SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

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NETWORK OPERATIONS SERVICES

1. INTRODUCTION

1.1 General

1.1.1 Network Operations is a branch of Transport Scotland which is responsible for the provision of a number of traffic, travel information and on road customer support services all of which are aimed at improving the operational efficiency and journey time reliability of the Trunk Road network. These services include the Traffic Scotland Service, the Scottish Roads Traffic Database service and Trunk Road Incident Support Service, all of which are managed by Network Operations and delivered on behalf of the Director by appointed Network Operations Service Providers.

1.1.2 The Operating Company shall undertake obligations that are required to support the Director in the delivery of the Traffic Scotland Service, the Scottish Road Traffic Database service and the Trunk Road Incident Support Service.

1.2 The Traffic Scotland Service

1.2.1 The Traffic Scotland Service provides Transport Scotland and its customers including the media, Scottish Ministers and Scottish Ministers' resilience staff with accurate and timely real time information relating to conditions, Incidents and events prevailing across the Trunk Road network and key routes on the local authority road network on a 24 hours a day, seven days a week basis.

1.2.2 The names, addresses and contact numbers of the Traffic Scotland Operator shall be as referred to in Annex 3.7/A of this Part or as otherwise notified to the Operating Company in writing by the Director. The Director will notify the Operating Company in writing of any changes made to the Traffic Scotland Operator role.

1.2.3 No later than 25 Working Days prior to the Commencement of Service Date, the Director will issue to the Operating Company in electronic format, an up-to-date inventory of all Traffic Scotland Equipment located on the Trunk Road network.

The Director will issue revised inventory to the Operating Company on a quarterly basis from the Commencement of Service Date.

1.2.4 The Operating Company shall take a proactive approach in liaison and coordination with the Traffic Scotland Operator regarding planned roadworks and events and current conditions, Incidents and events that impact on the journey time reliability of the Trunk Road network.

1.3 The Scottish Roads Traffic Database Service

1.3.1 The Scottish Roads Traffic Database service provides Transport Scotland and its customers with timely and accurate, high quality information relating to traffic volumes, vehicle composition and vehicle weights across the Trunk Road network. It is delivered by the Scottish Roads Traffic Database Contractor appointed by the Scottish Ministers.

The names, addresses and contact numbers of the Scottish Roads Traffic Database Contractor shall be as referred to in Annex 3.7/A of this Part or as otherwise notified to the Operating Company in writing by the Director. The Director shall notify the Operating Company in writing of any changes made to the Scottish Roads Traffic Database contractor role.

1.3.2 No later than 25 Working Days prior to the Commencement of Service Date, the Director shall issue to the Operating Company, in electronic format, an up-to-date inventory of all Scottish Roads Traffic Database equipment located on the Trunk Road network.

The Director shall issue revised inventory to the Operating Company on a quarterly basis from the Commencement of Service Date.

1.3.3 The Operating Company shall liaise and coordinate with the Scottish Roads Traffic Database Contractor to support the continuous operation of all Scottish Roads Traffic Database equipment and development of the Scottish Roads Traffic Database service.

2. CONSULTATION, LIAISON, NOTIFICATION AND COORDINATION REQUIREMENTS RELATING TO NETWORK OPERATIONS SERVICES

2.1 General

2.1.1 The Operating Company shall consult, liaise, notify and coordinate with the Director and Network Operations Service Providers as detailed in this Part.

2.1.2 Where the Trunk Road network is not operating within its normal operational conditions, including situations where delays exceed the limits defined in Annex 3.7/G of this Part or an Incident has occurred and the like, the Operating Company shall continually share its knowledge with, and report such conditions and the status of Incidents on the Trunk Road network to, the Traffic Scotland Operator and the Director. The delay and Incident status knowledge transfer shall be delivered in a continual and consistent manner and the Operating Company shall:

(i) ensure that all its resources both internal and external are aware of the requirement of this knowledge transfer and are able to undertake such communications, and

(ii) prepare documentation and tool box talks to ensure that delay and Incident status knowledge transfer becomes part of the operational culture of the Operating Company.

2.1.3 The Operating Company shall attend at least one meeting with the Director and each of the Network Operations Service Providers during the Mobilisation Period. Thereafter the Operating Company shall meet at least quarterly with the Traffic Scotland Operator, or additionally as requested by the Director, to provide feedback, learning and improvements in support of achieving the Director's key objectives and provide continual improvement in the delivery of duties specified within this Part.

2.2 Appointment of Journey Time Reliability Coordinator

2.2.1 The Operating Company shall appoint suitably qualified personnel accordance with the requirements of Schedule 5 Part 4 to deliver the Journey Time Reliability Coordinator role.

2.3 Journey Time Reliability Coordinator's Main Duties

2.3.1 The Journey Time Reliability Coordinator shall be responsible for supporting the Network Manager and Incident Liaison Officer in the delivery of the coordination, liaison and management requirements of the Operating Company specified within this Part, to ensure that the journey time reliability of the Trunk Road network is maintained at its optimum level.

2.3.2 The Journey Time Reliability Coordinator shall be proactive in gathering relevant information and continuously monitoring the Automated Diary Facility, the Scottish Road Works Register, the Traffic Scotland Service website and other relevant systems to ensure complete knowledge of all roadworks, events and Incidents occurring on or near the Unit.

2.3.3 The Journey Time Reliability Coordinator shall be the first point of contact within the Operating Company's organisation for all roadworks undertaken by the Operating Company and events occurring on or near the Unit during Normal Working Hours and outwith Normal Working Hours. The Journey Time Reliability Coordinator shall be contactable on dedicated landline and mobile phone numbers.

2.3.4 The Journey Time Reliability Coordinator shall be based within whichever offices the Operating Company deems are most suitable to fulfil the requirements of the role and shall undertake periodic site visits to assess the implementation and impact of roadworks and events. Such visits shall be used to assess how improvements in journey time reliability can be improved when similar roadworks and events take place in the future.

2.3.5 The Journey Time Reliability Coordinator shall:

(i) liaise and communicate with relevant Operational Partners including:

(a) the dissemination of accurate and timely information to assist in the effective delivery and coordination of their roadworks and events throughout the Unit,

(b) supporting the Network Manager in ensuring representation by Operating Company personnel at all liaison meetings with the Operational Partners,

(c) supporting the Network Manager in ensuring representation by the Operating Company at seminars or working groups related to improving the methods by which Trunk Road management and maintenance activities shall be carried out, when required by the Director,

(d) ensuring that the minutes of all liaison meetings called by the Operating Company are prepared and copies issued to the Director via the Network Manager and relevant Operational Partners, within five Working Days of the meeting taking place, and

(e) ensuring that the issues arising from the liaison meetings are managed in accordance with the requirements of this Contract and that any actions required from the Operating Company are completed within the agreed or required timescales.

(ii) providing a monthly report to the Director via the Network Manager no later than the fifteenth day of each calendar month throughout the Contract Period detailing:

(a) liaison meetings held,

(b) issues arising from such liaison meetings,

(c) actions taken or to be taken arising from such liaison meetings,

(d) action plans agreed between the Operating Company and the Director or Operational Partner, and

(e) the impacts of the Operating Company's activities on the journey time reliability of the Trunk Road network with recommendations for proposed improvements,

(iii) preparing and submitting reports annually to the Director via the Network Manager, detailing the impacts of all the Operating Company's activities on the journey time reliability of the Trunk Road network including any proposed improvements and mitigation measures,

(iv) ownership and management of the Automated Diary Facility ensuring that it is fully functional and kept updated at all times,

(v) ensuring that all parties requiring the use of the Traffic Scotland Service are provided with a unique roadworks reference from the Automated Diary Facility to quote when contacting the Traffic Scotland Operator,

(vi) ensuring the necessary temporary traffic regulation order is in place before requesting the Traffic Scotland Operator to implement roadworks settings to support the roadworks,

(vii) when the appropriate functionality becomes available in the Automated Diary Facility, entering the temporary traffic regulation order reference,

(viii) coordinating, monitoring and controlling all roadworks or events to minimise road closures, potential impacts and conflicts and maximising the capacity of the Trunk Road network, using the Automated Diary Facility and Scottish Roadworks Register where necessary,

(ix) disseminating accurate and timely information to Operational Partners via the Automated Diary Facility, emails, regular meetings and telephone calls to assist in the effective coordination of their activities,

(x) implementing escalation procedures for roadworks and events which exceed allowable delay thresholds,

(xi) liaising with the Incident Liaison Officer and relevant Operational Partners in dealing with Incidents occurring during roadworks including coordination of the activation and implementation of Standard Incident Diversion Routes and managing the cancellation of roadworks if such cancellation will improve the capacity of the Trunk Road network when an Incident is taking place,

(xii) utilising and managing support personnel on specific tasks relating to the planning and implementation of roadworks or events including ensuring such personnel are provided with adequate communications equipment,

coordinating, mobilising, deploying and supervising Traffic Management arrangements and evaluating their impacts,

(xiii) notifying the Director via the Network Manager promptly in writing of operational conflicts that may impact on the journey time reliability of the Trunk Road network and coordinating the implementation of any corrective action consented to by the Director with the Traffic Scotland Operator,

(xiv) coordinating the programming, planning and installation of traffic management and traffic control equipment in relation to the roadworks undertaken by the Operating Company to ensure the safety of Operating Company operational staff and Trunk Road users,

(xv) maintaining a record of all traffic management installations, including mobile lane closures on the Unit for each day of each Annual Period on a central database maintained by the Operating Company and ensuring that all updates are completed by 09.30 hours on the following Working Day, and

(xvi) management and dissemination of information required by the Operating Company and others for the preparation of Temporary Traffic Regulation Orders for roadworks and special events in accordance with the Specification.

2.4 Specialist Contractors Appointed by Network Operations

2.4.1 The Director has appointed a number of Network Operations Service Providers to undertake routine maintenance and emergency repair of Network Operations equipment and to undertake the design and construction of new Network Operations equipment. The Operating Company shall liaise and coordinate regularly with all Network Operations Service Providers to minimise the impact of Operations or works on the Network Operations equipment and journey time reliability of the Trunk Road network. The Operating Company shall facilitate Network Operations Service Providers' access to its planned maintenance schedules so that Network Operations Service Providers can plan works to coordinate with planned Operating Company maintenance activities.

2.5 Proposed Operations or Works Contract or Works in the vicinity of Network Operations Equipment

2.5.1 When:

(i) the Operating Company proposes to carry out Operations or a Works Contract within or adjacent to locations containing Network Operations equipment, or

(ii) the Operating Company becomes aware of authorised contractors, Undertakers or others proposing to carry out works within or adjacent to locations containing Network Operation equipment,

the Operating Company shall communicate with the Director and the appropriate Network Operations Service Providers as if the Network Operations Service Provider was an Undertaker as defined in the *New Roads And Street Works Act 1991*.

2.6 Proposed Operations or Works Contract or Works affecting Network Operations Equipment

2.6.1 When:

(i) the Operating Company proposes to undertake any Operations or a Works Contract that may have a physical effect on any Network Operations equipment, or

(ii) the Operating Company becomes aware of authorised contractors, Undertakers or others proposing to carry out works that may have a physical effect on any Network Operations equipment,

the Operating Company shall notify the appropriate Network Operations Service Provider by completing and submitting the form provided at Annex 3.7/B of this Part via e-mail at least 15 Working Days prior to the Operations, Works Contract or works commencing. The completion and submission of the form shall be in addition to all planning of relocation, design of relocation and consultation with the Director which the Operating Company shall undertake when it commences any planning of Operations, Works Contract or works that will impact on Network Operations equipment, as detailed in paragraph 2.6.4 of this Part.

2.6.2 Where the Operating Company deems that such Operations, Works Contracts or works shall have no physical effect on any Network Operations equipment, the form shall be submitted to show a nil return.

2.6.3 Where Operations or Works Contracts undertaken by the Operating Company involve the submission of a Statement of Intent and a Value for Money Assessment, these shall include reference to any work required at the Network Operations equipment site.

Where a Statement of Intent and Value for Money Assessment identifies that Network Operations equipment may be affected, a copy of the Statement of Intent and Value for Money Assessment shall be issued simultaneously to the appropriate Network Operations Service Provider and the Director.

2.6.4 The Operating Company shall consult and liaise with the Director and the appropriate Network Operations Service Provider regarding the nature of the Operations or Works Contract and shall make arrangements for the affected Network Operations equipment to be replaced or renewed. Such arrangements shall include detailed planning and design of works to accommodate the diversion and relocation of Network Operations equipment.

2.6.5 Where the Director agrees in writing that the Operating Company has the skills and competence to undertake the planning, design, diversion, relocation and renewal of the Network Operations equipment or any part thereof, the Operating Company shall undertake and complete this work as an integral part of the Operations or Works Contract and shall:

(i) complete the planning and design of the diversion, relocation or renewal of Network Operations equipment as part of the planning and design of the Operating Company Operations or Works Contract in consultation with the Director and the relevant Network Operations Service Provider,

(ii) complete any diversion and relocation of Network Operations equipment in advance of, or during, the Operation Company Operations or Works Contract as appropriate,

(iii) when the Operations include road surfacing, ensure that Network Operations surface detection equipment is replaced and operational as part of the Operating Company Operations or Works Contract or, if approved in writing by the Director, within seven Working Days of the surface course being laid, and

(iv) undertake all relevant and statutory testing of Network Operations equipment and the provision of records to enable the Director and the Network Operations Service Providers to maintain the relevant Health and Safety File and *New Roads and Street Works Act 1991* records.

Testing shall take place as an integral part of the Operating Company Operations or Works Contract and the records shall be provided within 10 Working Days of the completion of Operating Company Operations or Work Contract adjacent to the Network Operations equipment. If the Operating Company fails to provide the necessary records within 25 Working Days of such completion, the Director shall arrange for the relevant Network Operations Service Provider to undertake any tests and investigations necessary to prepare and provide all such records and shall recover any associated costs from the Operating Company.

2.6.6 The Operating Company shall ensure that any affected Network Operations equipment is replaced as part of the Operations or Works Contract in accordance with specifications that shall be supplied by the Director.

2.6.7 When the Director does not consent to the Operating Company undertaking the diversion, relocation or replacement of the Network Operations equipment or any part of the work required, the Operating Company shall liaise with the Director and the relevant Network Operations Service Provider in the planning of the works to ensure that the completion of such works complies with the timescales agreed as part of the planning of the works and any other timescale as referred to in this Part.

2.6.8 When works that affect or may affect Network Operations equipment are to be undertaken under a Works Contract, the Operating Company shall include within the Works Contract a requirement for:

(i) the Works Contractor to give notice in accordance with the timescales referred to in this Part, and

(ii) the Network Operations equipment to be diverted, relocated or replaced as part of the Works Contract within the previously planned timescales.

2.6.9 When works that affect or may affect Network Operations equipment are to be undertaken by authorised contractors, Undertakers or others, the Operating Company shall:

(i) on receiving notice of the works from the authorised contractor, Undertaker or others, notify the Director and the appropriate Network Operations Service Provider in writing of the proposed works, and

(ii) make arrangements with the authorised contractor, Undertaker or others for the Network Operations equipment to be diverted, relocated or replaced as part of the works within the previously planned timescales.

In such circumstances, the Director reserves the right to nominate Network Operations Service Providers to undertake the diversion, relocation or replacement of the Network Operations equipment.

2.7 Proposed Operations or Works Contract or Works Relating to New Network Operations Equipment

2.7.1 When the Operating Company proposes a location for any new Network Operations equipment which may be required within the Unit, the Operating Company shall complete the form provided at Annex 3.7/C of this Part and submit it via e-mail to the Director who shall either confirm his agreement to the proposed location or suggest revisions to the Operation Company. The Operating Company shall liaise and consult further until the Director consents to the revised location.

When the Network Operations Service Provider agrees to the Operating Company undertaking the installation of the new Network Operations equipment, the Operating Company shall undertake this work as part of the Operations in accordance with the requirements of this Part and the specification provided by the Director. Where the Director does not agree that the Operation Company can undertake this installation work, the Director shall arrange for the Network Operations Service Provider(s) to undertake such works and the Operating Company shall provide any information and support requested by the Director to the Network Operations Service Provider(s).

2.8 Damage to Network Operations Equipment

2.8.1 The Operating Company shall be aware of situations where Network Operations equipment is or may be susceptible to damage from Operations or from Works Contracts and shall ensure that all suitable precautions are taken to prevent damage to such equipment. Such situations shall include edge drainage works where the wiring from detector loops to cabinets may be damaged.

2.8.2 Where the Operating Company causes damage, suspects that it, or its subcontractors or a Works Contractor may have caused damage, or becomes aware of any external activities that may have caused damage to Network Operations equipment, it shall immediately inform the appropriate Network Operations Service Provider by telephone, providing an indication of what damage has occurred. The Operating Company shall subsequently complete the form provided at Annex 3.7/D of this Part and submit it to the Network Operations Service Provider via e-mail within 24 hours of the damage being caused.

2.8.3 When instructed by the Director, either the Operating Company or Network Operations Service Provider shall undertake repair of the damage at the earliest possible time.

When such a repair is temporary, the Operating Company shall liaise with the Director and the relevant Network Operations Service Provider regarding the nature of the damage and make arrangements for the Network Operations equipment to be repaired or replaced by either the Network Operations Service Provider or the Operating Company.

When such a repair is permanent, the Operating Company shall undertake the permanent repair in accordance with paragraph 2.6 of this Part. The timescales for completion of the permanent repair shall be agreed with the Director but shall usually be within 25 Working Days to 75 Working Days from the date of the initial

damage. If the Operating Company fails to complete the permanent repair within the agreed timescales, the Director shall arrange for the Network Operations Service Provider to undertake the repair. All costs associated with such repair shall be borne by the Operating Company. In such circumstances, the Director shall submit all costs incurred to the Operating Company and the Operating Company shall make payment to the Director.

3. SPECIFIC REQUIREMENTS RELATING TO THE TRAFFIC SCOTLAND SERVICE

3.1 The Automated Diary Facility

3.1.1 The Traffic Scotland Operator requires complete knowledge of:

(i) all planned and emergency Site Operations, works, traffic management, lane closures and lane occupations, which for the purposes of this Part only shall be called 'roadworks', whether such roadworks are undertaken by the Operating Company, Works Contractor, Undertaker, authorised contractor or others, and

(ii) all events expected to attract a minimum of 3,000 attendees, including concerts, sporting events and seasonal events which are likely to generate significant traffic.

3.1.2 The Operating Company shall use the Director's Automated Diary Facility for providing information to the Traffic Scotland Operator when:

(i) the Operating Company proposes to undertake any Operations or Works Contracts, or

(ii) the Operating Company becomes aware of authorised contractors, Undertakers or others proposing to carry out any works.

3.1.3 The Operating Company shall be responsible for ensuring that all information held in the Automated Diary Facility is accurate, complete and up to date at all times to enable the Traffic Scotland Operator to deliver reliable information to customers.

3.1.4 The Operating Company shall monitor both the Automated Diary Facility and Scottish Road Works Register to determine if there are any other roadworks scheduled or in progress by any Works Contractor, Undertaker, authorised contractor or others that may impact on the implementation of any proposed roadworks. Where other roadworks are identified as having such a potential impact, the Operating Company shall coordinate these roadworks to minimise potential impacts or mitigate against conflicts with the proposed implementation programme.

3.2 Access to the Automated Diary Facility

3.2.1 No later than 25 Working Days prior to the Commencement of Service Date, the Operating Company shall provide and maintain at the Central Office a broadband internet connection for access to the Automated Diary Facility.

3.2.2 Prior to ordering this connection, the Operating Company shall contact the Director to confirm the exact requirements.

3.3 Information to be Logged on the Automated Diary Facility

3.3.1 The Operating Company shall ensure that details of all roadworks undertaken within the Trunk Road unit are logged onto the Automated Diary Facility and kept updated at all times. Each item logged shall be allocated a unique referencing number which

shall be quoted by the Operating Company in all communications with the Traffic Scotland Operator and within its own organisation and by its subcontractors.

3.3.2 The information supplied by the Operating Company via the Automated Diary Facility shall allow the Traffic Scotland Operator to create messages on the Traffic Scotland variable message signs, informing road users of potential delays and of alternative routes where applicable.

3.3.3 The Traffic Scotland Service website shall serve as the single, reliable source for information on all events. The Operating Company shall ensure that the Traffic Scotland Service website is monitored on a daily basis to obtain information on forthcoming events that need to be incorporated into the planning of Operations or Works Contracts.

3.3.4 The Operating Company shall ensure that details of events expected to attract fewer than 3,000 attendees, but deemed by the Operating Company to have potential to cause significant delays, are logged on the Automated Diary Facility and kept updated at all times.

3.3.5 The Operating Company shall use the Network Access Form at Annex 3.7/F of this Part to request road works information from Works Contractors, authorised contractors, Undertakers and others with a right to work within the Unit, to ensure accurate and consistent information is utilised to meet the obligations of this Part. This information shall then be logged on the roadworks diary of the Director's Automated Diary Facility for each roadworks event.

3.3.6 The Operating Company shall ensure all details logged into the Automated Diary Facility are reviewed and updated no later than 09.30 hours daily. Where the Operating Company becomes aware of any significant change to such details, it shall ensure the Automated Diary Facility is updated within one hour of becoming aware.

3.4 Automated Diary Facility Severe Weather Information

3.4.1 During periods of Severe Weather, the Operating Company shall ensure the Severe Weather information being published on the Automated Diary Facility is regularly reviewed and updated at not less than hourly intervals.

3.4.2 Where the Operating Company becomes aware of:

(i) any change in the situation at any location logged on the Automated Diary Facility, and

(ii) any other locations where Severe Weather is affecting driving conditions or traffic movements on the Trunk Road network,

the Operating Company shall ensure the Automated Diary Facility is updated at the next scheduled review.

The minimum information requirements for updating Severe Weather information on the Automated Diary Facility are referred to in Annex 3.7/I of this Part.

3.5 Remote Access to Closed Circuit Television

3.5.1 Where considered necessary by the Director, the Director shall make arrangements to provide a single closed circuit television camera workstation to the Operating Company at the location agreed between the Director and the Operating Company.

3.5.2 The Operating Company shall make provision for the office space to accommodate a close circuit television camera workstation as stated in Annex 3.7/E of this Part, and shall facilitate communications connections and installation by Network Operations Service Providers.

3.6 Assessment of Roadworks Delays

3.6.1 Roadworks or any other activity being undertaken by the Operating Company or authorised contractors, Undertakers or others, which reduce the operational capacity of the Trunk Road network shall require an assessment by the Operating Company prior to commencement to assess the impact of the reduction in capacity. The Operating Company shall use the delay modelling tool provided in Annex 3.7/J of this Part to assess the impact and cost of traffic delay.

3.6.2 The Operating Company shall undertake reduction in capacity assessments for the full duration of any activity that reduces the operational capacity of the Trunk Road network and each assessment shall include the unique reference number as described in paragraph 3.3.1 of this Part.

3.6.3 The Operating Company shall not assess roadworks relating to emergency repairs prior to commencement but shall assess such roadworks on the next Working Day after implementation.

3.6.4 Where activities that reduce the operational capacity of the network are proposed which have been assessed as likely to cause traffic delays below the acceptable delay thresholds detailed in Annex 3.7/G of this Part, Operating Company shall implement such activities following the normal notification period.

3.6.5 The Operating Company shall record each delay modelling tool assessment in the Automated Diary Facility.

3.6.6 Where activities that reduce operational capacity are proposed which have been assessed as likely to cause traffic delays greater than the acceptable delay threshold of 12 minutes as detailed in Annex 3.7/G of this Part, the Operating Company shall implement such activities only following receipt of consent from the Director. To allow the Director to determine if consent can be given, the Operating Company shall prepare a delay management report detailing justification for implementing activities that will cause delay greater than the acceptable delay threshold of 12 minutes. The delay management report shall include as a minimum:

(i) activity location and description,

(ii) result of impact assessment using the delay modelling tool,

(iii) data collection and modelling approach where modelling beyond the use of the delay modelling tool has been agreed by the Director, and

(iv) description of existing and expected operational condition of that part of the Trunk Road network affected by the proposed activity, with a summary of recommendations for measures to be applied to reduce delay.

3.6.7 The Operating Company shall notify the Traffic Scotland Operator at least 25 Working Days prior to the commencement of the activity when the estimated delay is greater than eight minutes.

3.6.8 Complex roadworks are those where specific work activities and time periods may make it impossible to meet the delay thresholds detailed in Annex 3.7/G of this Part. Conditions where this may occur include:

(i) roadworks located in areas where the existing Trunk Road is operating at or near capacity but where the existing traffic flow is relatively stable. At such locations, a slight reduction in capacity resulting from roadworks activities could have a significant impact on road users,

(ii) roadworks where lane closures are required to preserve the safety of road users and Operating Company personnel or for environmental reasons, and

(iii) roadworks being undertaken during periods of high traffic volume related to seasonal traffic, holidays and events.

For activities that may cause delay beyond the 12 minute delay threshold detailed in Annex 3.7/G of this Part, the Operating Company may propose the use of microscopic simulation models for the Director's consent.

3.6.9 When the Operating Company identifies an implementation option that reduces predicted delays below the 12 minute delay thresholds detailed in Annex 3.7/G of this Part, this implementation option shall be used by the Operating Company.

3.7 Notification of Roadworks Delays

3.7.1 Where roadworks are being undertaken which have been assessed as likely to cause traffic delays in excess of thresholds detailed in Annex 3.7/G of this Part, or which involve the closure of an off-slip or on-slip road, the Operating Company shall keep the Traffic Scotland Operator notified of traffic delays via regular telephone calls, quoting the unique Traffic Scotland Automated Diary Facility reference number for the Site, at the following intervals:

(i) at code 3 and 4 delays, 15 minutes prior to traffic management commencing at a roadworks location,

(ii) immediately when delays to traffic, assessed using the delay modelling tool, exceed 10 minutes,

(iii) thereafter at no more than 30 minutes intervals or when delay changes of five minutes or more occur, giving details of the delay times until they have ceased to exceed 10 minutes, and

(iv) immediately once the traffic management has been removed from a roadworks location.

3.7.2 The Operating Company shall notify the Traffic Scotland Operator by telephone and update the Automated Diary Facility within one hour of becoming aware of changed circumstances which would significantly affect movement of traffic, including:

(i) when roadworks which were coded 1 to 2 in accordance with 'Coding for estimated traffic delays' detailed in Annex 3.7/G of this Part are causing traffic delays in excess of 10 minutes,

(ii) when planned roadworks are cancelled at short notice and the cancellation has not yet been entered into the Automated Diary Facility,

(iii) Incidents that have been notified to, or identified by, the Operating Company, and

(iv) when road, lane or slip closures or lane occupations have been, or are likely to be, put in place.

3.8 Monitoring and Evaluation

3.8.1 To facilitate learning and feedback from the implementation of roadworks, the Operating Company shall monitor and evaluate predicted and actual delays. If the actual delay exceeds the predicted delay by any period greater than five minutes the Operating Company shall include within the Automated Diary Facility actual delays for all code 4 works and for all codes of works designated in accordance with the 'Coding for estimated traffic delays' provided in Annex 3.7/G of this Part.

3.8.2 If necessary, the Operating Company shall utilise equipment which can automatically determine traffic delays through roadworks and disseminate appropriate messages to the Traffic Scotland Operator. Where the Operating Company considers the use of automatic traffic delay monitoring equipment necessary, it shall submit written proposals for the deployment of such equipment to the Director for consent. Where the Operating Company considers the use of automatic traffic delay monitoring equipment is not feasible, it shall instead deploy sufficient operational personnel to monitor traffic delays.

3.8.3 Where the actual traffic delays exceed the predicted traffic delays by any period greater than 15 minutes, the Operating Company shall immediately notify the Traffic Scotland Operator and the Director. The Operating Company shall provide details of the discrepancy between the predicted and actual delays and propose suitable on Site corrective actions and shall keep the Network Manager and Traffic Scotland Operator briefed fully on the status of such roadworks. The Network Manager shall notify the Director.

3.8.4 The Director may require the Operating Company to implement proposed corrective actions or suspend the implementation of roadworks in order to reduce traffic delays which he considers unacceptable. Where the suspension of roadworks due to unacceptable travel delays would have a negative impact on the safety of road users, the Director may allow the implementation of roadworks to continue until the Operating Company has resolved the negative impact by taking the necessary corrective actions. The Operating Company shall notify and liaise with the Traffic Scotland Operator in either situation.

3.9 Vehicle Activated Signs

3.9.1 The Operating Company shall use vehicle activated signs during roadworks where such use will address safety issues relating to inappropriate speeds. The Operating Company requests for use of vehicle activated signs shall be made in writing to the Director.

3.9.2 Vehicle activated signs shall only be deployed in addition to regulatory signs as a response to excessive speed and in accordance with the following requirements:

(i) the *Traffic Signs Regulations and General Directions 2002* and other relevant United Kingdom and European Union guidance and standards. Departures shall not be permitted unless specifically authorised by the Director,

(ii) be type approved by the Director for use on the Trunk Road network, and shall utilise only the legends approved by the Director,

(iii) not be deployed where the works are located within those sections of the Trunk Road network that already have lane control signalling,

(iv) where both directions within the roadworks area meet the criteria of this paragraph, one vehicle activated sign shall be deployed in each direction, and

(v) be deployed where detailed accident investigation or risk assessment confirms that vehicle activated signs are an appropriate remedial measure.

3.9.3 Speed monitoring detectors shall be installed accurately to minimise errors in speed measurement.

3.9.4 When the signs are activated, the displays shall provide appropriate warning to motorists when the assigned speed limit is exceeded and shall not interfere with the visibility and general effectiveness of any other signs in the area.

3.10 Mobile Variable Message Signs

3.10.1 Traffic Scotland Equipment includes a network of permanently located variable message signs positioned at key locations throughout the Trunk Road network. These signs facilitate the provision of real time information to Trunk Road users.

3.10.2 The Scottish Ministers own a number of mobile variable message signs. These shall be made available for use by the Operating Company in advance of, or during, any major works or Operations in areas which are outwith the coverage of the permanent variable message sign system forming part of the Traffic Scotland Equipment.

3.10.3 Where the Operating Company requires the use of the mobile variable message signs, the Operating Company shall apply in writing to the Traffic Scotland Operator for consent to use these, giving as much notice as possible. The Traffic Scotland Operator shall have absolute discretion to decide when the use of the mobile variable message signs is allowed, based on the perceived benefits to road users.

3.10.4 Where the Traffic Scotland Operator gives written consent to the use of mobile variable message signs, the responsibilities of the Operating Company shall be as specified within the *Use Of Mobile Variable Message Signs On The Trunk Road Network* guidance provided in Annex 3.7/H of this Part.

3.10.5 In accordance with this guidance, the Transport Scotland mobile variable message signs shall be used by the Operating Company to cover situations including:

(i) the signing of major roadworks where there are currently no permanent variable message signs,

(ii) gauging driver reaction to the potential benefits of permanently locating a variable message sign at that position on the network,

(iii) providing weather related information during the winter months, such as snowfalls which have the potential to require road closures or seriously affect traffic travelling these routes, and

(iv) signing for large scale outdoor events that generate abnormally high levels of traffic in otherwise quiet areas for short periods such as pop concerts and sporting events.

3.10.6 The Operating Company shall be responsible for:

(i) the collection and return of the signs in good working order by arrangement with the Traffic Scotland Operator, and

(ii) the provision of suitable locations for the signs, which shall include:

(a) hard standing,

(b) protection for the signs by an existing permanent barrier or by a temporary barrier,

(c) a 230 volts power supply facility complete with appropriate methods of connecting to the mobile variable message signs,

(d) the supply of fuel and the changing of filters and all necessary servicing when using signs with an in-built generator,

(e) appropriate communications including electricity supplies, and

(f) inspection and maintenance during their operation.

4. SPECIFIC REQUIREMENTS RELATING TO THE SCOTTISH ROADS TRAFFIC DATABASE SERVICE

4.1 Before-and-After Traffic Counts

4.1.1 Certain road improvement Schemes require to be supported by before and after traffic counts.

When the Operating Company proposes the locations of any new traffic counting site required for undertaking before and after studies, the Operating Company shall complete the form provided at Annex 3.7/C of this Part and submit it to the Director and the Scottish Roads Traffic Database contractor via e-mail. The Operating Company shall obtain the written consent of the Director before such before and after studies are undertaken.

4.1.2 When the Director agrees in writing that the Operating Company shall undertake the deployment of the proposed new traffic counting equipment, the Operating Company shall undertake this work as an integral part of the Operations or Works Contract in accordance with the requirements of this Part and the specification provided by the Director. Where the Director does not agree that the Operating Company shall undertake this installation work, the Director shall arrange for the Network Operations Service Provider(s) to undertake such works and the Operating Company shall provide any information and support requested by the Director to the Network Operations Service Provider(s).

This is Annex 3.7/A to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/A– Contact List of Network Operations Service Providers

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/A– Contact List of Network Operations Service Providers

Group A - Main Network Operations Service Providers

Traffic Scotland Operator – Atkins
6th Floor,
3 Atlantic Quay,
20 York Street,
Glasgow
G2 8LH

Traffic Scotland Maintenance Contractor – Amey

Traffic Scotland
Cumbernauld Business Park
Wardpark Road
Wardpark South
Cumbernauld
G67 3JZ

The Scottish Roads Traffic Database Contractor

IBI Group
10 Newton Terrace
Glasgow
G3 7PJ
United Kingdom
Tel: 44 (0)141 222 5390

Group B - Network Operations Services Providers working on Trunk Road

Technology Services Provision – Serco
Transportation Systems – Road Services
Serco Civil Government
7 Teal Court
Strathclyde Business Park
Bellshill
ML4 3NN

Civils and Communication Contractor - Pegasus Power and Communications Ltd
2 Tollpark Road
Wardpark East
Cumbernauld
G68 0LW

This is Annex 3.7/B to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/B – Notification of Planned Operations and Works Contracts and Works in the Vicinity of Network Operations Equipment

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/B – Notification of Planned Operations and Works Contracts and Works in the Vicinity of Network Operations Equipment

Notification of fixed Network Operation site events	Sheet Ref		(to be continuous with previous sheets – eg 2006/12):
	Date:		(date when sheet submitted)
	Name:		(of individual responsible for sheet contents)
	Network Unit:		(NE / NW / SE / SW)

Site Reference (A)	Date (from) (B)	(Date to) (C)	Provisional or Confirmed (D)	Event Details (E)	Remedial Actions Carried Out or Required (F)	Network Operations Acknowledged (Date / Initials) (G)	Additional Information (H)

Column Notes:

A References must be those contained within the inventory information.

B If the Operations, Works Contract or works take place on a single day then insert that date here, otherwise start of event.

C If B does not reflect a single day then insert finish date here.

D Indicate if dates are provisional or confirmed.

E Type of Operations, Works Contract or works to be derived from the digits set:

Digit 1

1. Operations or works contracts.
2. Accident or incident.
3. Other events.

Digit 2

A: Works contracts by Operating Company or Works contactor.

B: Works by authorised contractor.

C: Works by undertaker.

D: Works by other.

F To include any Operations, Works Contract or works carried out to make situation safe and proposals for any necessary repairs or modifications to, or at, the network operation sites.

G Network Operations Service Provider to acknowledge receipt of this form.

H Any additional comments as appropriate.

This is Annex 3.7/C to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/C – Notification of Proposed New Network Operation Sites

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/C – Notification of Proposed New Network Operations Services Sites

Date:		(date when sheet supplied)
Name:		(of individual responsible for sheet contents)
Network Unit:		(NE / NW / SE / SW)

Route (A)	Scheme Name (B)	Start Date (C)	End Date (D)	Approx Value (E)	Brief Description of Scheme (F)	Proposed Site Location (G)	Proposed Site Type (H)

General Notes

1 Use this form to record any proposals for the creation of new Network Operations services sites.

2 Use one line for each proposed site.

General Notes

A eg A75.

B The name by which the Operations or works contracts is known [within this Contract].

C Dates can be approximate.

D Dates can be approximate.

E For example, whether resurfacing or road realignment, etcetera. If appropriate, sketches may be supplied to make Scheme type clear.

F This can be either by description or by Ordnance Survey Grid Reference - if appropriate, sketches may be supplied.

G This should specify the equipment type, for example, with traffic counting sites, whether volumetric or classifier.

This is Annex 3.7/D to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/D – Notice to Network Operations Service Provider of Damage or Suspected Damage to Network Operations Equipment

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/D – Notice to Network Operations Service Provider of Damage or Suspected Damage to Network Operations Equipment

Notice to Network operations providers of damage/suspected damage to Network operations equipment	**Sheet Ref:**		(to be continuous with previous sheets - e.g. 2004/12)
	Date:		(date when sheet submitted)
	Name:		(of individual responsible for sheet contents)
	Network Unit:		(NE / NW / SE / SW)

Site Reference (A)	Date (s) damage occurred/identified (B)	Details (C)	Operation/ Works/ work Type(D)	Organisation which caused damage (if known) (E)	Additional Notes (F)

Column Notes:

A References must be those contained within the inventory information.

B Insert the date when the damage occurred or the date the damage was identified – indicate which is applicable.

C Details of the damage and effects of the damage.

D Insert details of the cause of the damage (if known).

E Name and contact details of organisation which caused the damage (if known).

F To include all relevant details not covered elsewhere in the form – to include contact details in all cases.

Use separate additional sheets if required, but make reference to them here.

This is Annex 3.7/E to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/E – Minimum Requirements for Closed Circuit Television Workstation

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/E – Minimum Requirements for Closed Circuit Television Workstation

Dual 20" monitors

Large footprint desk top personal computer

Keyboard

Mouse

Closed circuit television control panel

This is Annex 3.7/F to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/F – Network Access Form for the Request of Information on Planned Operations, Works Contracts, Works and Events from Utilities and Other Third Parties

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/F – Network Access Form for the Request of Information on Planned Operations, Works Contracts, Works and Events from Utilities and Other Third Parties

Input Operating Company references and logo in this area (Document, Issue, Related To, Page No. etc.)

Before completing this form, please read the conditions and general requirements for applicants wishing to carry out work on the network.

Documents required with application	Req	Rec'd	App'd	Sign'd
Location Plan				
Site Specific TM layout				
SRWR ref				
Road Opening Permit				
Planning Consent Approval				
TM Method Statement				

Unit	
Ref No.	
SRWR Ref No.	
Depot (if applicable)	

Applicant / Originator of Works:														
Traffic Management Contractor:														
Contractor for the Works:														
Contractor Address:														
Head Office Tel:														
Site Contact Tel:														
Contractor 24hr Tel:														
Traffic Man. 24hr Tel:														
Contractor Email Address:														
Route No.:														
Location:														
OS Start	**E**								**N**					
OS End	**E**								**N**					
OS Centre Point (if applicable)	**E**								**N**					
Start Section (7 digits)														
End Section (7 digits)														
Chainage Start***														
Chainage End***														
List sections affected from start to finish														
Description of Works (include direction)														

Works Supervisor Details:							
Contact No. for Works Supervisor:							
Lane Occupation Start Date:					**Lane Occupation End Date:**		
Working Days	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**
Lane Occupation Start Time*							
Lane Occupation End Time*							
Closure Type:**							
Lanes Closed*:**							
Speed Limit on Road / Proposed Speed Limit:							
Works Method Statement:					**Health & Safety Plan:**		
Consultation with Local Authorities, Police etc:							
Is Traffic Order required? (If Yes, approval is conditional):							
Expected Delays****							

Notes
Access will only be granted on condition that the Traffic Scotland Operator is informed by telephone (0141 300 8100) 15 minutes prior to the first cone being placed on the network and again when all traffic management has been lifted.

* Time Restrictions may apply
** A, B or C
*** L1, L2, L3, slip lane, hardshoulder, lay-by or verge
**** To be completed by the Traffic Officer
***** Relative to the start of that section

Operating Company Response
Approval - Yes / No:
Signed:
Date:

Required for Automated Diary Facility
Required for OC Audit trail
Add to Automated Diary Facility for OC & TS info

This is Annex 3.7/G to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/G – Coding for Estimated Traffic Delays

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/G – Coding for Estimated Traffic Delays

Number	Description	Time
1	Little or no delay	Up to 4 minutes
2	Slight delay	More than 4 minutes but less than 8 minutes
3	Moderate delay	More than 8 minutes but less than 12 minutes
4	Serious delay	12 minutes or more

Escalation of Delays

Base Level – code 1

The base Level is ascribed to any roadworks (as defined) on the trunk road network within the Unit, or in adjacent Unit or Units, or off the trunk road.

First Level – code 2

The first escalation is to slight delay as defined above. The notification requirements specified within Schedule 3 Part 7 shall apply.

Second Escalation – code 3

The Second escalation is to moderate delay as defined above. The notification requirements specified within Schedule 3 Part 7 shall apply.

Third Escalation – code 4

The third escalation is to serious delay as defined above. The Operating Company shall determine this escalation level and then seek agreement with the Traffic Scotland Operator. Notification requirements specified within Schedule 3 Part 7 shall apply in such circumstances.

This is Annex 3.7/HA to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/H – Guidance Document on the 'Use of Mobile Variable Message Signs on the Trunk Road Network'

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/H – Guidance Document on the 'Use of Mobile Variable Message Signs on the Trunk Road Network'

TRANSPORT SCOTLAND

USE OF MOBILE VARIABLE MESSAGE SIGNS ON THE TRUNK ROAD NETWORK

GUIDANCE NOTE NO 1

Contents

1 Introduction

This document defines the procedural responsibilities of Operating Company's or external parties wishing to utilise Mobile Variable Message Signs (MVMS) on the Scottish Trunk Road network and provides details on the practises to be adopted for their location and operation.

2 The Purpose of this Document

The purpose of this document is to inform OC's/external parties involved in the management and movement of traffic across the Trunk Road network of the operational benefits and capabilities of MVMS whilst outlining the installation and signing requirements inherent in their use.

3 What is a Mobile VMS

They are normally trailer mounted to permit their rapid deployment to any location on the network requiring them which is currently without any permanent VMS coverage or where they are required to support the wider response. This could be in response to an incident or event where their provision would assist in the resultant traffic management of the incident or event.

They can also assist with the signing of abnormal events or conditions affecting the smooth movement of traffic across the network: both temporary and semi-permanent. These events can be either local to the sign or be at some distance forward of it.

Light emitting diode technology (LED) is used to ensure optimal message legibility in all likely weather conditions.

4 Traffic Scotland

4.1 The Traffic Scotland System

The Traffic Scotland system was established by Transport Scotland (TS) to provide drivers with accurate and timeous information on conditions and events prevailing across the Trunk Road network. Further information on Traffic Scotland can be found at www.trafficscotland.org/about/index.aspx.

Traffic Scotland collects data from sources located across the Trunk Road network, e.g. CCTV cameras, vehicle detection systems, the police and other interested bodies. The TSCC collates and analyses this information before disseminating it via its web-site (www.trafficscotland.org), and network of road-side and gantry mounted VMS signs. Traffic information is also distributed to the media and to those other organisations with an interest in the management and operation of the Scottish Trunk Road network.

4.2 The Traffic Scotland VMS Network

The Traffic Scotland system has a network of permanently located VMS signs at key locations throughout the road network www.trafficscotland.org/vms/index.aspx. The positioning of these signs allows important road traffic information to be displaced at key decision points in the network, presenting drivers with an opportunity to modify their journeys with the minimum amount of disruption to their overall travel plans.

These permanently sited VMS are a mixture of verge and cantilever design, and of differing size and type to suit their intended locations.

4.3 Transport Scotland MVMS

The MVMS currently in use by the TSOp are generally much smaller than permanently located VMS, with two rows of 12 discrete characters/ row (see figure 1 below).

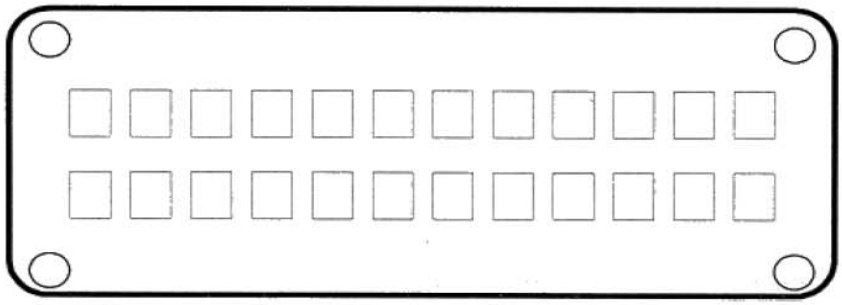


Figure 1: General Layout of a Mobile VMS sign face with 2x12 discrete characters

This limited character format impacts on the size and structure of the message that can be displayed and this can impact on their usefulness in clearly addressing network problems.

Consequently MVMS used in Scotland have been modified to provide a *virtual* 4x12 sign by alternating the sign face to provide messages with twice the content (i.e. 2x (2x12)). The message is split in two halves with each half displaying half of the overall message. It is vital that the message is structured in such a manner that the message remains clear and unambiguous; no matter the order in which the two halves are read.

4.3.1 VMS Technology

Mobile VMS use a similar technology to the permanent VMS with a single fixed character height module, and a fixed number of lines and characters per line.

VMS are normally defined in accordance with their maximum message displaying potential (see 1. below).

However, the new generation of VMS signs can vary the size of the characters displayed, hence the number of characters (and lines) that can

be displayed across the sign face. This technology requires a slightly different method of definition (see 2. below).

1. Current MVMS Technology
e.g. a 2x12, 240 Sign:
This has 2 discrete lines of text, with 12 discrete characters per line and a fixed character height of 240 mm.

2. New Technology
The new message signs have a continuous matrix of LED's allowing text of varying heights, pictograms or a combination.

4.3.2 VMS Modes of Operation

There are two main modes of VMS operation, as explained on the website at www.trafficscotland.org/about/index.aspx, these are:

1. Strategic
Here VMS provide advice on incidents or events that may impact on the long distance journey plans of drivers crossing the network. Early awareness of incidents may permit drivers the opportunity to modify travel plans or mode of travel, with the minimum of impact on their journey plans.

The diverting of traffic away from incidents reduces the traffic management requirements inherent in dealing with such incidents.

These are normally very large verge mounted signs which may provide alternative routing advice. In the Scottish Central Belt these will normally be the 3x18 cantilever type, whereas in the more remote areas they will normally be of the 4x15 post mounted design: mainly to minimise their overall environmental impact.

2. Local
Here VMS manage the impact of minor incidents and alert drivers to the possible impact on the local road network.

Diversion routing information will not normally be provided, only details of the event or incident, and its potential impact.

The VMS may be gantry or verge mounted, and will provide information on the immediate area. In areas equipped with cross carriageway gantries,

lane control indicators are mounted over individual lanes and these provide individual lane control information.

5 Key Stakeholders

The key stakeholders who make use of the VMS network on behalf of Transport Scotland include the OC's, DBFO's, the Police Forces, Transport Scotland and the TSOp who operate the Traffic Scotland system.

5.1 The Operating Company's (and DBFO Operators)

Maintenance of the Scottish Trunk Road network is divided into four geographic areas, each with its own OC who is responsible for the maintenance of the road network within that operating area. In addition to the OC's there are also 3 DBFO's.

The OC will advise the TSOp and the other relevant parties of roadworks planned in their respective areas, highlighting their potential impact on the smooth operation of the road network.

Details of these works, along with their locations, time for completion and their possible impact on traffic, are provided in the Automated Diary Facility (ADF).

The OC's will provide the TSOp with regular updates on progress or delays and estimated times for completion of the works.

On a number of sections of the Trunk Road network, the role of the OC is undertaken by a DBFO Operator: they are subject to similar operational responsibilities as the OC's.

5.2 The Police

The police have a key role in ensuring the safety of the travelling public and the delivery of safety requirements for any operations planned on it and work in partnership with Transport Scotland, OC's and TSOp.

5.3 Transport Scotland

Transport Scotland have responsibility for the entire Trunk Road network, both its general physical condition and for the safety of drivers travelling across it.

Network Managers, assisted by a number of Area Managers, monitor and control the maintenance operations and performance of the OC's charged with maintaining the Trunk Road network.

The Network and Area Managers have direct access to the Traffic Scotland web site (www.trafficscotland.org.uk), and to its Planned Event Register, Roadworks Diary, the Incident Log and to observe the operational status of the Transport Scotland equipment. This permits them to monitor the status of the network.

5.4 The Traffic Scotland Operator

The TSOp operates and monitors the system on behalf of Transport Scotland from the Traffic Scotland Control Centre (TSCC) on a 7-day/ 24-hour basis.

The TSOp liaise closely with the OC's, DBFO's and the police on issues that may impact on the movement of traffic across the network. These include emergency road repairs, planned roadworks, delays through roadworks, large-scale public events, and any other emergencies that may occur.

TSOp monitors the network and informs road users of problems or constraints that may affect efficient movements across the network though the setting of the VMS to known incidents occurring on the network.

The TSOp is one of the main contacts regarding Trunk Road issues and provide a coordinated response to any incidents occurring on the network.

6 The Requirement for Mobile Variable Message Signs

Although the coverage of the Traffic Scotland VMS system is extensive, it does not cover all major routes or strategic decision points around the network. This has prompted the need for a VMS that can be quickly dispatched to otherwise unsigned areas of the network.

The Transport Scotland MVMS have been used to cover situations such as:

- The signing of major roadworks where there are currently no permanent VMS,
- To gauge driver reaction to the potential benefits of permanently locating a VMS at that position in the network,
- To provide weather related information during the winter months, such as snowfalls on the M74 and A9, which have the potential to close or seriously impact on traffic travelling these routes, and
- Signing for large scale outdoor events that generate abnormally high levels of traffic in otherwise quiet areas for short periods: e.g. pop concerts such as T-in-the-Park and events like World Super Bikes at Knockhill.

The extensive use of MVMS has highlighted their usefulness and their potential to assist with the management of traffic on the road network.

7 The Operational use of MVMS

The TSOp is responsible for the management of incidents on the Trunk Road network and will utilise all available VMS signs, including MVMS, to address such incidents.

7.1 Transport Scotland MVMS Signing Strategies

Six signing strategies have been adopted for using MVMS and these are as follows:

1. Roadworks

Face 1

Face 2

Informs drivers of delays or congestion ahead, and offers drivers the opportunity to make informed decisions regarding their route choice and/ or time of travel.

2. Incidents

Face 1

Face 2

Informs drivers of pre-planned or emergency roadworks, and where possible provides guidance of alternative routes during events that impact on the road network. Again this permits drivers the opportunity to modify their journey plans in advance of the problem area.

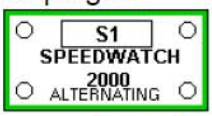
3. Weather/Safety

Face 1

Face 2

Informs drivers of hazardous conditions ahead and promotes careful driving.

4. Campaigns



Face 1

Face 2

To promote and complement both national and local road safety campaigns.

5. Advance Warning

Face 1

Face 2

To alert drivers of programmed works.

6. Safety or Educational

Face 1

Face 2

To promote safe driving practises.

Note: Safety/Educational messages are only displayed when MVMS are not being used for operational signing purposes.

8 Requests for MVMS

In the past requests have been received from a variety of sources, e.g. Roads Authorities, Police Forces, the OC's and the organisers of large scale public events. Transport Scotland own 6 MVMS in the format shown in Appendix B.

The following criteria will be used by the TSOp as part of the selection process for the deployment of a Mobile VMS:

1. The anticipated delay and congestion as a result of the event or works
2. The presence and availability of existing permanent VMS in the immediate area
3. Any potential for conflict with other works ongoing in that part of the network
4. The duration of the event
5. The proposed location/site
6. The availability of MVMS

Early notification of events where use of a MVMS is being considered is vital and liaison at an early stage with traffic management planning is paramount in obtaining access to existing Transport Scotland MVMS or procuring/hiring a MVMS, and to allow the TSOp the time to schedule the event in the Events Diary.

Requests are to be submitted in writing to the TSOp using the MVMS Request Form (see Appendix E), normally providing a minimum notice of two weeks. However, to meet emergencies, MVMS can be mobilised with minimal notice, but even then deployment still requires a suitable site to accommodate the sign and one that is equipped with a suitable mains electrical supply

Transport Scotland has a limited number of MVMS and in the event of any conflict of requirement the TSOp will determine which request is successful. However in the case where the OC may wish to purchase/hire alternative MVMS, the MVMS must be integrated into the Traffic Scotland

System. The decision on the use of a MVMS will be based on the criteria described in this section combined with the likely benefits that its deployment will provide to road users.

Following submission of the 'MVMS Request Form 'the TSOp will request Transport Scotland to carry out an inspection of the site to ensure its suitability for accommodating a MVMS.

8.1 **Requirements to be adhered to**

1. If the MVMS is not a Transport Scotland MVMS and is supplied by another MVMS supplier then it must be integrated into the Traffic Scotland System. This is to ensure a co-ordinated operation is undertaken.

2. The messages displayed on MVMS must be accurate and not conflict with information being posted by Traffic Scotland on their VMS or website.

3. Approval must be gained from the TSOp via the local operating company/DBFO before signs are set or changed (see Appendix E – MVMS Request Form).

4. When the alternating option is in use, there should be no more than 2 faces of information. The message should make sense whether the driver sees face 2 before face 1 or vice versa and the timing should be sufficient on that speed of road for the driver to take in messages.

5. MVMS deployed on the network by external parties should only be permitted with the express approval of the local OC/DBFO and be bound by the same conditions as used by the OC/DBFO when deploying for their works.

6. The OC/DBFO will need to monitor the use of mobiles by external parties working on Scottish Trunk Roads.

7. The OC/external party operating the MVMS should have detailed records of the signing log in the event of queries.

9 Site Selection

Although the existing MVMS are patently mobile they are of such a size and complexity that locations must be selected with a degree of care to ensure their suitability (see Appendix A – Siting Requirements for MVMS).

The OC/external party requesting the MVMS is responsible for providing a suitable and safe location throughout the period of intended use. A number of factors require consideration when selecting a MVMS site, and these include:

1. If the MVMS is being used to allow motorists to make a route choice then the site shall be located a minimum of 500 metres in advance of any Strategic Route decision point exit, and at not less than 300 metres prior to any other exit.

2. If the MVMS is being used to provide delay information, the site shall be located at a location outwith the predicted queue length.

3. Clear unimpeded forward visibility of 300 metres to the sign is mandatory.

4. The site shall be level, and be of sufficient size to accommodate the MVMS with its outriggers deployed. A hardcore base may be required to provide additional sign support/ stability and this provision is the responsibility of the party requesting the MVMS.

5. The MVMS shall be protected with either existing permanent safety fence or by a suitable temporary barrier such as Pre-Cast Vehicle Barrier (PCVB) or Vario-guard. This must comply with the requirements of TD 19/06.

6. The mobility of MVMS permits a degree of flexibility in their siting, however they still require the provision of a permanent 230V, 1.5 kVA electrical mains supply for continuous operation. The electrical connections between the electrical supply pillar and the MVMS shall be in accordance with the requirements of BS 7671. It is also permissible for a diesel generator (3kVA) to be used.

7. The messages being displayed on the MVMS shall wherever possible use the destinations provided on the fixed directional signing infrastructure in the area.

8. The impact and proximity of bridges, structures, foliage and any existing signs/signals to the proposed location shall be considered to avoid any visual obstruction.

9. Care must be taken with to ensure that there is no obstruction of view to traffic from the deployment of a MVMS sign: such as to traffic entering from any adjacent junction.

A number of permanent hard standings for MVMS have been provided throughout the network in response to requests from the Transport Scotland Area Managers; a list of these locations is available from the TSOp. All of these sites are equipped with drive-on/drive-off facilities, safety fence protection and mains electrical supplies, all of which permit MVMS to be deployed with the minimum of delay.

10 Additional Information

Additional information to be submitted by the Operating Company/external party to the TSOp shall include the following:

1. If roadworks delay information is to be displayed, the type of delay information shall change as conditions change, e.g. No Delays; 10, 15, 20 minutes delays (in 5-minute increments) or whether estimated Queue Lengths will be provided, e.g. 1 mile, 2 miles ... etc

2. Whether a Site Traffic Liaison Officer will be provided as a contract requirement, to provide accurate delay data as conditions alter and their relevant contact details

3. The methods proposed for the setting-up, removal, change of works/traffic management and the handling of incidents during the works

11 Deploying Transport Scotland MVMS

The TSOp will advise the OC/external party in writing that the use of a MVMS has been approved and provide the identity number of the MVMS that has been allocated and the location from where it can be picked up.

The party requesting the use of a Transport Scotland MVMS is wholly responsible for its collection, its transfer to site and for its safety once on site and then for its eventual return in an undamaged condition. The OC/external party requesting the use of a MVMS will be held responsible for the cost of any repairs necessary to the sign on its return. Likewise, if the request is to provide alternatively owned MVMS, then the party shall be responsible for the MVMS.

The MVMS shall not be transferred to its intended location unless the weather conditions are considered suitable for both its transfer and for its deployment at the site (see Appendix D for additional MVMS deployment information).

12 The Transport Scotland MVMS and its Trailer

The signs are mounted on a trailer that permits them to be towed to their intended location by means of any suitably rated vehicle.

The sign can be raised, lowered and rotated by a single person, by means of its own manually operated hydraulic system.

The sign face can be rotated via its turn table through a 210^0 arc relative to the trailer axis, with adjustment manually carried out in 15 equal steps. The sign face is secured in its final position via four holding down bolts.

The trailer houses enclosures for the electrical power controls, the local VMS controls and the manual hydraulic controls necessary for raising and lowering the VMS box.

The OC/external party shall prepare a method statement for the deployment of MVMS using the information in this document and the O&M Manual referred to in Appendix D.

More detailed information on the general arrangement of the trailer is provided in Appendix B, with further information on the general attributes of all Transport Scotland MVMS provided in Appendix C.

No Transport Scotland MVMS are fitted with on-board diesel generators.

13 Conclusion

Involvement of the TSOp at an early stage in any works / event planning / discussion is vital to allow the TSOp to provide support in the planning of where and when MVMS are to be deployed.

Requests for MVMS shall be made in writing to the TSOp, providing as much notice as is reasonably possible: normally two weeks is sufficient. The same applies when requesting to utilise an alternatively owned MVMS.

The TSOp will provide the requesting OC/external party with an Approval Form for their completion and submission.

Transport Scotland/TSOp will have absolute discretion in deciding which applicant is allocated a MVMS. This decision will be based on the perceived level of benefits that the deployment of the MVMS would accrue to the road users. In addition, the proposed location for the MVMS will be highly influential in the decision and Transport Scotland will carry out a site inspection to ensure its suitability.

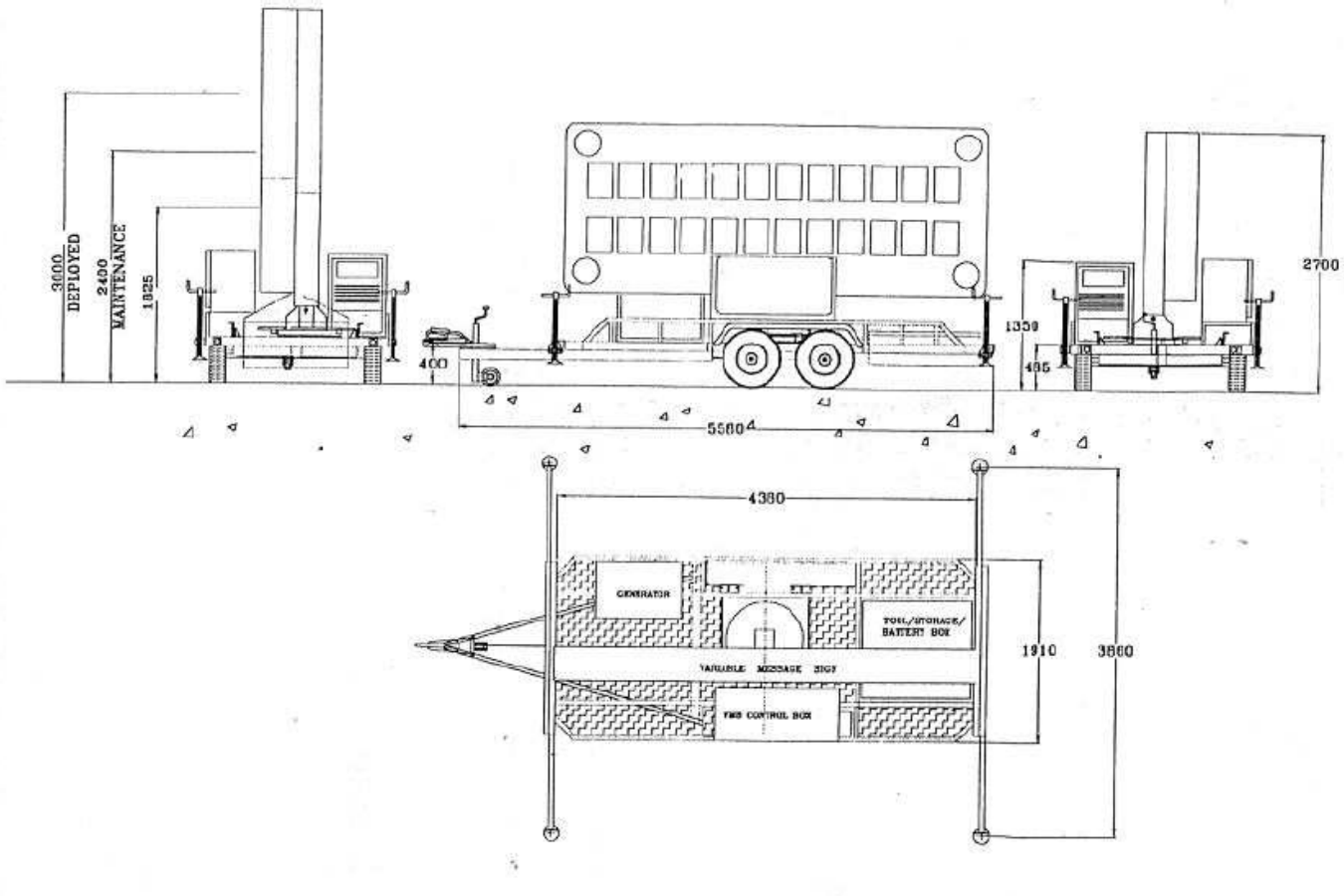
The OC/external party requesting the MVMS shall be wholly responsible for the collection, the operation and the eventual return in good working order of the MVMS. This is also the case if the MVMS is not owned by Transport Scotland.

All movements and operational usage of the MVMS will be done in liaison with the TSOp.

Appendix A Siting Requirements for Transport Scotland MVMS

PARAMETER	DESIRABLE	MIN REQUIREMENT	COMMENT
Site choice	A minimum of 500m prior to the exit for alternative route or diversion	300m prior to exit	Sufficient distance/time is essential too allow drivers to make safe route
Forward visibility	More than 300m	300m	Avoid siting near to existing structures, signs or foliage
Physical Protection	Safety fence or PCVB	Safety fence or PCVB	The MVMS must be protected
Distance from kerb to extremity of sign when erected	2m	0.5m (up to 40 mph) 1.2m (greater than 40 mph)	Chapter 8 Traffic Signs Manual section 2.5.1.4.
Verge Width behind barrier	6m	5m	Can the towing vehicle readily access the area
Verge Length behind barrier	7m	6m	
Condition of Verge	Flat and firm with good drainage	Flat or slight gradient and firm enough to prevent movement	Hard-core base may be required to make ground firm
Support for out-rigger	2'x2' standard slab	Firm ground	As above
Power	230v, 1.5 kVA single phase mains supply terminated in an external adjacent supply pillar i.a.w BS7671.	230v mains supply (single phase) with 1 kW power capacity terminated in external termination pillar.	A suitable battery supplied and maintained by the user
Live update information required by the TS Operator	Approximate traffic delays at works (e.g. NO DELAYS, 10, 15, 20 min delay) as conditions change. Or Queue length (1 mile, 2 mile..) as conditions change. Setup, removal or change of works/traffic management and Incident information (if occurs).	Telephone calls to TSOp to update on change of conditions at the site. Incidents reported as they occur.	Delays and queue lengths are related if no incident occurs. The contact Tel. No. of the STLO shall be provided to the TSOp

Appendix B General Arrangement of a Mobile VMS Trailer



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Appendix C Trailer Data

Note: These details are extracted from the Operating and Maintenance Manual for a Rolls Royce (VMS Ltd) MVMS and whilst these may not be wholly representative of all the Transport Scotland MVMS they provide a reasonably accurate representation of their general attributes

Volume 3 Data and Drawings
Chapter 1 Data and Drawings
Section 1.1 Trailer Data (Pages 3 & 4 of 12)

Trailer Data

Manufacturer	Smiths Electric Vehicles Ltd, Type 2000 (kg)
Dimensions:	
Length	5.580m + tow bracket length TBA
Height	2.700m
Width	1.910m
(Width with outriggers extended)	3.860m
Weight (including fuel and VMS)	2480kg
Tow Bar Coupling	50mm ball joint Indespension type CP57
Tow Bar Hitch Height	400mm

Wheels:

No. of	4 (plus a spare)
Type	4.5J x 13 x 4 hole well-base
Bearing Lubrication	Shell Alvania No 2 high melting point lithium based grease or equivalent
Wheel-nut tightening torque	74Nm (55 LB ft)
Trailer Tyres	175 R 13 'C' 6 PR radial van tyre
Trailer tyre pressure (Fully Loaded)	54psi (3.72bar)
Jockey Wheel	Indespension telescopic type JW4

Lights:

Front	
Side lights bulbs	12V 5W festoon
Marker reflectors	Rubolite type 91/03/00
Position marker lights	Rubolite type 50/07/00

Rear	
Stop/tail light bulb	12V 21W/5W offset bayonet
Brake light bulb	12V 211W bayonet
Number plate light bulbs	12V 10W bayonet
Direction Indicator light bulbs	12V 21W bayonet type
Lens	Smiths Electric type LAM1
Trailer Light Socket	Type 12N (7 pin)
Brake System	203 x 40mm Knott Auto reverse drum operated via compensator and cables, incorporating taper roller bearing hubs and grease seal. Studded 4 x 0.5" on 5.5" PCD.
Twin Axle Compensator	Indespension type BR3
Brake Cables	Two cables 1130mm Two cables 1430mm
Lock Nut	M8
Handbrake	Hydraulic damper and draw bar mounted.
Axle	Indespension type SB8 Two of each 1300kg superride full track axle beam
Mains Supply Socket	Legrand P17
Outrigger Prop Stand	Indespension type PJ14
Mudguards	Indespension type MG 12
Turntable	FAD type U01N075

Appendix D Mobile Sign Deployment

This information relates primarily to the O&M Manual for a Rolls Royce MVMS Unit:

Volume 2 System Description
Chapter 4 Mobile Sign Deployment

This can be obtained from the TSOp.

Appendix E MVMS Request Form

The MVMS REQUEST FORM shall be completed by the party requesting the use of a MVMS and they will submit it promptly to the Traffic Scotland Operator.

TRANSPORT SCOTLAND

MVMS Approval Form No. _____

MVMS APPROVAL FORM

Date 1	Organisation 2

PROPOSED EVENT

Route 3	Direction 4	From 5	To 6
Event Location 7			
Event Description 8			

MVMS REQUIREMENTS

Location of MVMS 9
Proposed MVMS usage 10

CHECKLIST

List		Details
1. Route Choice	11 ☐	1. 12
2. Forward Visibility	☐	2.
3. Physical Protection	☐	3.
4. Kerb/Verge Length & Width	☐	4.
5. Power Supply	☐	5.

FOR TSOp USE

13 **Authorised :** ☐ Yes ☐ No **Signature** **Date** _____	14 **Reason :**

Further copies of this document are available, on request, in audio and large print formats and in community languages (Urdu; Bengali; Gaelic; Hindi; Punjabi; Cantonese; Arabic; Polish).

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This is Annex 3.7/I to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/I – Information Required for the Severe Weather Bulletin Board for the Automated Diary Facility

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/I – Information Required for the Severe Weather Bulletin Board for the Automated Diary Facility

The list below provides up-to-date information regarding any current Severe Weather problems being experienced on roads within the [**to be inserted**] Police Area which may have a significant impact on your journey.

Last Page Update: [**to be inserted**]

ROUTE	LOCATION	ROAD STATUS	COMMENTS	INFORMATION FROM	LAST STATUS CHANGE
		Road Open	Snow. Passable with care.	Grampian Police	
			Icy conditions. Passable with care.		
			Single lane operation. Passable with care.		
			Route not recommended unless journey is absolutely necessary.		
		Road Closed	Heavy snow.		
			Drifting snow.		
			Snow clearing in progress.		
			Road estimated to re-open at …….	Trunk Road Operator	
		Road Re-opened	Passable with care.		
			Single lane operation. Passable with care.		
			Route not recommended unless journey is absolutely necessary.		

This is Annex 3.7/J to Schedule 3 Part 7 referred to in the foregoing Agreement between Scottish Ministers and Scotland TranServ being a Joint Venture comprising of Balfour Beatty Civil Engineering Limited and Mouchel Limited.

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/J – Overview of Delay Modelling Tool

SCOTTISH MINISTERS' REQUIREMENTS

SCHEDULE 3 PART 7

NETWORK OPERATIONS SERVICES

ANNEX 3.7/J – Overview of Delay Modelling Tool

Provision of the Delay Modelling Tool

The delay modelling tool facilities will be supplied by the Director.

Access to the Delay Modelling Tool

No later than 25 Working Days prior to the Commencement of Service Date the Operating Company shall provide and maintain at the Central Office a broadband internet connection for access to the delay modelling tool.

Prior to ordering this connection, the Operating Company shall contact the Director to confirm the exact requirements.

Features

The delay modelling tool will use a simple demand/capacity flow model to simulate conditions at a location on the Scottish Trunk Road network.

The delay modelling tool will estimate the delay in minutes and the approximate queue length in kilometres resulting from a reduction in operational capacity at a specified location on the Scottish Trunk Road network. Estimated delays will take into account delays that are the result of recurrent congestion. The delay modelling tool will provide a delay value relating to the additional journey time that is in excess of the free flow journey time (total delay) and a further delay value for the additional time in excess of the typical journey time for the specified time of day and day of week (normal delay). The location will be defined by network link(s), typically junction to junction, or by subsections of a link.

For roadworks that extend over a number of links, the capacity reduction will be assumed to apply at the most upstream link or section.

Roadworks interventions that affect both directions at a network location will require separate analysis and identification by the Operating Company.

The delay modelling tool will estimate the delay cost based on average traffic composition and value of time figures provided by Scottish Transport Appraisal Guidance (Scot-TAG).

A facility to specify an upstream diversion rate as a percentage of the demand flow in vehicles per hour will be provided. The Operating company shall use this to estimate the cost saving resulting from the implementation of the diversion.

The delay modelling tool will have access to tables of normal flow rates and speeds at different times of the day and days of the week for network links that have monitoring facilities. These will be in three minute or 15 minute periods depending on the level of equipment provision at the location of the monitoring facilities.

The delay modelling tool will have access to tables of normal journey times for some network links. The Operating Company may use these in addition to the point information from monitoring sites to improve the accuracy of the delay estimation.

The Operating Company shall record the output from the delay modelling tool analysis relating to a confirmed roadworks entry in the Automated Diary Facility using the appropriate Automated Diary Facility identifier.

The delay modelling tool will provide details of capacity flow rates and capacity reductions for different road types and typical closure scenarios based on values in the Design Manual for Roads and Bridges. These may be overridden by a delay modelling tool user.

Data Inputs

The delay modelling tool will contain appropriate details of:

(i) Normal traffic flow, speed and composition.

(ii) Normal link journey times.

(iii) Link length, free flow speed and journey time and capacity.

(iv) Value of time figures.

Additional information required to model a capacity reduction will be required to be entered by a delay modelling tool user; this will include:

(i) Location of the works in terms of links and/or sections of links.

(ii) Chainage in metres from start of link/section to start of works.

(iii) Length of works.

(iv) Day(s) of week.

(v) Start/end time.

(vi) Lanes closed.

(vii) Confirmation of free flow speed on the link/section (suggested by the delay modelling tool).

(viii) Confirmation of link capacity remaining after roadworks implemented (suggested by the delay modelling tool).

(ix) Expected diversion rate (to estimate benefit of diversion).

(x) Length of diversion route.

Report Outputs

The Operating Company shall estimate the following information for each model analysis:

(i) Details of works location (links/sections).

(ii) The delay in minutes during the period while the roadworks are implemented and until resultant queues have cleared (at intervals of three minutes or 15 minutes).

(iii) The queue length (at intervals of three minutes or 15 minutes).

(iv) The total delay in vehicle hours.

(v) The total queue size in vehicle kilometres.

(vi) The cost/diversion benefit of the roadworks in terms of lost time/saved time.