Guidance for road safety inspections and defect categorisation

1 April 2017

1. Introduction

The Roads (Scotland) Act 1984 under section 1, states that "…a local roads authority shall manage and maintain all such roads in their area as are for the time being entered in a list (in this Act referred to as their "list of public roads") prepared and kept by them under this section."

The 'Well-managed Highway Infrastructure' Code of Practice for Highway Maintenance Management has specific recommendations regarding inspections of all road elements. This guidance document specifically relates to the procedure for the carrying out of safety inspections.

The establishment of an effective regime of safety inspections is a crucial component of road maintenance and this guidance document has been developed in accordance with the Code of Practice, and seeks to apply best practice in terms of risk management and fiscal accountability.

Adoption of the new procedure will enable the Council, where appropriate to develop resilience enabling them to inspect and maintain additional roads assets not contained within their list of public roads, where the Council also has a maintenance responsibility.

The new procedure will provide a consistent methodology for the management of the road network that focuses on delivering a proactive programme of permanent repairs to improve the condition and safety of the road network. It is intended that the implementation of this new procedure will also allow performance to be monitored and reviewed, implementing any necessary improvements identified through its use.

2. Safety inspections

Safety inspections identify defects within the road network, including those that are likely to create a danger or serious inconvenience to road users or the wider community and therefore require immediate or urgent attention.

Safety inspections are normally undertaken by an inspector in a slow moving vehicle. (In heavily used urban areas, particularly when inspecting footways, walked inspections will be required.) It may also be appropriate to inspect cycle routes on a bicycle.

During safety inspections, all observed defects that provide any foreseeable degree of risk to users will be recorded. The degree of deficiency in the road elements will be crucial in determining the nature and speed of response. Judgement will always need to take account of particular circumstances. For example the degree of risk from a pothole depends upon not only its depth but also its surface area and location within the road network.

Items for inspection

The following are examples of the types of defect which when identified should be assessed and an instruction for repair issued with an appropriate response time specified. The list identified below is not exhaustive.

Carriageway

Carriageway defects such as: -

1 Surface defects and other local defects
2 Abrupt level differences in running surface
3 Edge deterioration of the running surface and other local defects
4 Excessive standing water and water discharging onto and or flowing across the road
5 Blocked gullies and obstructed drainage channels or grips which could lead to ponding or flooding
6 Debris and/or spillages
7 Missing cats eyes
8 Missing or damaged covers

Footway, footpath and cycleway

Footway defects such as: -

1 Surface and other local defects
2 Excessive standing water and water discharging onto and or flowing across the foot/cycleway
3 Dangerous rocking paving slabs
4 Large cracks or gaps between paving slabs
5 Missing or damaged covers
6 Debris and or spillages likely to be a hazard

Street furniture defects

1 Damaged safety fencing
2 Damaged parapet
3 Damaged handrail
4 Damaged road structures
5 Damaged boundary fence where animals or children could gain access

Traffic signs

1 Missing, damaged or faded regulatory or warning sign
2 Major sign plate or structural failure
3 Electrically or otherwise unsafe apparatus
4 Damage which may cause a dangerous obstruction to road traffic or other road users

Road lighting

1 Damaged column
2 Exposed, live electrical equipment

Road markings

1 Badly worn Stop, Give Way or double continuous white line

Other safety defects

1 Overhead wires in dangerous condition
2 Sight-lines obstructed by trees and other vegetation,
3 Trees in a dangerous condition
4 Earthslips where debris has encroached or is likely to encroach the road
5 Rocks or rock faces constituting a hazard to road users

3. Frequency of inspection

Based on the "Well-managed Highway Infrastructure" Code of Practice for Highway Maintenance Management, the carriageway and footway hierarchy for inspections and the recommended frequencies for inspections are set out in the following tables.

Table 1 - Carriageway hierarchy
Urban and residential carriageway inspections may be carried out either on foot or from a vehicle, with rural carriageway inspections being carried out from a vehicle.

Carriageway Category	Hierarchy Description	Type of Road General Description	Description
1	Motorway	N/A	N/A
2	Strategic Route	Principal A Roads between Primary Destinations	Routes for fast moving long distance traffic with little frontage access or pedestrian traffic. Speed limits generally in excess of 40mph with few junctions.
3a	Main Distributor	Major Urban Network and Inter-Primary Links. Short to medium distance traffic.	Routes between strategic routes and linking urban centres to the strategic network with limited frontage access. In urban areas speed limits are usually 40mph or less.
3b	Secondary Distributor	Classified Roads (B and C Class) and unclassified urban bus routes carrying local traffic with frontage access and frequent junctions.	In rural areas these roads link the larger villages and HGV generators to the Strategic and Main Distributor Network. In built up areas these roads have 30mph speed limits and high pedestrian activity.
4a	Link Road	Roads linking between the Main and Secondary Distributor Network with frontage access and frequent junctions.	In rural areas these roads link the smaller villages to the distributor roads. They are of varying width and not always suitable of carrying two-way traffic. In urban roads they are residential or industrial inter connecting roads with 30mph speed limit.
4b	Local Access Road	Roads serving limited numbers of properties carrying only access traffic.	In rural areas these roads serve small settlements and provide access to individual properties and land. They are often single lane and unsuitable for HGV. In residential areas they are residential loop roads or cul-de-sacs.

Table 2 - Footway hierarchy

Footway inspections may be carried out either on foot or from a vehicle.

Category	Category Name	Description
1(a)	Prestige Walking Zones	Very busy areas of town centres with high public space and Streetscene contribution.
1	Primary Walking Routes	Busy urban shopping and business areas and main pedestrian routes.
2	Secondary Walking Routes	Medium usage routes through local areas feeding into primary routes, local shopping centres etc.
3	Link Footways / Footpaths	Linking local access footways through urban areas and busy rural footways.
4	Local Access Footways / Footpaths	Footways associated with low usage, short estate roads to the main routes and cul-de-sacs.

Table 3 - Safety inspection frequency

Feature	Description	Category	Frequency
Roads	Strategic Routes Main Distributor Secondary Distributor Link Road Local Access All other locations (Car parks)	2 3(a) 3(b) 4(a) 4(b)	Up to 12 per annum (Min10) Up to 12 per annum (Min10) Up to 12 pa (Min 10) 4 per annum Annually Annually
Footways	Prestige Walking Zones Primary Walking Routes Secondary Walking Routes Link Footway Local Access Footways	1(a) 1 2 3 4	Up to 12 per annum (Min10) Up to 12 per annum (Min10) 4 per annum 2 per annum Annually
Cycle Route	Part of Carriageway Remote from Carriageway Cycle Trails		As per associated road Twice per year (1 per year)

Additional inspections may be necessary in response to user or community concerns, as a result of incidents or extreme weather conditions, or in the light of monitoring information.

It must be highlighted that other factors may preclude some inspections being carried out on road hierarchy category 2, 3(a), 3(b) and footway category 1(a) and 1. In such cases the target of 1 per month will reduce to a minimum of 10 per year. The frequency of inspections contained within Table 3 represents the minimum requirements to be adopted, with authorities applying a risk based approach to when each inspection is programmed to be undertaken.

4. Intervention levels and response categories for defects

Defect risk assessment

Inspectors undertaking safety inspections or responding to reported incidents require to use judgement in determining response times to observed or reported defects. The Well-managed Highways Infrastructure Code of Practice recommends that roads authorities adopt a system of defect risk assessment for determining the response times to road defects.

The risks identified through this process have to be evaluated in terms of their significance. This means assessing the likely impact should the risk occur and the probability of it actually happening. The impact is quantified by assessing the extent of damage likely to be caused should the risk become an incident. As the impact is likely to increase with increasing speeds, the volume of traffic and category of road are important considerations in the assessment. The probability is quantified by assessing the likelihood of users passing by or over the defect, encountering the risk. As the probability is likely to increase with increasing vehicular or pedestrian flow, the network hierarchy and defect location are consequently important considerations in the assessment.

When deciding upon the appropriate defect response category, Inspectors must therefore take account of many factors which together contribute to the risk that a defect presents. Response times for which a defect should be repaired or made safe will depend upon: -

1. The depth, surface area or other extent of the defect.
2. The volume, characteristics and speed of traffic.
3. The location of the defect relative to road features such as junctions and bends.
4. The location of the defect relative to the positioning of users, especially vulnerable users, such as in traffic lanes or wheel tracks.
5. The nature and extent of interaction with other defects.
6. Forecast weather conditions, especially potential for freezing of surface water.

All defects identified therefore require to be evaluated in terms of their risk. This means assessing the likelihood of an incident occurring because of the defect and assessing the likely severity of any incident, should it occur. This is a subjective judgement based upon all of the factors above and the experience and local knowledge of the relevant Inspector.

Response categories

Category 1: Represent a high risk to road users and **should be corrected or made safe at the time of inspection, if reasonably practicable.** In this context, making safe may constitute displaying warning signs or/and coning off to protect the public from the defect. If it is not possible to correct or make safe the defect at the time of inspection, **emergency repairs to make safe should be carried out within 4 hours.** Where practicable, safety defects of this category should not be left unattended until a temporary or permanent repair has been carried out.

Category 1 defects will typically include:-

- Major debris or spillage
- Critically unstable wires, trees or structures
- Exposed live electrical wiring
- Carriageway collapse or comparable severe surface defect with very high probability of loss of control
- Isolated standing water of a depth and location with very high probability of loss of control
- Missing or seriously defective ironwork with very high probability of injury to user
- Footway or cycleway collapse or comparable severe surface defect with very high probability of injury to user.

Category 2: **Repair within 7 working days.** This allows a more proactive approach to be adopted for those defects that represent a medium risk to road users or because there is a risk of short-term structural deterioration.

Category 2 defects will typically include:-

- Rapid deterioration in unstable wires, trees and structures
- Seriously damaged or defective traffic signals
- Missing or obscured or 'red light out' traffic signals
- Missing Stop or Give Way markings
- Missing Stop or Give Way signs
- Missing or seriously defective ironwork
- Missing or seriously damaged safety or pedestrian fencing
- Pothole, trench or other abrupt carriageway level difference exceeding 50 mm in all road categories of a size and location likely to cause loss of control
- Ironwork – covers, gratings, frames and boxes located in cycleways or footways more than 25 mm lower than the surrounding surface.
- Edge deterioration with abrupt level difference at carriageway edge exceeding 150 mm in all road categories of a size and location likely to cause loss of control
- Pothole, trench or other abrupt level difference exceeding 25 mm in cycleway categories A and B of a size and location likely to cause injury to users
- Trip or other abrupt level difference in footway or kerb exceeding 25 mm in all footway categories, of a size and location likely to cause injury to users, but excluding such level differences between adjoining kerbs.
- Gap wider and deeper than 25 mm in all footway categories of a size and location likely to cause injury to users

Target response timescales

It may not be possible, particularly at certain times of year, to meet target response times, due to pressure on resources. This could, but not exclusively, be due to the high number of defects that can arise in a short period of time after periods of adverse weather, such as prolonged spells of heavy rain or snow, or freeze / thaw conditions. Prolonged periods of adverse weather may also prevent remedial measures being carried out.

Record keeping

Records of all safety inspections and works instructions issued following inspections shall be documented within an electronic Routine Maintenance Management System where possible.

Non-safety defects

It should be noted that the Council can elect to undertake repairs on a preventative basis to lower risk defects which would not fall under response category 1 and 2 above.

Such repairs are outwith the scope of safety inspection procedures and go beyond stated service levels. Accordingly, the Council is not obliged to identify or undertake any such repairs and holds no liability therein. Any such repairs undertaken are carried out entirely on the basis of resource availability.

5. Defects that are not the responsibility of the Council

5.1 During an inspection, defects may be identified which are not the responsibility of the Council to repair. The Council does however have a duty of care to the users of the road. Therefore the defect must be recorded and the party responsible for the repair must be made aware of the defect. If the defect is identified as a Category 1 defect, it should be made safe either by signing and coning or by a temporary repair.

Statutory undertakers' defective apparatus

5.2 Where defective apparatus belonging to undertakers is identified, the defect must be recorded and the utility contacted in accordance with the New Roads and Street Works Act 1991 – Code of Practice for Inspections. The initial procedure is summarised in Figure 1 below.

Defects that are the responsibility of other Third Parties

5.3 Where the defect is the responsibility of another party who is not a Statutory Undertaker, for example an adjacent landowner, the defect should be recorded and the landowner contacted with a request to carry out the necessary remedial works within an appropriate period of time. A number of scenarios may arise from an inspection, which are covered by provisions contained within the Roads (Scotland) Act 1984, for which it may be appropriate to inform the party responsible for the defect / hazard of their responsibilities under the Act.

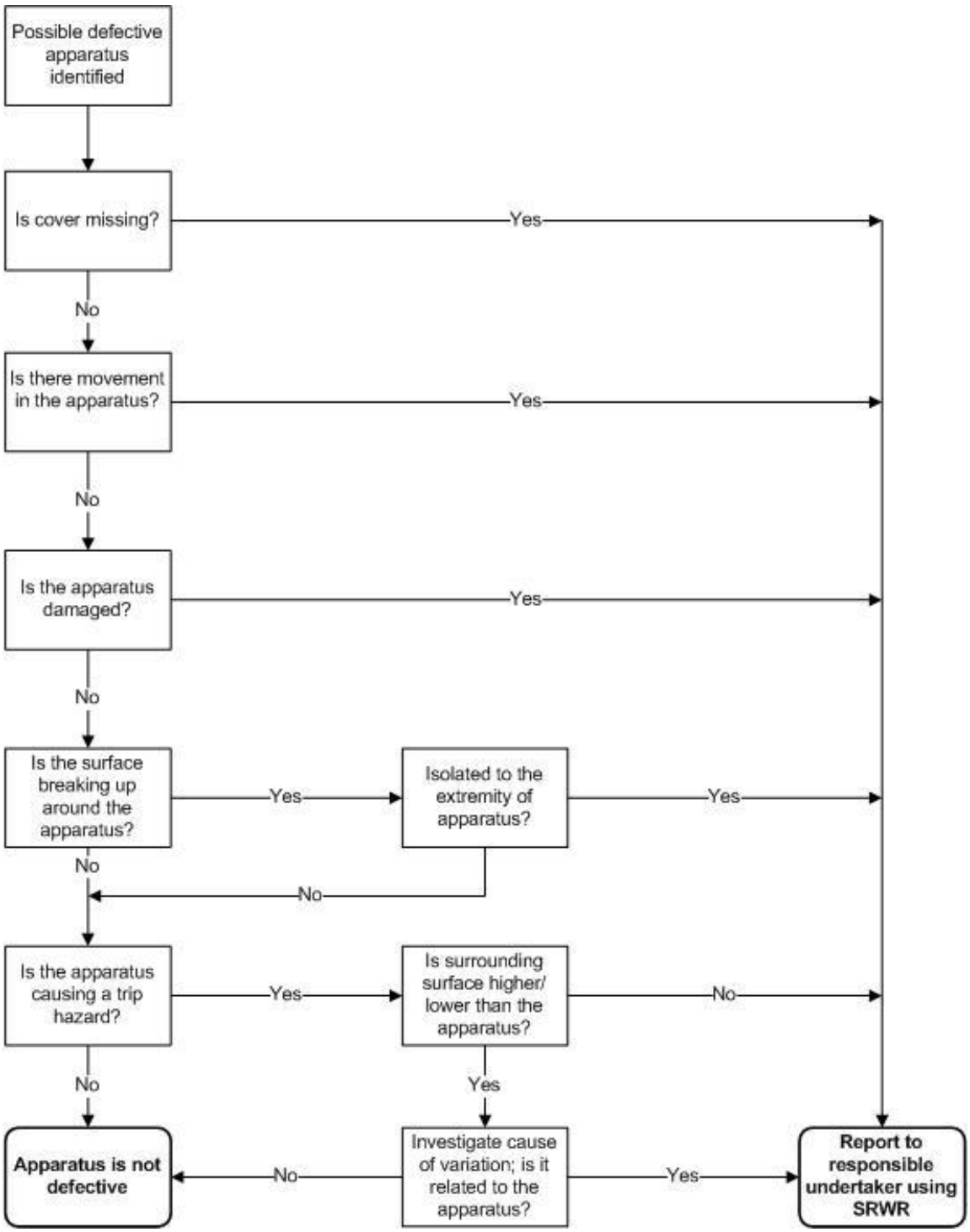
5.4 Some selected examples of the above are;

a. Prevention of danger to road users from nearby vegetation and fences etc. or from retaining walls being inadequate (Section 91)
b. Deposit of mud from vehicles on road (Section 95)
c. Control of flow of water etc. onto roads (Section 99)

5.5 A number of these provisions within the Act allow the Roads Authority to carry out remedial works to address the defect/hazard either immediately or after a suitable period of notice, and further may give powers to recover any expenses reasonably incurred in doing so.

5.6 Any decision to undertake such remedial work should not be done without the agreement of a suitably responsible person. In the first instance the preferred option is to have constructive discussion with the responsible party, in order to resolve the issue.

Figure 1: Initial procedure for defective apparatus



6. Health and safety

General

6.1 In general road inspections are carried out from a slow moving vehicle or on foot. However, it would seem logical that cycle routes be inspected by bicycle, or on foot. The vehicle should be driven at an appropriate speed to allow any defects to identified and recorded.

Health and safety

6.2 Inspections are to be conducted in accordance with the Council's procedures for the health, safety and welfare of its employees and others.

As a minimum:

a. All staff engaged in inspections must wear high visibility clothing to BS EN 471 class 3.
b. All vehicles used to carry out inspections shall be liveried up to an appropriate standard and all necessary vehicles checks shall be carried out prior to inspections being undertaken.

6.3 All surveys should make use of two-way communications (i.e. radio or mobile telephone). Driven safety inspections on Strategic, Main Distributor and Secondary Distributor roads should be undertaken by two people ***Note:*** The Council's Lone Working Procedures should be followed when an inspector is undertaking a safety inspection on his/her own.

6.4 Should it be necessary to stop the vehicle it shall be parked off the live carriageway wherever possible. If this cannot be achieved then there must be clear visibility in both directions and the roof mounted beacon must be switched on. Traffic must not be forced across any continuous solid white centre line. If this cannot be achieved, advanced temporary traffic signing must be installed

Making safe

6.5 If a defect is considered to be a serious hazard to road users, full traffic management should be called for and the safety inspection vehicle should remain at the hazard until it is in place.

Equipment

6.6 All inspection vehicles should carry a minimum of six 750mm traffic cones. The cones should be kept clean and should be inspected quarterly and replaced as necessary. A record of these inspections must be kept within the vehicle.

6.7 In addition to any other equipment they consider necessary, Inspectors should also carry a digital camera to record defects and, if available, a GPS enabled system to accurately record the location of defects.

Documents

6.8 The safety inspection team should also carry a copy of:

a. this guidance document;
b. New Roads and Street Works Act 1991 – Code of Practice for Inspections;
c. "Safety at Street Works and Road Works, A Code of Practice".

Further information and equalities statement
For more information please phone 0303 123 1015.
If you want this information in a different format or language, phone 0303 123 1015 or email equalities@southlanarkshire.gov.uk.