

The following matrices are to be used to direct when reactive works are required.

The matrices have been developed through a risk based approach relating to size and location. Should defects be smaller than those in the main matrix, guidance is provided in the notes section of the relevant matrix detailing how these defects will be categorised.

Matrix A - Debris / Spillage							
		SEVERITY					
		Extreme	Major	Moderate	Minor	Minor	Negligible
		Road Type 2	Road Type 3a	Road Type 3b	Road Type 3b	Road Type 4a	Road Type 4b
		Strategic 'A' rd routes	Main distributor - Major urban network and inter strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local roads	Minor rural roads and urban culs-de-sac
LIKELIHOOD	Very Likely Environmental Hazardous and Trees in the carriageway	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Likely Non Environmental Hazardous	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 4 10 working days	Cat 4 10 working days

**Notes**

Environmental hazardous spillages include - petrol, diesel, oil, other vehicle fluids, chemicals, bodily fluids and sewage. Non-environmental hazardous spillages include mud, sand, grain, dry goods. Removal of non-environmental spillages should only be instructed where the spillage represents a danger to road users and cannot wait until the next routine cleanse. Under the terms of the Environmental Protection Act 1990 street cleansing, including sweeping is the responsibility of the relevant district and borough council. For non-environmental hazards - the 2hr response is to attend and make safe, likely by signing. A further decision on how to cleanse or remove the debris, coordinated by the superintendent.

This matrix includes the adjacent footway.

### Defect Response Matrix B – Level Difference

Matrix B - Carriageway Level Difference							
		SEVERITY					
		Extreme	Major	Moderate	Minor	Minor	Negligible
		Road Type 2	Road Type 3a	Road Type 3b	Road Type 3b	Road Type 4a	Road Type 4b
		Strategic 'A' rd Routes	Main Distributer - Major Urban Network and Inter Strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local Roads	Minor rural roads and urban culs-de-sac
LIKELIHOOD	Very likely >100mm	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days
	Likely 75-100mm	Cat 2 2 working days	Cat 2 2 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 4 10 working days	Cat 5 20 working days
	Possible 50-74mm	Cat 3 5 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 5 20 working days	Cat 6 14 calendar weeks
	Unlikely 25-49mm	Cat 5 20 working days	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
	Rare <25mm	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
<b>Notes</b> Examples of level differences maybe - where a concrete slab has risen or fallen above the adjacent slab, where a carriageway widening joint or haunch has risen or fallen in relation to the adjacent carriageway. Consideration should be given to the location of the level difference within the carriageway including how it relates to direction of travel.							

### Defect Response Matrix C – Potholes

Matrix C - Potholes							
		SEVERITY					
		Extreme	Major	Moderate	Minor	Minor	Negligible
		Road Type 2	Road Type 3a	Road Type 3b	Road Type 3b	Road Type 4a	Road Type 4b
		Strategic 'A' rd Routes	Main Distributer - Major Urban Network and Inter Strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local Roads	Minor rural roads and urban culs-de-sac
		400mm dia	400mm dia	400mm dia	400mm dia	400mm dia	400mm dia
LIKELIHOOD	Very likely >100mm	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days
	Likely 75-100mm	Cat 2 2 working days	Cat 2 2 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 4 10 working days	Cat 5 20 working days
	Possible 50-74mm	Cat 3 5 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 5 20 working days	Cat 6 14 calendar weeks
	Unlikely 25-49mm	Cat 5 20 working days	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
	Rare <25mm	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works

**Notes**

If the diameter is between 300 and 399mm drop down one category (e.g. Cat 2 becomes Cat 3), if the diameter is between 200 and 299mm drop down 2 categories. If less than 199mm drop down 3 categories.

Defects under 25mm in depth do not need to be recorded.

Please note whether joint sealing is required.

## Defect Response Matrix D – Ironwork

Matrix D - Ironwork							
		SEVERITY					
		Extreme	Major	Moderate	Minor	Minor	Negligible
		Road Type 2	Road Type 3a	Road Type 3b	Road Type 3b	Road Type 4a	Road Type 4b
		Strategic 'A' rd Routes	Main Distributer - Major Urban Network and Inter Strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local Roads	Minor rural roads and urban culs-de-sac
LIKELIHOOD	Very likely Missing and Collapsed >300 x 200mm	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Likely Missing and Collapsed <299 x 199mm	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 2 2 working days	Cat 2 2 working days
	Possible Sunken, risen or broken >300 x 200mm (100mm or greater in depth)	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days
	Unlikely Sunken, risen or broken <299 x 199mm (less than 100mm depth)	Cat 2 2 working days	Cat 2 2 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 4 10 working days	Cat 4 10 working days
	Rare Noisy / worn	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
<b>Notes</b> Reference required in ordering defect as to whether ironwork is missing, collapsed, sunken or broken. For utility covers refer to section 81 notes for guidance.							

Refer to Appendix 4 for Section 81 guidance on attending and reporting defective statutory undertakers' apparatus

### Defect Response Matrix E – Flooding affecting the highway

Matrix E - Flooding affecting Highway (C/Way)							
		SEVERITY					
		Extreme	Major	Moderate	Minor	Minor	Negligible
		Road Type 2	Road Type 3a	Road Type 3b	Road Type 3b	Road Type 4a	Road Type 4b
		Strategic 'A' rd Routes	Main Distributer - Major Urban Network and Inter Strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local Roads	Minor rural roads and urban culs-de-sac
LIKELIHOOD	Potential dangerous flooding	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 2 2 working days	Cat 3 5 working days	Cat 3 5 working days
	Blocked drainage causing flooding on the highway	Cat 4 10 working days	Cat 4 10 working days	Cat 5 20 working days	Cat 5 20 working days	Cat 7 Potential future works	Cat 7 Potential future works
	Blocked or silted up road gully, not causing flooding	Cat 5 20 working days	Cat 5 20 working days	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works

**Notes**

Blocked drainage systems will be attended to under the matrix shown above. Remedial works will be carried out to try to unblock the system, however it may not be possible to treat within the timescales noted above if the drainage system is damaged or located within private land.

For blocked drainage causing flooding on the highway on Road Types 4a and 4b, review against cyclic programme before considering further action.

### Defect Response Matrix F – Street Furniture







Matrix F - Street Furniture							
		SEVERITY					
		Extreme	Major	Moderate	Minor	Minor	Negligible
		Road Type 2	Road Type 3a	Road Type 3b	Road Type 3b	Road Type 4a	Road Type 4b
		Strategic 'A' rd Routes	Main Distributer - Major Urban Network and Inter Strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local Roads	Minor rural roads and urban culs-de-sac
LIKELIHOOD	Very likely Within the carriageway	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Likely Blocking the footway	Cat 2 2 working days	Cat 2 2 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 5 20 working days
	Possible Within the footway	Cat 3 5 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 5 20 working days	Cat 7 Potential future works
	Unlikely/Rare Within the verge	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
<b>Notes</b> Non-electrical equipment, including guard posts (bollards) restricting access, excluding traffic signs and pedestrian barriers. If street furniture is within footway but pedestrians can safely travel past without entering the carriageway, use the 'Within the footway' row. Reflectorisised bollards with road signs are covered in Matrix G							

### Defect Response Matrix G – Road Signs

Matrix G - Road Signs							
		SEVERITY					
		Extreme	Major	Moderate	Minor	Minor	Negligible
		Road Type 2	Road Type 3a	Road Type 3b	Road Type 3b	Road Type 4a	Road Type 4b
		Strategic 'A' roads	Main distributor - major urban network and inter strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local roads	Minor rural roads and urban cul-de-sac
LIKELIHOOD	Very Likely/Likely Mandatory sign missing or heavily obscured	Cat 2 2 working days	Cat 2 2 working days	Cat 2 2 working days	Cat 4 10 working days	Cat 5 20 working days	Cat 5 20 working days
	Possible Warning sign missing	Cat 5 20 working days	Cat 5 20 working days	Cat 5 20 working days	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
	Unlikely/Rare Regulatory, Information, ADS or Tourist sign missing	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works

**Notes**

Non electrical equipment only. Include reflectorised bollards with traffic sign for example dia. No. 610. Mandatory signs are referenced as Diagram No. 601.1; 606; 609; 610; 616; 670 for 30 and 40mph speed limit terminal signs. The matrix will be fully reviewed now TSRGD 2016 has been published. Insert pictures of signs

Diagram No.	601.1	Dia 606	Dia 609	Dia 610	Dia 616	Dia 670
						



### Defect Response Matrix H – Fencing and Barriers

Matrix H - Fencing and Barriers							
		SEVERITY					
		Extreme	Major	Moderate	Minor	Minor	Negligible
		Road Type 2	Road Type 3a	Road Type 3b	Road Type 3b	Road Type 4a	Road Type 4b
		Strategic 'A' rd Routes	Main Distributer - Major Urban Network and Inter Strategic routes	Main urban secondary distributor roads	Main rural secondary distributor roads	Local Roads	Minor rural roads and urban culs-de-sac
LIKELIHOOD	Very Likely Bridge Parapets	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Likely Safety Fences	Cat 2 2 working days	Cat 2 2 working days	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks
	Possible Pedestrian Barriers - preventing unintentional carriageway access	Cat 2 2 working days	Cat 2 2 working days	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks
	Unlikely Pedestrian Barriers - guiding to crossing points	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
	Rare Other fences	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works

**Notes**

Where safety fencing is provided or pedestrian barrier has been provided to guide pedestrians to the crossing point, a risk assessment should be carried out to consider whether it is still necessary, before carrying out replacement.

Safety fencing and pedestrian barriers on Type 2 and 3a with 48hrs make safe response, permanent repair to be delivered as Cat 6 (14 weeks)



### Defect Response Matrix I – Kerbing

		SEVERITY					
		Extreme Road Type 2	Major Road Type 3a	Moderate Road Type 3b	Minor Road Type 3b	Minor Road Type 4a	Negligible Road Type 4b
		Strategic 'A' rd Routes	Main Distributer - Major Urban Network and Inter Strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local Roads	Minor rural roads and urban culs-de- sac
LIKELIHOOD	Very likely >50mm	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 3 5 working days
	Likely 25 to 50mm	Cat 3 5 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 4 10 working days	Cat 4 10 working days
	Unlikely <25mm	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works

**Notes**  
This matrix should be used for the kerb face, the defect is protruding out from the face of the kerb. The top / horizontal surface of the kerb should be treated as footway trip, please refer to matrix K (Footway Trips).

## Defect Response Matrix J – Carriageway Deterioration

Matrix J - Edge of carriageway deterioration							
		SEVERITY					
		Extreme	Major	Moderate	Minor	Minor	Negligible
		Road Type 2	Road Type 3a	Road Type 3b	Road Type 3b	Road Type 4a	Road Type 4b
		Strategic 'A' rd Routes	Main Distributer - Major Urban Network and Inter Strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local Roads	Minor rural roads and urban culs-de-sac
		200mm wide	200mm wide	200mm wide	200mm wide	200mm wide	200mm wide
LIKELIHOOD	Very likely >100mm	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days
	Likely 75-100mm	Cat 2 2 working days	Cat 2 2 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 4 10 working days	Cat 5 20 working days
	Possible 50-74mm	Cat 3 5 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 5 20 working days	Cat 6 14 calendar weeks
	Unlikely 25-49mm	Cat 5 20 working days	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
	Rare <25mm	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
	Very likely (verge deterioration) Any change in level difference between the metallised surface and the adjacent verge - exceeding 300mm wide by 150mm depth, immediately adjacent to the carriageway edge over 10m in length	Cat 2 2 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 5 20 working days	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks
<b>Notes</b> The defect is noted from the edge of the metallised surface into the running surface. If the deterioration is between 150 and 199mm drop down one category on the chart, if the deterioration is between 100 and 149mm drop down 2 categories. If less than 99mm drop down 3 categories. If the verge deterioration is between 149mm and 100mm drop down 1 category, if the deterioration is between 99mm and 75mm drop down 2 categories.							

## DEFECT RESPONSE MATRICES - FOOTWAY AND VERGE

The following matrices are to be used to direct when reactive works are required.

Regardless of the intervention criteria listed above, the application of higher standards may be considered appropriate in sensitive locations such as schools, shopping centres, hospitals and elderly accommodation.

There is also a need to apply footway intervention criteria to areas of carriageway included within controlled pedestrian crossings or in sensitive/well used locations where there is no adjacent footway (e.g. a local walking route to a school).

The matrices have been developed through a risk based approach relating to size and location. Should defects be smaller than those in the main matrix, guidance is provided in the notes section of the relevant matrix detailing how these defects will be categorised.

### Defect Response Matrix K – Footway Potholes

Matrix K - Footway Potholes					
		SEVERITY			
		Extreme	Major	Moderate	Minor / Negligible
		1	2	3	4 (Mandatory Cycle Lanes C/Way)
		Busy urban shopping and business areas	Medium use routes, local areas local shopping areas	Linking local access ways through urban areas and busy rural areas	Low usage
		200mm diameter	200mm diameter	200mm diameter	200mm diameter
LIKELIHOOD	Likely / Very likely >40mm	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 2 2 working days
	Possible 20 - 40mm	Cat 2 2 working days	Cat 2 2 working days	Cat 5 20 working days	Cat 5 20 working days
	Unlikely 10 - 19mm	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
	Rare <10mm	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
<b>Notes</b> If the diameter of defect is between 150mm and 199mm drop down one category (e.g. a Cat 2 becomes a Cat 3), defects between 100mm and 149mm drop down 2 categories.					

## Defect Response Matrix L – Footway Trips

Matrix L - Footway Trips					
		SEVERITY			
		Extreme	Major	Moderate	Minor / Negligible
		1	2	3	4 (Mandatory Cycle Lanes C/Way)
		Busy urban shopping and business areas	Medium use routes, local areas local shopping areas	Linking local access ways through urban areas and busy rural areas	Low usage
LIKELIHOOD	Likely / Very likely >40mm	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 2 2 working days
	Possible 20 - 40mm	Cat 2 2 working days	Cat 2 2 working days	Cat 5 20 working days	Cat 5 20 working days
	Unlikely 10 - 19mm	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
	Rare <10mm	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
	Very likely Any change in level difference between the existing footway and adjacent verge - exceeding 100mm immediately adjacent to the walking surface over 1m in length.	Cat 3 5 working days	Cat 5 20 working days	Cat 7 Potential future works	Cat 7 Potential future works
<b>Notes</b> Mandatory cycle lanes on the carriageway should be treated as type 4 footways for intervention timescales					

## Defect Response Matrix M – Footway Ironworks

Matrix M - Footway Ironworks				
LIKELIHOOD	SEVERITY			
	Extreme	Major	Moderate	Minor / Negligible
	1	2	3	4 (Mandatory Cycle Lanes C/Way)
	Busy urban shopping and business areas	Medium use routes, local areas local shopping areas	Linking local access ways through urban areas and busy rural areas	Low usage
	Very likely Missing and Collapsed >150 x 150mm	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days
	Likely Missing and Collapsed <150 x 150mm	Cat 2 2 working days	Cat 2 2 working days	Cat 2 2 working days
	Possible Sunken or Risen >20mm	Cat 2 2 working days	Cat 2 2 working days	Cat 5 20 working days
Possible Broken	Cat 5 20 working days	Cat 5 20 working days	Cat 5 20 working days	Cat 5 20 working days
Unlikely Sunken or Risen <20mm	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
Rare Noisy / worn	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
<b>Notes</b> Reference required in ordering defect as to whether ironwork is missing, collapsed, sunken or broken. For utility covers refer to section 81 notes for guidance. For broken covers if the area broken is 150mm x 150mm or greater use missing or collapsed timescale.				

Refer to Appendix 4 for Section 81 guidance – Attending and Reporting Defective Statutory Undertakers Apparatus

## Defect Response Matrix P – Vegetation

Matrix P - Vegetation							
		SEVERITY					
		Extreme Road Type 2	Major Road Type 3a	Moderate Road Type 3b	Minor Road Type 3b	Minor Road Type 4a	Negligible Road Type 4b
		Strategic 'A' rd Routes	Main Distributer - Major Urban Network and Inter Strategic routes	Main rural secondary distributor roads	Main urban secondary distributor roads	Local Roads	Minor rural roads and urban culs- de-sac
		Monthly	Monthly	3 Monthly	3 Monthly	6 Monthly	6 Monthly
LIKELIHOOD	Tree threatening the highway	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 2 2 working days
	Branches threatening to fall into the highway or likely to be in collision with passing vehicles	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 2 2 working days	Cat 3 5 working days	Cat 3 5 working days
	Vegetation forcing pedestrians into the carriageway	Cat 2 2 working days	Cat 2 2 working days	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 5 20 working days
	Vegetation forcing traffic into opposing traffic lanes or preventing access for emergency vehicles	Cat 3 5 working days	Cat 3 5 working days	Cat 4 10 working days	Cat 4 10 working days	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks
	Vegetation obscuring visibility at junction	Cat 4 10 working days	Cat 5 20 working days	Cat 5 20 working days	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks	Cat 6 14 calendar weeks
	Vegetation affecting overhead or underground utility equipment	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works	Cat 7 Potential future works
<b>Notes</b> Refer to Road Sign Matrix G for vegetation obscuring signs. For fallen trees refer to the Debris and Spillage Matrix A. Branches are defined as being of significant size, in that if they fell they would cause serious injury or damage. In terms of rows 1 and 2 this is also relevant to a highway tree or its branch, that may fall outside of the highway and has been risk assessed to potentially cause serious injury or damage.							