



# IPAG

*Irish Pavement Asset Group*

Pavement Asset Management  
Guidance  
Section 4:  
Routine Maintenance Management

*Version 1.0*

*December 2014*

## Document Information

<b>Title</b>	Pavement Asset Management Guidance, Section 4: Routine Maintenance Management
<b>Author</b>	Paul Hardy, exp consulting
<b>Description</b>	This section recommends the use of a systems-based approach to the management of routine maintenance. It provides guidance on the identification, categorisation, prioritisation and reporting for repair of routine / minor pavement defects. It recommends the records that should be kept of each of these activities to support pavement asset management.

## Document History

Version	Status	Author	Checked	Changes from Previous Version
1.0	Published	PH	CM / MMcN	

# 4 Routine Maintenance Management

This section recommends the use of a systems-based approach to the management of routine maintenance. It provides guidance on the identification, categorisation, prioritisation and reporting for repair of routine / minor pavement defects. It recommends the records that should be kept of each of these activities to support pavement asset management.

## 4.1 Routine Maintenance Management System

### Systematic Approach

There will never be sufficient resources to repair all pavement defects. Roads will always have some defects. To ensure that routine maintenance monies are used to their best effect, it is essential that available funding is prioritised and managed to ensure that:

1. The defects that present the highest risk to road users are repaired first.
2. Minor repairs are not carried out on areas of pavement programmed for resurfacing.
3. Repeated repairs are not carried out at the same locations.
4. Roads with escalating amounts of reactive repairs are considered for resurfacing.

In the past, many road authorities have applied a reactive approach to routine maintenance, relying upon staff to use their judgement to allocate funding and manage repairs. Greater cost efficiency is possible, through the adoption of a structured approach, and more specifically, by the collection of location-referenced data of routine maintenance activities. Analysis of this data can enable better programming of repairs and improved cost efficiency, through better use of resources.

### Routine Maintenance System

To achieve these benefits, routine maintenance should be managed using a systematic approach. The details should be determined by the road authority, using the basic steps illustrated below:

1. Identification	Record all reported defects.
2. Categorisation	Categorise all defects.
3. Prioritisation	Prioritise defects for repair.
4. Repair	Record the completion of repairs.
5. Reporting	Report results and standards achieved.
6. Review	Review level of compliance and implement appropriate actions.

**Recommendation:** Road authorities should document their methods of managing routine maintenance.

## 4.2 Identification of Defects

Routine maintenance needs are typically identified by public notification, observation by staff or from an inspection. Records of identified routine maintenance needs are a valuable source of data to aid pavement management. Defect data should be collected and stored in a format that enables analysis in conjunction with other relevant data.

### Public Notification of Defects

The public are usually able to report pavement defects to a road authority via a telephone call, email, letter, the council website or a visit to a council office. A record should be kept of all pavement defects logged with the authority. Reports of defects, from all sources, should be combined into a single register to enable analysis. This is essential, if analysis of repeat repair, complaints and areas of high levels of defects are to be properly identified. As a minimum, the information shown in Table 4.1 should be recorded for each reported defect.

**Table 4.1: Example Record of Customer Contact**

Name	The name of the person reporting the defect.
Contact details	Address, telephone number, email address such that contact can be queried on details, informed of progress and / or closure of their request.
Street	Street address of defect.
Descriptive Location	Description of the location of the defect, usually relating to footway / roadway and to a building, e.g. outside number 42.
Asset	Roadway, footway or cycleway.
Defect type	Type of defect, e.g. pothole, trip hazard, missing cover, spillage, etc.
Defect size	The reported approximate dimensions of the defect.
Location reference	Co-ordinates and / or location reference of defect (road segment number).
Recorded by	The name of the person recording the defect.
Date	The date the defect is recorded in the system.
Surface Type	Bituminous, slabs, concrete, modular paving.

The location reference is a critical item of data. Without this, analysis of the reported defects, together with other data sets such as measured condition, the location of programmed works and details of third party activities on the road, is cumbersome at best.

**Recommendation:** Road authorities should keep a structured record all reported pavement defects.

### Initial Categorisation

The location reference / co-ordinates should be added in the office, by the person taking the report, using a mapping system / GIS. This will enable initial filtering of reports, to prioritise response to the high priority defects. Where a defect has been reported, an inspection should be carried out to determine if the defect warrants repair. Defects of a minor nature, on lightly-used roads and footways present a low risk to road users and do not warrant immediate inspection or repair (see below for further details of defect categorisation). The likely priority of the repair can be derived from the information supplied by the person reporting the defect. Staff taking customer telephone calls and visits should be trained to recognise probable high priority (Category 1 – Cat 1) defects and to record them as such. Where a Category 1 defect has been notified, an inspector should be sent to inspect it and to decide what to do about it.

**Recommendation:** Staff receiving reports of defects should be trained to assign initial categorisation to them, based upon the information reported.

### Inspections

The road authority should determine how it will carry out inspections, taking into account the size and nature of the road network and the resources available to carry out inspections. It is expected that most inspection regimes will comprise a combination of:

- **Reactive inspections:** inspection of reported defects.
- **Routine inspection:** inspections carried out at set intervals / to a specified regime.
- **Inspect and repair:** inspections carried out by works gangs in conjunction with repairs.

Reactive inspections are inevitable. Some resource will always be required to respond to incidents and reports as they occur. Due to their random nature, reactive inspections are comparatively time consuming and therefore costly.

Routine inspections help to ensure that priorities for repairs are consistently applied. The inspection regime should reflect the importance of each category of road and, in particular, the risk presented to road users, if a defect was to remain without repair on that part of the network. Road authorities should specify the roads and footways that are subject to routine inspection and what the frequencies of those inspections are. For heavily-trafficked, important routes a minimum regime of monthly inspections is recommended. Similarly, heavily-used footways in town centres and areas used by vulnerable users (for example, outside hospitals and schools) warrant the use of routine inspections regime. Routine inspections can be combined with visual condition surveys, where a simple method of visual assessment is being used for condition surveying. This is appropriate for footways and urban roadways.

Inspect and repair gangs are a cost-effective way of combining the confirmation that work is required with the undertaking of the repair itself. This approach requires gangs to have the capability and incentive to assess the defects they are sent to. The use of data-capture devices and photographs of defects can assist in the control of such activities, in addition to normal supervision.

**Recommendation:** Road authorities should establish and document a regime of inspections.

The table below provides an example inspection regime.

**Table 4.2: Example Inspection Regime**

Roadways	Class / Category	Routine Inspection Frequency
	National Primary Roads	Monthly
	National Secondary Roads	Monthly
	Regional Roads	Quarterly
	Local Primary Roads	Annually
	Local Secondary Roads	Annually
	Local Tertiary Roads	Annually
	Footways	Prestige Footways
Primary Footways		Monthly
Secondary Footways		Quarterly
Link footways		Annually
Local footways		Annually
Cycle tracks	On-roadway	As per roadway
	Off-roadway	Annually
	Cycleways	Annually

A record should be kept of all inspections undertaken. This record will enable reporting of the response to reported defects.

**Recommendation:** Road authorities should keep a record of all inspections undertaken.

### Items to be Inspected

It is important that inspectors are aware of the specific items of road infrastructure, that they are expected to inspect. The items to be inspected should be documented, for each type of inspection. Whilst this guidance is for road pavements, it is appropriate to note defects to other road infrastructure items, such as signs and safety fences, during an inspection. It is expected that inspections will note defects with any road asset type. Defects to be inspected and recorded should therefore include:

**Table 4.3: Example List of Type Defects to Be Recorded During Inspections**

Asset Type	Defects
Roadway	<ul style="list-style-type: none"> <li>- abrupt level differences in the surface</li> <li>- potholes, cracks or gaps in the surface</li> <li>- crowning, depression and rutting in the surface</li> <li>- edge deterioration of the surface</li> <li>- kerbing, edging or channel defects</li> <li>- debris, spillage or contamination on the surface</li> <li>- surface texture defects</li> <li>- defects around manholes and utility covers</li> </ul>
Footway	<ul style="list-style-type: none"> <li>- abrupt level differences in the surface</li> <li>- potholes, cracks or gaps in the surface</li> <li>- crowning, depression and rutting in the surface</li> <li>- edge deterioration of the surface</li> <li>- kerbing, edging or channel defects</li> <li>- debris, spillage or contamination on the surface</li> <li>- rocking or otherwise unstable footpath or cycleway surfaces</li> <li>- surface texture defects</li> <li>- defects around utility covers / missing stopcock covers, etc.</li> <li>- defects relating to tree guards, bins, benches, etc.</li> </ul>
Traffic infrastructure	<ul style="list-style-type: none"> <li>- signs, signals or public lighting damaged, defective, missing or unstable</li> <li>- road markings and road studs missing, misleading or badly worn</li> <li>- signs, signals or public lighting dirty or obscured</li> <li>- sight-lines obscured by trees, unauthorised signs and other obstructions</li> <li>- displaced road studs lying on surface</li> </ul>
Street furniture	<ul style="list-style-type: none"> <li>- safety fencing, parapet fencing, handrail or other barriers missing or defective</li> <li>- embankments and cuttings apparently unstable</li> <li>- trees with loose branches or apparently unstable, overhanging trees</li> <li>- street-name plates</li> </ul>
Public lighting	<ul style="list-style-type: none"> <li>- overhead wires damaged or unstable</li> <li>- damaged and exposed electrical wiring</li> </ul>
Road drainage	<ul style="list-style-type: none"> <li>- ironwork (gully lids, manholes, etc.) broken or missing</li> <li>- gullies or drains blocked or defective</li> <li>- standing water, water discharging onto or overflowing across the surface</li> </ul>

Road authorities may wish to allocate different items from the table above to different inspectors. The table above illustrates the scope of items that a capable dedicated inspector could, with appropriate training, be expected to record.

**Recommendation:** Road authorities should record the items to be observed during each inspection.

### 4.3 Categorisation of Defects

A range of defects will exist at any one time. The risk that each defect presents to road users is a function of the size and nature of the defect and its location. It is recommended that road authorities use a minimum of 2 categories of defect as follows:

Category 1 (Cat 1)	Critical Defects	Defects that pose an immediate or imminent risk of injury to road users, e.g. collapsed cellar, missing utility cover, fallen tree, unprotected opening.
Category 2 (Cat 2)	Serious Defects	Service requests or defects requiring a response as soon as possible, e.g. footway, cycleway defects >40mm, roadway or traffic-calming feature defects >50mm.
Category 3 (Cat 3)	Other Defects	Other defects that warrant treatment, e.g. footways and cycle track defects 15-40mm, roadway or traffic-calming feature defects 30-50mm.

Appendix 4.a includes more detailed description of the defects that match each category, together with illustrative photographs.

It is expected that road authorities will always have sufficient budget to respond to and repair Category 1 defects and thus to present a network that meets basic safety standards at all times. The extent to which Category 2 defects can be repaired will be a function of available budget and local choice / standards. Authorities may wish to further subdivide Category 2 defects for the purposes of targeting the defects that are most important to local standards.

Further categories can be used, where it is felt that recording defects to that level will be of use. Recording defects even when there is insufficient funding to repair them all, provides useful data for both presenting the case for investment in roads and targeting resurfacing works at areas in need of repair (in conjunction with condition assessment – see Section 5: Condition Surveying and Rating of this guidance).

**Recommendation:** Road authorities should document a method of categorisation of defects.

All defects that are inspected should be categorised. For each defect inspected, the following data should be recorded:

**Table 4.4: Data to Be Recorded for Each Defect Inspected**

Name of inspector	Name
Date of inspection	Date
Time	Time
Asset	Roadway, footway or cycleway
Street	Street name from gazetteer
Surface type	Bituminous, concrete, modular blocks, etc.
Utility Name	If defect is caused by a utility or damaged cover, then record 'Utility Name'.
Location	Description of the location of the defect, usually relating to the footway / roadway and to a building, e.g. outside number 42.
Location (network reference)	Where hand-held data collection devices are used, it should be possible to clearly identify the location using a map.
Defect inspected	Trip, pothole, depression, etc.
Area	<1 m <sup>2</sup> , 1 m <sup>2</sup> , 2 m <sup>2</sup> , etc.
Defect category	Category 1 or Category 2 (or more, if used)
Action recommended	Make safe, repair required, add to programme
Action taken	Details of action taken to resolve the defect

It is recommended that photographs be taken of all defects. Data should be captured electronically, ideally using a data-capture device with location recording capability (GPS with mapping).

**Recommendation:** Road authorities should categorise all defects inspected.

## 4.4 Prioritising Repair

### Repair Priority

The category of defect is based upon the severity of the defect. The risk of injury or damage to road users, pedestrians or users' vehicle is, however, a function of the severity of the defect and its location. The risk is greater on roads that carry higher levels of traffic and on footways with higher footfall levels. If the defect is Category 1 then the inspector should contact the relevant personnel for immediate repair. The priority for other repairs should be established, by reference to the category of defect and road class.

**Recommendation:** Road authorities should set a priority rating (number) for repair of each defect.

**Table 4.5: Priority for Repair**

The table below illustrates eight Priority Ratings for prioritising defect repairs, according to both the traffic impact number of the roadway / footway and the defect category. Priority 1 defects should be attended to immediately and then subsequently the Priority 2 and then Priority 3, etc. An example is shown below.

Traffic Impact Number	Category 1 (Critical Defects)	Category 2 (Serious Defects)	Category 3 (Defects)
5	Priority Rating 1	Priority Rating 2	Priority Rating 4
4	Priority Rating 1	Priority Rating 3	Priority Rating 5
3	Priority Rating 1	Priority Rating 4	Priority Rating 6
2	Priority Rating 1	Priority Rating 5	Priority Rating 7
1	Priority Rating 1	Priority Rating 6	Priority Rating 8

Prioritisation of defects will be greatly aided if the data is captured electronically and software (either in the data-capture device and / or the asset management system) is used to store and process it. The system can then be made to generate the priority automatically from the input data collected.

### Response Times

Road authorities should consider available resources and establish target response times, within which the defects are to be repaired, based upon their relative priority. An example is shown here.

**Table 4.6: Repair Response Times (from notification)**

Repair response time based on either:		Defect Category		
Road Class	User Impact Number	1 Critical	2 Serious	3 Other
National Primary	5	24 hours	2 days	When resources allow
National Secondary	5	24 hours	2 weeks	When resources allow
Regional	4	2 days	2 weeks	When resources allow
Local Primary	3	2 days	When resources allow	When resources allow
Local Secondary	2	2 weeks	When resources allow	When resources allow
Local Tertiary	1	2 weeks	When resources allow	When resources allow

**Recommendation:** Road authorities should set target response times for repair of each defect category.

Response times should be realistic and enable the road authority to demonstrate the standard that road users can expect.

### Records of Repair

Records should be kept of all repairs. Recording that a defect has been repaired enables monitoring of response times.

**Table 4.7: Data to Be Recorded for Each Repair Completed**

Repair Type	Temporary or Permanent
Gang:	Details of the gang who carried out the repair
Supervisor	Name of person who supervised the repair
Labour	Staff numbers and hours spent on site
Plant	Plant used and hours deployed
Materials	Materials used
Date Completed	
Time completed	
Duration	Time spent on site
Asset	Roadway, footway or cycleway
Street	Road name
Surface type	Bituminous, concrete, modular paving, etc.
Location	If inspection is from public notification, the location and description provided should be recorded.
Location (network reference)	Where hand-held data-capture devices are used, it should be possible to specify the location exactly using a map.
Defect inspected	Trip, pothole, depression, etc.
Area	<1 m <sup>2</sup> , 1 m <sup>2</sup> , 2 m <sup>2</sup> etc.
Defect category	Category 1 or Category 2 (or more, if used)
Action Taken / Repair Status	Temporary or Permanent

It is recommended that photographs are taken before and after repairs.

The information collected for each repair should be sufficient to enable unit costs to be subsequently derived. It may be appropriate to create a schedule of typical repairs and repair sizes and to have the gangs confirm the type and size of repair undertaken, by selecting from a predefined list.

**Recommendation:** Road authorities should record when repairs are completed and their type and size.

## 4.5 Reporting Results

The data collected from the activities described above should enable assessment of the routine maintenance service. Data should be analysed to enable reporting of relevant statistics including:

1. The number of Category 1 defects repaired per annum.
2. The percentage of Category 1 repairs completed within the road authority's stated target response time.
3. The number of repeat repairs.
4. The percentage of repairs, where a repeat repair is undertaken within the next 12 months.

Data will be collected electronically, wherever possible.

## 4.6 Quality Assurance

A regime of quality control should be introduced, to ensure that the inspections and repairs are being carried out to the standards required. It is recommended that the person responsible for supervising the inspectors arranges these checks, which shall comprise:

1. The supervisor carrying out a sample check on the inspections carried out by each inspector, on a quarterly basis.
2. The sample check shall comprise of inspecting a route inspected by each inspector. The sample check shall be carried out within 48 hours of the original inspection. Ideally, the sample check inspection shall comprise a variety of the roadways / footways by class / category or traffic impact number.
3. Each check shall record the supervisor's assessment, of whether for the sample of roads checked, the inspector has:
  - a. Recorded the defects that are present.
  - b. Recorded the correct description of the defect, description of location, GIS co-ordinates and other attributes collected.
  - c. Categorized the defects correctly.
4. A separate 5% sample check shall be carried out on the repairs themselves, to check that they have been completed to an appropriate standard.
5. It is also recommended that a weekly desktop check of data is carried out. The desktop check shall examine the details recorded for logic, review a sample of defects for their categorisation and prioritisation, based upon the photographs taken. Necessary corrections shall be made to the data and inspectors notified, with the reports of the corrections made.

### Compliance Standards

The following compliance standards are recommended

Inspector's identification of defects matches supervisor's identification of defects.	At least 90% of the defects identified by the supervisor shall have been identified by the inspector.
Inspector's categorisation of defects matches the supervisor's categorisation of defects.	At least 90% of the defects identified by the supervisor shall have been correctly categorised by the inspector.
Inspector's records of completed repairs recorded as acceptable matches the supervisor's assessment of repairs completed to an acceptable standard.	At least 90% of the repairs identified by the supervisor as having been repaired to an acceptable standard shall have been identified by the inspector as being repaired to an acceptable standard.

### Corrective Actions

Where the samples produce results that do not meet the compliance standards, the following corrective actions should be taken.

An increased sample of 10% (not including the original 5%) shall be checked to confirm the validity of the original 5% sample results. If this sample meets the compliance standards, the level of inspections will be approved.

If the increased sample does not meet the required standard and the compliance with any one of the two tests above is still less than 90%, then a joint inspection shall be carried out by the supervisor and the inspector. During the joint inspection, the supervisor shall determine whether the inspector requires additional training, in order to meet the standards required or whether following the joint inspection, he is now satisfied that future inspections should meet the standards.

If further training is required, that inspector shall not carry out any further inspections, until the training has been satisfactorily completed.

## 4.7 Inspector Training

Road authorities should train their inspectors to carry out inspections, in accordance with the following standard. Training should include as a minimum:

1. Initial Training: any new inspectors should be trained prior to carrying out inspections and should be approved as competent, prior to carrying out inspections.
2. Annual refresher training: all inspectors should undergo annual refresher training to confirm that they continue to be able to apply the standards correctly.
3. Training on the use of hand-held data-capture devices and associated software, including the downloading of data from the hand-helds to the appropriate asset management system / database.

The structure of training will comprise:

1. Office-based training, in the identification and categorisation of defects, in accordance with the standards. This training will use photographs and video clips and will include a test that the learner will have to achieve a satisfactory score in order to be approved as competent.
2. Field assessment: in addition to the office-based assessment, learners will be required to inspect a sample of road, typical of the local road network. These roads are to have been pre-surveyed by the road authority's inspections trainer. The learners' and trainer's scores will be compared for consistency, using both the identification of defects and the correct categorisation of the defects.
3. Technology: Learners will be trained how to use the hand-held data-capture devices and the associated software in the field and to download the data into the main system.

Records should be maintained of all learners' training. Additional training will be required, if quality assurance checks demonstrate variance in results, beyond the specified acceptable tolerances given in *Section 4.6*.

## Appendix 4.a: Defect Definitions and Photographs

### Category 1 (Critical Defects)

Service requests or defects requiring a response by the council immediately (within 24 hours).

The following list outlines typical defect types, which should be categorised as Category 1 (Critical Defects – immediate or imminent risk of injury to road users):

- Damaged cellar.
- Damaged utility cover.
- Collapsed utility chamber.
- Damaged manhole cover.
- Fallen tree.
- Serious pothole in the wheel track of a road.

Refer to photograph examples of footway Category 1 (Critical Defects) on the following pages.

Category 1 (Critical Defects)	
	<p><b>CATEGORY 1</b></p> <p>Damaged cellar.</p>



**CATEGORY 1**

Damaged utility cover.



**CATEGORY 1**

Collapsed utility chamber.



**CATEGORY 1**

Damaged manhole cover.

	<p><b>CATEGORY 1</b></p>	
<p>Damaged manhole cover.</p>		<p><b>CATEGORY 1</b></p>
<p>Fallen tree.</p>		<p><b>CATEGORY 1</b></p>
<p>Serious pothole in the wheel track of a road.</p>		

## Category 2 (Serious Defects) – Footways

Service requests or defects requiring a response by the council as soon as possible.

For footways, the following list outlines typical defect types, which should be categorised as Category 2 (Serious Defects):

- Broken surface (>40mm level difference).
- Loose paving (>40mm level difference).
- Tree trip (>40mm level difference).
- Subsidence (>40mm level difference).
- Missing paving (>40mm level difference).
- Defective gully / utility cover / street furniture (>40mm level difference).
- Missing stopcock or valve cover.
- Defective surface around a gully / utility cover / street furniture (>40mm level difference).
- Defective street furniture (e.g. bollard) fallen across footway or roadway.
- Overhanging tree or bush (impeding pedestrian path).
- Miscellaneous.

Refer to photograph examples of footway Category 2 (Serious Defects) on the following pages.

<b>Category 2 (Serious Defects) – Footways</b>	
	<p><b>CATEGORY 2</b></p> <p>Broken surface with level difference &gt;40mm.</p>

<b>Category 2 (Serious Defects) – Footways</b>	
	<p><b>CATEGORY 2</b></p> <p>Loose paving with level difference &gt;40mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Loose paving with level difference &gt;40mm.</p>
 <p style="text-align: center;">Rocking Tactile Paving Slab</p>	<p><b>CATEGORY 2</b></p> <p>Loose paving with level difference &gt;40mm.</p>

<b>Category 2 (Serious Defects) – Footways</b>	
	<p><b>CATEGORY 2</b></p> <p>Tree trip with level difference &gt;40mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Subsidence with level difference &gt;40mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Missing paving with level difference &gt;40mm.</p>

<b>Category 2 (Serious Defects) – Footways</b>	
	<p><b>CATEGORY 2</b></p> <p>Defective utility cover with level difference &gt;40mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Missing stopcock cover.</p>
	<p><b>CATEGORY 2</b></p> <p>Missing bollard with level difference &gt;40mm.</p>

<b>Category 2 (Serious Defects) – Footways</b>	
	<p><b>CATEGORY 2</b></p> <p>Damaged bollard with level difference &gt;40mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Defective surface around utility cover with level difference &gt;40mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Defective surface around utility cover with level difference &gt;40mm.</p>

**Category 2 (Serious Defects) – Footways**



**CATEGORY 2**

Overhanging trees affecting pedestrian path.

## Category 2 (Serious Defects) – Roadway

Service requests or defects requiring a response by the council as soon as possible.

For roadways, the following list outlines typical defect types, which should be categorised as Category 2 (Serious Defects):

- Broken surface (>50mm level difference).
- Pothole (>50mm level difference).
- Subsidence (>50mm level difference).
- Defective gully / utility cover (>50mm level difference).
- Defective surface around a gully / utility cover (>50mm level difference).
- Loss of skid resistance (chip loss, fretting, loss of anti-skid surfacing).
- Fattening / bleeding.
- Miscellaneous.

Refer to photograph examples of roadway Category 2 (Serious Defects) on the following pages.

Category 2 (Serious Defects) – Roadway	
	<p><b>CATEGORY 2</b></p> <p>Broken surface with level difference &gt;50mm.</p>

<b>Category 2 (Serious Defects) – Roadway</b>	
	<p><b>CATEGORY 2</b></p> <p>Pothole with level difference &gt;50mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Subsidence with level difference of &gt;50mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Defective gully / utility cover with level difference &gt;50mm.</p>

<b>Category 2 (Serious Defects) – Roadway</b>	
	<p><b>CATEGORY 2</b></p> <p>Defective road surface around utility cover with level difference &gt;50mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Chip loss, fretting (small area in a <i>high stress location, e.g. approach to pedestrian crossings</i>), where treatment of just the defect is appropriate.</p>
	<p><b>CATEGORY 2</b></p> <p>Fatting / bleeding (small area in a <i>high stress location, e.g. approach to pedestrian crossings</i>), where treatment of just the defect is appropriate.</p>

<b>Category 2 (Serious Defects) – Roadway</b>	
	<p><b>CATEGORY 2</b></p> <p>Poor drainage of road surface (small area in a <i>high stress</i> location, e.g. <i>approach to pedestrian crossings</i>), where treatment of just the defect is appropriate.</p>
	<p><b>CATEGORY 2</b></p> <p>Failed road markings.</p>
	<p><b>CATEGORY 2</b></p> <p>Subsidence with level difference of &gt;50mm.</p>

**Category 2 (Serious Defects) – Roadway**



**CATEGORY 2**

Sunken manhole cover >50mm level difference.

## Category 2 (Serious Defects) – Cycle Tracks

Service requests or defects requiring a response by the council as soon as possible.

For cycle tracks, the following list outlines typical defect types, which should be categorised as Category 2 (Serious Defects):

- Broken surface (>40mm level difference).
- Pothole (>40mm level difference).
- Subsidence (>40mm level difference).
- Defective gully / utility cover (>40mm level difference).
- Missing stopcock or valve cover.
- Defective surface around a gully / utility cover (>40mm level difference).
- Miscellaneous.

Refer to photograph examples of cycle track Category 2 (Serious Defects) on the following pages.

Category 2 (Serious Defects) – Cycle tracks	
	<p><b>CATEGORY 2</b></p> <p>Broken surface with level difference &gt;40mm.</p>

<b>Category 2 (Serious Defects) – Cycle tracks</b>	
	<p><b>CATEGORY 2</b></p> <p>Broken surface with level difference &gt;40mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Pothole with level difference &gt;40mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Subsidence with level difference &gt;40mm.</p>

**Category 2 (Serious Defects) – Cycle tracks**



**CATEGORY 2**

Defective surface  
around gully with  
level difference  
>40mm.

## Category 2 (Serious Defects) – Traffic-calming Infrastructure

Service requests or defects requiring a response by the council as soon as possible.

For traffic-calming infrastructure, the following list outlines typical defect types, which should be categorised as Category 2 (Serious Defects):

- Broken surface (>50mm level difference).
- Damaged Paving (>50mm level difference).
- Pothole (>50mm level difference).
- Subsidence (>50mm level difference).
- Defective utility cover (>50mm level difference).
- Defective surface around a utility cover (>50mm level difference).
- Miscellaneous.

Refer to photograph examples of traffic-calming infrastructure Category 2 (Serious Defects) on the following pages.

Category 2 (Serious Defects) – Traffic-calming Infrastructure	
	<p><b>CATEGORY 2</b></p> <p>Broken surface with level difference &gt;50mm.</p>

<b>Category 2 (Serious Defects) – Traffic-calming Infrastructure</b>	
	<p><b>CATEGORY 2</b></p> <p>Damaged paving with level difference &gt;50mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Pothole with level difference &gt;50mm.</p>
	<p><b>CATEGORY 2</b></p> <p>Subsidence with level difference &gt;50mm.</p>

**Category 2 (Serious Defects) – Traffic-calming Infrastructure**



**CATEGORY 2**

Missing stopcock  
or water valve  
cover.

### Category 3 (Defects) – Footways

Other defects that warrant treatment.

For footways, the following list outlines typical defect types, which should be categorised as Category 3 (Defects):

- Broken surface (15-40mm level difference).
- Loose paving (15-40mm level difference).
- Tree trip (15-40mm level difference).
- Subsidence (15-40mm level difference).
- Missing paving (15-40mm level difference).
- Defective gully / utility cover / street furniture (15-40mm level difference).
- Defective surface around a gully / utility cover / street furniture (15-40mm level difference).
- Defective street furniture (e.g. bollard).
- Overhanging tree or bush.
- Miscellaneous.

Refer to photograph examples of footway Category 3 (Defects) on the following pages.

Category 3 (Defects) – Footways	
	<p><b>CATEGORY 3</b></p> <p>Broken surface with level difference 15-40mm.</p>

<b>Category 3 (Defects) – Footways</b>	
	<p><b>CATEGORY 3</b></p> <p>Loose paving with level difference 15-40mm.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">T o c r o s s</p> 	<p><b>CATEGORY 3</b></p> <p>Loose paving with level difference 15-40mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Tree trip with level difference 15-40mm.</p>

<b>Category 3 (Defects) – Footways</b>	
	<p><b>CATEGORY 3</b></p> <p>Subsidence with level difference 15-40mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Missing paving with level difference 15-40mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Defective surface around utility cover with level difference 15-40mm.</p>

<b>Category 3 (Defects) – Footways</b>	
	<p><b>CATEGORY 3</b></p> <p>Defective surface around utility cover with level difference 15-40mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Defective bollard.</p>
	<p><b>CATEGORY 3</b></p> <p>Defective utility cover with level difference 15-40mm.</p>

**Category 3 (Defects) – Footways**



**CATEGORY 3**

Overhanging trees.

### Category 3 (Defects) – Roadway

Other defects that warrant treatment.

For roadway, the following list outlines typical defect types, which should be Category 3 (Defects):

- Broken surface (30-50mm level difference).
- Pothole (30-50mm level difference).
- Subsidence (30-50mm level difference).
- Defective gully / utility cover (30-50mm level difference).
- Defective surface around a gully / utility cover (30-50mm level difference).
- Missing valve cover.
- Miscellaneous.

Refer to photograph examples of roadway Category 3 (Defects) on the following pages.

<b>Category 3 (Defects) – Roadway</b>	
	<p><b>CATEGORY 3</b></p> <p>Broken surface with level difference 30-50mm.</p>

<b>Category 3 (Defects) – Roadway</b>	
	<p><b>CATEGORY 3</b></p> <p>Pothole with level difference 30-50mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Subsidence with level difference 30-50mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Defective utility cover with level difference 30-50mm.</p>

<b>Category 3 (Defects) – Roadway</b>	
	<p><b>CATEGORY 3</b></p> <p>Defective surface around gully with level difference 30-50mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Missing valve cover.</p>

### Category 3 (Defects) – Cycle Tracks

Other defects that warrant treatment.

For cycle tracks, the following list outlines typical defect types, which should be categorised as Category 3 (Defects):

- Broken surface (15-40mm level difference).
- Pothole (15-40mm level difference).
- Subsidence (15-40mm level difference).
- Defective gully / utility cover (15-40mm level difference).
- Defective surface around a gully / utility cover (15-40mm level difference).
- Miscellaneous.

Refer to photograph examples of cycle track Category 3 (Defects) on the following pages.

<b>Category 3 (Defects) – Cycle Tracks</b>	
	<p><b>CATEGORY 3</b></p> <p>Broken surface with level difference 15-40mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Pothole with level difference 15-40mm.</p>

<b>Category 3 (Defects) – Cycle Tracks</b>	
	<p><b>CATEGORY 3</b></p> <p>Subsidence with level difference 15-40mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Defective utility cover with level difference 15-40mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Defective surface around gully with level difference 15-40mm.</p>

**Category 3 (Defects) – Cycle Tracks**



**CATEGORY 3**

Defective surface  
around gully with  
level difference  
15-40mm.

### Category 3 (Defects) – Traffic-calming Infrastructure

Other defects that warrant treatment.

For traffic-calming infrastructure, the following list outlines typical defect types, which should be categorised as Category 3 (Defects):

- Broken surface (30-50mm level difference).
- Pothole (30-50mm level difference).
- Subsidence (30-50mm level difference).
- Defective utility cover (30-50mm level difference).
- Defective surface around a utility cover (30-50mm level difference).
- Missing valve cover.
- Miscellaneous.

Refer to photograph examples of traffic-calming infrastructure Category 3 (Defects) on the following pages.

<b>Category 3 (Defects) – Traffic-calming Infrastructure</b>	
	<p><b>CATEGORY 3</b></p> <p>Broken surface with level difference 30-50mm.</p>

<b>Category 3 (Defects) – Traffic-calming Infrastructure</b>	
	<p><b>CATEGORY 3</b></p> <p>Pothole with level difference 30-50mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Subsidence with level difference 30-50mm.</p>
	<p><b>CATEGORY 3</b></p> <p>Subsidence with level difference 30-50mm.</p>