

THE LITTLE BOOK OF HIGHWAY DEFECTS

A GUIDE TO THE IDENTIFICATION OF COMMON PROBLEMS



**OXFORDSHIRE
COUNTY COUNCIL**

Introduction

The primary purpose of this manual is to provide a pictorial reference guide to describing common highway defects - some of which may prove to be a Safety hazard to the road network user. Reference to this manual will help to ensure that defect identification is conducted in an accurate and consistent manner.

The secondary purpose of this manual is to provide information to Managers, Engineers and Technicians who may make use of the collected defect data. Understanding the way defects are categorised will assist in determining which items to include when compiling statistics or reports about the condition of highway related assets.

This manual should be read in conjunction with the Highway Safety Inspection Policy document.

Highways Asset Manager
Oxfordshire County Council

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Risk Management

Risk Management

A risk management approach is required to assess and allocate the correct priority of response to each defect.

Investigatory Levels

Some defects require an investigatory level to be applied to them in order to differentiate between whether a defect becomes a Safety hazard or not.

This approach helps to ensure that defect repairs are appropriately planned, resourced and completed to the correct standard.

Risk Matrix

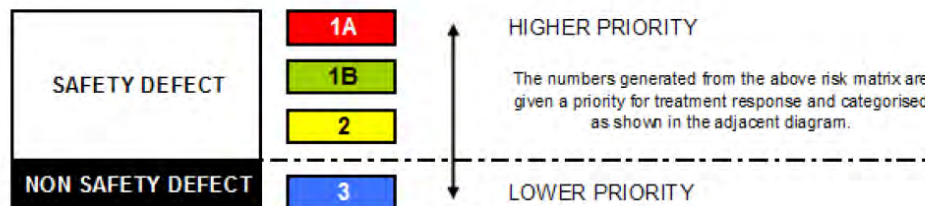
Having identified a defect and applied an investigatory level (where appropriate) the next step is to assess the likely impact and probability in order to determine the risk factor.

$$\text{RISK FACTOR} = \text{RISK IMPACT} \times \text{RISK PROBABILITY}$$

The numbers generated from the risk matrix are given a priority for treatment response and categorised on the following page.

Risk Management

		PROBABILITY			
		VERY LOW	LOW	MEDIUM	HIGH
IMPACT	NEGLIGIBLE	1	2	3	4
	LOW	2	4	6	8
	NOTICEABLE	3	6	9	12
	HIGH	4	8	12	16



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Thresholds

Thresholds

Defects to be dealt with as incidents

Minor Carriageway defects
requiring a Category 1A
(2 hour) response:

- Flooding
 - Standing water
 - Spillage
 - Debris
 - Obstruction
-

Footway / Cycleway defects
requiring a Category 1A
(2 hour) response:

- Flooding
- Standing water
- Spillage/Debris
- Obstruction

Fence / Barrier defects
requiring a Category 1A
(2 hour) response:

- All defect codes
-

Traffic Signal defects
requiring a Category 1A
(2 hour) response:

- All defect codes
-

Lighting / Electrical defects
requiring a Category 1A
(2 hour) response:

- Accident damage
- Poor structural condition

Structure defects
requiring a Category 1
(2 or 24 hour) response:

- Bridge strike
 - Damaged parapet
 - Crack
 - Slip
 - Bulge
-

Utility defects
requiring a Category 1
(2 or 24 hour) response:

- Leak
-

Highway Tree defects
requiring a Category 1
(2 or 24 hour) response:

- All defect codes

Investigatory Levels

Thresholds

Certain defects have guidance thresholds applied to determine whether they constitute classifying as a “Safety” defect before applying the risk assessment

Minor Carriageway : Pothole	40mm depth 150mm diameter
Minor Carriageway : Open joint	30mm gap 300mm length
Minor Carriageway : Cracking	30mm gap 300mm length
Minor Carriageway : Edge deterioration	40mm depth 150mm diameter
Minor Carriageway : Difference in level	25mm upstand
Minor Carriageway : Rutting	40mm depth
Footway / Cycleway : Pothole	20mm depth 100mm diameter
Footway / Cycleway : Open joint	20mm gap 200mm length
Footway / Cycleway : Difference in level	20mm upstand
Footway / Cycleway : Cracking	20mm gap 200mm length
Gullies / Covers : Difference in level	25mm upstand
Gullies / Covers : Difference in component levels	25mm upstand
Kerbs / Channels : Misaligned (single module)	25mm upstand
Kerbs / Channels : Uneven (run of modules)	25mm upstand



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Minor Carriageway

Defects apply to the following asset type:
Carriageway

Pothole

A pothole may be defined as a sharp edged hole within the upper layers of the road surface.

Potholes can be a **Safety Defect** depending upon their size, depth and location.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those potholes which pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Rutting



A continuous longitudinal depression in the wheeltrack that allows water to pond or makes manoeuvring difficult.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.



A risk management approach is required to allocate the correct priority of response to the defect. Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for vehicles.

Such defects do not generally require an urgent response and on classified roads are monitored by regular machine condition surveys.

Open joint

An open joint may be defined as the widening of a construction joint within the road surface. Spalling and water ingress can accelerate the widening.

An open joint can be a **Safety Defect** depending upon their size, depth and location.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those joints which pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Cracking around ironwork



Cracking around ironwork can be defined as cracks that emanate from a cover or grating within the road surface.

This can be a **Safety Defect** depending upon their extent, severity and location although, in general, such defects rarely require an urgent response and knowledge of their presence contributes towards the general condition ranking of the road surface.



Particular consideration must be given to prioritising those defects which pose a hazard to vulnerable road users or may cause loss of control for vehicles.

These defects are usually repaired during programmed work.

Cracking

Cracking is a defect that may indicate whether the carriageway layers are in partial or complete failure.

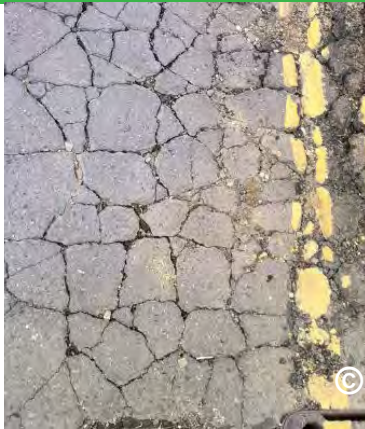
A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

Such defects rarely require an urgent response and knowledge of their presence contributes towards the general condition ranking of the road surface. However failure to address this defect will likely accelerate the structural failure due to water ingress.

Those defects that extend for some distance are usually repaired during programmed work.



Crazing



Crazing is a defect that may indicate whether the carriageway layers are in partial or complete failure. It appears as a series of adjacent polygonal cracks and is sometimes referred to as "alligator cracking" due to the similarity with an alligator's skin pattern.

Crazing can be a **Safety Defect** depending upon the size, depth and location of the problem.



A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.

Difference in level

Where there is an sharp vertical change in the running surface caused by settlement of the carriageway or by component failure this should be recorded as a 'Difference in Level' defect.

This can be a **Safety Defect** depending upon the height, length and location of the problem.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those defects which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Edge deterioration



This defect should be recorded where the nearside edge (upto approximately 0.5 metres from the edge) of an unkerbed carriageway surface is breaking apart as a result of vehicle over-running and/or poor edge support.

This can be a **Safety Defect** depending upon the depth, length and location of the problem.



A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect. Particular consideration must be given to prioritising those defects which pose a hazard to vulnerable road users or may cause loss of control for vehicles.

Fatting

This defect is to be recorded where there is an excess of bituminous binder at the road surface. Binder can migrate to the surface during period of trafficking in prolonged hot weather, by excessive binder content in the mix design or through the embedment of aggregate particles.

This can be a **Safety Defect** depending upon the area, length and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Flooding



Flooding should be recorded where the road becomes obstructed by river water or river water is forcing vehicles away from the edge of the road by more than 1 metre or where vehicles are forced to cross the centreline or lane markings.

This is a **Safety Defect** and should be prioritised based upon the area, depth, and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect. Particular consideration must be given to prioritising events that may pose a hazard to vulnerable road users or may cause loss of control for vehicles.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Standing water

Standing water should be recorded where the road has water lying in low spots that forces vehicles away from the edge of the road by more than 1 metre or where vehicles are forced to cross the centreline or other lane markings.

This is a **Safety Defect** and should be prioritised based upon the area, depth and location of the problem. A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for vehicles.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Spillage



Any liquid spillage that has the potential to reduce the skid resistance of the running surface should be recorded as a **Safety Defect** and should be prioritised based upon the area, length and location of the problem.

Examples of such spillages would include any effluent, diesel, oil, petrol or mud although this list is not exhaustive.

A risk management approach is required to allocate the correct priority of response to the defect. Particular consideration must be given to prioritising any spillage that may pose a hazard to vulnerable road users, may cause loss of control for vehicles, or may enter watercourses.



If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Debris

Any loose material that has the potential to reduce the skid resistance or result in damage to vehicles or injury to road users should be recorded as a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

Examples of debris would include loose gravel or chippings although this list is not exhaustive.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those situations that pose a hazard to vulnerable road users or may cause loss of control for vehicles.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Uneven surface



An irregular surface shape that occurs from deformation of the road resulting from traffic movement, poor material specification, poor workmanship or a combination of the above.

The presence of an uneven surface can lead to excessive vehicle load transfer and discomfort to road users.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.



A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for vehicles.

Loose Slab / Block

A modular item within a paved carriageway surface that is no longer securely fixed leading to movement and further deterioration under load.

This should be recorded as a **Safety Defect** and prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Missing Slab / Block



A modular item within a paved carriageway surface that is no longer present.

This should be recorded as a **Safety Defect** and prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for vehicles.

Rocking Slab / Block

A modular item within a paved carriageway surface that is moving under load and/or creating repetitive noise.

This should be recorded as a **Safety Defect** and prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Weed growth



Any unwanted plant growth occurring at construction joints or breaking through the road surface. Such growth may allow water to pool and accelerate the deterioration of the road structure.

This should be recorded as a **Safety Defect** and prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users.

Such defects do not generally require an urgent response.

Obstruction

Any material or item within live traffic lanes that is likely to impede the movement of traffic or cause loss of control should be recorded as a **Safety Defect** and be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those situations that pose a hazard to vulnerable road users or may cause loss of control for vehicles.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Worn high friction surface



Any general loss of material from a high friction surface which significantly reduces the required skid resistance levels.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

© A risk management approach is required to allocate the correct priority of response to the defect.



Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for vehicles.

Worn coloured surface

Any general loss of material from a coloured surface which significantly reduces the impact of the conveyed message should be recorded here.

This is not a **Safety Defect** but collecting this information aids the assessment of general road surface condition which is usually maintained under programmed work.



General deterioration



Any generally poor surface condition extending for the full carriageway width should be recorded here.

This is not a **Safety Defect** in itself but collecting this information aids the assessment of general road surface condition which is usually maintained under programmed work.

Any **Safety Defects** found within this area should be logged appropriately as normal.



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Footways & Cycleways

Defects apply to the following asset types:
Footway | Cycleway

Pothole

A pothole may be defined as a sharp edged hole within the upper layers of the surface.

Potholes can be a **Safety Defect** depending upon their size, depth and location.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those potholes which pose a hazard to vulnerable road users or may cause loss of control for cycles.



Open joint



An open joint may be defined as the widening of a construction joint within the surface. Spalling and water ingress can accelerate the widening.

An open joint can be a **Safety Defect** depending upon their size, depth and location.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those joints which pose a hazard to vulnerable road users or may cause loss of control for cycles.

Cracking around ironwork

Cracking around ironwork can be defined as cracks that emanate from a cover or grating within the footway or cycleway surface.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Such defects rarely require an urgent response and knowledge of their presence contributes towards the general condition ranking of the surface.

These defects are usually repaired during programmed work.



Cracking



A irregular split or repeated pattern of cracks in the surface that may allow water to enter.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.



A risk management approach is required to allocate the correct priority of response to the defect. Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for cycles.

Such defects do not generally require an urgent response.

Crazing

Crazing is a defect that may indicate whether the footway or cycleway layers are in partial or complete failure.

Crazing can be a **Safety Defect** depending upon the size, depth and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for cycles.



Slippery surface



A footway or cycleway may become slippery where there is a build up of algae or moss usually in shaded areas that remain damp.

A slippery surface can be a **Safety Defect** depending upon the extent and location of the problem.

© A risk management approach is required to allocate the correct priority of response to the defect.



Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for cycles.

Difference in level

A footway or cycleway that has a transverse or longitudinal difference in level can be a **Safety Defect** depending upon the extent and location of the problem.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for cycles.



Worn coloured or high friction surface



A footway or cycleway that has a surface application of a high friction or coloured wearing course can be a **Safety Defect** where its condition means it is not functioning as designed, usually to add grip or as a visual aid to road users. This will be dependent upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for cycles.

Flooding

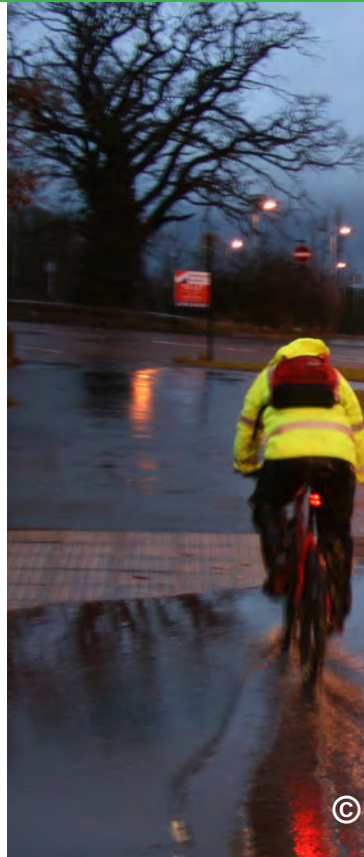
Flooding should be recorded where the footway or cycleway becomes obstructed by river water or where river water is obscuring the the true width of the asset.

This is a **Safety Defect** and should be prioritised based upon the area, depth, and location of the problem.

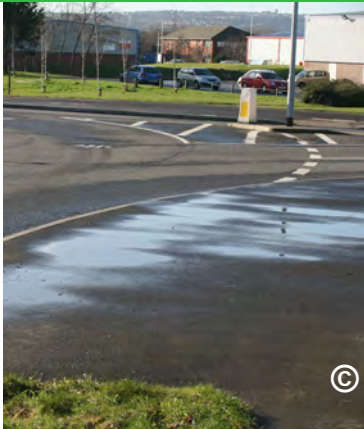
A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising events that may pose a hazard to vulnerable pedestrians or may cause loss of control for cycles.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Standing water



Standing water should be recorded where the footway or cycleway has water lying in low spots that forces users into the road or causes inconvenience to the safe passage of asset users.

This can be a **Safety Defect** and should be prioritised based upon the area, depth and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for vehicles.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Spillage / Debris

Any liquid spillage or any loose material that has the potential to reduce the skid resistance or result in damage to vehicles or injury to road users should be recorded as a **Safety Defect** and should be prioritised based upon the area, length and location of the problem.

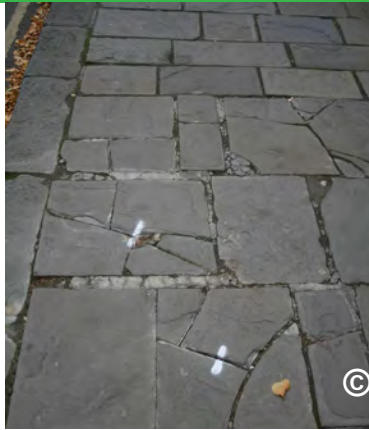
A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising any spillage that may pose a hazard to vulnerable road users, may cause loss of control for vehicles, or may enter watercourses.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

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available

Loose Slab / Block



A modular item within a paved footway or cycleway surface that is no longer securely fixed leading to movement and further deterioration under load.

This should be recorded as a **Safety Defect** and prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for cycles.

Missing Slab / Block

A modular item within a paved footway or cycleway surface that is no longer present.

This should be recorded as a **Safety Defect** and prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for cycles.



Rocking Slab / Block



A modular item within a paved footway or cycleway surface that is moving under load and/or creating repetitive noise.

This should be recorded as a **Safety Defect** and prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Particular consideration must be given to prioritising events that pose a hazard to vulnerable road users or may cause loss of control for cycles.

Weed growth

Any unwanted plant growth occurring at construction joints or breaking through the footway or cycleway surface, especially where it impedes movement or users. Such growth may allow water to pool and accelerate the deterioration of the asset structure.

This should be recorded as a **Safety Defect** and prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect. Particular consideration must be given to prioritising events that pose a hazard to vulnerable users.

Such defects do not generally require an urgent response.



Obstruction



Any material or item that is likely to impede the movement of pedestrian traffic or cause loss of control for cyclists should be recorded as a **Safety Defect** and be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those situations that pose a hazard to vulnerable users or may cause loss of control for cycles.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



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Gullies & Covers

Defects apply to the following asset types:
Gully | Ironwork | Manhole

Difference in level

A gully, ironwork, manhole or similar that stands proud of the the surrounding footway, cycleway, verge or carriageway.

This may be a **Safety Defect** and should be prioritised depending upon the height of the difference and location of the problem.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control.



Difference in component levels



A gully, ironwork, manhole or similar where the frame is level with the surrounding footway, cycleway, verge or carriageway but the cover component has settled.

This may be a **Safety Defect** and should be prioritised depending upon the height of the difference and location of the problem.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control.



Rocking under load

A gully, ironwork, manhole or similar where the asset is displaying movement and/or noise under the application of a load. Such defects may occur in the carriageway, footway, cycleway or verge.

This is a **Safety Defect** and should be prioritised depending upon the relative displacement and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Missing



A gully, ironwork, manhole or similar where the cover component is missing thus creating a void in the carriageway, footway or cycleway surface.

This is a **Safety Defect** and should be prioritised depending upon the location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.

Parallel grating

A gully where the cover component pattern consists of slots that run parallel with the kerbline.

This is a **Safety Defect** and should be prioritised depending upon the grating size and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to cycles.



Smooth surface



A gully, ironwork, manhole or similar where the cover component is worn to an extent where grip is significantly reduced.

This is a **Safety Defect** and should be prioritised depending upon the severity of wear and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for cycles, especially motorcycles.

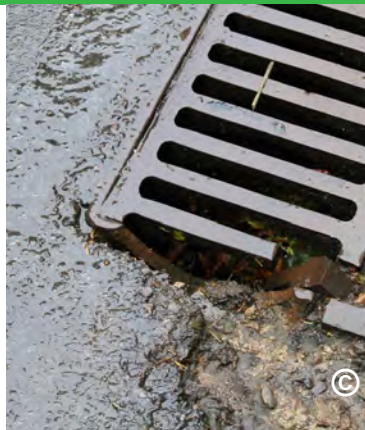
Damaged

A gully, ironwork, manhole or similar where the cover component is either damaged thus creating a void in the carriageway, footway or cycleway surface, or where it is rendered unserviceable.

This is a **Safety Defect** and should be prioritised depending upon the location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for cycles.



Kerbs, Edgings & Channels

Defects apply to the following asset types:

Kerb | Dropped kerb | Channel

Loose / rocking module

A kerb, channel block or similar module where the asset is displaying movement under the application of a load.

This is a **Safety Defect** and should be prioritised depending upon the relative displacement and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users.



Damaged



A kerb, channel block or similar module where the asset has been impaired by vehicle movement or natural weathering.

This is a **Safety Defect** and should be prioritised depending upon the height of the difference and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.

Misaligned (single module)

A single kerb stone, channel block or similar module where the asset has been displaced from the general line.

This may be a **Safety Defect** and should be prioritised depending upon the height of the difference and location of the problem.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Uneven (run of modules)



A continuous length of kerb stones, channel blocks or similar modules where the assets have been displaced from the general line.

This may be a **Safety Defect** and should be prioritised depending upon the height of the difference and location of the problem.

A threshold exists to help determine whether this type of defect should be classified as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Missing

Kerb stones, channel blocks or similar modules where the asset is missing due to damage or theft.

Such damage may lead to premature failure of adjoining asset items.

This may be a **Safety Defect** and should be prioritised depending upon the height of the difference and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Highway Drainage

Defects apply to the following asset types:

Gully | Catchpit | Interceptor | Grip | Ditch | Filter drain

Blockage

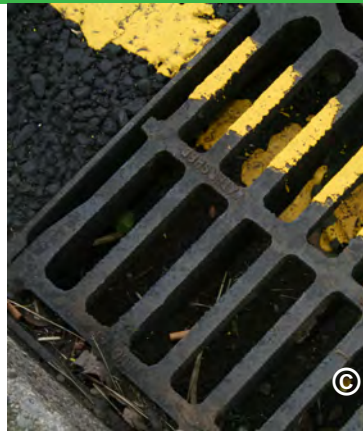
Drainage items that become blocked with detritus stopping the asset functioning as designed. This includes gullies that become blocked during resurfacing activities.

Where water is prevented from draining away this has the potential to permit ice formation during low temperatures.

This is a **Safety Defect** and should be prioritised depending upon the severity of the blockage and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Flooding



Drainage items that can be identified as the root cause for localised flooding should be recorded here.

Where water is prevented from draining away during low temperatures this has the potential to permit ice formation.

This is a **Safety Defect** and should be prioritised depending upon the severity and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.

Flood nuisance to property

Drainage items that can be identified as the root cause for localised flooding that affects business premises or other property should be recorded here.

Where water is prevented from draining away this has the potential to permit ice formation during low temperatures.

This is a **Safety Defect** and should be prioritised depending upon the severity and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users or may cause loss of control for vehicles.



Street Furniture

Defects apply to the following asset types:
Bus shelter | Non-illuminated bollard

Damaged

Street Furniture items that have been displaced, bent or moved should be recorded here.

This is a **Safety Defect** and should be prioritised depending upon the location of the problem. A risk management approach is required to allocate the correct priority of response to the defect.



Unsafe



Street Furniture items that have been broken should be recorded here.

This is a **Safety Defect** and should be prioritised depending upon the location of the problem. A risk management approach is required to allocate the correct priority of response to the defect.



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Grassed Areas

Defects apply to the following asset types:
Verge | Visibility splay | Embankment | Cutting

Inadequate visibility

Any grassed area where growth has reduced sightlines for forward visibility to road users should be recorded here.

This is a **Safety Defect** and should be prioritised depending upon the severity of the blockage and location of the problem.

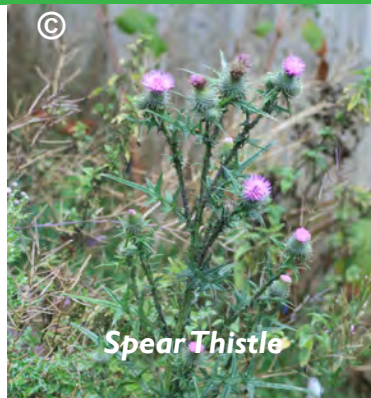
A risk management approach is required to allocate the correct priority of response to the defect.



Injurious weeds



Common Ragwort



Spear Thistle

This refers to a number of species listed under the Weeds Act 1959. These are:

- * Common Ragwort
- * Spear thistle
- * Creeping or field Thistle
- * Curled Dock
- * Broad-leaved Dock.

These plants can be toxic to cattle and horses and should be recorded as a **Safety Defect.**



Creeping Thistle



Curled Dock



Broad-leaved
Dock

Avoid unprotected contact with any such plants as they may contain chemicals which irritate or burn the skin.

Other invasive plants may be recorded here at the discretion of the Asset Manager.

Wheelrut

A wheelrut occurs where a vehicle, often an HGV has over-ridden a grassed area creating prominent tracks and displacing the grass and soil.

This may be a **Safety Defect** and should be prioritised depending upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Particular consideration must be given to prioritising those areas which may pose a hazard to vulnerable road users especially, where there is no footway provision and if there is known pedestrian usage.



Trees & Hedges

Defects apply to the following asset types:
Highway Tree | Hedge

Dead tree

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Dying / dead branch



This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Overhanging / low branch

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Fallen branch



This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Overgrown

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Fences & Barriers

Defects apply to the following asset types:

Safety fence | Boundary fence | Boundary wall | Pedestrian guardrail

Missing

This defect should be recorded where a section of fence, wall or guardrail is missing, rendering the asset ineffective for the purpose for which it was installed.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Accident damage



A fence / barrier is identified as having suffered accident damage when there is evidence of an impact that results in the loss of asset function and/or reduction in lifespan or value.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Damaged fence

A fence / barrier panel or rail is identified as damaged when there is NO evidence of an impact but there is still loss of asset function or value.

This may occur as the result of material fatigue, vandalism or wind damage for example. Worn, loose or missing brackets or other fixings should be recorded here.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Damaged post



A fence / barrier post is identified as damaged when there is NO evidence of an impact but there is still loss of asset function or value. This may occur as the result of material fatigue, vandalism or wind damage for example.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



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Road Studs

Defects apply to the following asset type:
Road stud

Damaged / missing Catseye

This defect is to be used to record where “Catseye” type road studs are exhibiting loss of asset function or may cause a hazard for road users.

Generally, a single missing or damaged rubber is not a **Safety Defect**.

However, a significant run of consecutive missing or damaged road studs - or a single displaced metal casing - may require recording as a **Safety Defect**.

A risk management approach is required to allocate the correct priority of response to the defect.



Damaged stud



This defect is to be used to record where "Adhesive" type road studs are exhibiting loss of asset function or may cause a hazard for road users.

Generally, a single missing or damaged stud is not a **Safety Defect**.

However, a significant run of consecutive missing or damaged road studs may require recording as a **Safety Defect**.



A risk management approach is required to allocate the correct priority of response to the defect.



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Road Marking

Defects apply to the following asset types:

Longitudinal line | Hatched line | Special & transverse line | Lettering

Worn

Road markings direct, guide and define boundaries for vehicles and pedestrians.

During their service life they may become worn and faded from traffic or weathering which results in the markings becoming incomplete and difficult to read.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Missing



Road markings direct, guide and define boundaries for vehicles and pedestrians.

During highway maintenance operations important lines at junctions or approaches to hazards may be removed (e.g. "GIVE WAY" or "STOP" lines).

A defect should be recorded if there are no temporary signs indicating "NO ROAD MARKINGS"

This may be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Incorrect

Road markings direct, guide and define boundaries for vehicles and pedestrians. Rarely, such guidance may be incorrectly marked on the surface and as such this may make the purpose of the marking unclear and/or unenforceable.

This can be a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Traffic Signals

Defects apply to the following asset types:
Traffic signal | Pedestrian crossing

Damaged

A traffic signal is identified as damaged when there is loss of asset function or value.

This may occur as the result of material fatigue, accident impact, vandalism or wind damage for example.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



No photograph
available

A traffic signal is identified as obscured when there is loss of asset function due to the masking of one or more lamps by graffiti, advertising or material fatigue.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Signals stuck

A traffic signal is identified as stuck when one or more lamps remain in the same phase without changing.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Lamp failure



A traffic signal is identified as failed when one or more lamps remain unlit during operation.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



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Street lighting & Electrical

Defects apply to the following asset types:
Street lamp | Illuminated sign | Illuminated bollard

On during day

This defect is to be recorded where illumination points remain lit during daylight hours.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Broken lamp



©

This defect is to be recorded where the lamp head is open and/or damaged in any way.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Exposed electrics

This defect is to be recorded where the door of an electrical asset is detached or broken allowing access to the internal wiring.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Accident damage



Electrical asset items are identified as having suffered accident damage when there is evidence of an impact that results in the loss of asset function and/or reduction in life span or value.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Lamp obscured

This defect is to be recorded where the lamp component is limited or prevented from illuminating as designed.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Poor structural condition



This defect is to be recorded where a component of an electrical asset item is rusted / corroded or ground conditions have caused the post to lean away from the vertical - both of which affect the structural stability of the asset.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

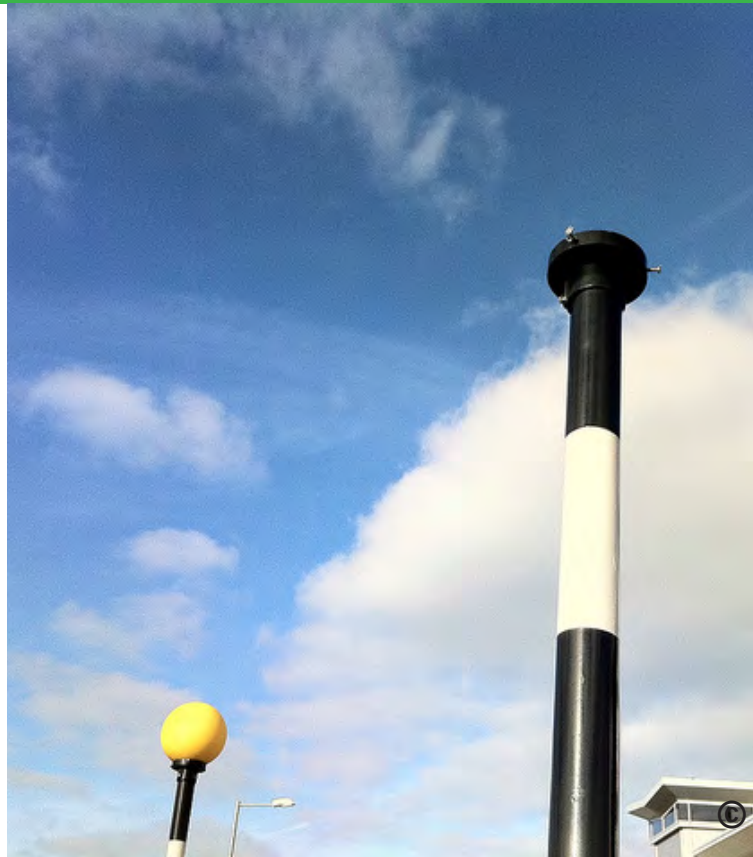
If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Missing

This defect is to be recorded where a component of the electrical asset is not present thus affecting the asset function.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Shell missing / damaged



This defect is to be recorded specifically where shell of an internally illuminated bollard has been damaged or is not present.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

© A risk management approach is required to allocate the correct priority of response to the defect.





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Structures

Defects apply to the following asset types:

Bridge | Subway | Embankment | Cutting | Retaining wall | Large culvert | Mast | Gantry

Bridge Strike

A bridge strike is an event in which a vehicle collides with a bridge. If a bridge strike is witnessed the situation should be dealt with as an **Incident**.

Any other structure asset that appears to have been compromised by vehicle impact should also be recorded here.

Specifically, Rail bridges have boards giving instruction on what to do if a bridge strike is witnessed. If such an event is witnessed then this must be the first course of action to follow.

A bridge strike is always dealt with as an incident and not under defect repair.



Damaged parapet



This defect should be recorded where there has been damage to the low protective wall or railing along the edge of a structure.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



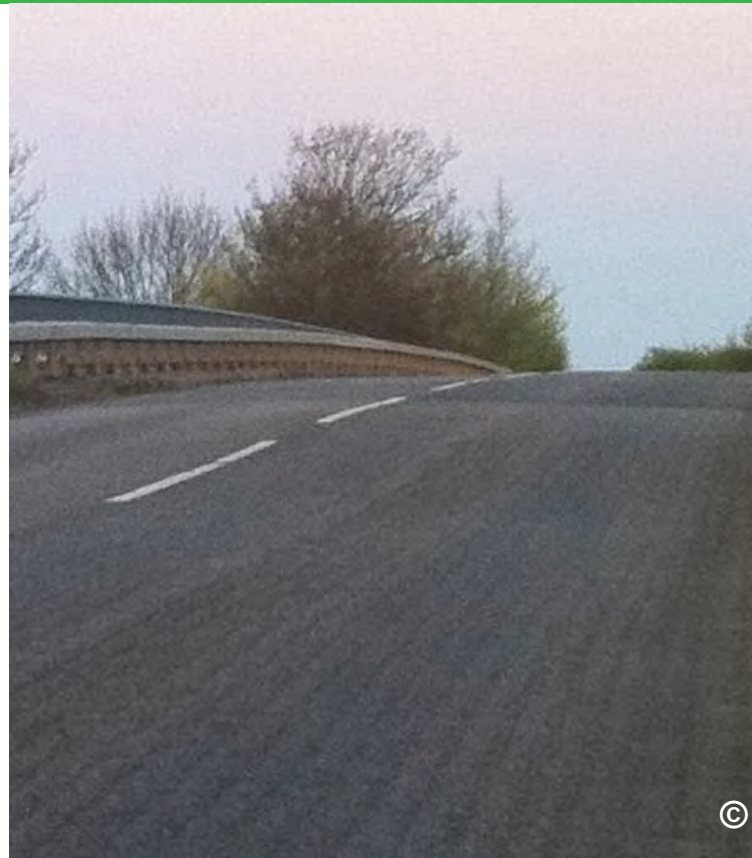
If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Abutment settlement

A defect should be recorded where there is a significant depression at the end of a bridge which has occurred as the result of differential settlement of back-filled material.

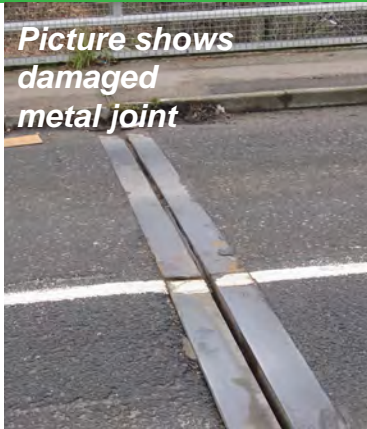
This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Expansion joint failure

*Picture shows
damaged
metal joint*



*Loss of material at
Asphaltic plug joint*



Expansion joints on bridges take many forms and a defect should be recorded where the gap has become silted or where an asphalt, metal or rubber joint has been displaced.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

*Picture shows
teeth which
can silt up*



Crack

A defect should be recorded where there is a crack or multiple cracks anywhere within the fabric of a structure.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Slip



A defect should be recorded where failure by displacement has occurred within a structure that retains material behind it, or natural rock/soil in the case of some embankments and cuttings.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.

Bulge

A defect should be recorded where any vertical or sub-vertical element is displaying evidence of increased pressure loading (it may also be leaning / unstable). A bulge may be a sign of imminent failure of a structural asset.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

If an urgent response is required then the situation is dealt with as an Incident and not under defect repair.



Utility defects

Defects that may be recorded relating
to utility company openings in the highway

Section 81

Any defective plant or apparatus within the highway that belongs to a Utility company should be recorded here.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Reinstatement failure



Any utility excavation that has been reinstated and now shows signs of settlement or materials failure should be recorded here.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Excavation

Any unguarded or unsupported excavation where there is a danger of trench collapse or road users falling into a trench should be recorded here.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Signing and Guarding

Any undertaking where the signing and guarding is inappropriate or incorrect should be recorded here.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Leak

Any utility (e.g. water | sewage | gas) where there is evidence of a leak should be recorded here.

A leak is always dealt with as an incident and not under defect repair.



Road Signs

Defects apply to the following asset type:
Road sign

Faded sign

This defect should be recorded where a sign face has become faded to the extent where it no longer conveys the message it was intended to present.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Missing sign



This defect should be recorded where a sign warning of a hazard or mandatory instruction is no longer present.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Damaged post

This defect should be recorded where the post component for a sign is damaged.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Damaged sign



This defect should be recorded where the sign face component is damaged.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.

Obscured sign

This defect should be recorded where a sign face has become obscured so that the message it was intended to present is no longer visible.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Accident damage



This defect should be recorded where multiple components of a sign have been damaged due to vehicle impact.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Misaligned sign

This defect should be recorded where a sign face has become rotated or has dropped to a position where the intended message is no longer obvious to the highway user.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Unauthorised sign



This defect should be recorded where a temporary sign or 'A' Board has placed within the highway boundaries without authorisation.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.



Sign face dirty / graffiti

This defect should be recorded where a sign face has become obscured by dirt, graffiti or algal growth so that the message it was intended to present is no longer visible.

This is a **Safety Defect** and should be prioritised based upon the extent and location of the problem.

A risk management approach is required to allocate the correct priority of response to the defect.





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Oxfordshire Highways contact details

To report a highway problem or defect:

Web: www.oxfordshire.gov.uk/fixmystreet

Tel: **0845 310 11 11**
8.30am - 5pm Monday - Thursday
8.30am - 4pm Friday

Fax: **0845 606 96 28**

Post: Highway Enquiries Team
Oxfordshire County Council
PO Box 842
Oxford
OX1 9LL