Argyll and Bute Council

PROCEDURE FOR ROAD SAFETY INSPECTIONS AND DEFECT CATEGORISATION

Effective from 1 April 2016

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1. INTRODUCTION

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

The "Well-maintained Highways" the Code of Practice for Highway Maintenance Management has specific recommendations regarding inspections of all road elements. This procedure specifically relates to safety inspections.

The establishment of an effective regime of safety inspections is a crucial component of road maintenance.

This guidance document has been developed in collaboration with the Roads Authorities of Argyll & Bute, Dumfries and Galloway, East Ayrshire, East Dunbartonshire, East Renfrewshire, Glasgow City Inverclyde, North Ayrshire, North Lanarkshire, Renfrewshire South Ayrshire, South Lanarkshire and West Dunbartonshire Councils.

The Roads Working Group comprising of Senior Officers from the above Councils identified that as Local Authorities are currently faced with delivering services within an environment of increasing fiscal austerity, the need to agree a common approach and minimum standard following the principles of the Well Maintained Highways Code of Practice.

This will also assist relevant Councils to attribute resources to inspect and maintain additional roads assets not contained within their list of Public Roads.

This approach was adopted to provide a consistent methodology to the management of the road network that will focus 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 policy/procedure will also allow performance to be monitored and reviewed, implementing any necessary improvements recognised through its use.

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

2. SAFETY INSPECTIONS

Safety inspections identify those defects likely to create a danger or serious inconvenience to users of the road network or the wider community, and therefore requiring 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.

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 Potholes
2 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 & cycleway

Footway defects such as: -

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

Street Furniture Defects

1 Damaged safety fencing
2 Damaged parapet
3 Damaged handrail
4 Damaged road structures
5 Damaged street furniture
6 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 Landslips 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-maintained Highways" the 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 & 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 & 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 & 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 Street scene 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	2	Up to 12 pa (Min 10)
	Main Distributor	3(a)	Up to 12 pa (Min 10)
	Secondary Distributor	3(b)	Up to 12 pa (Min 10)
	Link Road	4(a)	4 pa
	Local Access	4(b)	Annually
	All other locations (Carparks)		Annually
Footways	Prestige Walking Zones	1(a)	Up to 12 pa (Min 10)
	Primary Walking Routes	1	Up to 12 pa (Min 10)
	Secondary Walking Routes	2	4 pa
	Link Footway	3	2 pa
	Local Access Footways	4	Annually

Cycle Route	Part of Carriageway Remote from Carriageway Cycle Trails		As for 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 is accepted by Argyll and Bute Council 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, as a result of other influencing factors, in this case the target of 1 per month will reduce to a minimum of 10 per year.

4. INTERVENTION LEVELS AND RESPONSE TIMES FOR DEFECTS

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, 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 36 hours. Where practicable, safety defects of this category should not be left unattended until a temporary or permanent repair has been carried.

Category 2: Repair within 7 Calendar Days allowing 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 30 working days. Those defects that require attention because they represent a low risk to road users allowing defects of this nature to be included onto longer planned programmes of work.

Category 4: Monitor and Review condition based on an assessment of the risk of deterioration at next inspection.

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 Maintained Highways Code of Practice recommends that roads authorities adopted 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, which 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.

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.
   Depth or
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 significance. That means assessing the likely impact should the risk occur and the probability of it actually happening. Having identified a particular risk, the Risk Matrix below will be used to determine the defect category and response time.

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

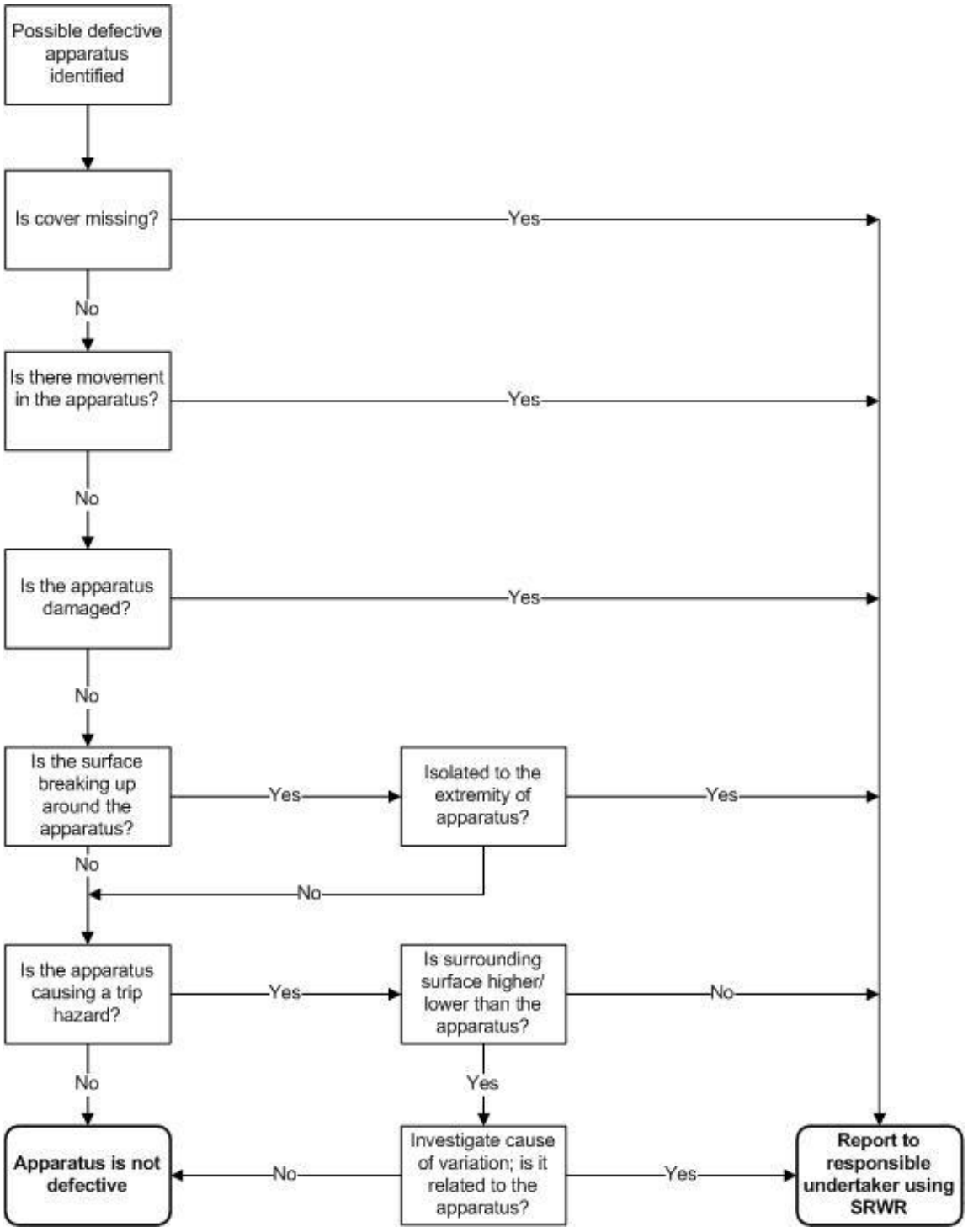
High (4)	**4**	**8**	**12**	**16**

Response Category	**Cat 4 (Monitor)**	**Cat 3 (30 Days)**	**Cat 2 (7 Days)**	**Cat 1 (4 Hours)**
Risk Value	**(1 - 4)**	**(6 – 8)**	**(9 – 12)**	**(16)**

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.

Records of all safety inspections and works instructions issued following inspections shall be recorded within a Routine Maintenance Management System.

Figure 1: Initial Procedure for Defective Apparatus



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 & 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, and in the first instance constructive discussion with the responsible party, in order to resolve the issue, is the preferred option.

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 cycle. 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. Inspector to wear appropriate PPE (Hi-Vis tabard/jacket and trousers as a minimum).
b. All vehicles used to carry out inspections should have double beacons and be appropriately marked – Inspector and Driver to wear Hi-Vis PPE.

6.3 All surveys should make use of two-way communications (i.e. radio or mobile telephone). Driven safety inspections 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 guide;
b. New Roads & Street Works Act 1991 – Code of Practice for Inspections;
c. “Safety at Street Works and Road Works, A Code of Practice”.

APPENDIX A:
DEFECT AND PRIORITY TABLES

Description	Investigatory Level	Defect Category			
		Very Low	Low	Medium	High
Carriageway Defects					
Pothole	<40mm	4	4	3	3
	>40mm < 100mm	4	3	2	2
	>100mm	4	3	2	1
Failed patch or defective trench	Yes	4	4	3	3
Missing ironwork cover	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
Edge Deterioration	>40mm <100mm	4	3	2	2
	>100mm	4	3	2	1
Displaced metal stud	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 1: Carriageway Defects					

Description	Investigatory Level	Defect Category			
		Very Low	Low	Medium	High
Kerb Defects					
Loose, missing or damaged kerbs	Yes	4	3	2	2
Dislodged kerb	50mm horizontally, 25mm vertically	4	3	2	2

Defect and Priority Table 2: Kerb Defects

Description	Investigatory Level	Defect Category			
		Very Low	Low	Medium	High
Shared Surfaces/Footway/Path, Cycleway/Path and Car Park Defects					
Pothole	>25mm <50mm	4	3	2	2
	>50mm	4	3	2	1
Failed patch or defective trench	Failed	4	4	3	3
Missing ironwork cover	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
Crowning/ Depression	>25mm <50mm	4	4	3	3
	>50mm	4	3	2	1
Debris/ Spillage	Danger to pedestrian	4	3	2	1
	Unauthorised obstruction	4	4	3	3

Defect and Priority Table 3: Other Paved Area Defects

Description	Investigatory Level	Defect Category			
		Very Low	Low	Medium	High
Debris/ Spillage (and Obstructions)					
Litter problem	Danger to pedestrian or road user	4	3	2	2
Fly tipping	Danger to pedestrian or road user	4	4	3	3
Other debris/ spillage	Danger to pedestrian or road user	4	4	3	3
Obstruction (signage/trees/bushes/hedges etc.)	Danger to pedestrian or road user	4	3	3	2

Defect and Priority Table 4: Debris/ Spillage (and Obstructions)

Description	Investigatory Level	Defect Category			
		Very Low	Low	Medium	High
Signs, Signals and Lighting Defects					
Light(s) out	>3 Lights out	4	3	2	1
	<3 Lights out	4	4	4	4
Damaged signal or light fitting or damaged column	Likely to fall	4	3	2	1
	Not dangerous	4	4	4	4
Exposed wires	Yes	4	3	2	1
Missing/ loose cover	Yes	4	3	2	1
Lighting obscured by vegetation	Yes	4	4	3	3
Unauthorised sign	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 5: Signs, Signals and Lighting Defects

Description	Investigatory Level	Defect Category			
		Very Low	Low	Medium	High
Safety Fence/ Barrier Defect					
Safety fence/ barrier or guardrail damaged or loose	Immediate danger to pedestrian or other road user	4	3	2	1
	Other	4	4	4	4

Defect and Priority Table 6: Safety Fence/ Barrier Defect

Description	Investigatory Level	Defect Category			
		Very Low	Low	Medium	High
Tree/ Hedge Defects					
Loose branch	Immediate hazard	4	3	2	1
	Unlikely to fall onto road	4	4	4	4
Overhanging branch	Yes	4	4	4	3
Sight-lines obscured	Yes	4	3	2	2
Other tree/ hedge defect	Danger to pedestrian or road user	4	3	2	2
	Other	4	4	3	3

	Defect and Priority Table 7: Tree/ Hedge Defects					
Description		Investigatory Level	Defect Category			
			Very Low	Low	Medium	High
	Drainage Defects & Standing/ Running Water					
Blocked drain, gully or grip		Danger to pedestrian or road user	4	3	2	2
		Other	4	4	4	4
Missing gully frame		Yes	4	3	2	1
Broken gully frame/ cover		Danger to pedestrian or road user	4	3	2	1
		Other	4	4	3	3
Water discharging onto road or Trash screen/ grid blocked		Danger to pedestrian or road user or flooding to property	4	3	2	1
		Primary salting route in winter	4	3	2	2
		Other	4	4	4	4

	Defect and Priority Table 8: Drainage Defects & Standing/ Running Water					
Description		Investigatory Level	Defect Category			
			Very Low	Low	Medium	High
	Structures Defects					
Parapet damaged		Yes	4	3	2	2
Bridge defect - other		Danger to pedestrian or road user	4	3	2	1
		Other	4	4	3	3
Retaining wall problem		Yes	4	3	2	2
Earthworks/ embankment defect		Yes	4	3	2	2

	Defect and Priority Table 9: Structures Defects					
Description		Investigatory Level	Defect Category			
			Very Low	Low	Medium	High
	Utility Defects					
Signing/ guarding		Not to code of Practice requirements	4	3	2	1
Reinstatement		Not to code of Practice requirements	4	3	2	1
Overhead wires, poles etc. in poor condition		Yes	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		Danger to pedestrian or road user	4	3	2	1
		Other	4	4	3	3
	Defect and Priority Table 10: Utility Defects					

APPENDIX B:
Carrying out Safety Inspections

1. Inspector notifies the Local Area Team of Schedule and Dates of when Inspections are to be carried out – This Exchange of information takes place at the Regular Program Meeting.

2. Inspector accesses WDM and issues the scheduled Inspection to the Panasonic Toughbook using the installed Vic II OR Vic III software.

3. Inspector opens Inspection on the Toughbook – Inputs required data (Inspector Details, Weather, Driver Details etc.) - selects GPS mode for recording faults / defects and is ready to commence with the Inspection.

4. Method of Inspection

   Rank – Category of Road
   1 Strategic Roads / Bi Monthly Inspections - 2 Men & Vehicle – Driven
   2 Main Distributors / Quarterly Inspections - 2 Men & Vehicle – Driven
   2a Main Distributors / Urban Quarterly - 2 Men & Vehicle – Driven - Footways / Walked
   3 Minor Roads / Annually - 2 Men & Vehicle – Driven
   3a Minor Roads (Urban) / Annually - 2 Men & Vehicle – Driven

5. Vehicle should have double beacons and be appropriately marked – Inspector and Driver to wear Hi-Vis PPE.

6. Inspector or the Toughbook Operator identifies the defect or fault – Plots, Categorises and Logs Details including accurate estimates / measures for the required works.

7. Inspector Photographs defects from a middle view aspect (one that may show some geographical aspect as well as detail of the fault / defect) using the Toughbook's built in camera. The Photographs will then automatically be embedded / attached to the Works Instruction for the recorded defect.

8. When Inspection Route is completed Inspector returns to office and uploads to Inspection and recorded faults to WDM.

9. Each fault / Defect requires data input regards required start dates and the Bill of Quantities.

10. Minor Works Risk assessment to be compiled – 1 Document can cover multiple works Instructions or Job Tickets (Those that can be readily grouped – The Same Task on the same route). The Document must list the works instruction numbers to which it refers.

11. Works Instructions and the relevant Minor Works Risk Assessments are then issued to the Superintendent in person, via depot printers or at the regular program meetings. (Dependent on the Category of Defects and the timescale for action / repair).

APPENDIX B:
Carrying out Footway Inspections

1. Inspector notifies the Local Area Team of Schedule and Dates of when Inspections are to be carried out – This Exchange of information takes place at the Regular Program Meeting.

2. Inspector accesses WDM and issues the scheduled Inspection to the Panasonic Toughbook using the installed Vic II OR Vic III software.

3. Inspector opens Inspection on the Toughbook – Inputs required data (Inspector Details, Weather etc.) - selects GPS mode for recording faults / defects and is ready to commence with the Inspection.

4. Method of Inspection

Rank	– Category of Footway	
1(a)	Prestige Walking Zones	1 man – walked
1	Primary Walking Routes	1 man - walked
2	Secondary Walking Routes	1 man - walked
3	Link Footway	1 man - walked
4	Local Access Footways	1 man - walked

5. Inspector to wear appropriate PPE (Hi-Vis tabard/jacket and trousers as a minimum).

6. Inspector identifies the defect or fault – Plots, Categorises and Logs Details including accurate estimates / measures for the required works.

7. Inspector Photographs defects from a middle view aspect (one that may show some geographical aspect as well as detail of the fault / defect) using the Toughbook's built in camera. The Photographs will then automatically be embedded / attached to the Works Instruction for the recorded defect.

8. When Inspection Route is completed Inspector returns to office and uploads to Inspection and recorded faults to WDM.

9. Each fault / Defect requires data input regards required start dates and the Bill of Quantities.

10. Roads Operations Pre-Construction Checklist to be compiled – 1 Document can cover multiple works Instructions or Job Tickets (Those that can be readily grouped – The Same Task on the same route). The Document must list the works instruction numbers to which it refers.

11. Works Instructions and the relevant Roads Operations Pre-Construction Checklist are then issued to the Superintendent in person, via depot printers or at the regular program meetings. (Dependent on the Category of Defects and the timescale for action / repair).