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**WELSH GOVERNMENT TRUNK ROAD MAINTENANCE MANUAL 2016
(WGTRMM 2016)**

Part 1: SERVICE CODE – APPROACH TO TRUNK ROAD MAINTENANCE SERVICE

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Part 1: SERVICE CODE APPROACH TO MAINTENANCE SERVICE

1.0 Introduction

1.0.1 The Maintenance Service

1 This Code identifies the basic requirements for the routine and winter service activities on the motorways and all-purpose trunks roads (APTRs) in Wales for which Welsh Government is responsible on behalf of the Welsh Ministers as the highway authority. Throughout the Code, unless otherwise stated, reference to trunk roads shall be taken as meaning both motorways and All Purpose Trunk Roads (APTRs). For the purposes of the Code, urban trunk roads are those APTRs with a mandatory speed limit of 40 mph or less.

1.0.2 Basis of the Code

1.0.2.1 Performance Requirements

1 The Code seeks to define operational objectives and the levels of performance required from Service Providers in delivering their services rather than specifying prescriptive methods for all activities on the Network. It focuses upon the identification, verification and repair of defects in maintaining network safety and upon identifying the service provider processes necessary to manage and maintain the network asset and respond to operational and weather demands.

2 There is however the flexibility and process to vary WGTRMM to accommodate strategic *and* local network needs in delivering value for money whilst maintaining both robust and transparent service delivery standards. The Code is developed on the basis that the service will be delivered in accordance with all relevant and applicable standards. It is the responsibility of the Service Provider to propose in their service delivery plans how the required performance will be achieved and how risks will be managed.

3 In the Code, Performance Requirements for each Service Area define the level of service necessary to provide a safe and serviceable Network; consistency across similar parts of the Network; maintenance of the asset value, and; generally, provide a safe highway that is fit for purpose. These Performance Requirements also provide the framework for a robust defence for Welsh Government in the event of third party claims.

4 The Code provides opportunities for continual improvement through innovation and novel approaches to meeting the Performance Requirements. Within the defined Performance Requirements, wherever possible the Service Provider can choose the way to achieve these requirements.

5 Rather than adopt the Performance Requirements in the Code for all or part of the Network, risk and business case based alternative performance levels may be proposed by the Service Provider. This may be for a variety of reasons that may or may not be directly related to traffic using the Network e.g. availability of funding). The Service Provider may develop methods for achieving higher targets for a particular activity and this may be offered to WG if the Service Provider can demonstrate the provision of better value for money.

6 An alternative performance level may represent an action that provides an improved level of service to the road users or better value for money for WG. When local problems prevent

the achievement of the Performance Requirements, an alternative level of service may be acceptable to WG. All changes to baseline levels of service must be authorised by WG as described in Part 0 of WGTRMM.

7 Although both routine and winter services typically comprises short-term activities, they cut across wider objectives and disciplines. It is neither possible nor desirable to prescribe all activities, so the Code encourages the Service Provider to be proactive and innovative in the ways the service is delivered.

8 Examples of how the Service Provider may approach the provision of the required performance levels are:

- The requirements in the Code encourage the Service Provider to think ahead (e.g. which defects might arise in the next year and where to look for them). Traditionally, the occurrence of defects has been identified by detailed, general or principal inspections, but in the Code there is now flexibility for the Service Provider to develop/propose alternative cycles of inspection or other means of monitoring to achieve the requirements. For example, remote monitoring, CCTV or combinations of inspections and routine service activities may be considered providing the additional uses do not prejudice the original function of the equipment.
- The Service Provider identifies unusual situations where more defects than expected occur on a length of road. This may result in more frequent attention but also enables the Service Provider to bring forward planned maintenance to remove the source of the defects.
- The Service Provider may identify the occurrences of a cluster of incidents. The Service Provider can then propose ways to improve the achieved level of performance to reduce the number of incidents.
- When new advice and standards are introduced there may be an effect on the maintenance requirements for the Network. The Service Provider should identify the implications caused by new standards and advise WG on the implications on the maintenance requirements for the Network
- Activities are required across Service Areas (e.g. geotechnics, drainage and landscape maintenance). The Service Provider may see opportunities for combining activities in different areas to provide better value for money.
- Opportunities may also be afforded to optimise maintenance works in conjunction with planned capital renewal or developer works
- Seeking continual improvement in the service provided while leading to solutions with better value for money and enhanced levels of service. In setting Performance Requirements, the Code encourages “joined-up” thinking by the Service Provider as alterations in service delivery in one Service Area can have a significant impact on another. For example, altering grass-cutting regimes for environmental purposes may make it easier to inspect and maintain items of infrastructure installed in verges. To help achieve this, an efficient system for holding records will enable the examination of information on different aspects of the routine service.

9 In specific circumstances, Performance Requirements higher than those stipulated for each Service Area may be required by WG or may be offered as modifications or local variations by the Service Provider.

10 To support the case for amending the requirements, a risk and cost-benefit analysis, an environmental impact assessment and an affordability study should be undertaken by the proposer. The whole life costs of a proposal should be considered in any analysis rather than initial costs in isolation. If removal of a new material at some time in the future is expensive either in works costs or in costs of disruption to the road user, then even if the material appears attractive when new, it may not be so beneficial when considering the cost over the whole life of the material. Similarly, application of a new technique that limits the maintenance options in the future to a small number of suppliers may not provide good value for money in the long term.

11 Servicing of mechanical and electrical equipment forms an integral part of service delivery. Manufacturer's recommendations for servicing intervals are usually provided in an operation and maintenance manual. Maintenance plans or operation and maintenance manuals may be designed, or evolve, to suit local circumstances with the help of local parties (e.g. the Police). At the start of the Service Provider's service delivery, any existing plans and manuals shall be adopted as appropriate and may form the Performance Requirement. There is, however, still a need to review and improve the plans regularly through the period of the commission.

1.0.2.2 Application of the Service Code

1 Lessons learned from past experiences, new techniques, research and current practice all contribute to enable work to be carried out more effectively and consistently over time while maintaining a process of continual improvement. Whilst the Code does not in all instances provide formal specification on how routine and winter service activities are to be undertaken, the WGTRMM Network Management Manual (NMM) contains detailed service requirements in some aspects of service delivery and advice on good practice based on past experience or recent technical or procedural developments. Such advice is a guide on how the service may be undertaken to enable the Performance Requirements to be met, but does not preclude the Service Provider from developing innovative approaches that will deliver an equal or better service delivery.

1.0.2.3 Continual Improvement

1 Good organisation is essential to achieving effective maintenance through a considered strategic approach and a competent and experienced Service Provider and supply chain. In establishing an effective management team, senior operational and maintenance staff should cover the spectrum of management, technical and operational skills needed and to provide effective communications with the other stakeholders.

2 Continual improvement in service delivery can be achieved by improvements based on experience gained from providing the service on the Network but also by taking advantage of developments elsewhere. The following areas to consider for improvement include:

- Basing services on the needs of the user and community rather than convenience
- Incorporating the results of research and development into best practice
- Recognising the needs of all Network users (e.g. pedestrians, cyclists, equestrians and the mobility impaired)

- Effectively managing and learning from complaints, compliments and third party claims
- Identifying improvements to standards and advice notes
- Incentivising supply chain performance

3 To provide the delivery of quality services and the introduction of new techniques requires the provision of skilled staff. All staff must have the necessary qualifications, knowledge and experience to carry out their duties and responsibilities effectively. Staff should not be assigned to duties unless they have received the necessary training and have been formally assessed for competence to serve in the post.

4 A continuous training programme, including refresher courses, should ensure the members of the Service Provider's team retain and improve their skills. The aim of the training, in addition to passing on the techniques to use, is to make sure that best industry practice is passed on to all staff and a continuous process of succession planning and improvement in the delivery of the service is achieved. Service providers should maintain records of the training received by their staff and undertake reviews to identify the need for new training and its suitability.

1.0.2.4 Planned maintenance

1 The Service Provider should not rigidly follow formulae, but consider and manage the risks posed to road users, local residents and stakeholders by maintenance actions or by the failure to maintain or take action.

2 Reactive maintenance can be costly in the provision of labour as it is generally of a random nature and cannot be planned efficiently. There needs to be a balance between carrying out the more disruptive works, usually associated with reactive maintenance and repairs, and planned corrective and preventative maintenance.

3 Preventative maintenance is employed as a planned maintenance operation when the benefits are that the whole life value associated with reactive repairs, third party claims are reduced and the need for more substantial maintenance is reduced or deferred. Carrying out planned maintenance on one part of the infrastructure can also provide the opportunity to carry out routine activities on other adjacent parts, without increasing the disruption to road users.

4 Without preventative maintenance, safety hazards may appear more frequently, and these may lead to more third-party claims than would be the case had preventative maintenance been carried out. Consequently, if preventative maintenance is adopted, it may be possible to make cost savings by reducing the frequencies of other activities.

1.0.2.5 Information Management

1 Integrated maintenance management requires data collection and records, repair arrangements, monitoring of utility works, prioritisation of maintenance and customer contact arrangements. The Service Provider is responsible for ensuring the comprehensive and efficient use of WGs IRIS system in the management, production, input and use of such information in managing the Network. The Service Provider is responsible for ensuring that such information including routine and winter service activities are recorded in WG's IRIS system, including information from:

- Inspections
- Previous surveys and audits

- Reports from the public, including complaints that may indicate areas to be considered for improvement
- Maintenance
- Records of Hazard Mitigation, Temporary Actions and Holding/Permanent repairs

2 Information from records of repairs can help to indicate areas for more detailed consideration and demonstrate that reasonable measures in maintaining the Network have been taken. For example, a high incidence of repairs, including patches and temporary repairs, at a location can highlight the need to consider a more extensive treatment. Records of assessments, planned actions and actions taken should be used for benchmarking and efficiency. In all cases, records of inspections, defects and intended repairs, including nil returns, are essential.

3 A database enables trends to be examined that may indicate the need for increased maintenance. These include, for example, levels of valid third party claims or the proportion of the budget spent on Reactive Maintenance compared with Preventative or Renewal Maintenance.

4 Records provide information on past performance on which future decisions may be made, evidence that acceptable standards are achieved and information for future costing. In many cases, keeping adequate records is a statutory requirement and represents verification of compliance with legal obligations for testing and maintenance. Retaining test records, up to date manuals, drawings etc. are essential requirements for effective maintenance management and the safe operation of the Network. Records will be generated by different parts of the operations and maintenance organisation and procedures should be developed to make the information readily accessible.

5 Management procedures should ensure that records are retained in an appropriate archive for the necessary period, such that they remain secure, accessible and retrievable. Integrated Information Systems including WGs IRIS system should form part of any quality management system and should be used for analysis of the records collected and the production of summaries of the information at appropriate levels of detail. Statistical, logistical and financial analyses of the records enable the performance of engineering assets to be assessed. On a site-specific basis, the analyses may indicate significant trends in performance, which may be related to changes in operational and maintenance strategies, or the potential for, and timing of, equipment failures.

1.0.3 Health & Safety, Quality and Environmental Management

1.0.3.1 Health and Safety

1 In all aspects of quality management, attention should be paid to the requirements of the Contract or Agreement and current and relevant legislation with regard to health and safety and risk assessment. In every case, procedures should ensure that the appropriate health and safety regulations have been identified and fully adhered to at all times, with the aim of adopting an integrated approach between quality and health and safety. Reference should also be made to the Health and Safety Management section of WGTRMM Part 2

1.0.3.2 Risk Assessment

1 Similarly, attention should be paid to the requirements of the service delivery with regard to risk in all aspects of quality management. In every case, procedures should ensure that the requirements of service delivery are met at all times, with the aim of adopting an integrated approach between quality and risk.

2 Risk analysis and management is an integral part of the management of the Network and the provision of the service. The Management of Health and Safety at Work Regulations requires risk analyses to be regularly carried out, recorded and to include for the safety of employees, the public and those nearby. The risk analysis process involves the identification of hazards, assessment of the likelihood of occurrence, estimation of the consequences and, ultimately, the management of the actions taken. This includes identifying, evaluating and reviewing the options for controlling the risks.

1.0.3.3 Quality Plans

1 As part of the quality management system, the Service Provider must set out, in a Quality Plan, the approach to be adopted for provision of service delivery. The Quality Plan will preferably integrate Quality, Environmental and Health and Safety Matters in one combined system conforming with ISO9001, ISO14001 and OHAS18001. The Quality Plan shall incorporate statements that outline the Service Provider's approach to delivering the required services to meet the overall performance requirement but does not need to include detailed procedures that relate to specific activities.

2 Where detailed plans, processes and procedures are held elsewhere these should be identified and their locations stated in the Quality Plan. The Quality Plan should not be considered in isolation. An integrated approach should be taken that links together all plans necessary for the provision of service delivery. Management of the Network as a whole is reliant on quality and hence the service delivery and quality elements cannot be separated, as one cannot function without the other.

3 It should be noted that contingency planning takes place at a high level for major incidents on the Network. Whilst there should be an integrated approach to all plans, specific details relating to contingency planning are contained within Part 2.

4 The Quality Plan describes the management strategy that sets clear and sustainable performance objectives, delegates responsibility and establishes lines of communication. The topics in BS EN ISO 10005 for the content of a Quality Plan which cover the requirements for service delivery include:

- **Definition of the scope of the Quality Plan**

- **Management responsibilities** (individuals and levels of responsibility for the activities listed)
- **Associated documentation** (how it should be applied, where it may be found and who is responsible for it)
- **Arrangements for contract review** (when to be undertaken, how and by whom)
- **Document and data control** (document and data access issues and arrangements for review and approval)
- **Purchasing** (of products and sub-contracted services)
- **Customer supplied products** (identification and control of products)
- **Product identification and traceability** (definition of scope and extent of identification / traceability)
- **Process control** (control of production, installation and servicing processes)
- **Inspections and testing** (inspection plan and where, when and how inspections are to be undertaken)
- **Control of inspection, measuring and test equipment** (control, identification and calibration of equipment)
- **Inspection and test status** (specific requirements and methods for the status of inspections)
- **Control of non-conforming products** (identification, control, disposal and prevention of misuse)
- **Corrective and preventative action** (activities to avoid poor maintenance)
- **Control of quality records** (control of records, to include issues such as storage, archiving etc.)
- **Quality audits** (nature of audits, when they are required and how results will be used)
- **Training** (specific training required by personnel)
- **Servicing** (including regulatory and legislative requirements, industry codes etc)
- **Statistical techniques** (if applicable, the plan should indicate where specific statistical techniques are required and how they are to be used)

5 Regular meetings between the WG and the Service Provider should be held to review the Quality Plan to keep it up to date for all service activities.