



WOKINGHAM
BOROUGH COUNCIL

HIGHWAY MAINTENANCE MANAGEMENT PLAN

VOLUME 6 HIGHWAY STRUCTURES

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July 2026

HIGHWAY MAINTENANCE MANAGEMENT PLAN

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Volume 5: Severe Weather and other Emergencies

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Volume 7: Traffic & Transport (incl Traffic Management & Road Safety)

Volume 8: Street Lighting and Illuminated Signs

Volume 9: Other Miscellaneous Functions

Including:

Sweeping and Street Cleansing

Weed Control

Verges and Open Spaces

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Grass Cutting

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HIGHWAY MAINTENANCE MANAGEMENT PLAN

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2. VOLUME 6 – HIGHWAY STRUCTURES

I. Introduction

The structures service contract set out to deliver the eleven core duties including the earthworks and VRS assets to support the council's services.

II. Service Inspections

2.1 Bridges and Other Highway Structures

Purpose: To ensure management of bridges and other highway structures in accordance with the objectives of the Management of Highway Structures: Code of Practice, October 2016 and any subsequent updates. This Code should be used as a companion to the following Codes of Practice:

- Well-Maintained Highways Infrastructure: Code of Practice for Highway Management, Part C - Structures
- DMRB CS 450 Inspection of Highway Structures

The Council has responsibility for the management and maintenance of 242 highway structures, comprising: road bridges, footbridges, culverts under the highway with a span greater than 900mm; subways through which the public have a right of way; structural elements of high mast lighting; CCTV masts; cantilever traffic signals; and retaining walls more than 1.5m high. In addition there are 87 private structures which carry a public highway. The aim is to maintain the bridges and highway structures to such a standard that structural inadequacy does not affect the use of the highway network, the safety of all users of the highway is reasonably assured and the condition of the structure does not compromise the amenity of the area in which it is located.

The service delivery includes the inspection of the highway structures/non-highway structures as detailed below;

- (a) Inspections of bridges, culverts and other structures to be generally in accordance with the Design Manual for Roads and Bridges Advice note CS 450 issued by the Department of Transport.
- (b) The purpose of a General Inspection is to provide information on the physical condition of all visible elements on a highway structure. The inspection can be carried out without the need for special access equipment, or extensive traffic management arrangements

- (c) General inspections of all elemental parts of the structure to be carried out at intervals not exceeding three years.
- (d) The purpose of a Principal Inspection is to provide information on the physical condition of all inspectable parts of a highway structure. A Principal Inspection is more comprehensive and provides more detailed information than a General Inspection.
- (e) Principal Inspection intervals determined through risk assessment shall not exceed twelve years.
- (f) The purpose of a Special Inspection is to provide detailed information on a particular part, area or defect that is causing concern, or inspection of which is beyond the requirements of the General/Principal Inspection regime.
- (g) Further examples of when Special Inspections are recommended are given in the Inspection Manual for Highway Structures.
- (h) CS462 provides guidance on limited site testing that may be undertaken as part of a Special Inspection for concrete structures, i.e. half-cell potential, chloride level, cover meter and depth of carbonation. Additionally the wall thickness of steel hollow sections can diminish through internal corrosion and may go unnoticed. The non-destructive measurement of wall thickness of sections at critical areas, eg. Base of parapet posts, rails near ends or joints, is recommended for elements which exceed or are approaching the end of their design life, or where poor detailing for durability is evident, or where there are visible signs of distress or deterioration.
- (i) An Underwater Inspection is a specific type of Special Inspection concerned with parts of highway structures that are below water level.

Special Inspections are recommended for in the following circumstances:

- (a) Cast iron structures, at intervals not exceeding six months.
- (b) Structures strengthened by the use of bonded plates, at intervals of six months for the first two years and thereafter in accordance with the intervals prescribed in the maintenance records.
- (c) Structures that have to carry an abnormal heavy load. The structure should be inspected before, during and after the passage of the load if either:
 - an assessment has indicated that the margin of safety is below that which would be provided for a design to current Standards; or
 - similar loads are not known to have been carried.

- (d) To investigate possible structural damage after major accidents, Chemical spillage or fires adjacent to structures.
- (e) When necessary to investigate a specific problem or if a particular problem has been identified on other similar structures.
- (f) Management of post-tensioned concrete bridges, as described in CS 465
- (g) Probing of river bridge foundations after flooding. Where probing indicates the possibility of scour, further Underwater Inspection should be carried out
- (h) If unexpected settlement is observed.
- (i) Where flooding is reported to have occurred, bridge foundations will be checked during the following summer months.

2.2 Vehicle Restraint Systems (BARRIERS)

The council has responsibility for the management and maintenance of the Vehicle Restraint Systems (Barriers), safety fences and pedestrian guard-rails. An asset management system (AMX) has been setup to help with inventory and management of the assets. Currently the inspections are carried out in accordance with the following:

- (i) Steel Vehicle Restraint Systems (VRS), safety fences and pedestrian guard-rails will be inspected every five years in respect of mounting height, surface protective treatment and structural condition.
- (ii) Boundary fences for which the Council are responsible will be inspected in respect of integrity and, if appropriate, stock-proof qualities during the periodic safety inspections or, in the case of the A329M/0 and A33 Swallowfield Bypass, during one of the programmed twice-yearly maintenance programmes (ie annually).
- (iii) Additionally, a visual inspection of all barriers and safety fences will be undertaken during routine highway safety inspections.

WBC's asset condition management of Vehicle Restraint Systems (VRS) is undertaken in accordance with the VRS Asset Management Strategy, prepared by WSP in 2021 and aligned with BS 7669-3. The strategy will be subject to periodic review and will be updated as required following any changes to relevant standards or guidance.

2.2 Embankments and Cuttings

Highway geotechnical assets are being managed in accordance with the guidance of CS 641 Managing the maintenance of highway geotechnical assets

In 2018, WSP were commissioned by WBC to undertake a geotechnical asset identification survey of the WBC owned highway network. The survey identified major and minor geotechnical assets within WBC jurisdiction and recorded preliminary data including type, location, geometry and vegetation cover. Subsequently in 2019/20, an initial inspection programme was undertaken on the identified assets, with further inspection programmes undertaken annually based on previous inspection recommendations. The AMX asset management system is used to record all asset details and inspections, and programme future inspections as part of WBC's proactive approach to highway geotechnical asset management. In 2024/25, additional assets were identified along the A329(M) which previously were not inspected. This brings the total number of assets under WBC jurisdiction to 373.

A summary of inspections, maintenance activities, designs and indicative future inspection programme is provided in the geotechnical asset management plan (GeoAMP). This should be treated as a live document and updated annually.