CITY OF EDINBURGH COUNCIL

OPERATIONAL GUIDE

ROAD SAFETY INSPECTIONS AND DEFECT CATEGORISATION PROCEDURE

PROCEDURE FOR ROAD SAFETY INSPECTIONS AND DEFECT CATEGORISATION

CONTENTS

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-maintained Highways' 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, recognising areas of best practice from each of the participating Councils.

The guidance is based on a document developed by a partnership of Roads Authorities including Argyll & Bute, Dumfries and Galloway, East Ayrshire, East Dunbartonshire, East Renfrewshire, Glasgow City, Inverclyde, North Ayrshire, Renfrewshire, South Ayrshire, South Lanarkshire and West Dunbartonshire Councils as part of a collaborative group known as the "Roads Working Group". It is also being presented to the Society of Chief Officers of Transportation in Scotland group with a view to wider adoption throughout Scottish Roads Authorities.

Adoption of the new procedure will enable Councils, 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 and compared, leading to implementation of any necessary improvements identified through its use.

The consistent approach will also assist Councils when defending any public liability claims that may be intimated against them.

As part of continuous improvements Transport Services may introduce new initiatives which involve a change to the defined business processes, procedures and working practices. During the testing phase of such initiatives Transport Services reserve the right to implement operational procedures which differ from those detailed in the operational guide.

2. ROAD INSPECTIONS

In Edinburgh, there are two types of Road Inspections; Mobile Inspections and Safety Inspections. Road 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.

Mobile Inspections should normally be undertaken by two members of Transport staff in a slow moving vehicle and cover the Strategic and Main Distributor Carriageway Routes. These Mobile Inspections shall normally follow a pre-determined route although deviations may occur based on the road conditions, live operations or other issues.

Safety inspections should normally be undertaken as walked inspections and cover all roads and footways where the safety of the Officer can be maintained. It may also be appropriate to inspect cycle routes on a bicycle.

During road 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: -

- Surface defects and other local defects
- Abrupt level differences in running surface
- Edge deterioration of the running surface and other local defects
- Excessive standing water and water discharging onto and/or flowing across the road
- Blocked gullies and obstructed drainage channels or grips, which could lead to ponding or flooding
- Debris and/or spillages
- Missing cats eyes or carriageway studs
- Missing or damaged apparatus

Footway, footpath & cycleway

Footway defects such as: -

- Surface and other local defects
- Excessive standing water and water discharging onto and or flowing across the foot/cycleway
- Dangerous rocking paving slabs and kerbs
- Large cracks or gaps between paving slabs and kerbs
- Missing or damaged apparatus

- Debris and/or spillages likely to be a hazard

Street Furniture Defects

- Damaged safety fencing
- Damaged parapet
- Damaged handrail
- Damaged road structures such as bollards

Traffic Signs and Signals

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

Road Lighting

- Damaged or faulty lighting units
- Exposed, live electrical equipment

Road Markings

- Badly worn, cracked, missing or obsolete road markings

Other Safety Defects

- Sight-lines obstructed by trees and other vegetation
- Trees in a dangerous condition
- Where debris has encroached or is likely to encroach the road
- Rocks or rock faces constituting a hazard to road users
- Structures and apparatus that are privately maintained such as cross-footway ducts

3. FREQUENCY OF INSPECTION

Based on the "Well-maintained Highways" Code of Practice for Highway Maintenance Management, the carriageway and footway hierarchy for inspections are set out in Tables 1 and 2. The recommended frequencies for inspections are set out in Tables 3 and 4.

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
M	Motorway	N/A	N/A
A	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.
A	Main Distributor	Major Urban Network & 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.
B	Secondary Distributor	Classified Roads (B & 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.
C	Link Road	Roads linking between the Main & 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 for carrying two-way traffic. In urban roads they are residential or industrial inter connecting roads with 30mph speed limit.
U	General 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 will be carried out by foot.

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

Table 3 - Mobile Inspection Frequency

Feature	Description	Category	Frequency
Roads	Strategic Routes Main Distributor	A A	Fortnightly (min. monthly) Fortnightly (min. monthly)

Table 4 - Safety Inspection Frequency

Feature	Description	Category	Frequency
Roads	Strategic Routes Main Distributor Secondary Distributor Link Road Local Access	A A B C U	Annually Annually Annually Annually Annually (all routes should be inspected within a 18 month period)
Footways	Prestige Walking Zones Primary Walking Routes Secondary Walking Routes Link Footway Local Access Footways	Ultra-High High Medium Low Low	Fortnightly (Monthly) Monthly (Bi-Monthly) 12-18 Months 12-18 Months 12-18 Months

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 is accepted that other factors may preclude some inspections being carried out on road hierarchy category A, B, C and footway category Ultra-High and High at the suggested frequency.

4. INTERVENTION LEVELS AND RESPONSE TIMES FOR DEFECTS

Defect Risk Assessment

Officers undertaking roads inspections or responding to reported incidents will use judgement in determining the severity of observed or reported defects in order to categorise them such that they receive an appropriately timely response. The Well Maintained Highways Code of Practice recommends that roads authorities adopt a system of defect risk assessment for determining the response times to road defects.

To ensure the Council complies with its duty in terms of the Equalities Act (2010), provision for people with protected characteristics should be made and taken into account in determining the repair category. For example, defects outside a care home may be considered to be of a greater impact and may be categorised accordingly.

The risks identified through this process have to be evaluated in terms of their significance. This means assessing the likely impact of the assessed defect and the probability of an incident. The impact is quantified by assessing the extent of damage likely to be caused should the risk be realised. 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 therefore likely to increase with increasing vehicular or pedestrian flow, the network hierarchy and defect location are consequently important considerations in the assessment.

The risk based approach to defect categorisation provided within this document therefore gives consideration to, but is not defined by, the hierarchy of the road on which a defect presents itself. Response times for which a defect should be repaired or made safe will depend upon: -

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

All defects identified therefore require to be evaluated in terms of their significance. This means assessing the likely impact, should the risk be realised, and the probability of it actually happening. Having identified a particular risk, the Risk Matrix below will be used as the principle to determine the defect category and response time.

Probability of Incident → Impact ↓	Very Low (1)	Low (2)	Medium (3)	High (4)
Negligible (1)	1	2	3	4
Low (2)	2	4	6	8
Noticeable (3)	3	6	9	12
High (4)	4	8	12	16

Suggested Response Category	Cat 4 (12 Months)	Cat 3 (28 Days)	Cat 2 (5 Days)	Cat 1 (24 Hours)
Risk Value	(1 - 4)	(6 – 8)	(9 – 12)	(16)

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 24 hours.** Where practicable, safety defects of this category should not be left unattended until it has been made safe.

Category 2: **Repair within 5 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 3: **Repair within 28 working days.** Defects that require attention because they represent a low risk to road users. This allows defects of this nature to be included onto longer planned programmes of work. Defects in category 3 are not classed as safety defects and should be dealt with as part of a programme of planned remedial work

Category 4: **Aim to repair within 1 year, subject to monitoring and review of condition** based on an assessment of the risk of deterioration at next inspection. Defects in category 4 are not classed as safety defects and should be dealt with as part of a programme of planned remedial work

It may not be possible, particularly at certain times of year, to meet target response time, 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.

Records of all roads inspections and works instructions issued following inspections shall be documented within Confirm, the Council's Works and Asset Management System.

5. DEFECTS 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 & 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 also be recorded. The landowner should then be 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.

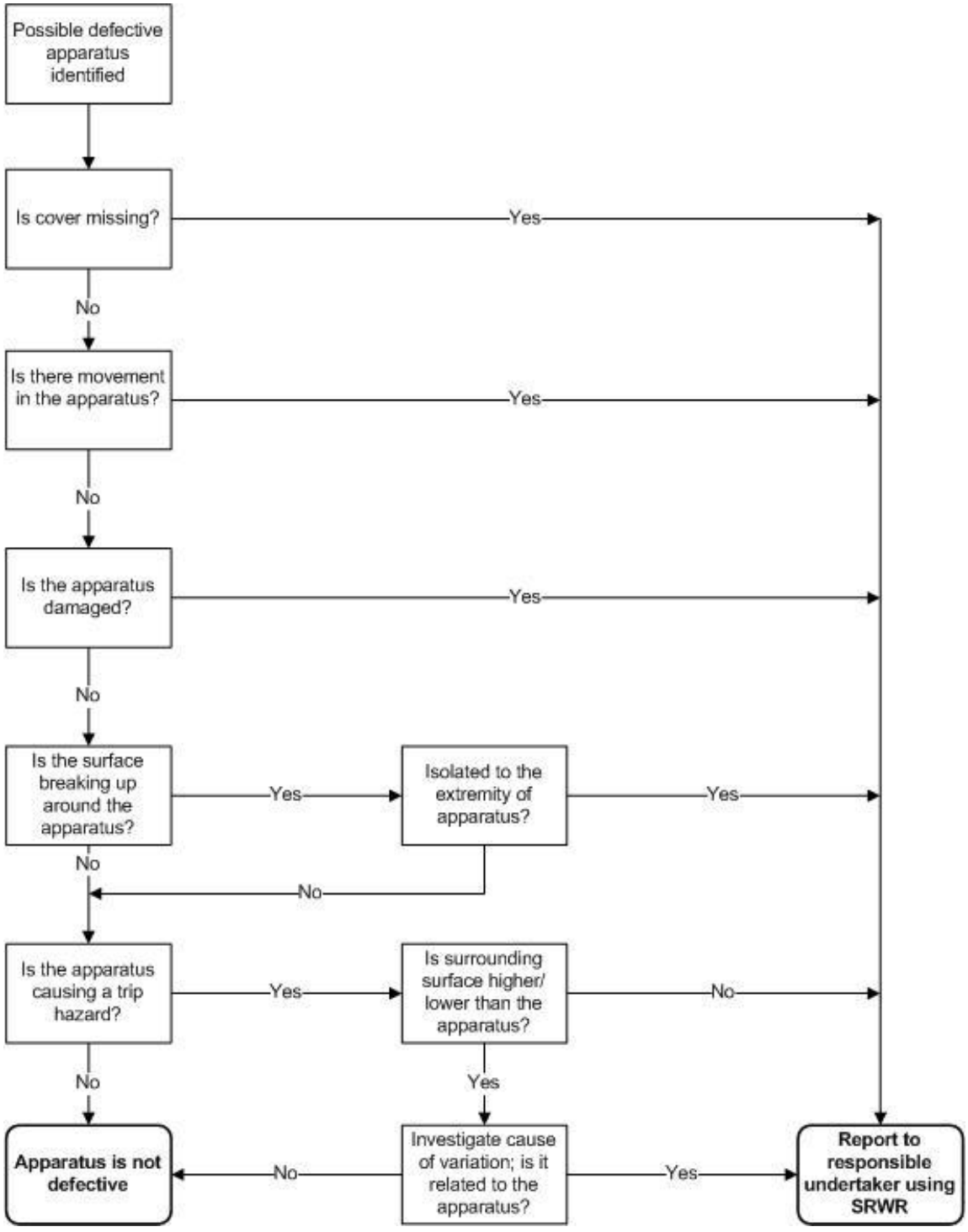
5.4 Some selected examples of the above are;

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 Prior to undertaking such remedial work, the preferred option is to have constructive discussion, in the first instance, with the responsible party.

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. The vehicle should be driven at an appropriate speed to allow any defects to be identified and recorded. Cycle routes may be inspected by bicycle.

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 safety inspections must wear high visibility clothing to BS EN 471 class 3.
b. All vehicles used to carry out mobile 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 Mobile Inspections should be undertaken by two people. The Council's Lone Working Procedures should be followed when an officer is undertaking other inspections on their own.

6.4 Should it be necessary to stop the vehicle for more detailed investigation, it should 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 installed. If this is not practicable, 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 All inspecting staff should carry material for safely and clearly marking identified defects.

6.8 In addition to any other equipment they consider necessary, Officers should record all defects on the Confirm system.

Documents

6.9 Any roads inspection staff should also carry a copy of:

a. this guidance document;
b. “Safety at Street Works and Road Works, A Code of Practice”.

APPENDIX A:
DEFECT AND PRIORITY TABLES

Defect and Priority Table 1: Carriageway Defects					
		Response Category			
		Probability			
Description	Investigatory Level	Very Low	Low	Medium	High
Surface Defect	<40mm	4	4	3	3
	>40mm < 100mm	4	3	2	2
	>100mm	4	3	2	1
CW Defect in cycle lane	>25mm <50mm	4	3	2	2
	>50mm	4	3	2	1
Failed patch or defective trench	Yes	4	4	3	3
Missing or severely damaged ironwork	Yes	4	3	2	1
Badly cracked or damaged ironwork	Yes	4	4	3	3
Cracking around ironwork frame	Yes	4	4	3	3
Crowning/ Depression	>40mm level difference	4	3	2	2
Rutting	>20mm	4	4	3	3
Missing / defective skid resistant surfacing	Yes	4	4	3	3
Debris/ Spillage	Yes	4	3	2	1
Obstruction (signage/trees/tree roots/bushes/hedges/sightlines etc.)	Potential danger to pedestrian or road user	4	3	3	2
Edge Deterioration	>40mm <100mm	4	3	2	2
	>100mm	4	3	2	1
Displaced metal stud/cats eyes	Yes	4	3	2	1
Missing studs/ reflectors	<20% missing	4	4	4	4
	>20% missing	4	4	3	3
Missing or worn lines/ markings	Stop/Give Way	4	3	2	2
	Double white line	4	3	2	2
	Other	4	4	4	4

Defect and Priority Table 2: Other Paved Area Defects (Shared Surfaces/Footway/Path, Cycleway/Path and Car Park Defects)					
		Response Category			
		Probability			
Description	Investigatory Level	Very Low	Low	Medium	High
Surface Defect	>25mm <50mm	4	3	2	2
	>50mm	4	3	2	1
Failed patch or defective trench	Failed	4	4	3	3
Missing or severely damaged ironwork	Yes	4	3	2	1
Badly cracked or damaged ironwork	Yes	4	3	2	2
Cracking around ironwork frame	Yes	4	4	4	4
Crack, gap or trip	>10mm <25mm	4	4	3	3
	>25mm trip	4	3	2	1
Rocking slabs	>10mm <25mm vertical movement	4	4	3	3
	>25mm vertical movement	4	3	2	1
Loose, missing or damaged kerbs	Yes	4	4	2	2
Dislodged kerb	50mm horizontally, 25mm vertically	4	4	2	2
Crowning/ Depression	>25mm <50mm	4	4	3	3
	>50mm	4	3	2	1
Safety fence/ barrier or guardrail damaged or loose	Potential danger to pedestrian or other road user	4	3	2	1
	Other	4	3	2	1
Debris/ Spillage	Potential danger to pedestrian	4	3	2	1
	Unauthorised obstruction	4	4	3	3
Obstruction (signage/trees/roots/bushes/hedges/sightlines etc.)	Potential danger to pedestrian or road user	4	4	3	2

Defect and Priority Table 3: Signs and Signals Defects

Description	Investigatory Level	Response Category			
		Probability			
		Very Low	Low	Medium	High
Lighting obscured by vegetation	Yes	4	4	3	3
Unauthorised sign	Potential danger to pedestrian or road user	4	4	3	3
	Other	4	4	4	4
Missing/ damaged sign face	Regulatory/ Warning signs	4	3	2	2
	Other Signs	4	4	4	4
Obscured or dirty sign	Regulatory/ Warning signs	4	3	2	2
	Other Signs	4	4	4	4

Defect and Priority Table 4: Drainage Defects & Standing/ Running Water

Description	Investigatory Level	Response Category			
		Probability			
		Very Low	Low	Medium	High
Blocked drain, gully or grip	Potential danger to pedestrian or road user	4	3	2	2
Missing gully brander	Yes	4	3	2	1
Broken gully frame/ cover	Potential danger to pedestrian or road user	4	3	2	1
Water discharging onto road	Potential danger to pedestrian or road user or flooding to property	4	3	2	1

	Primary salting route in winter	4	3	2	2

Defect and Priority Table 5: Utility Defects					
Description	**Investigatory Level**	**Response Category**			
		Probability			
		Very Low	**Low**	**Medium**	**High**
Signing/ guarding	Not to code of Practice requirements	4	3	2	1
Reinstatement	Not to code of Practice requirements	4	3	2	1
Utility ironwork	Missing	4	3	2	1
	Badly cracked or damaged	4	3	2	2
	Cracking round frame	4	4	3	3
Other utility defect	Potential danger to pedestrian or road user	4	3	2	1