

Luton

Highway Maintenance Operational Manual

October 2018

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1.0 Introduction

The Highway Maintenance Operational Manual is designed to provide a framework for highway inspectors to carry out their inspections and determine the main risks on the public highway to the user, and give guidance on how to mitigate those risks.

The document details the different assets on the highway with a brief description of the approach for maintaining these assets. In the carriageway footway and cycleway sections the hierarchy for Inspections is detailed.

Each section details what a safety inspection should identify and what a service inspection in addition should identify.

Appendix 1 details the associated risks on the highway, and the criteria for remedy together with the associated response times for remedy.

The highway Inspector should follow the risk assessment matrices when deciding what to repair, and the time response for remedial action. However if the Inspector determines the risk as requiring a more urgent response time then they have the option to do so, with their justification documented in the note field of their handheld devices.

Street lighting, traffic lights, ITS systems, structures, rights of way, highways enforcement and the Busway are outside the scope of this document.

A detailed approach to managing Luton's Highway Infrastructure can be found in Luton Council's Highway Infrastructure Asset Management Plan (HIAMP).

The HIAMP and this manual is reviewed on an annual basis with an updated version published due to be published in October 2019.

2.0 General Safety Inspection

The Highway Inspectors should identify what is a potential defect on the highway utilising the risk matrices in Appendix 1. Whilst the risk matrices is a comprehensive list, there may be other hazards on the highway not identified and the Inspector would be expected to use the same principles, with the higher the usage the more likelihood of an accident occurring.

3.0 General Service Inspections

As well as safety defects the service inspections will identify solutions that will ensure that the highway is accessible and reliable for the user. The highway has different components but they should all function together as a network

For example:

- Well drained carriageways will aid the durability of a carriageway surface
- Signs that are visible, easy to understand consistent, in the right location, aid the highway user in their journey
- Well Maintained road markings allow the user to traverse the highway safely and also enable parking restrictions to be enforced
- Consistent dropped crossings with tactile crossings allow the vulnerable pedestrian users to cross the road safely
- Well Maintained grass verges provide amenity to the residents and aids the drainage of the highway
- Defective ironworks can cause the similar hazards to the user as a pothole or paving trips

As well as promoting functioning networks the service inspection will gather data on condition of footways and carriageways that will provide evidence to enable the asset manager to create schemes.

4.0 Carriageway

It is recognised that speed is a factor for damage to a vehicle as a result of a pothole. A vehicle travelling at 20 mph is less likely to damage their car on a pothole that is >50mm in depth, compared to a vehicle who is travelling at 40 mph.

Therefore response times for >50mm deep potholes has been increased for links roads and local access roads to allow for a permanent patch to be considered as an option for a first time response.

Potholes identified on the Resilient Network greater than 30mm in depth will be identified for repair. It is recognised that potholes greater than 30m but less than 40mm are less likely to cause damage so response times have been risk assessed to allow for a permanent patch to be organised as a first time response.

Table 1 Carriageway Hierarchy

Category	Type of Road General Description	Detailed Description	Speed Limits	Safety Inspection	Service Inspection
Strategic Route	A Routes between Primary Destinations	Strategic Network that forms part of the Resilient Network. Links airport from M1 to the A1* (via the A505). Links to major public transport hubs. Major emergency service routes to Luton and Dunstable Hospital, and Fire & Ambulance Stations and adjoining Police Station. Pedestrian crossings are controlled.	>30<50	1 month driven	Annually walked or driven
Main Distributor	Major Urban Network and Inter Primary Links B and C Routes	Remaining part of Resilient Network, Routes connecting the strategic network to major industrial and utility infrastructure. Includes major supermarkets and links to major business parks. Main bus routes and alternative routes to Luton and Dunstable Hospital.	>30<40	1 month driven	Annually walked
Secondary Distributor	Unclassified Urban routes carrying bus and local traffic with frontage access and frequent junctions	Town Centre roads and residential routes to the main distributor, major educational establishments. These routes have high levels of pedestrian activity, and controlled parking. These routes include minor bus routes.	>20<30	3 month driven	Annually Walked
Link Road	Roads linking between main distributor and secondary distributor , with frontage access and frequent junctions	Interconnecting residential or industrial roads. These routes have fluctuant pedestrian movements. These routes can also include minor bus routes.	<20>30	6 Monthly walked with Link footway	Annually Walked
Local Access Roads		Residential loops or cul-de-sacs.	<20>30	n/a	Annually Walked

4.2 Safety Inspection Carriageways

The safety inspections are undertaken by two highway inspectors in a vehicle to detect defects likely to present a danger or nuisance to the travelling public. The defects will be repaired according to the response time defined in the risk assessment matrix on page 8

Typical defects identified on a carriageway safety inspection include: pothole, depressions, and level difference. The Inspector should consider the minimum work required to remedy the defect. Where a seven or 28 day repair is required, a patch should be considered as a remedy as opposed to cold applied materials such as Instarmac.

4.3 Service Inspection Carriageways

Service inspection identifies highway defects using the risk assessment matrices, and includes scoring the overall condition of the carriageway. Larger areas of patching can be considered on a service inspection to remedy deformation, cracking and crazing, however this should be managed by the maintenance manager subject to budget: Patching should be limited to 50m². If the carriageway surface requires > 50m² to remedy, this should be referred to the asset manager via the condition score.

5.0 Footway

As part of Luton Council's LTP the authority is committed to increase levels of walking to promote a healthier lifestyle and cut obesity through exercise. The council also wants to encourage children to walk to school. To deliver the LTP objective resources should be targeted at maintaining the footway condition for footways with the highest pedestrian footfall along strategic walking routes.

Within the Prestige Walking Zones palates of paving should be used to improve the public realm space as part of the corporate objective of enhancing the built environment.

The council will ensure that there are either controlled or uncontrolled crossing points for vulnerable users in the Prestige Walking Zones and Primary Waling Routes by 2020.

Within conservation areas the authority will work towards converting areas of defective footway to paving that compliments the local area. This can only be achieved with a high kerb face to prevent vehicle overrun. This is a long term aspiration over the next ten years.

Table 2 Footway Hierarchy

Category	Description	Safety Inspection	Service Inspection
1 Prestige Walking Zones	Very high pedestrian volume in main town centre thoroughfares, and Bury Park shopping areas. High public space and street scene contribution including Luton Station Interchange and pedestrian route from railway station to The Mall encompassing footways in the Cultural Quarter. Includes areas of high volume of bus passenger traffic in Church Street, and footways leading from town centre to University entrances in Park Square and St Mary's Square.	1 monthly	Annually
1a Primary Walking Routes	Busy urban streets leading into Cultural Quarter, Town Centre and Bury Park. Routes leading from bus stops and car parks into the Hospital. Other busy urban shopping areas, Doctor Surgeries, Routes from Cromwell Road to Kenilworth Road Football Ground. Footways leading to other Train Stations.	1 monthly	Annually
2 Secondary Walking Routes	Medium usage routes through local areas leading into Primary Routes, smaller shopping centres. Footways leading from 300 meters from main gates of educational establishments. Footways leading to main park and leisure centre areas 300 metres from entrance.	3 monthly	Annually
3a Link Footways	Linking local access footways and defined footpath through urban areas, comprised of paving slabs or mixed asphalt and paving slabs.	6 Monthly	Annually
3b Link Footways Asphalt	Linking local access footways and defined footpaths through urban areas, where the surface is comprised of asphalt only.	As part of Service Inspection	Annually
4 Local Access Footways	Footways associated with low usage, short estate roads to the main routes and cul- de sacs.	As part of Service Inspection	Annually

5.1 Footway Safety Inspection

Highway safety inspections identify: footway trips, depressions, footway potholes, kerbing/ edging defects, and footway iron works defects according to the risk matrix on page 14. Footway trips include defects at the kerb face at the front of the footway or grass verge. The inspector will organise the repair of defects according to the risk assessment matrices in appendix 1E TO 1J.

The inspector should consider the minimum amount of work required to remedy the defect.

All controlled and uncontrolled crossing points are assessed using footway matrices including the line of direction traversed in the carriageway.

5.2 Footway Service Inspection

The inspector can consider identifying larger areas of the footway to remedy defects; however this should be managed by the maintenance manager and is subject to budgets:

The inspector should assess the overall condition of the footway based on a Red Amber Green (RAG) condition scoring system for potential works. See page 22 for details. This establishes the nature and extent of the defects and examines the overall quality of the surface. Footways that are categorised as red are considered for a 5 year programme of footway reconstruction. Those footways falling into the Prestige and Primary Walking Routes are considered first.

For the Prestige and Primary Walking Zones the highway inspector assess the level and requirements of pedestrian access through controlled or uncontrolled crossing points, and make recommendations to the asset manager for improvements for the vulnerable user. Crossings that have a kerb face of greater than 6mm may be referred to the asset manager who will prioritise the schemes based on the hierarchy.

5.3 Tree Roots

Tree roots: Where there is an abrupt trip caused by the tree root damage to the footway follow risk matrix 1F in appendix 1.

Where there is a difference of level identified in risk matrix IJ. This is a trigger for an investigation

If there is a minimum of 1.2 metre clearance in width of the footway the defect can be made safe with barriers where required.

Removing a tree should only be considered if all other options are not viable. Please see Flow Chart 1 for guidance in appendix 1.

6.0 Section 81 Notices

In cases where it is difficult or impossible to identify the utility, the local highway authority must accept responsibility for making sure the highway is safe under Section 41 of the Highways Act 1980.

The inspector will visit site and decide if the defective apparatus constitutes as an emergency. See risk matrices 1L.

6.1 Emergency

Section 52 of NRSWA 1991 defines emergency works as *'works whose execution at the time when they are executed is required in order to put an end to, or prevent the occurrence of, circumstances then existing or imminent (or which the person responsible for the works believes on reasonable grounds to be existing or imminent) which are likely to cause danger to persons or property'*.

The site must be made safe to the signing, lighting and guarding requirements of the 'Traffic Signals Manual - Chapter 8' by an accredited emergency response gang provided by Volker Highways and reported immediately to the owner of the apparatus stating, that Luton Council has 'made safe' under the local highway authority's 'duty of care' and that the apparatus owner must attend and repair the apparatus within 2 hours.

Dependent on the risk assessed, site attendance may be required until made safe. A fit-for-purpose vehicle must be used to warn road users of possible danger ahead and under no circumstances should unaccredited staff manage traffic. Only accredited operatives can manage site and traffic management including stop/go boards, traffic signals.

Footway apparatus defects – pedestrian sign boards may be used.

6.2 Non-Emergency

Definition: Apparatus not requiring emergency action that requires attention to comply with specifications or remove nuisance (e.g. noise) or has the potential to escalate to emergency status in the future. A 28-day response time is issued to the owner of the apparatus.

Examples of apparatus requiring attention:

- Missing covers/frames;
- Sunken or raised covers/frames;
- Cracked or incomplete covers/frames;
- Rocking covers/frames;
- Cracked or damaged covers that tilt when trodden on or driven over;
- Worn/polished covers (such examples in carriageways or cycleways could be defined as an emergency depending on circumstances/location);
- Chamber collapses;
- Missing doors to cabinets and electricity sub-stations.

Identification of statutory undertaker ownership is normally established. If it is difficult to determine, Luton's Street Works Team can issue notices to all statutory undertakers, allowing them to accept or deny ownership. The use of statutory undertaker plans can also be used to help determine the owner of the apparatus.

- The site must be made safe if the defect is dangerous while ownership investigations are carried out.
- Inspection covers should not be lifted as there can be a danger from potentially combustible gases being ignited - as identified through risk assessment

6.3 Out of Hours Reports

Luton highways attend and make safe in accordance with Defect Response Matrices see 1L in Appendix 1 and follows the procedure for Emergency or Non – Emergency procedure.

7.0 Cycleways

A Local Transport Plan objective is to encourage more cycling as sustainable mode of transport. Cycling is an activity that promotes a healthier lifestyle. Evidence suggests people would like to cycle more. Many journeys are short and therefore achievable on a bicycle. The use of the bicycle significantly improves access to a wider range of services and opportunities in the town. The council works with Sustrans to create additional cycle routes to complete any key gaps on the network. The policy is to realise integrated routes that function well, have clear signing, and a usable surface.

Table 3 Cycle Routes Hierarchy

Description	Safety Inspection	Service Inspection
<p>Cycle lane forming part of the carriageway, commonly a strip adjacent to the nearside kerb.</p> <p>Cycle gaps at road closure point (no entry to traffic, but allowing cycle access).</p>	Carriageway Inspection	Annually
<p>Shared cycle/pedestrian paths, either segregated by a white line or other physical segregation, or un-segregated (which could be Footway Type 1, 2 or 3)</p>	Applicable Footway Inspection	Annually
<p>Cycle trails, leisure routes through open spaces. These are not necessarily the responsibility of the local highway authority, but may be maintained by an authority under other powers or duties.</p>	Annually	Annually

7.1 Safety Inspection Cycleway

Safety Inspections are undertaken at the same time as carriageway inspections for cycle ways forming part of the carriageway and footway inspections for cycle ways on the footway as shared or segregated route. Cycle trails are inspected annually to identify safety and service issues. Defects should be identified according to the risk matrices in appendix 1E and 1F

7.2 Service Inspections

A yearly service inspection of the defined routes is carried out by the Luton Council's Cycle Team.

The overall condition of the surface is assessed either using the carriageway footway scoring system dependant on where the cycleway is situated. For cycle trails the footway scoring system should apply. Other defects such as polished iron works will also be identified.

Network Integrity is assessed to ensure continuity for the cycle user which will include ensuring consistent signing, and safe connectivity from carriageway to footway.

Cycle markings are also inspected and any defective or worn markings will be placed on planned programme of maintenance.

The service inspection examines minimum widths of the cycleway and potential obstruction from parked vehicles. The inspection will also ascertain levels of routes lost to verge/grass creep.

8.0 Traffic Signs and Non Illuminated

The policy is to ensure that the traffic signs are in accordance with Traffic Signs General Direction Regulations 2016. Signs should be legible, visible and facilitate effective use of the highway, satisfying network integrity. Traffic signs are Inspected on either carriageway or footway inspections, dependant on the sign being for drivers or pedestrians.

8.1 Safety Inspection

The following should be identified on a safety defect:

- Any non-illuminated sign that is structurally damaged, causing an obstruction to pedestrians and or not legible are identified for repair according to risk matrix 1K.
- Any sign obscured by vegetation is also actioned according to risk matrix 1K. Regulatory and warning signs are prioritised as the highest priority for repair

8.2 Service Inspection

The following should be identified on a service inspection:

- The condition of a signs and bollard should be assessed to see if it is fit for purpose, legible, clean.
- Service Inspections include an assessment to identify if the sign is appropriate or whether it is a distraction or detrimental to the street scene. This is done with the use of the Traffic Advisory Leaflet TAL 1/13.
- Inspection of Stop nd Give Way signs at minor roads should be included in the inspection of signs on major roads to which they control entry.

9.0 Pedestrian Guard Railing

It is the policy to maintain pedestrian guard railing where there are differences in level between the road and the adjacent land. Guard railing will be maintained outside school entrances and they should be painted in yellow. In the event of damage to guard railing a referral should be made to an engineer for assessments.

9.1 Safety Inspection

Identify damaged guard rails and make safe with a permanent repair according to Risk Matrix 1L.

9.2 Service Inspection

Identify the general condition of the guard railing, if the guard railing requires painting order, subject to budget.

10.0 Bollards and Posts

Bollards and posts are designed to prevent vehicle overrun on the footway at sensitive locations, and deter parking at pedestrian crossings. They should be used as a last resort to deter parking when all other options have been exhausted.

10.1 Safety Inspection

Any bollard or post that is structurally damaged, leaning or causing an obstruction to pedestrians should be identified for repair according to risk matrix 1P.

10.2 Service Inspection

If bollards need painting then consider subject to budget. Consider the requirement for a bollard, and if the bollard is no serving a purpose consider removing.

11 Road Marking

Luton recognises the importance that road markings can contribute to road safety by assisting the highway users to identify safety risks and any potential traffic conflicts. In addition well maintained waiting restriction markings allow the authority to manage on street parking effectively to ensure capacity of the network.

11.1 Safety Inspection

Any road markings identified as Critical and Significant on risk matrix 1M should be identified on Safety Inspection.

11.2 Service Inspection

In addition to Critical and Significant Lining, noticeable lining will be identified on a service inspection.

12 Gullies

The policy is to effectively mitigate against flooding by targeting resources to clean and repair systems that are in areas susceptible to flooding, and the resilient network. Those properties with a high risk of flooding are also deemed the highest priority for maintenance. The objective is to ensure that 95% of rain gullies are working by the end of 2019.

12.1 Safety Inspection

Identify blocked gullies that are causing water to pool on the footway or carriageway, and pass to the Surfacing and Drainage Engineer who will then priorities according to risk matrix 1N

12.2 Service Inspection

As above and other visibly blocked gullies, pass to the Surfacing and Drainage Engineer who will then priorities according to risk matrix 1N.

Table 4 Current Gully Schedule

Priority	Road	Frequency
1a	Resilient Network , areas susceptible to flooding, (including properties), tree lined roads and bottom of gradients > 5%	6 Monthly
1b	Remaining Part of Resilient Network	Once a year
2	All remaining roads with gradients >10%	Once a year
3	Victorian Areas of the Town	18 months
4	Residential areas Built after 1930's	18 months
5	Residential areas Houses Built after 1980's	24 months
F1	Priority 6 Footway Gullies in Prestige and Primary walking Routes	Once a year

13.0 Embankments and Cuttings

The object is to preserve the stability of the slopes in embankments and cuttings which are part of the highway and those adjacent to the highway. To implement any measures necessary to maintain highway safety in the event of a problem arising with regard to the stability of a slope.

13.1 Safety Inspection

A visual inspection will be carried out by the Highway Inspector as part of the associated carriageway or footway safety inspections as detailed in Table 1 page 6 and Table 2 page 9 respectively. Any defects will be rectified and passed on to the asset manager to review and action as required.

13.2 Network Serviceability

Slips and rock falls rarely happen. Any embankments that have been identified as vulnerable will be inspected by a Geo Technical Officer on an annual basis. The remaining embankments will be inspected by a Geo Technical Officer every five years.

14 Grass Verges

Grass verges play an important part in maintaining the aesthetics of the street scene and the built environment. Verges also absorb water runoff from rain fall.

It is the policy of Luton Council to maintain grass verges in areas where there is room to park on the carriageway without damaging the verge.

This should be implemented by the use of traffic orders prohibiting, parking on verges, and protection from wooden posts or other furniture as a secondary measure.

Where there is damage as a result of a narrow road where parking on the carriageway is difficult, solutions should be considered to affect the parking capacity, for example changing the traffic to one way, or prohibiting parking on one side of the street. If this is not feasible and the plan receives overwhelming objection from the residents then the consideration should be giving to asphalt the verge as a last resort.

14.1 Safety Inspection

Rutting greater than 50mm in depth should be repaired, reseeded and protected, according to defect risk assessment matrices in Appendix 1 1R.

14.2 Service Inspection

Identify general condition of the verge, worn areas of grass, and the extent of parking on verge.

15.0 Road Restraint Systems

All (RRS) are maintained on dual and single carriageways in excess of 40 mph. If Road Restrain Systems are damaged and are on a carriageway with a speed limit of up to 30 mph, then the barrier can be referred to a highways engineer to review the requirement for a barrier.

15.1 Safety Inspection

Damaged RRS either made safe or permanently repaired according to defect risk assessment matrix appendix 1Q

15.2 Service Inspection

A specialist qualified Inspector in RRS will undertake the following Inspection every three years: Tensioning bolts of steel tensioned safety fence checked and reset to correct torque. Steel and wire rope safety fence including end terminals are inspected in respect of structural integrity, and mounting height.

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Appendix 1 Risk Matrices

The Highway Inspector should follow the risk assessment matrices when deciding what to repair and the time response for remedial action. However if the inspector determines the risk as requiring a more urgent response time then they have the option to do so, with their justification documented in the note field of their handheld devices.

1A CARRIAGEWAY POTHOLES

		Probability				
		High	High - Moderate	Moderate	Low	V.Low
		Strategic Network	Main distributor	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
		>150mm dia	>150mm dia	>150mm dia	>150mm dia	>150mm dia
Impact	Critical: >75mm	Cat 1 2 hours	Cat 1 2 hours	Cat1 1 2 hours	Cat 2 24 hours	Cat 2 24 hours
	Significant :>50mm+<75mm	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 3 10 days	Cat 4 28 days
	Noticeable >30mm + <49mm	Cat 4 28 days	Cat 4 28 days	No Action	No Action	No Action
	Negligible < 30mm	No Action	No Action	No Action	No Action	No Action

Condition
Score
Service
Inspection

Programme Subject to budget and priority of network

Score	Parameter	Suggested Considered Treatment
Red	> 30mm 10+ No	Surfacing Inlay
Amber	> 30mm 5+ No	Patching Programme
Green	<30mm 10+ No	Micro Programme

1B CARRIAGEWAY LEVEL DIFFERENCE

		Probability				
		High	High-Moderate	Moderate	Low	V.Low
		Strategic Network	Main distributor	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
		500m> Horizontal	500m> Horizontal	500m> Horizontal	500m> Horizontal	500m> Horizontal
Impact	Critical : >75mm	Cat 1 2 hours	Cat 1 2 hours	Cat1 2 hours	Cat 2 24 hours	Cat 2 24 hours
	Significant ::>50mm+<75mm	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 3 10 days	Cat 4 28 days
	Noticeable >30mm + <49mm	Cat 4 28 days	Cat 4 28 days	No Action	No Action	No Action
	Negligible < 30mm	No Action	No Action	No Action	No Action	No Action
Notes Example of level difference may include deformation in the surface , concrete slab has arisen or fallen above the adjacent slab or where carriageway joint or haunch has risen or fallen in relation to the adjacent carriageway , or edge deterioration						

Condition Score Service Inspection

Score	Parameter	Suggested Considered Treatment
Red	> 30mm 10+ No	Surfacing Inlay
Amber	> 30mm 5+ No	Patching Programme
Green	<30mm 10+ No	Micro Programme

Programme subject to budget and priority of network

1C SERVICE INSPECTION CRACKING/CRAZING

		Probability				
		High	High to Moderate	Moderate	Low	V.Low
		Strategic Network	Main distributor	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
		Percentage of Overall Network	Percentage of Overall Network	Percentage of Overall Network	Percentage of Overall Network	Percentage of Overall Network
Impact	Significant : 50 >100%	Cat 5 Planned Works	Cat 5 Planned Works	Cat 6 Condition Score	Cat 6 Condition Score	Cat 6 Condition Score
	Noticeable ::>25% 50%	Cat 5 Planned Works	Cat 5 Planned Works	Cat 6 Condition Score	Cat 6 Condition Score	Cat 6 Condition Score
	Negligible :<10- 25%	Cat 6 Condition Score	Cat 6 Condition Score	No action	No action	No action

1D CARRIAGEWAY IRONWORKS

		Probability				
		High	High - Moderate	Moderate	Low	V.Low
		Strategic Network	Main distributor	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
nEGU	Critical: Missing or Collapsed	Cat 1 2 hours	Cat 1 2 hours	Cat1 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Significant :differences /rocking >50mm<100mm	Cat 1 2 hours	Cat 1 2 hours	Cat1 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Noticeable >30mm<49mm	Cat 4 28 days	Cat 4 28 days	No Action	No Action	No Action
	Noticeable Polished /rocking covers	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days
Notes: For Utility Iron Works follow NRSWA Section 81 guidelines prescribed on section xxx page xxx						

1E DEFINED CYCLE WAY CARRIAGEWAY POTHOLE

		Probability				
		High	High - Moderate	Moderate	Low	V.Low
		Strategic Network	Main distributor	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
nEGU	Critical: >50mm	Cat 1 2 hours	Cat 1 2 hours	Cat1 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Significant >40mm to >49mm	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours
	Noticeable >30mm <49mm	Cat 3 7 days	Cat 3 7 days	Cat 3 7 days	Cat 3 7 days	Cat 3 7 days

1F FOOTWAY TRIPS and potholes including Cycle Ways on Footway and abrupt Tree Roots

		Probability				
		High	High-Moderate	Moderate	Low	V.Low
		Prestige Walking Zones	Primary Walking Routes	Secondary Walking Routes	Link Footways	Local Access Footways
		>75mm Horizontal	>75mm Horizontal	>75mm Horizontal	>75mm Horizontal	>75mm Horizontal
Impact	Critical: >40mm	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Significant: >-20-40MM	Cat 3 7 days	Cat 3 7 days	Cat 3 7 days	Cat 4 28 days	Cat 4 28 days
	Noticeable: >15-19mm	Cat 3 7 days	Cat 3 7 days	No Action	No Action	No Action

Condition Score Service Inspection Only

Score	Parameters
Red	50-70% 15-19mm
Amber	20-49% 15-19mm
Green	10- 20% 15-19mm

*Any Works from condition score subject to budget and priority of network

1G INSPECTION FOOTWAY AND CYCLEWAY CRAZING-CRACKING

		Probability				
		High	High - Moderate	Moderate	Low	V.Low
		Prestige Walking Zones	Primary Walking Routes	Secondary Walking Routes	Link Footways	Local Access Footways
		Percentage of Overall Network	Percentage of Overall Network	Percentage of Overall Network	Percentage of Overall Network	Percentage of Overall Network
Impact	Significant: Gaps >20mm wide > 20mm deep	Cat 2 24 Hours	Cat 2 24 Hours	Cat 3 7 Days	Cat 4 28 days	Cat 4 28 days
	Noticeable: Gaps > 20mm wide > 6mm <19mm deep	Cat 6 Condition Score	Cat 6 Condition Score	Cat 6 Condition Score	No action	No action

Condition Score

Score	Parameters
Red	50-70% 15-19mm
Amber	20-49% 15-19mm
Green	10- 20% 15-19mm

*Any Works from condition score subject to budget and priority of network

1H KERB

		Probability				
		High	High Moderate	Moderate	Low	V.Low
		Prestige Walking Zones	Primary Walking Routes	Secondary Walking Routes	Link Footways	Local Access Footways
		50mm Horizontal	50mm Horizontal	50mm Horizontal	50mm Horizontal	50mm Horizontal
Impact	Critical: kerbs misaligned loose/rocking >50mm	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 2 24 hours	Cat 2 24 hours
	Significant : kerbs misaligned loose/rocking >20mm <50mm	Cat 3 7 days	Cat 3 7 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days

1i FOOTWAY AND CYCLEWAY IRON WORKS INCLUDING CELLAR LIGHTS

		Probability				
		High	High-Moderate	Medium	Low	V.Low
		Prestige Walking Zones	Primary Walking Routes	Secondary Walking Routes	Link Footways	Local Access Footways
Impact	Critical: missing or collapsed	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Significant : >-20-40MM	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days
	Noticeable: >15-19mm	Cat 4 28 days	Cat 4 28 days	No Action	No Action	No Action
Notes: Refer to NRSWA section 81 Procedure on page for reporting defects for statutory undertakers apparatus						

1J TREE ROOTS LEVEL DIFFERENCE

		Probability				
		High	High-Moderate	Moderate	Low	V.Low
		Prestige Walking Zones	Primary Walking Routes	Secondary Walking Routes	Link Footways	Local Access Footways
		>500mm Longitudinal	>500mm Longitudinal	>500mm Longitudinal	>500mm Longitudinal	>500mm Longitudinal
Impact	Critical: >80mm deep	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 3 7 days	Cat 4 28 days
	Significant: >60mm<79mm deep	Cat 3 7 days	Cat 3 7 days	Cat 4 28 days	Cat 4 28 days	No action
	Noticeable: >50mm<59mm deep	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	No action	No action

1K TRAFFIC SIGNS NON ILLUMINATED

		Probability				
		High	High-Moderate	Moderate	Low	V.Low
		Strategic Network	Main distributor	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
	Critical. All signs unsecured/loose	Cat1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
Impact	Significant Give Way, Stop signs and No entry signs missing obscured by vegetation or dirt.	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 3 7 days
	Noticeable: All other Mandatory and Warning Signs missing , obscured by vegetation or dirt ,All Mandatory and Warning Signs damaged but secure and readable,	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days
	Noticeable : Regulatory, Information Signs, including ADS signs missing damaged but secure or obscured by vegetation or dirt.	Cat 4 28 days	Cat 4 28 Days	Cat 4 28 days	Cat 5 Planned Works	Cat 5 Planned Works
Notes First response may be temporary sign.						

1L PEDESTRIAN GUARD RAILING

		High	High-Moderate	Moderate	Low	V.Low
		Prestige Walking Zones	Primary Walking Routes	Secondary Walking Routes	Link Footways	Local Access Footways
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
Impact	Critical : Guard Railing structure damaged if jutting out to the footway or carriageway. Missing sections of; guard railing	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Noticeable : Slight damage to structure missing rails, slightly bent	Cat 3 7 Days	Cat 3 7 Days	Cat 4 28 Days	Cat 4 28 Days	Cat 4 28 Days
	Negligible : Surface worn flaking	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works
Notes If guard rail has been used to pedestrians to crossing points or has been used to deter parking , use guard rail assessment before undertaking replacement						

1M ROAD MARKINGS

		Probability				
		High	Moderate		Low	V. Low
		Strategic Network	Main distributor	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
Impact	Critical/Significant Missing Give Way/Pedestrian Crossing Markings faded >30%	Cat 1 2 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 3 7 Days	Cat 4 28 days
	Significant /Noticeable Hatching Intermittent Lines faded >30%	Cat 4 28 days	Cat 4 28 days	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works
	Noticeable : All remaining markings including lines associated with traffic regulation orders faded >10%<30%	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works
Notes: First response can include warning signs, followed up by order for renewal						

1N FLOODING AFFECTING THE HIGHWAY

		Probability				
		High	High- Moderate	Moderate	Low	V. Low
		Strategic Network	Main distributor	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
Impact	Critical: Blocked gully causing flooding on the highway or to properties	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Significant: Standing Water on the carriageway due to level changes	Cat 2 24 hours	Cat 2 24 hours	Cat 3 7 days	Cat 4 28 days	Cat 4 28 days
	Noticeable: Blocked gully causing water pooling	Cat 3 7days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days
	Blocked Gully: but no water present on the highway	Cyclical Programme	Cyclical Programme	Cyclical Programme	Cyclical Programme	Cyclical Programme
Notes First response may include placing of flood warning signs or appropriate traffic management.						

1P BOLLARDS AND POSTS

		Probability				
		High	High-Moderate	Moderate	Low	V.Low
		Prestige Walking Zones	Primary Walking Routes	Secondary Walking Routes	Link Footways	Local Access Footways
Impact	Critical: Bollard or Post loose or removed from ground	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Significant: Bollard or Post cracked but not loose	Cat 3 28 Days	Cat 3 28 Days	Cat 3 28 Days	Cat 3 28 Days	Cat 3 28 Days
	Noticeable : Bollard or Post surface worn	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works

1Q ROAD RESTRAINT SYSTEMS

		High	High Moderate	Moderate	Low	V.Low
		Strategic Network	Main distributor	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
Impact	Critical : Safety Fencing structure damaged jutting out to the footway or carriageway. Missing sections of barrier	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Significant : Slight damage to structure slightly bent	Cat 3 7 Days	Cat 4 28 days	Cat 4 28 Days	Cat 4 28 Days	Cat 4 28 Days
	Noticeable : Chevron Warn, Surface needs cleaning or painting	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works	Cat 5 Planned Works

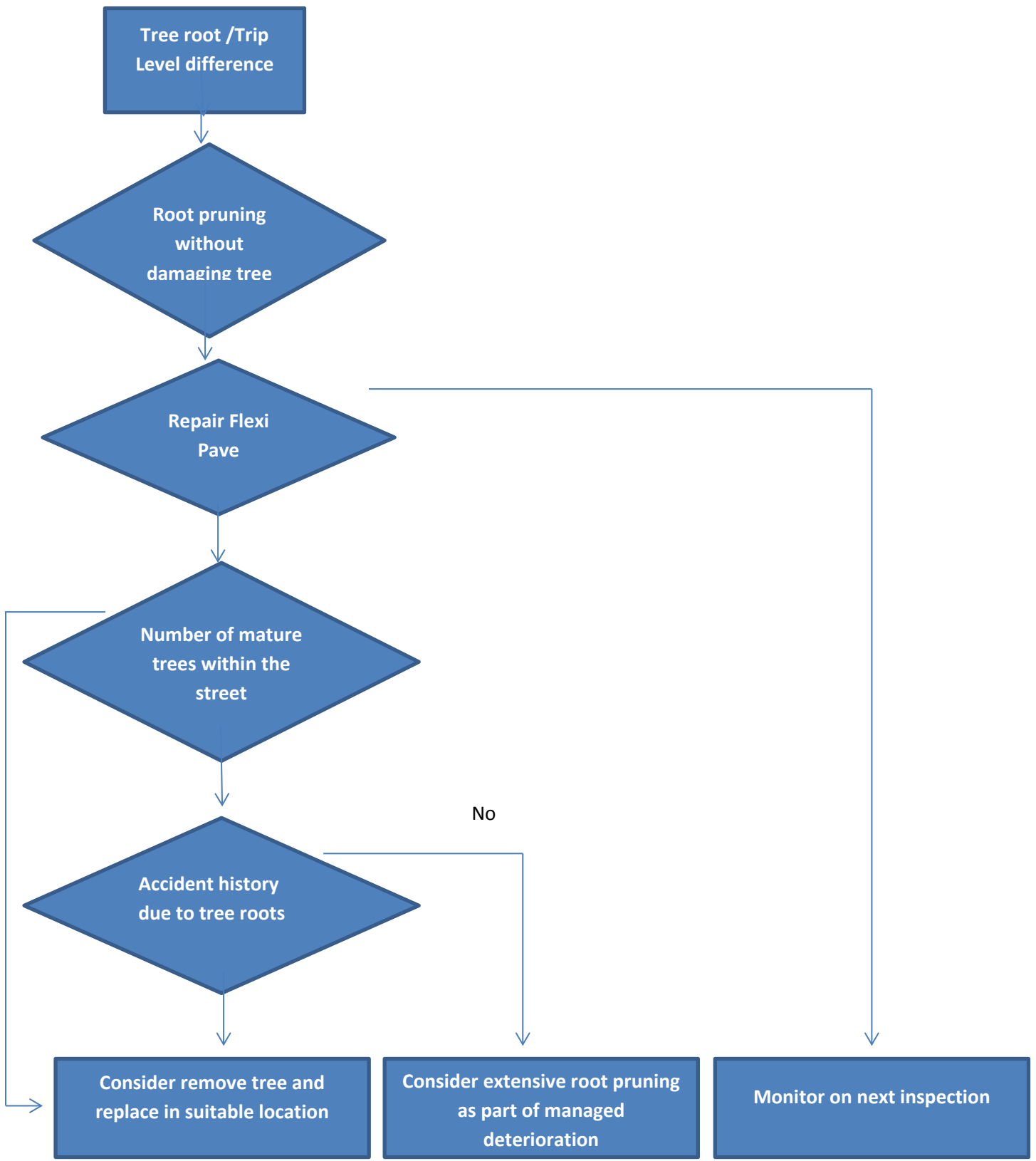
1R VEGETATION

		High	High Moderate	Moderate	Low	V.Low
		Strategic Network	High Moderate	Secondary Distributor	Link Road	Local Access Road
		Road type 2	Road type 3a	Road Type 3b	Road Type 4a	Road Type 4b
Impact	Critical : Tree branch or vegetation likely to fall onto the highway or impede passing vehicles	Cat 1 2 hours	Cat 1 2 hours	Cat1 1 2 hours	Cat 1 2 hours	Cat 1 2 hours
	Significant : Vegetation forcing pedestrians into the carriageway or obscuring visibility at junction	Cat 1 2 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 3 28 days	Cat 3 28 days
	Noticeable : Vegetation reducing footway to < 1m2	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days	Cat 4 28 days

1S GRASS VERGES DEPRESSION

		Probability				
		High	High Moderate	Moderate	Low	V.Low
		Prestige Walking Zones	Primary Walking Routes	Secondary Walking Routes	Link Footways	Local Access Footways
Impact	Significant Verge Ruts >100mm	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours	Cat 2 24 hours
	Noticeable >50mm<100m	Cat 2 24 hours	Cat 3 7 Days	Cat 3 7 Days	Cat 3 7 Days	Cat 3 7 Days
	Negligible >25mm - <50mm	Cat 6 Condition Score	Cat 6 Condition Score	Cat 6 Condition Score	Cat 6 Condition Score	Cat 6 Condition Score

Flow Chart 1 Tree Root Mitigation



Annex 1

Document Control

Change History.

Service Plans Revisions

Date Revised	Revision	Officer

Version	Date	Amended by	Approved Highway Service Manager	Next Review
1.0	30/10/18			30/10/19