

## Highway Structures Maintenance Policy Statement

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### 1 Introduction

- 1.1 This policy has been developed in line with the requirements of the 2016 Code of Practice “Well-managed Highway Infrastructure” (WMHI) <sup>1</sup> and other approved codes of practice. The policy outlines how the Council implements its requirements for highway structures and provides guidance on the way in which highway structures are inspected, assessed and maintained and how the relevant data is stored and utilised.
- 1.2 Related to this document is the Council’s Transport Asset Management Strategy, which provides a framework for highway asset management and investment in Stockport. It clearly sets out what structures asset management means to the Council and outlines procedures, processes and systems to ensure transport assets are maintained in a safe condition and are fit for use.
- 1.3 In terms of assets, Stockport currently has 310 highway structures that meet the structural requirements of the Highways Act 1980.<sup>2</sup> A breakdown of this list is shown in Table 1 below.

Structure Type	Count
Bridge	89
Culvert	39
Footbridge	18
Retaining Wall	129
Sign/Signal Gantry	14
Subway	19
Tunnel	1
Other	1
<b>Total</b>	<b>310</b>

Table 1 – Highway Structures

- 1.4 All 10 Greater Manchester (GM) Authorities, under the supervision of Transport for Greater Manchester (TfGM), have undertaken to use the same Bridge Management System (BMS), Pontis by AssetPlan<sup>3</sup> for all highway structures data requirements. This provides a consistent approach to asset management and enables clear benchmarking for any Whole Government Accounting (WGA) submission by each Authority.
- 1.5 Responsibility for the delivery of this policy lies with the Council’s Structures Team.

<sup>1</sup> [Well Maintained Highways Infrastructure, 2016](#)

<sup>2</sup> [The Highways Act, 1980](#)

<sup>3</sup> [Pontis, Asset Plan](#)

## 2 Legal Framework

- 2.1 There is a statutory obligation on Highway Authorities to maintain the public highway under The Highways Act 1980. This establishes the main duties of Highway Authorities in England and Wales.
- 2.2 There are also statutory obligations on Highways Authorities with respect to the Environment and Conservation.
- 2.3 For highway structure works in, over or near a 'Ordinary Watercourse', the Council operates as Lead Local Flood Authority (LLFA) under the Land Drainage Act 1991 and is the consenting authority.
- 2.4 For highway structure works in, over or near a 'Main River' the Environment Agency is the consenting authority under the Environmental Permitting (England and Wales) Regulations 2016.<sup>4</sup>
- 2.5 When working on or near statutorily designated heritage assets, all works are undertaken in collaboration with the Conservation Officer and approval is obtained from the Local Planning Authority and/or under the Planning (Listed Buildings and Conservation Areas) Act 1990.<sup>5</sup> All guidelines and advice shall be followed with respect to works and finishes on such assets.
- 2.6 All Conservation Areas, Statutory Listed Buildings, Ancient Monuments and Buildings of Local Interest are shown on the relevant layers in the Council's Geographical Information System (GIS).

## 3 Asset Management

- 3.1 All highway structures asset data, with respect to basic inventory data, legal data, condition data, assessment and safety information, is contained within the current BMS and forms part of the Structure File for that asset.
- 3.2 This data is held in a format that allows it to be easily entered, analysed and used by engineering staff and non-engineering staff alike. The structure stock is stored in groups and also contains tags which allows easy access and manipulation of smaller subsets and asset types.
- 3.3 The use of the same BMS across all 10 GM Authorities allows a consistent approach to data management across the region.
- 3.4 The design and maintenance of highway structures closely follows the requirements of The Design Manual for Roads and Bridges (DMRB).<sup>6</sup> The DMRB provides detailed guidance in the form of Standards and Advice Notes for most aspects of highway structure design and assessment.
- 3.5 All structural design and assessment is subject to Technical Approval (TA) in accordance with BD2 Technical Approval of Highway Structures. All proposed structures and modifications including those constructed by third party developers must satisfy the appropriate officer in the Council who is acting as the Technical Approval Authority (TAA) in terms of agreeing the principles on which a structural design or assessment is to be carried out.

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<sup>4</sup> [The Environmental Permitting \(England and Wales\) Regulations, 2016](#)

<sup>5</sup> [Planning \(Listed Buildings and Conservation Areas\) Act, 1990](#)

<sup>6</sup> [Design Manual for Roads & Bridges, 2020](#)

## 4 Risk Management

- 4.1 The Council's Highway Structures Team works in general accordance with the Highway Infrastructure Asset Management Guidance (HIAMG).<sup>7</sup>
- 4.2 Structures decision making also includes consideration of road classification. Roads can be broken down by network type into Primary (A), Classified (B & C) and Unclassified routes. Furthermore, the Key Route Network (KRN) developed by TfGM contains mainly primary routes and will also have an impact on any decision making within and outside the borough.
- 4.3 Structures that may be affected by flood events have been identified based on council-collected flood data recorded on GIS and also through the Environment Agency's (EA) Flood Risk Maps. Consequently, structures can be checked for scour or deterioration after each major flood event. Sensitive structures and elements are identified using an as low as reasonably practical (ALARP) risk assessment process in accordance with the Health and Safety Executive (HSE). These structures have been grouped based on material and route supported, such as footbridges near schools, and have had inspection frequencies adjusted to allow for recorded accelerated deterioration levels and extreme events. Subsequent actions may include monitoring post event and/or remediation work.
- 4.4 There are many other owners of structures that support and cross the adopted highway. Where these structures are maintained by responsible owners, such as Network Rail, Highways England and the Canal & River Trust, the Council does not undertake any inspection or maintenance. We will, however, react to reports from the general public regarding public safety and forward these to the responsible parties accordingly using the Council's Engagement Management System (Verint).
- 4.5 Moreover, there are some structures supporting the adopted highway that are private. Where the private owner is not aware of their responsibilities we will assist in providing the relevant information to them and guide them on how best to overcome any maintenance issues they may have. If necessary, we will close a structure if there is a health and safety risk to the public.
- 4.6 In accordance with the Highways Act 1980, all proposals for new structures within or over an existing or proposed highway, or works which affect existing highway structures, are subject to a formal TA process conducted by the TAA. Structures being built as part of any development, irrespective of whether or not they will be maintainable by the Council, are included in the TA process if they:
- Are adjacent to the highway and interfere with the support of the highway or access to it for inspection and maintenance purposes;
  - Form part of any road that is to be adopted into the highway under a Section 38, Highways Act 1980, agreement; and/or
  - Form part of any road that is being built under a Section 278, Highways Act 1980, agreement.
- 4.7 Consideration is also given to The New Roads and Street Works Act 1991 (NRSWA)<sup>8</sup> as amended by the Traffic Management Act 2004. This Act controls and co-ordinates work carried out in the street by utility companies. Stockport Council's Structures Team will notify statutory undertakers when planning and carrying out highway and bridge works.

<sup>7</sup> [Highway Infrastructure Asset Management Guidance, 2013](#)

<sup>8</sup> [The New Roads and Street Works Act, 1991](#)

## 5 Inspection, Assessment & Recording

- 5.1 The inspection, testing and monitoring process provides data on current condition and performance. This enables the Council to assess if a highway structure is currently safe and fit for purpose, and helps with the compilation of detailed inventory data. The data provided through General and Principal Inspections is also fundamental to life cycle planning.
- 5.2 General Inspections comprising a visual examination of all parts of the structure, are undertaken on structures every two years.
- 5.3 Principal Inspections comprising a visual and tactile examination of all accessible parts of the structure, are generally carried out every 6 years unless this frequency has been risk assessed using Interim Advice Note 171/12 – Risk Based Principal Inspection Intervals.<sup>9</sup> The forms used for the Principal Inspection Frequency Risk Assessments are contained in the BMS. Assessment of this frequency is carried out at every Principal Inspection and recorded in the BMS.
- 5.4 Special Inspections are ad-hoc and carried out when required. This is usually after an extreme weather event or reported damage caused by road traffic incidents and bridge strikes.
- 5.5 All staff who undertake inspections are deemed competent to do this based on their knowledge, skills and ability. Competence is continually monitored and developed through annual professional development reviews and with internal and external training courses. All relevant competence evidence in terms of academic qualifications and continuing professional development is recorded on the Council's iTrent system.
- 5.6 Trash screens fixed to highway structures are inspected on a cyclical basis but this can be made more frequent in order to deal with severe weather events. Debris retained in screens upstream of any structure, as well as debris trapped on bridge cutwaters after high river flows, can increase the likelihood of scour and flooding.
- 5.7 Condition data from previous inspections is retained as it gives a clear indication of the rate of deterioration of different elements and structure types, and can be used to develop life cycle plans.
- 5.8 Structural monitoring may be undertaken where there is evidence of movement and/or accelerated deterioration. This may take the form of regular inspections and measurements, installation of crack gauges or 3D survey scanning. Structure importance, criticality, or route supported, may have an effect on the determination of frequency and detail of any monitoring regime implemented.
- 5.9 Structural reviews ascertain the adequacy of structures to carry specified loads when there may be significant changes to usage, loading, condition or the assessment standards. Structural reviews are identified on a priority basis and may be triggered by the outcome of an inspection and this may recommend a full structural assessment.
- 5.10 Assessments arising from structural reviews may only require assessment of a limited number of elements, or part of the structure, to facilitate remedial works required for a structure. Results of both the review and any subsequent assessment are recorded in the BMS.
- 5.11 Where an assessment shows the structure cannot carry the required loading,

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<sup>9</sup> [Interim Advice Note 171/12 – Risk Based Principal Inspection Intervals](#)

decisions will be made based on the importance and necessity of the route it carries. Interim measures may be required after an assessment to maintain a structure's safety and consideration may be given to weight restrictions, partial or full closure of the structure or route. This will require full Cabinet approval.

## 6 Programming & Prioritisation

- 6.1 The purpose of maintenance planning and management is to enable the Bridge Manager (the team lead who oversees the operation and maintenance of highways structures) to develop and implement cost effective and sustainable maintenance plans for highway structures. These plans are used to support the safe operation of the network while delivering the required asset performance and levels of service. The maintenance planning and management process enables the Bridge Manager to deliver the authority's long-term goals and objectives by developing maintenance plans that align with and provide detail to the work volumes and phasing identified in the Asset Management Plan.
- 6.2 This process may take the form of value management (prioritising needs through the planning, scheduling and implementation of work) or value engineering (developing optimal design solutions whilst reducing waste and inefficient practises), where sustaining and improving a desirable balance between the wants and needs of stakeholders is regarded as being as important as the physical and financial resources needed to satisfy them.
- 6.3 Classification of work types provides a beneficial tool for analysing the workbank (a database of ongoing maintenance costs and needs) and removing appropriate work types from the value management and value engineering phases. However, where a defect requires urgent attention, value management and value engineering principles may be rejected in favour of more immediate maintenance solutions. These solutions can be applied to all three maintenance regimes: Regular Maintenance, Programmed Maintenance and Reactive Maintenance.
- 6.4 Maintenance planning and management is an on-going activity and as such, requires up-to-date and relevant information on structural condition and performance to ensure the correct work is being planned and to assess the effectiveness of previous work. The main data for prioritisation will be the outcome of Inspection Testing and Monitoring, and Structure Assessment.
- 6.5 The main identifier for maintenance is Bridge Condition Indicators (BCIs) as outlined in C.3.4. of WMHI. The element condition score for every inspection will result in a structure BCI for both critical elements ( $BCI_{CRIT}$ ) and all elements ( $BCI_{AVE}$ ). This data is used to list all structures, in any specific group, in chronological order. Those structures with the worst condition scores will be targeted for inclusion into the maintenance programme.
- 6.6 The BMS also provides a prioritisation score, based on the London Bridges Engineering Group (LoBEG) Risk-Based Prioritisation & Value for Money.<sup>10</sup> This scoring is also used to augment the BCI scores together with structure importance to finalise a priority list. LoBEG prioritisation scores are available as part of the new BMS, but only for inspections carried out and processed after February 2017.
- 6.7 The maintenance prioritisation list is normally developed into a Forward Work Plan of 3 years or more, outlining where investment will be targeted over the period to improve stock condition scores.

<sup>10</sup> [Risk-based Prioritisation & Value for Money, 2018](#)

- 6.8 The condition data and prioritisation is reviewed periodically throughout the programmed period by a competent engineer to ensure there are no new priority cases that should be included. The Bridge Manager will have an understanding of this and the stock in general in order to identify maintenance needs.
- 6.9 Another important aspect of asset management is life cycle planning which involves setting up long term plans for managing an asset group with the aim of providing the required levels of service at the lowest whole life cost. Stockport's Transport Asset Management Strategy outlines a 20-year period over which the borough's assets will be managed.
- 6.10 Key performance indicators (KPI) were established to monitor this investment strategy to ensure there would be no deterioration in asset condition based on the investment strategy selected. This includes annual reporting on the basis of Principal Inspections, using critical indicator scores weighted by deck area.
- 6.11 The objective of this process is to reduce key maintenance backlogs over the period of the Strategy through the adoption of a more preventative approach to maintenance which will lead to a reduction in the annual investment required to maintain assets to an optimum condition/score.
- 6.12 The Strategy is based on managing assets on a holistic basis and recognises that not all outstanding maintenance can be completed at the outset; there is a need to prioritise assets based on the relative importance of each asset group and how this contributes towards an effective transport system.
- 6.13 In order to carry out life cycle planning and deliver the strategy a robust inspection regime is required. The inspection regime currently in operation is outlined above.
- 6.14 The data enabling life cycle planning is recorded and maintained in the BMS. This aligns closely to the Atkins Toolkit for WGA and all outputs are used in this respect. The structures included in the WGA submission are set for 'Spreadsheet Compatible' which aligns with the Atkins replica.
- 6.15 The BMS is also structured to allow changes in maintenance strategies for individual structures, such as 'Planned Do Minimum', 'Planned Preventative', 'Planned Targeted' and 'Unplanned Reactive', quantifying the relevant investment required. Adopting different strategies allows the targeting of resources to ensure preventative maintenance is prioritised to support the Resilient Route Network and primary routes, so reflecting Council priorities. Delivery of this approach supports the implementation of the recommendations in WMHI.
- 6.16 Once the prioritisation list has been established, each structure will go through a value engineering approach. This will involve the development of a feasibility report outlining all constraints and will develop option appraisals based on cost. Early contractor involvement (ECI) may enable the cost of work to be more robustly informed and effectively assessed. This process increases confidence levels and makes achievement of the planned work regime more likely.
- 6.17 The Bridge Manager will continually seek to improve the efficiency and effectiveness of the maintenance planning and management process. Improvements to the maintenance planning and management process will align with improvements to the long term asset management planning process, and the Bridge Manager will seek to combine the work required on these improvements where appropriate.

## 7 Policy Review

7.1 This Structures Maintenance Policy Statement will be reviewed when the referenced policies and guidance make changes to the way highways structures are inspected, assessed and maintained.

### 8 Appendix 1 – Team Structure and Roles

