviewed regularly (e.g. Finland, Netherlands, Austria) it appears to be adaptable and facilitates achievable action plans for deployment.

4.2 Selected Reading List

Of the 24 ITS Strategy documents the following are suggested as useful reading for potential authors of ITS Strategies.

AU03 – Policy Framework for ITS in Australia

AU04 – Intelligent Transport Systems Master Plan for Western Australia

EU01 – A European Strategy on Cooperative Intelligent Transport Systems, a milestone towards cooperative, connected and automated mobility

FN01 – Intelligence in Transport and Wisdom in Mobility (Finland)

GE01 – ITS Action Plan for Roads (Germany)

NZ01 – Intelligent Transport Systems Technology Action Plan (New Zealand)

NZ02 - NZTA Position Statement on Intelligent Transport Systems (complementary reading to NZ01)

US01 – ITS Strategic Plan 2015-2019

Annex C. Focus Group Consultation Report: Exploratory Research to Inform Transport Scotland ITS Strategy

EXPLORATORY RESEARCH TO INFORM TRANSPORT SCOTLAND 10 YEAR ITS STRATEGY

FOCUS GROUP CONSULTATION

January 2017

Prepared by:

Research Resource

17b Main Street

Cambuslang

G72 7EX

Contact: Lorna Shaw

Tel: 0141 641 6410

E-mail:

Lorna.shaw@researchresource.co.uk

Prepared for:

Jacobs

95 Bothwell Street

Glasgow

G2 7HX

Contact: Stephen Craig

Tel: 0141 243 8082

E-mail:

Stephen.craig@jacobs.com

Transport Scotland ITS Strategy

Focus Group Consultation

Contents

Report written by: Lorna Shaw

Date: 27th January 2017

Report reviewed by:

Date: 31st January 2017

1. BACKGROUND AND METHODOLOGY

1.1 Introduction

This report summarises the key findings to emerge from three qualitative focus groups carried out by Research Resource to understand customer views of travel information provided by Transport Scotland.

The research aims were to provide information which would support informed discussion on:

- What do Transport Scotland do well?
- What do others do better?
- What should Transport Scotland do in the future?

It should be noted that qualitative research does not aim to be representative. Rather it aimed to ensure that a range of people with different experiences and backgrounds were included in the study. These characteristics were geographical location, age, employment status, gender and users of the trunk road network.

The groups took place at a range of locations to give geographic diversity and to ensure that we were able to capture the views of those using different areas of the trunk road network, which may operate differently.

A total of 28 users of the trunk road network took part in the focus groups. All participants were users of the trunk road network. The groups were structured as follows:

- Group 1 (8 participants): Dunfermline
  - 4 male, 4 female
  - 1 over 60, 7 under 60
- Group 2 (10 participants): Glasgow
  - 5 male, 5 female
  - 1 over 60, 9 under 60
- Group 3 (10 participants): Inverness
  - 5 male, 5 female
  - 4 over 60, 6 under 60

Focus groups were structured around a topic guide which is available in Appendix 1 of this report. All groups were facilitated by experienced moderators.

2. KEY SOURCES OF TRAVEL INFORMATION

The group discussions began by asking participants to think about the type of journeys that they make on trunk roads and considering any information that they seek to inform those journeys. Specifically, they were asked to consider if they planned ahead and which sources were used to do so.

2.1 Information sources used when planning ahead

It was interesting to note that across the three focus groups there was different behaviour in relation to planning ahead. In both the Inverness and Dunfermline groups we found that participants did plan ahead and seek information on their journey.

In Inverness in particular, it was noted that participants tended to be doing longer journeys on trunk roads in and around the Inverness area. A key issue in the Inverness focus group was the weather and that if the weather was bad and snow gates were closed or if there had been an accident, the impact could be significant on the journey and other routes may be limited. Sources used included Traffic Scotland, a Google App and Facebook.

> *I usually check Traffic Scotland. If the weather seems quite bad, I'll check the live camera feed, just to kind of see what it's looking like, you have to give yourself that extra half hour if it looks quite bad. You can get a good idea on that plus any accidents or snow gates closed, because last thing you want to do is be an hour down then there's a snow gate shut.*

> *I've got an app on my phone just through google and it comes up almost every morning only if there's a delay, it will say to you there is 30 minutes delay and then I'll think well in that case I'll go the back road. It's just an update thing on the app you just put in where you live and it just comes up with the right travel.*

> *For a longer route I would also use Travel Scotland but I have also used AA route finder and that's quite good for delays.*

> *There's an A9 road watch Facebook page as well, I'll use that if I'm going south bound it will pop up. It will tell you the A9 is slow from this part to that part and people are asking all the way from Perth all the*

way up to Wick, people are giving updates so that's quite a good way actually.

In the Dunfermline focus groups, a number of our participants regularly travelled to Edinburgh or East Lothian across the Forth Road Bridge and along routes that were typically very busy. As such, they sought information on their journey and sought to understand if there were any delays. The range of sources used were diverse in the group and included, Traveline Scotland App, Forth Road Bridge Twitter and Facebook, BBC Website, RAC, AA and SatNav:

I have an app on my phone that tells me about any travel delays so I tend to check. Especially going over the Forth Road bridge with winds and delays, the 40 mile per hour speed limit. I always check. It's called Traveline Scotland. It keeps me informed of delays, accidents. Its normally accurate, I haven't come across anything that isn't accurate.

I plan ahead looking at the BBC website – it gives updates on the road and travel advice. I don't know why I use that. I'm interested in the app you speak about but the BBC you have to go looking. It's something I've just stumbled across so I keep using it.

I go on the Forth Road Bridge – I've got that on Twitter and on my Facebook. I look daily as I'm heading over that way. I just go on to the Forth Road Bridge thing quickly before I leave to see if everything is ok.

I've got a TomTom because if I'm going up north it will tell me the journey times, any diversions. I've got family in Inverness and go there frequently so always use that. TomTom is accurate and updates all the time.

I use the AA and I find that works for me. I just follow the route that they give and it will let me know if I need to go a different route.

I get information from Stagecoach for the most up to date information on travelling into Edinburgh.

On Facebook I get good feedback and I always think my friends update there if something has gone on on the A92.

Facebook is good because it's got real people saying things, continually and some will say somethings happened and another person will say that's clear it's fine. I trust what people say on Facebook for that.

However, in Glasgow, the majority did not plan ahead when taking their journey. This was largely the case as the journey on the trunk road network, the M8 tended to be relatively short and there were also opportunities to divert off the main trunk road if there were delays or accidents. Rather, those in the Glasgow group tended to seek travel information when travelling by listening to the radio for travel news:

I've got the travel alert on the radio. Tells you about any jams.

That's what I do. Listen to the radio. Clyde. Basically I'm going to be listening for anything that's going to be happening on the M8 round about the time I am going to be travelling. Is there anything going to be holding up the traffic? It gives you an option of perhaps taking another route.

Just one other source for planning ahead was noted at the Glasgow group, an app called Ways:

Occasionally I use an app called Ways. It's for navigation, because people contribute information to that. It gives you wee updates on traffic mishaps and stuff. It's not 100% accurate, it all depends on whether someone has reported something or not. So if you come up to an accident you can quickly put it in and anybody behind you who has the app can see it.

2.2 Information sources used on route

Radio was the key information source that was used when people were travelling. This was consistent in all focus groups. Radio stations mentioned included Clyde, Heart, Capital and Radio Scotland.

> *I usually have Capital radio running and quite often they do live phone ins so if someone is stuck in an accident they can phone ahead and you know you are getting true information, somebody is there.*

> *I purposely listen to the radio to get traffic updates.*

> *On the radio. I can't be messing about with things in a cab. So I've just got to listen to the radio.*

> *Yes, the road reports are good. I listen to the radio so I know what is going on. I don't even listen to the music, I just want to listen to the travel reports.*

It was also noted in the Inverness group that there was little opportunity to access anything other than the radio to provide in car transport information as the availability of the mobile internet was very limited across the area.

SatNav was also used in the car and was perceived positively as routes and incidents were updated whilst they were travelling.

> *I use my SatNav, it's built in my car. Wherever I'm going places and put in my route, it will tell you where the delays are and it's actually pretty accurate and it's updated. That and the radio.*

> *I just use google maps on my phone if it's somewhere I've never been before then google maps is quite good, hardly ever takes you the same way twice, it does kind of update in different ways. I've been a few magical mystery tours coming back from Aberdeen and stuff it's took us up through the ski centre and stuff and back on to the A9 and round because the journey time was like 10 minutes quicker but some of the roads are up and down and left and right and your thinking how can this possibly be quicker than the A9.*

One participant who travelled by bus into Edinburgh stated that whilst he doesn't look for travel information on the road in advance, he did look for travel information retrospectively.

> *It's funny, I normally look at travel retrospectively. I use the RAC app which gives an incident list. I normally look when I trundle to a halt on the road to see what is happening. If the weather is bad then I may plan ahead or if I was aware of a specific issue such as the day the Bridge was closed because of the lorry that had gone over.*

Another source of information used on route was the overhead gantries.

> *Generally I wouldn't really look for information in advance. I would get real time information from gantries which I guess I use quite regularly and the one on the M90 gives you good information and for routes ahead too.*

There was very little evidence of cross referencing or checking other sources of information used in any of the groups.

2.3 Summary

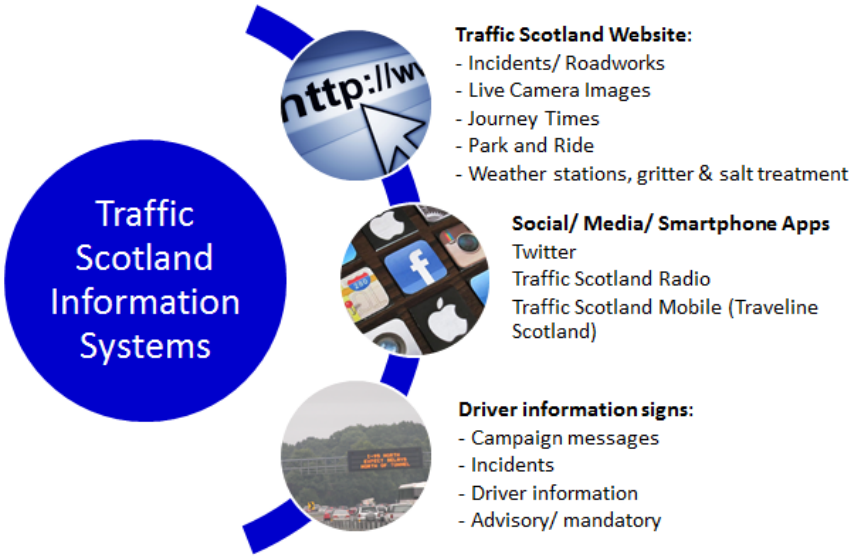
In terms of travel information sources used, participants ranged from those that planned ahead and used a range of websites and apps to help them do so to those that did not do any forward planning for their journeys. Social media also commonly used as a source of information. Participants appeared to be wedded to the source that they were used to using and tended to trust (or at least not question) the validity of the information they saw. There was little evidence of cross referencing or checking other sources to ensure information was accurate.

Whilst on the road, the radio was the most commonly used source of information for travel updates. SatNav was also used, as were the overhead gantries to inform travellers when they were on the road.

3. USE OF TRANSPORT SCOTLAND INFORMATION SOURCES

The discussion then went on to the role of Transport Scotland in providing travel information. This discussion was prompted with participants shown a graphic of the types of Transport Scotland Information Systems and sought to discuss participants awareness, usage and perceptions of the range of information sources provided by Transport Scotland.

The majority of participants across groups were aware of Transport Scotland information sources once they saw the sheet and list of sources, despite having been unware that these sources came from Transport Scotland in earlier discussions.



3.1 Traffic Scotland Website

There was some awareness of the Traffic Scotland Website, with a few participants in each group stating that they had been on the website, although this did not appear to be a regular source of information for many. Instances where participants stated that they had used the website were:

- To get information on planned closures
- To look at live camera images
- To take an overview of a longer route or journey.

I will go into Traffic Scotland website if I know something has happened I will go in and have a look to see what is happening. It's quite easy to look at, its ok. I think I trust it.

A couple of times I have used the Traffic Scotland website. It tells you if an exit is going to be shut for 2 days or that kind of thing. If it's going to be something lengthy I would look there.

I've used the live camera images. Not really journey times because I usually do that if I'm planning a route it tells you how long that will be on Google Maps. Or incidents and roadworks, where I live there was a slip road that was closed and it was on and off and the signs that were up weren't very clear. So some nights it was closed from 8pm until the next morning but sometimes it was open and sometimes it wasn't so I used it for that.

I think it depends on the distance you are travelling as well. If you are planning on going on a long route you could use that (the website) but if you are going on a short route you are not going to sit and log in and go see it before you set off. I just set off knowing that it's going to be slow going through Glasgow and as soon as you get out of Glasgow it's going to go faster. And same on the return.

The thing I do I use it for is if I hear of an accident on the radio I go and look at the camera because the app updates are useless so I'll go see if the accidents clear.

However, those that had used the website, did state that it was not always particularly user friendly, particularly if you were visiting the website from a mobile device.

I find Traffic Scotland's website, if your using a mobile device, it's not very mobile friendly. I find if you're on the go you don't have time to pull over or go home and look up the live cameras it takes about 5 minutes or go to get the live camera takes about 5 minutes to go through the list on Traffic Scotland.

I was aware that Transport Scotland had a website. I've visited a couple of times before and found it was quite busy. I found it quite difficult to navigate and I am one of these people that quickly loses

patience so I went off and searched for travel news and clicked on the next one. I was looking for info on going up north.

It is interesting to note that they also they also queried how up to date the information provided was therefore perhaps wouldn't refer to the website for up to date travel information, rather the focus appeared to be more on planned works or longer journeys.

I think it's too unpredictable to know, most of the time, things can happen and the situation on a road can change in minutes. How live is it?

So like most of the time you are driving on the road it might be clear when you set off but then 5 mins later there is an accident or something has happened, it's things like that are hard to plan for. You are not going to go on your phone or whatever and search the Transport Scotland website when you are driving.

Probably put more timings on their updates and things you know and update it quicker because you tend to find that there's still an incident but the roads opened again, it doesn't seem to get updated as quick as it probably could be.

How regularly does it sync. So if you went on to the website and it said right it's going to sync in 2 minutes and did a count down, you would know is this information going to be almost live or has this information been on for half an hour. Half an hour travel time makes a big difference. So if it did a countdown time as to when it was going to update then you're going to have more trust in it.

3.2 Traffic Scotland Social/ Media/ Smartphone Apps

Social media and apps were commonly used by some group participants, in particular in the Dunfermline focus group. A number noted that they did follow Transport Scotland on Twitter and Facebook.

> *I've been on their Twitter? I think I follow Transport Scotland on Twitter. I don't follow it a lot but do look at it and I have used it infrequently. I only really use Twitter intermittently.*

> *I've noticed that they put a lot of stuff on Facebook now. Particularly when things are going to be happening. They took the bridge down about 3 or 4 months ago, over one weekend and it was Facebook I read about that.*

As noted previously, one participant did regularly use the Traveline Scotland app as a preference.

> *I really like the Traveline Scotland App and think it is a good app. I will continue to use that. I have looked at the live camera images and have looked at that from time to time to be nosey.*

Moreover, on reflection and discussion about the Traveline Scotland app, more participants did use the app, or had done so, than reported having used the app unprompted. Awareness of the app was a reason for this and a reason for lack of usage.

> *See the Travel Scotland app, I actually use it more than I thought. It is the one you put in your journey, starting from where you are to where you want to go and it will give you public transport links as well. It will tell you what times you get trains at, what bus stop to go to and things like that.*

> *It's travel wide Scotland. It's got a lot of journey planners and it's got news and notifications I've never actually used it for the notifications I've always just went straight on to the Traffic Scotland website. Didn't realise it's actually the same thing. That's interesting.*

> *I didn't know they had Traffic Scotland Radio. Is that a dedicated radio station?*

3.3 Transport Scotland information vs other information sources

When asked to consider the Transport Scotland information sources discussed compared to the other sources, it did appear that there were a number of barriers to using the Transport Scotland information sources. These included:

- Being loyal to their current source of information/ no compelling reason to change
- Queries over how up to date the information provided is
- Perception that as the sources are Scotland wide, they will not be specific enough for their local area to be of value.

I think in terms of these, I go to the RAC and it gives me all the information I need. I wouldn't really check other things as well. I would just be pretty set in my ways. Ultimately I'm going to travel anyway, all the information will do is let me know if it is going to take me longer or not.

I would probably have the perception that if I use Transport Scotland then I would get bombarded with information on the whole road network whereas the way I do it I can hone in on my local roads

Only thing is with the Traffic Scotland is sometimes it takes a while to update or for incidents to come off, a lot of times you'll see an incident but you're not sure if that's been cleared it seems to take ages to get updated.

Whilst the issue of ensuring information was up to date was raised in all focus groups, there was particular concern about the validity of the information in the Highlands. Moreover, there was a feeling that things needed to be very localised in the Highlands to be meaningful and relevant.

I probably need convincing that the information is updated enough locally as opposed to just in the central belt because that happens a lot. Sometimes I don't even bother with them. They just think that'll be in Glasgow or Edinburgh so it's no use to me. That's why I go to the camera and not to the update things as there are hundreds of them.

Inverness is a sea height, Inverness could have no snow but you could go 15 minutes out and you're in a completely different world, you can't just tell here.

I probably would check it if it had a highland specific bit and not just for the West and North because I wouldn't check it because I think it would always be central belt.

3.4 The impact of travel information

Whilst a few participants in focus groups noted that they changed their behaviour as a result of travel information, for many whose journey was a daily commute and they had to get there, there was little evidence of people making significant changes to their journey route. This was most notable in the Dunfermline group where participants had to travel over the Forth Road Bridge and would continue to do so even with delays. In Glasgow there was more potential to divert and change routes.

Some examples of where participants had changed their route are noted below:

If I was going up north and there was potential of the A9 being closed then that would change my behaviour but for my routine day to day journeys then I would generally still travel but just with a greater awareness of what is going on.

I would change my behaviour so I can work at home or in different locations so I could look at the information and move location – not go across the Bridge or go to a different facility, not the one in Edinburgh if roads were closed or I couldn't get there

3.5 Summary

When prompted, the majority of participants were aware of at least one or more of Traffic Scotland information sources. Indeed, as discussion progressed many noted that they had used Traffic Scotland information sources. The use of traffic cameras was often mentioned as was information on planned closures or works.

Participants did question the extent to which traffic information was up to date and also perceived that information would be on the whole of Scotland as opposed to local enough to be of value to them. The user friendliness of the website was also noted, in that whilst there was a lot of information available, it was potentially not as accessible as it could be.

4. DRIVER INFORMATION SIGNS

The discussion then moved on to the information provided on driver information signs, seeking to understand participants perceptions of these signs and what they believed the role of these signs should be.

4.1 Recall of driver information signs

There was immediate recall of driver information signs with participants in all groups able to cite multiple messages that they had seen on the driver information signs. However, perception of the signs was not always positive with many making negative comments about the campaign messages in particular.

> *I find them quite irritating.*
>
> *All these things, the things that relate to 'use your seatbelt' but who doesn't? If it's something about the road that's fine but all these politically correct messages drive me crazy*
>
> *I'm the same. I find the journey time information really useful, breakdown really useful – even if it's not where I'm going I think it is really useful for whoever is going there but when it is 'wear your seatbelt', 'de-ice your car', 'don't drink and drive' I just think 'shut up!'*
>
> *It's all basic stuff and if you don't do that then you shouldn't be in a car anyway. I would think that anyone who uses a car does this stuff.*
>
> *I quite often shout at the sign 'Who is paying you to keep this going?!' I do find that sometimes they state the obvious but it's supposed to be for emergencies or something has happened.*
>
> *You get these daft signs at the side of the road that usually have silly messages like check your mirrors for bikes, I've checked my mirrors hundreds of times and haven't found a bike in one of them. But occasionally you get something half decent on it as well.*
>
> *The 'please use seat belts' sign. Isn't that just illegal if you're not so there wouldn't really be a need for that. If you're driving on the road you should legally be following it anyway.*

4.2 The role of driver information signs

Generally, participants believed that the campaign messages were diluting the message that needed to be heard or seen on the driver information signs.

I think it's not good for campaigns because what your doing is your driving and your diverting your attention to look at a sign and you're a bit annoyed I kind of looked off the road to either side and it was rubbish if it was an alert or something that was relevant, you would take more attention of it and a lot of the times you're driving and don't even look up just drive past it.

I do think that because of these signs 'be courteous' is diluting the message that they actually need you to hear. I zone out. I'm probably missing important messages.

However, in the Inverness group, there was a feeling that some of the campaign messages could be valuable.

However the tiredness can kill take a break, sometimes you do need a reminder of that. There's been a couple of times I've had to open the window and think do you know what actually I really do need to stop. Having that wee reminder sometimes can save somebody having an accident.

One of the more valuable ones is the message that says allow over taking, because these people that stack up one behind the other and they don't go past and they don't give you room to get in either really just causing all sorts of chaos.

A further issue was raised in the Inverness group about recognition of roads where there was information about an incident.

But if there is a road closure, if anything my criticism about the information on these signs would be they say the road, they tell you which road is closed and they tell you between and they give you other road numbers, Now if you don't have a complete map of the area then you have no idea where that is. You don't know where they are you don't know where the problem is. I know there's a limit to how much they can fit on the sign and that's probably why they do it that way.

Just thinking about the driver information signs to get round the problems of not knowing the road numbers, it might be quite good to put on each sign the distance before you encounter this incident. So if it says you're going on the A9 it's 57 miles and then we've got some sort of hold up. Have the usual stuff the B90761 closed then you can say along the A9 how far that is and how far you are not from where the sign is and that means you'll immediately know whether it's going to affect you at your turn off or before then.

The preference across all groups would be to see messages that were relevant to driving or the route that you are on.

That's a great example of how to do it. 'A9 north closed after Slochd Summit use diversion', as opposed to giving you another side road. Actually tells you were it is so you can work with that.

I've seen one that say high winds travel with care, icy weather travel with care. The sort of things that are sensible. Some of the ones that are on it I would of thought it would be common sense I would rather see something that's actually relevant to the driving.

I have seen north bound telling us the ferries have been cancelled and stuff which I think is really useful information especially if you're going to drive for like 2 hours or something, that's good information to have if you were getting a ferry.

I think sometimes the travel times could be quite reassuring and can stop you rushing. If you're looking at a travel sign or say you have a meeting or an appointment or something and your looking thinking I need to be here at such and such a time, if it's giving you a travel time at normal conditions then you would look it and think I've got plenty of time so you can ease it or the flip side of that is it takes 45 minutes you know you're going to be late so you stop panicking and just accept the fact that you're going to be late rather than trying to rush. So it's quite interesting I would rather have travel times than please use seat belts.

A common query about the driver information signs was about how up to date the sign was, with some drivers noting that a lack of information on how up to date the messages are makes them not believe what they are reading.

I often wonder if these things are updated? I've seen signs 'accident on the city bypass' but by the time I get there it's gone. I've been thinking do I go that way or not.

My question is how often are they updated. You've maybe changed your journey as a result of these but has the information been up to date and accurate? I just don't know how much I can rely on it. Like everyone is saying you get used to these signs with generic messages so when it does say something you do wonder if somebody has forgotten to switch the message off? Is not like a website where you know it is updated in real time and there is a time stamp there.

That's a good point. Maybe they should do that 'valid between such and such and such' or updated on date and time'

However, others do take cognisance of the sign and adjust their behaviour accordingly.

I do find if there is a sign saying that there is going to be a hold up I would then go on to SatNav and try and find another route.

I have changed my journey if I see that there has been a delay.

We use the Bypass a lot and quite often we have been saved by taking note of these signs.

If I saw 'accident at Sherrifhall roundabout' I could maybe consider where I was and how far away it was but I would trust it at the time that I read it but if I was further away I would maybe take a gamble that by the time I got there I would be ok.

If a junction if going to be shut for so many days they put it up a week in advance. And for driving it's like ok that's next week and you can plan that's where I get my information.

Anytime that I've been on a motorway to tell you that that lane is closed is really useful information so you don't have to wait at the last minute so you can get across early. Fantastic information.

I always think a good one when you are coming the switch back coming from Bearsden to Anniesland, coming over the blind hill there where it says

queued traffic ahead, that's good, because as soon as you go over the brow of that hill, it's dead stop.

Recommendations made to improve the signs and the extent to which road users will take notice of these included:

If it said accident reported at junction 3 at 16:30 then you can take what you want from that and plan and make decisions based upon your current time and location. That would be good for the overhead signs.

If they had some time off, blank. You're more likely to read them when they are on. Have them on at times of high usage of the road.

I think priority should be, and probably is, the alerts whether it be weather or traffic or accidents and road closures. They should be very careful of how much of the rest of the stuff they put up on the boards because it gets to a point where you're going to ignore it. Which is defeating the object of it I would of thought.

I think if there is an opportunity to put stuff up in advance, a bit further in advance because normally the roads that I drive, I drive the same road every week and if I knew in a fortnight's time rather than don't drive tired, I knew I was going to have to have something else planned out I would.

4.3 Summary

There was a high level of recognition of the driver information signs and, where the information related to journey times or travel information such as accidents, delays or closures, then this was perceived as necessary and positive.

However, with just a couple of exceptions, the reaction to campaign messages was negative with participants stating that they found them annoying, patronising and diluting the valuable messages that can be provided on driver information signs.

5. FUTURE NEEDS

The group concluded with a brief discussion on future needs for travel information. The discussion sought to identify any current gaps in travel information and also perceptions of the concept of personalisation of travel information.

When the discussion on personalisation and future needs began, many group participants noted that this technology was already available. Participants in the groups spoke of travel announcements on the radio which cut in through what they are listening to and updates. Whilst this was largely positive, it was believed it would be important to make sure that things are personalised.

> *We have a thing on our car radio where if there are any accidents or anything it cuts in so we pick these up without having to do anything else.*

> *We use the Bypass a lot and it just cuts into the programme you are listening to and we know what is going on. It's really useful as it is relevant to where we are and what we are doing.*

> *There is a thing on your car radio that you can get the travel it will link to whatever station you're on but I was finding that everything that comes from Radio Scotland was coming on and it just wasn't relevant. I switched it off.*

Indeed, a couple of group participants received regular updates for their regular routes directly to their telephone, even when they had not knowingly opted into this service.

> *Funnily enough, I've no idea why but I've just started getting updates on my phone about 5pm every day I get a 'travel is moderate on your roads'. I've got no idea how or why I get that. I must have clicked on something.*

> *That's funny I've started getting that too. It's like new technology but I assumed I'd just clicked on something too. My wife one time was delayed and I knew she should have been home about 7 but she wasn't and I went online to check for delays or updates to see if something had happened and since then I have been getting these updates.*

This was perceived pretty positively by those that received the updates.

> *I quite like the fact that my phone may be able to tell me that I am on my way home, that the route that I normally go has heavy traffic so I may wish to take another route. It is useful. If my phone knows where I travel 5 days a week then if I can just get that information without me having to search for it all the better.*

When thinking about any possible gaps, group participants were unable to identify any place or area where they would like to see more information.

> *I think we're inundated with information and it is very difficult not to get what you are looking for in some way shape or form.*

> *If all sources are equally accurate then why shouldn't there be all this choice? As long as the information is accurate then I see no reason why this shouldn't all be available*

This positivity towards technology and personalisation was continued when it came to providing information in the car directly.

> *If you are travelling along and you get information transmitted directly in your car then it is great, as long as it is accurate. I think you really pay attention if it suddenly comes into your personal space.*

> *I would take more notice when it comes into my car as if it is on a sign I don't know when it has been updated, but if it comes in my car then I would pay attention.*

Appendix 1: Topic guide

Exploratory Research to Inform Transport Scotland ITS Strategy
Focus Group Topic Guide

Background for moderator

AIM: to explore with a cross section of trunk road users wants and needs relative to Traffic Scotland Information…

Three focus groups:

- *Glasgow – 6pm Tuesday 17th January*
- *Dunfermline – 6pm Tuesday 17th January*
- *Inverness – 6pm Thursday 19th January*

1. Introduction & Background

Thank you very much for coming along today, we really do appreciate you giving up your time to come along and give your views. We have been asked by Transport Scotland to carry out this research to help them understand how users of the trunk road network for which they are responsible, get their travel and transport information and to understand their wants and needs. Feedback from this research will feed into their 10 year travel and transport information strategy.

> **Show map**: http://www.transport.gov.scot/road/maintenance/key-facts-about-trunk-road-network-scotland#map

You have all been invited along to this focus group as you are users (NB may not always be a driver, could be a passenger) of the trunk road network, that is the main motorways and major roads across Scotland. We have also invited people of different ages and circumstances to make sure that we understand a range of different views and needs.

In that respect, there are no right or wrong answers in what we are going to talk about today and if your views, experiences or priorities are different from others round the table than that is fine, that is actually what I want to hear and discuss with you. Can I therefore ask that you give everyone here today the chance to speak and that, even if your view differs from theirs that you do not think of it as 'wrong' it is merely different from yours.

The group will last for approximately 1 ½ hours.

Can I assure you that everything we discuss here will remain confidential and feedback will only be given to Transport Scotland in terms of overall themes or issues discussed as opposed to individual comments.

Any questions?

Note to moderator: confirm permission to record

1. **Introductions (5 mins)**

- Round table introductions (name, age, where live, what they do?)

- Driving behaviour on trunk roads (using trunk road map):
    - What roads tend to drive?
    - how often drive?,
    - average mileage driven?,
    - reasons for travel?

2. **Key sources of travel information (unprompted – cover briefly for context – 15 mins)**

   I'd like you to think about the type of journeys that we've spoken about that you make on trunk roads. If you were going on a journey using the trunk road network....

- Do you plan ahead?
    - If so, where do you go to get information? Why do you go there to get your information? (**probe for:** trust in sources used vs. others e.g. apps, website, sat-nav, message signs)
    - If not, why not?

- If you don't plan ahead, do you look for information when you are on your journey?
    - If so, where would you get in journey information?

- If not, why not?

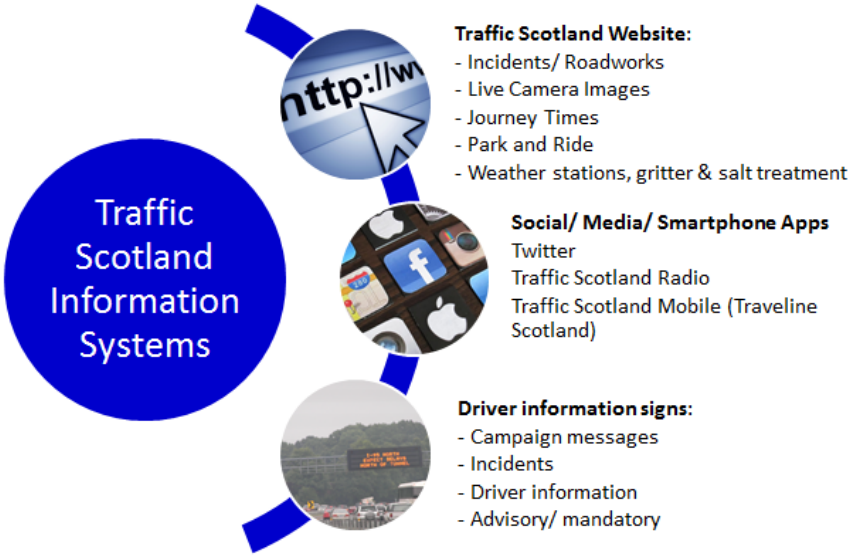
- Do you use, or have you used, any travel information provided by Transport Scotland specifically? (**unprompted**)
  - If yes, what specifically have you used? Why did you use this travel information? What did you think of it? (**probe for**: accurate, up to date, provided the information that you were looking for?)
  - If not, why not? (**probe for**: lack of knowledge of TS information vs lack of confidence in TS information vs inability to get what looking for)

3. The role of Transport Scotland (key area of focus group – 30 mins)

Transport Scotland is the national transport agency for Scotland and part of their role is to manage the trunk road network in Scotland. One of their key delivery priorities is ensuring better journey times, better reliability, quality and accessibility. The information provided by Transport Scotland, it is hoped, will help achieve this objective.

I'd therefore now like to go on to discuss the different types of information that Transport Scotland provides and get an understanding of what you think about these.

(Show graphic below to give overview of range of information systems)



- Were you aware that Transport Scotland provided all of these?
- What were you aware of? What not aware of?
- Now that you know Transport Scotland provide these, have you ever used any of these traffic information sources?
    - Is yes, which ones? (**PROMPT:** WORK THROUGH THE LIST ABOVE, IDENTIFY WHICH USED AND WHEN. HOW MUCH TRUST IS PLACED IN THESE SOURCES?)

(take each information source in turn and work through questions)

- When have you used this? How often have you used this?
- Do you trust this as an information source?
- Why did you use this as opposed to another information source? (**Probe:** do you use multiple sources for comparison?)
- Did you get what you wanted? If no, why not?
- How easy was it to access/ get what wanted? If difficult, how could it be improved?

- For any not used, why not?
    - Do others provide better information? (what is better – accessibility, accuracy, relevance?)
    - Not aware? If aware, would you use? Would this replace current sources of information? How could Transport Scotland raise awareness of what they provide?

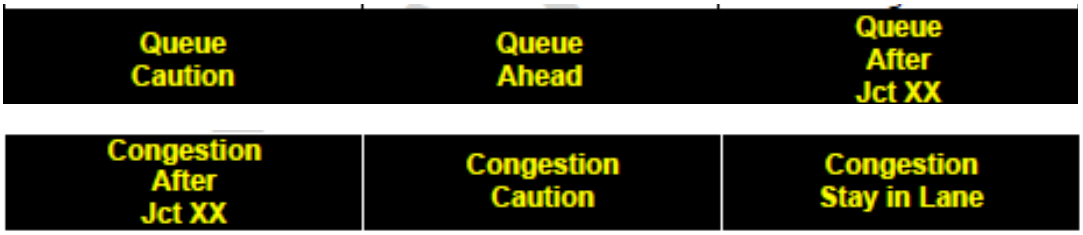
4. Driver Information Signs (Can TS provide handouts with sample signs?) (15 mins)

- Do you recall seeing driver information signs on the trunk road network?
    - If yes, can you give examples of where?
    - What messages do you recall (unprompted)?
    - What did you think of these messages? Were they what you wanted/ would expect?
    - Are you aware that congestion / queue related messages are set automatically based on real traffic conditions?

- What do you think the role of these driver information signs is? And is that what it should be? **(Probe:** should there be more, less or the same number of signs? Could they be used more effectively?)

Transport Scotland use these signs to update users of the road network about incidents or delays, but also to provide campaign messages. in a more active way than in the rest of the United Kingdom. This is done in a more active way in Scotland than in the rest of the United Kingdom. to what is done elsewhere in the UK. We'd be interested in finding out what you think about these. I've got some examples of messages that are or have been used on the road network on these driver information signs

Queue / Congestion Messages



Journey Time Messages

Incidents

- **CAUTION HIGH WINDS**
- **ROADWORKS M8 AFTER J5 SHOTTS USE CAUTION**
- **WORKS A90(N) ECHLINE OFFSLIP**
- **A9(N) CLOSED AFTER SLOCHD SUMMIT USE DIVERSION**

Campaign Messages

- **KEEP WINDSCREEN CLEAR**
- **RED X IS MANDATORY**
- **IS YOUR CAR READY FOR WINTER?**
- **TIREDNESS CAN KILL TAKE A BREAK**

- Have you, or would you, change your behaviour based upon the information received on one of these VMS signs?
- Would you expect or like to see/ hear these types of messages via other form i.e. in your vehicle?

5. Future needs (15 mins)

- Is there any transport information that you would like to be able to get but are unable to at the moment?
- Why would this help you?
- How would you like to be able to access this information? (probe for: online, app, road signs, radio, satnav, other in-car technology)
- How would you like to find out about sources of information, if this was available? i.e. how could Transport Scotland or other organisations let you know that they provide this?
- Newer cars and technology development will allow far more personalisation of information (direction you are travelling, incidents ahead of you etc) and may mean less message signs etc. Are you aware of this already and what do you feel about this?

6. Thank and close

Thank you very much for your time. Can I remind you that everything we have discussed tonight will be completely confidential and anonymous. However, Transport Scotland may wish to use anonymous quotes, for example, if someone says that they really trusted their Twitter. Would you be happy for them to do this, if they wanted to, from this focus group. It would not be used in any way that would be able to identify that you said the quote, if a quote was used.

Appendix 2: Technical Report Summary

researchresource

TECHNICAL REPORT SHEET – QUALITATIVE RESEARCH

Project name	Transport Scotland ITS Strategy Focus Groups
Project number	P879
Objectives of the research	To understand customers use of, and attitudes towards travel information
Target group	Users of the trunk road network
No. of groups and participants in each group	3 groups 8 in group 1, 10 in group 2, 10 in group 3
Fieldwork dates	Groups were held: - Glasgow – 17th January - Dunfermline – 17th January - Inverness – 19th January
Recruitment method	Recruited by group recruiters based upon the following criteria: - Users of the trunk road network - Range of ages but weighted towards working age - 50:50 male: female
Any incentives?	£30 per head
Number of interviewers/ moderators	3
The moderator validation methods?	Participant profile was confirmed by moderator at beginning of group
Results	Please note the results of qualitative research cannot be projected onto the overall population, due to sample selection, interviewing methods and sample size.

Annex D. Data Subscribers Survey Output

Transport Scotland

DATEX II Stakeholder Survey

June 2017

Prepared by:

Research Resource

17b Main Street

Cambuslang

G72 7EX

Contact: Lorna Shaw

Tel: 0141 641 6410

E-mail: Lorna.shaw@researchresource.co.uk

Prepared for:

Jacobs

95 Bothwell Street

Glasgow

G2 7HX

Contact: Stephen Craig

Tel: 0141 243 8082

E-mail: Stephen.craig@jacobs.com

Transport Scotland

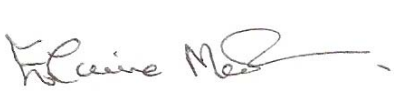
DATEX II Stakeholder Survey Report

Contents

Report written by: Rosemary Stafford

Date: 15/06/2017

Report reviewed by: Elaine MacKinnon/ Lorna Shaw



Date: 16/06/2017

1. BACKGROUND AND METHODOLOGY

1.1. Introduction

This report represents and discusses the findings to emerge from qualitative stakeholder consultation carried out by Research Resource for Jacobs and on behalf of Transport Scotland in the first half of 2017 in order to seek feedback from Transport Scotland customers who use the road network and use the DATEX II and FTP feed customers.

1.2. Background and objectives

Transport Scotland use Intelligent Transport Systems (ITS) to monitor traffic conditions on the trunk road and motorway network in Scotland, set signs and signals to control the traffic, and where possible provide this information through its www.TrafficScotland.org website and subscriber data feeds.

Transport Scotland is in the process of developing its ITS Strategy to set out a high level vision for ITS in Scotland and to help agree where to invest, what systems and services to renew or to replace. In addition, Transport Scotland wish to understand what the information needs are for key stakeholders and whether the current information provided meets these needs.

A key part of this strategy development is to seek feedback from Transport Scotland customers, both those using the road network and those using the Traffic Scotland website and data services. To achieve this, Research Resource were commissioned to undertake a survey of the DATEX II and FTP feed customers.

1.3. Research Method

Survey respondents had been recruited by responding to an email from Transport Scotland, stating they would be happy to be contacted about the survey. All Datex subscribers were contacted by Transport Scotland in order to request permission to share their data with Research Resource in order to allow them to participate in the stakeholder survey. Thirteen customers agreed to be contacted for the purposes of the research.

A total of 10 interviews were carried out with stakeholders, the majority (7) being completed by email and the remaining 3 by telephone. A copy of the questionnaire used can be found in Appendix 1.

The questionnaire comprised three sections. The first section was on background

information such as why the organisation originally applied to use data feeds from Traffic Scotland and about the ease of signing up to access the data.

The second section asked respondents about their current usage of the data, for example which data feeds they currently and actively use, how they use this data and how they would rate the data feeds. Respondents were also asked about the benefits to their organisation of having this data, what they would do in the absence of the data, any suggestions for improvement and their reasons for no longer using certain data feeds (if this is the case).

The final section was asked of dormant users who were currently not using any of the data feeds. They were asked for their opinions on the data feeds they did use and why they no longer use these data feeds.

1.4. Report Structure

This document details the key findings to emerge from the stakeholder interviews, and is structured to follow the structure of the questionnaire as follows:

Chapter 2 Background information
Chapter 3 Current usage
Chapter 4 Dormant users

Appendix 1 – Survey Questionnaire
Appendix 2 – Technical report summary

2. Background Information

2.1. Reasons for applying to use data feeds from Traffic Scotland (Q1)

The survey opened by asking respondents for their reasons for originally applying to use the data feeds from Transport Scotland. As can be seen in the comments below the main reasons were for information sharing and to add live camera images to their website or app.

- *(Company are) a global traffic camera aggregator for 3rd party websites and apps*
- *I run a website which shows live weather conditions in the Lochaber area and wanted to add helpful information related to the weather for visitors to my website. I have seen other weather websites in the U.S. showing traffic information and webcam images and thought it would be nice to provide a similar service. After emailing Traffic Scotland to ask permission to use the webcam images, I was granted permission to access the images using their FTP facility.*
- *Connected through the Mosaic Camera System.*
- *I originally built a web page so my wife could check all the A9 traffic cameras at once, but it was flagged up as infringing the image leeching rules set down by Traffic Scotland. I was offered the opportunity to download the images via the LEV FTP service by Transport Scotland, which I gladly accepted.*
- *We collate traffic news and CCTV camera images from England, Scotland, Wales and Ireland to provide a central location for people to view the UK traffic.*
- *For data sharing – ANPR Journey Times, to allow a combined time to be posted along the A8 to Edinburgh City Centre and for records of messages on trunk road VMS signs*
- *Because we are already sharing data feeds.*
- *Because I wrote a mobile application which displays the images from motorway cameras and road cameras.*
- *Because we're providing a traffic alert service for one of our clients.*

2.2. Ease of signing up to access the data originally (Q2)

Stakeholders were asked how easy they found it to sign up to access the data originally. Of the 10 respondents, 3 rated the process ‘very easy’, a further 4 respondents said it was ‘fairly easy, 1 respondent said it was ‘very difficult’ and the remaining 2 respondents were unsure.

One respondent who found it very easy said they had signed up back in 2012, and that the process was very straightforward.

Another individual who said the process was fairly easy said they did not rate this as very easy as they recalled there being an issue in signing up but could not recall what the issue was.

The one respondent who found it very difficult commented that they were unable to location the information they were looking for on the data feed.

3. Current Usage

3.1. Data feeds currently actively used (Q3)

Respondents were provided with a list of data feeds and asked which of these they currently and actively use. All respondents used at least one of these data feeds with Live Traffic Cameras being the most actively used data feed (7 out of 10 respondents).

This was followed by unplanned events (4 respondents), roadworks (2 respondents), VMS Messages (2 respondents), Travel Time Data (2 respondents), Traffic Status Data (2 respondents) and Future Roadworks (1 respondent).

3.2. How data is currently used (Q4)

As a follow up to this question, respondents were asked how they currently use the data for the data feeds that they access. The comments provided for each data feed are shown below.

Unplanned events

- *For info.*
- *We fetch this data every five minutes from your RSS feeds. We parse it in to a slightly different format. We then reproduce it on our web site.*
- *Html feed.*
- *We pull the feed periodically and tie it in with other sources.*

Roadworks

- *For planning our roadworks.*
- *Html feed.*

Future Roadworks

- *For planning our roadworks.*

Traffic Status Data

- *Journey time checks.*
- *Html feed.*

VMS Messages

- *Check bridge statuses.*
- *Info only*

Travel Time Data

- *Journey time checks.*
- *For posting combined journey times from M8 to City Centre*

Live Traffic Camera Images

- *Traveller websites and apps.*
- *I download all traffic camera images once every 10 minutes, save them on a home PC and upload the eight images which are local to Lochaber to my website.*
- *Check traffic delays.*
- *The images I download are used by my wife and some of her colleagues at the local Police station to give fairly accurate and up-to-date – but conditional - information on road conditions to members of the public.*
- *We download the camera images via FTP every five minutes and re-produce them on our web site.*
- *It's a selection within the application.*

3.3. The quality of the data received from the feeds (Q5)

For each data feed used, respondents were asked to rate the quality of the data they had received from these feeds. The results were as follows:

- Unplanned events: 1 respondent rated excellent, 2 respondents rated good and 1 said this was fair;
- Roadworks: 2 respondents rated as good;
- Future Roadworks: 1 respondent rated this fair;
- Traffic Status Data: 2 respondents rated good;
- VMS Messages: 2 respondents rated good;
- Travel Time Data: 1 respondent rated good and 1 respondent rated fair;
- Live Traffic Camera Images: 5 respondents rated this excellent and 2 respondents rated this good.

3.4. Other comments about the feeds used (Q6)

Respondents were asked to provide any other comments they had about the feeds they used. Comments were made regarding unplanned events and live traffic cameras. These comments can be found below:

Unplanned events

- *Please don't change the format of the RSS structure without informing your users a few months in advance. It breaks a lot of stuff when you do.*
- *There is a lot of data missing in the feeds which show in English feeds and some data is huge. All useful information needs to be taken out and broken up into separate parts. For example there are start times but no end times. Look at Highways England – they are doing it better.*

Live Traffic Camera Images

- *We have agreements with approximately 160 different traffic camera providers like yourself in 33 different countries. Of those providers, Transport Scotland is the only provider that requires us to download images continuously via FTP prior to redistribution - a slow, tedious and bandwidth intensive process. By all means separate your 3rd party feed from your end user feed, but please allow us access via HTTP so that we can access images only as needed and avoid FTP.*
- *It would be handy, in my case, to be able to specify & download only the images I want to use, instead of download all images.*
- *Can you update the cameras every 30 seconds instead?*
- *I'm very happy with them*

3.5. Benefits to the organisation of having the data (Q7)

In terms of the benefits to organisations of having the data, examples given were to improve information on their websites and to provide visitors with traffic information.

- *Extend coverage to our website and app users in Scotland*
- *It provides an added benefit to my visitors on the local road conditions, enhancing the other weather information available on my website.*
- *To assist in planning.*
- *As I said, it enables my wife to give advice quickly and concisely to members of the public (especially to the very common phone request; "I'm driving to Inverness/Perth/Glasgow, what are the roads like?") and colleagues about road conditions (in tandem with Police Scotland's own sourced advice of course).*
- *We benefit by being able to provide our visitors with near real-time traffic and travel information across Scotland.*
- *Joined up approach for transport network users*
- *Improved traffic information on our current traffic network.*
- *It means the app runs smoothly.*
- *We need to know about unplanned incidents in Scotland and it is free.*

3.6. In the absence of the data what would the organisation have done (Q8)

In absence of the data it was clear that the majority of respondents would not have been able to provide travel information on their website or would have had to look to other sources to obtain this information.

- *Not offer coverage in Scotland*
- *I would not publish any traffic information on my website.*
- *Use contacts.*
- *I'm not sure. She'd have to toggle through all the menus and map route suggestions on the Traffic Scotland website, probably.*
- *We would be forced to remove all Scotland traffic and travel information from our web site completely and only show England, Wales and Ireland.*
- *Not provide information*
- *We would have to install more roadside equipment.*
- *I wouldn't be able to offer the Highway Scotland cameras in the application.*
- *We don't have a lot of cover from Traffic Scotland. We would have to go to 3rd parties such as local Councils.*

3.7. Suggestions for improvement to the data (Q9)

In terms of suggestions for improvement to the data, the most common response was for information to be updated more regularly:

- *It would be handy, in my case, to be able to specify & download only the images I want to use, instead of download all images.*
- *I have to admit, the only thing I would like – and it's not really necessary – is for a larger image size/resolution to be made available.*
- *More frequent updates on the RSS and the camera images please.*
- *More availability of fused data.*
- *More regular updates would be helpful.*
- *Look at Highways England – they make a lot more useful data available in useful nodes which is machine readable. Break up all the data. Instead of one block of information it should be broken down into separate nodes in the XML.*

3.8. Other data that respondents would like to see made available (Q10)

Only three respondents were able to provide suggestions on other data they would like to see made available:

- *Access to adjacent CCTV networks.*
- *Fused data.*
- *More comprehension of machine readable data. Look at Highways England.*

3.9. Data feeds that were used but no longer currently used (Q11-15)

Only 1 respondent said there were feeds that they did use that they do not use anymore. This respondent said they used to use Roadworks data on the Scottish trunk road network that are currently under progress of the day of the publication and that they stopped using this because they decided to use cameras only.

4. Dormant users

4.1. Summary (Q16-27)

As mentioned at 2.1 all respondents were currently and actively using at least one data feed. Therefore, no respondents were routed through this section on dormant users.

4.2. Final comments (Q28)

A total of four individuals provided other comments about the data feeds provided by Traffic Scotland. Their comments are provided below:

- *None, other than to thank Traffic Scotland for allowing me to use the traffic camera images on my personal website.*
- *While I appreciate that my usage of the LEV FTP image data is hardly essential, it is and has been valuable to the very few who use it.*
- *Please don't make changes without first informing us in advance. We need time to make the changes at our end too. Great service, please don't remove any of it!*
- *It's very reliable and one of the easier sources to use so it's good for me.*

Appendix 1

Survey Questionnaire

ID Number:

Project number	**P875**
Project name	**Transport Scotland DATEX II Stakeholder Survey**

Respondent name **Record in capitals**											
Organisation/ Company Name Record in capitals											
Address **Record in capitals**											
Postcode **Record in capitals**											
Telephone Number											

[INTERVIEWER: CLOSE INTERVIEW BY READING OUT STATEMENT]
"Thank you very much for your help. Can I assure you once again that the information you have given will be treated as absolutely confidential and will only be used for the purposes of genuine market research."
INTERVIEWER DECLARATION:
I declare that this interview was carried out according to instructions, within the Market Research Society's Code of Conduct, and that the respondent was not previously known to me.

Interviewer No:		**Name:**	
Questionnaire No		**Signature:**	
On quota:		**Date:**	
Edited by:		**Duration**	
Backchecked by:			

INTRODUCTION [INTERVIEWER: READ OUT] Transport Scotland use Intelligent Transport Systems (ITS) to monitor traffic conditions on the trunk road and motorway network in Scotland, set signs and signals to control the traffic, and where possible provide this information through its www.TrafficScotland.org website and subscriber data feeds.

Transport Scotland is in the process of developing its ITS Strategy to set out a high level vision for ITS in Scotland and to help agree where to invest, what systems and services to renew or to replace.

A key part of this strategy development is to seek feedback from Transport Scotland customers, both those using the road network and those using the Traffic Scotland website and data services. Transport Scotland are therefore undertaking a survey of the DATEX II and FTP feed customers.

You responded to an email from Transport Scotland stating that you would be happy to be contacted about this. The purpose of this survey is to ensure that Transport Scotland understands what your information needs are and if the current information provided meets your needs. Can you spare some time just now to talk about your use of the DATEX II and FTP feeds?

Background

1. Why did you/ your organisation originally apply to use data feeds from Traffic Scotland?

2. How easy was it to sign up to access the data originally?

Very easy	1	Go to Q3
Fairly easy	2	
Neither easy nor difficult	3	
Fairly difficult	4	
Very difficult	5	
Don't know/ can't remember	6	
Please record any comments which could help Traffic Scotland improve this below:		

Current usage

3. Which of the following data feeds do you currently actively use? [MULTI]

Unplanned Events This publication includes events that occur on the Scottish trunk road network (known to Traffic Scotland) that are unplanned, such as accidents, road closures and bad weather.	1	Go to Q4
Roadworks This publication contains those roadworks on the Scottish trunk road network (known to Traffic Scotland) that are currently under progress on the day of the publication	2	
Future Roadworks This publication contains all those roadworks on the Scottish trunk road network (known to Traffic Scotland) that are planned for a future date and time.	3	
Traffic Status Data This publication contains data relating to the state of traffic flow at the time of publication within those areas of the trunk road network currently covered.	4	
VMS Messages This publication contains the current status of all Variable Message Signs deployed on the Scottish trunk road network, including the text display at the time of the publication.	5	
Travel Time Data This publication contains information related to journey times calculated for specific points within the road network.	6	
Live Traffic Camera Images The Traffic Scotland Live Traffic Camera FTP Service provides registered users with FTP access to all of Traffic Scotland's Live Traffic Camera images. Registered users will be provided with FTP access to live images and an up to date list of current cameras and their coordinates so that they can be displayed on a map if required.	7	
Do not use any data feeds currently	8	Go to Q16

4. How do you currently use this data? [FOR EACH FEED USED AT Q2]

Unplanned Events that occur on the Scottish trunk road network (known to Traffic Scotland) that are unplanned, such as accidents, road closures and bad weather.		Go to Q5
Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are currently under progress on the day of the publication		
Future Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are planned for a future date and time.		
Traffic Status Data relating to the state of traffic flow at the time of publication within those areas of the trunk road network currently covered.		
VMS Messages the current status of all Variable Message Signs deployed on the Scottish trunk road network, including the text display at the time of the publication.		
Travel Time Data contains information related to journey times calculated for specific points within the road network.		
Live Traffic Camera Images The Traffic Scotland Live Traffic Camera FTP Service provides registered users with FTP access to all of Traffic Scotland's Live Traffic Camera images.		

5. How would you rate the quality of the data you receive from your feeds? [FOR EACH FEED USED]

	Excellent	Good	Fair	Poor	
Unplanned Events that occur on the Scottish trunk road network (known to Traffic Scotland) that are unplanned, such as accidents, road closures and bad weather.	1	2	3	4	Go to Q6
Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are currently under progress on the day of the publication	1	2	3	4	
Future Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are planned for a future date and time.	1	2	3	4	
Traffic Status Data relating to the state of traffic flow at the time of publication within those areas of the trunk road network currently covered.	1	2	3	4	
VMS Messages the current status of all Variable Message Signs deployed on the Scottish trunk road network, including the text display at the time of the publication.	1	2	3	4	
Travel Time Data contains information related to journey times calculated for specific points within the road network.	1	2	3	4	
Live Traffic Camera Images The Traffic Scotland Live Traffic Camera FTP Service provides registered users with FTP access to all of Traffic Scotland's Live Traffic Camera images.	1	2	3	4	

6. Do you have any comments you wish to make about any of the feeds used?

Unplanned Events that occur on the Scottish trunk road network (known to Traffic Scotland) that are unplanned, such as accidents, road closures and bad weather.		Go to Q7
Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are currently under progress on the day of the publication		
Future Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are planned for a future date and time.		
Traffic Status Data relating to the state of traffic flow at the time of publication within those areas of the trunk road network currently covered.		
VMS Messages the current status of all Variable Message Signs deployed on the Scottish trunk road network, including the text display at the time of the publication.		
Travel Time Data contains information related to journey times calculated for specific points within the road network.		
Live Traffic Camera Images The Traffic Scotland Live Traffic Camera FTP Service provides registered users with FTP access to all of Traffic Scotland's Live Traffic Camera images.		

7. What are the benefits to your organisation of having this data?

8. In the absence of this data from Traffic Scotland, what would your organisation do?

9. Do you have any suggestions as to how the data provided could be improved?

10. Is there any other data you would like to see made available?

11. Are there any feeds that you <u>did</u> use that you do not anymore? [READ OUT AND CODE ALL THAT APPLY]

Unplanned Events This publication includes events that occur on the Scottish trunk road network (known to Traffic Scotland) that are unplanned, such as accidents, road closures and bad weather.	1	Go to Q12
Roadworks This publication contains those roadworks on the Scottish trunk road network (known to Traffic Scotland) that are currently under progress on the day of the publication	2	
Future Roadworks This publication contains all those roadworks on the Scottish trunk road network (known to Traffic Scotland) that are planned for a future date and time.	3	
Traffic Status Data This publication contains data relating to the state of traffic flow at the time of publication within those areas of the trunk road network currently covered.	4	
VMS Messages This publication contains the current status of all Variable Message Signs deployed on the Scottish trunk road network, including the text display at the time of the publication.	5	
Travel Time Data This publication contains information related to journey times calculated for specific points within the road network.	6	
Live Traffic Camera Images The Traffic Scotland Live Traffic Camera FTP Service provides registered users with FTP access to all of Traffic Scotland's Live Traffic Camera images. Registered users will be provided with FTP access to live images and an up to date list of current cameras and their coordinates so that they can be displayed on a map if required.	7	
Don't know	8	Go to Q28
No	9	

12. Why do you no longer use these data feeds?

Required for a particular reason / project at a point in time	1	Go to Q28
Feeds did not meet requirements	2	Go to Q13
Found another source that provided the required information in a better/ more suitable format	3	Go to Q14/15
Other (please specify)	4	Go to Q28

13. [**IF CODE 2 ABOVE**] Can you explain why the feeds did not meet your requirements?

NOW GO TO Q28

14. [**IF CODE 3 ABOVE**] Where do you now get this information that replaces the data?

15. What benefits does this offer that Traffic Scotland feeds do not?

NOW GO TO Q28

Dormant Users

16. Which of the following data feeds did you use? [MULTI]

Unplanned Events This publication includes events that occur on the Scottish trunk road network (known to Traffic Scotland) that are unplanned, such as accidents, road closures and bad weather.	1	Go to Q17
Roadworks This publication contains those roadworks on the Scottish trunk road network (known to Traffic Scotland) that are currently under progress on the day of the publication	2	
Future Roadworks This publication contains all those roadworks on the Scottish trunk road network (known to Traffic Scotland) that are planned for a future date and time.	3	
Traffic Status Data This publication contains data relating to the state of traffic flow at the time of publication within those areas of the trunk road network currently covered.	4	
VMS Messages This publication contains the current status of all Variable Message Signs deployed on the Scottish trunk road network, including the text display at the time of the publication.	5	
Travel Time Data This publication contains information related to journey times calculated for specific points within the road network.	6	
Live Traffic Camera Images The Traffic Scotland Live Traffic Camera FTP Service provides registered users with FTP access to all of Traffic Scotland's Live Traffic Camera images. Registered users will be provided with FTP access to live images and an up to date list of current cameras and their coordinates so that they can be displayed on a map if required.	7	

17. How do you currently use this data? [FOR EACH FEED USED AT Q16]

Unplanned Events that occur on the Scottish trunk road network that are unplanned, such as accidents, road closures and bad weather.		Go to Q18
Roadworks on the Scottish trunk road network that are currently under progress on the day of the publication		
Future Roadworks on the Scottish trunk road network that are planned for a future date and time.		
Traffic Status Data relating to the state of traffic flow at the time of publication within those areas of the trunk road network currently covered.		
VMS Messages the current status of all Variable Message Signs deployed on the Scottish trunk road network, including the text display at the time of the publication.		
Travel Time Data contains information related to journey times calculated for specific points within the road network.		
Live Traffic Camera Images provides registered users with FTP access to all of Traffic Scotland's Live Traffic Camera images.		

18. How would you rate the quality of the data you receive from the feeds you used? [FOR EACH FEED USED]

	Excellent	Good	Fair	Poor	
Unplanned Events that occur on the Scottish trunk road network (known to Traffic Scotland) that are unplanned, such as accidents, road closures and bad weather.	1	2	3	4	Go to Q19
Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are currently under progress on the day of the publication	1	2	3	4	
Future Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are planned for a future date and time.	1	2	3	4	
Traffic Status Data relating to the state of traffic flow at the time of publication within those areas of the trunk road network currently covered.	1	2	3	4	
VMS Messages the current status of all Variable Message Signs deployed on the Scottish trunk road network, including the text display at the time of the publication.	1	2	3	4	
Travel Time Data contains information related to journey times calculated for specific points within the road network.	1	2	3	4	
Live Traffic Camera Images provides registered users with FTP access to all of Traffic Scotland's Live Traffic Camera images.	1	2	3	4	

19. Do you have any comments you wish to make about any of the feeds you used?

Unplanned Events that occur on the Scottish trunk road network (known to Traffic Scotland) that are unplanned, such as accidents, road closures and bad weather.		
Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are currently under progress on the day of the publication		
Future Roadworks on the Scottish trunk road network (known to Traffic Scotland) that are planned for a future date and time.		
Traffic Status Data relating to the state of traffic flow at the time of publication within those areas of the trunk road network currently covered.		Go to Q20
VMS Messages the current status of all Variable Message Signs deployed on the Scottish trunk road network, including the text display at the time of the publication.		
Travel Time Data contains information related to journey times calculated for specific points within the road network.		
Live Traffic Camera Images provides registered users with FTP access to all of Traffic Scotland's Live Traffic Camera images.		

20. What were the benefits to your organisation of having this data?

21. In the absence of this data from Traffic Scotland, what would your organisation have done?

22. Do you have any suggestions as to how the data provided could be improved?

23. Is there any other data you would like to see made available?

24. Why do you no longer use these data feeds?

Required for a particular reason / project at a point in time	1	Go to Q28
Feeds did not meet requirements	2	Go to Q25
Found another source that provided the required information in a better/ more suitable format	3	Go to Q26/27
Other (please specify)	4	Go to Q28

25. [**IF CODE 2 ABOVE**] Can you explain why the feeds did not meet your requirements?

NOW GO TO Q28

26. [**IF CODE 3 ABOVE**] Where do you now get this information that replaces the data?

27. What benefits does this offer that Traffic Scotland feeds do not?

Final comments

28. Do you have any other comments you wish to make about the data feeds provided by Traffic Scotland?

29. Finally, can I remind you that all the feedback you have given is completely confidential and anonymous and will only be used to help Transport Scotland understand the needs of their Datex and FTP Feed users and to improve their services. An overall report on the research will be provided by Research Resource to Transport Scotland. Are you happy that your comments noted in the survey are anonymously quoted in this feedback?

Yes, I am happy that my anonymous responses are quoted	1
No, I would prefer that my anonymous responses are not quoted	2

THANK AND CLOSE

Appendix 2

Technical Report Summary

TECHNICAL REPORT SHEET – QUALITATIVE RESEARCH

Project name	Transport Scotland DATEX II Stakeholder Survey
Project number	P875
Objectives of the research	To seek feedback from TS Customers who use/ have used the Transport Scotland website and data services. This will be used to assist Transport Scotland in developing its ITS strategy to set out a high level vision for ITS in Scotland and to help agree where to invest, what systems and services to renew or replace.
Target group	Those who have used/ use the Transport Scotland website and data services.
Target sample size	Maximise response rate
Achieved sample size	10 interviews achieved, 3 by telephone, 7 by email.
Fieldwork dates	Interviewing took place and responses were submitted between the 28th of March 2017 and the 15th of June 2017.
Fieldwork method	As mentioned above, survey completions were achieved either by email or by telephone survey.
Response rate and definition and method of how calculated	10 interviews from a total of 13 who gave permission to be contacted (77%)
Recruitment method	Responded to an email from Transport Scotland stating they would be happy to be contacted about this survey.
Any incentives?	No
Showcards or any other materials used?	No/ not applicable
Weighting procedures	Not applicable
Estimating and imputation procedures	Not applicable
Reliability of findings	Not applicable