AGENDA ITEM No. 9

EAST RENFREWSHIRE COUNCIL

CABINET

25 November 2021

Report by Director of Environment

A RISK BASED APPROACH TO ROAD ASSET SAFETY INSPECTIONS

PURPOSE OF REPORT

1. This report seeks approval for a proposed new risk-based strategic approach to roads inspections. This new approach will enable a more appropriate categorisation of defects and responses based on the risk to road users as opposed to the current method which is based upon reactive specified intervention levels. The proposed Strategy is based upon guidance provided for use nationally by the Society of Chief Officers for Transportation in Scotland (SCOTS). A copy of the new strategy is attached (appendix 1).

RECOMMENDATIONS

2. It is recommended that the Cabinet approve the adoption of the revised Road Asset Safety Inspection Strategy to implement a risk based approach to the maintenance and management of the road network.

BACKGROUND

3. The Roads (Scotland) Act 1984 states that a local roads authority shall manage and maintain all such roads in their area that are included in the list of public roads held by the authority. These are commonly referred to as adopted roads and the inspection strategy referred to in this paper refers to adopted roads.

4. The strategy does not apply to Trunk Roads, which are the responsibility of Scottish Ministers.

5. The Council's current inspection regime was prepared in accordance with the guidance contained in 'Well-Maintained Highways' which is the Code of Practice for Highway Maintenance Management. However, the more recently produced 'Well Managed Highway Infrastructure - A Code of Practice' (October 2016) recommends a risk based approach to managing all aspects of the road network, which includes safety inspections and repair.

REPORT

6. Road safety inspections are designed to identify and repair defects to minimise, as far as reasonably practicable, the exposure to danger or serious inconvenience to users of the road network or the wider community. Such defects include those that require immediate attention, as well as those where the defect location and nature are such that longer periods of response are possible. Having a robust process for prioritising responses to identified defects is therefore crucial.

7. A risk based approach is a change in approach from the previous prescriptive descriptions of defects (for example the depth and size of pothole) to a risk assessment process where a defect is analysed in relation to the context in which it exists. By using a risk matrix tool to evaluate the hazard in terms of likelihood and most probable consequence the risk posed is objectively categorised and the corresponding required level of response determined.

8. The road authority must ensure that all road asset safety inspectors are competent in carrying out safety defect inspections. The proposed strategy adopts the Institute of Highway Engineers (IHE) – Highways Safety Inspection Training scheme. Subsequently, all East Renfrewshire Council Inspectors undertook training in readiness for the implementation of the change and are now on the IHE Highway Inspectors Register.

9. The Council has an adopted road length of 485km and over 718km of footways/footpaths. It is therefore important than an effective inspection regime has an appropriate hierarchy within which decisions can be made in terms of priorities to which the local network assets are categorised. Inspection frequencies are then set for each level of the hierarchy and, as a result, a programme of inspections is developed for roads and footways including cycleways.

FINANCE AND EFFICIENCY

10. The implementation of this risk-based approach will improve efficiency and provide greater value for money through more appropriate categorisation of defects and responses based on risk to road users. This is likely to lead to a reduction in the number of temporary repairs and an increase in permanent programmed work.

CONSULTATION AND PARTNERSHIP WORKING

11. Not applicable in this case.

IMPLICATIONS OF THE PROPOSALS

12. The Roads (Scotland) Act 1984 provides roads authorities with a duty to maintain a list of public roads and to ensure the roads on that list are serviceable and fit for purpose. The Safety Inspection methodology proposed allows Councils to demonstrate that legal responsibilities, in relation to the inspection and maintenance of adopted roads, are fulfilled. While the number of claims made against the Council may not necessarily be reduced, through the implementation of this risk based policy, the Council will be better placed to defend them.

CONCLUSIONS

13. The recommendations from the national Code of Practice and guidance produced by SCOTS enables East Renfrewshire Council to implement a risk based approach for road safety inspections and categorise any necessary repairs identified. It is anticipated that this will:

- minimise the exposure of danger or serious inconvenience to users of the network or the wider community;
- mitigate the Council's exposure to risk and enable a robust defence to claims of loss; and

- ensure compliance with statutory requirements and increase best value by reducing the number of defects allocated to the incorrect category/priority and increase the number of permanent repairs.

RECOMMENDATIONS

14. It is recommended that the Cabinet approve the adoption of the revised Road Asset Safety Inspection Strategy to implement a risk based approach to the maintenance and management of the road network.

Director of Environment

Further information can be obtained from Andrew Cahill Director of Environment.

Convener contact details

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November 2021

Appendices
Appendix 1 – East Renfrewshire Council Road Safety Inspection Strategy

Environment Department – Roads Service

ROAD ASSET SAFETY INSPECTION STRATEGY

July 2021 – Version 1

Document Information

Title	Road Asset Inspections: A Risk Based Approach Road Safety Inspection Strategy
Author	Jane Corrie – Roads and Transportation Controller
Description	This document is the Road Safety Inspection Strategy for East Renfrewshire Council. It outlines the SCOTS recommended methodology which complies with the Code of Practice requirement for a risk based approach. It has been amended to accommodate local context where appropriate.

Document Control

Version	SCOTS Template Version	Date	Author	Changes from Previous Version
1.0	1.0	01/07/21	Jane Corrie	

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Introduction

This Road Safety Inspection Strategy has been developed with the primary aim of providing operational guidance to those Officers and Inspectors responsible for managing road asset safety inspections. This is in order to encourage a consistent approach by utilising a formalised system that recommends the frequency of inspections as well as the method of assessing, recording and responding to defects in the road asset.

This strategy is based on the Society of Chief Officers of Transportation in Scotland (SCOTS) Risk Based Approach (RBA) guidance and compiled using their Road Safety Inspection Strategy template.

'Well-Managed Highway Infrastructure: A Code of Practice'[1] (WMHI CoP) has specific recommendations regarding inspections of all road elements. This document specifically relates to the procedure for carrying out road safety inspections. Recommendation 7 of the WMHI CoP is that road authorities should adopt a RBA to all aspects of road maintenance.

A RBA is also recommended by the Institute of Highway Engineers in their guidance on managing risk and liability, 'Well Managed Highway Liability Risk'[2].

The establishment of an effective regime of safety inspections is a crucial component of road maintenance in accordance with the Code of Practice. SCOTS seeks to encourage the benefits that will be gained by harmonising such procedures across Scotland. Recommendation 6 within the WMHI CoP refers to consistency with other roads authorities and is stated below:

"To ensure that users' reasonable expectations for consistency are taken into account, the approach of other local and strategic highway and transport authorities, especially those with integrated or adjoining networks, should be considered when developing highway infrastructure maintenance policies."

This Road Safety Inspection Strategy has been developed in partnership with the roads authorities associated through SCOTS to focus on safety inspections and categorisations, and is now being made available for all Scottish roads authorities to consider adopting for their network.

Officers across all Scottish roads authorities recognise that Councils are currently faced with delivering services within an environment of increasing fiscal austerity and are aware of the benefits that can be achieved by adopting a common approach which follows the principles of the WMHI CoP.

Adoption of this strategy will provide a consistent methodology for the management of the road network, while focusing on delivering a proactive programme of permanent repairs. It is intended that its implementation will also allow performance to be monitored and reviewed, implementing any necessary improvements identified through its use.

[1] 'Well-Managed Highway Infrastructure: A Code of Practice', UKRLG, October 2016

[2] 'Well Managed Highway Liability Risk', IHE, March 2017

Legislative Requirements

The Roads (Scotland) Act 1984 Section 1, states that "…a local roads authority shall manage and maintain all such roads in their area as are for the time being entered in a list (in this Act referred to as their "list of public roads") prepared and kept by them under this section."

This Document

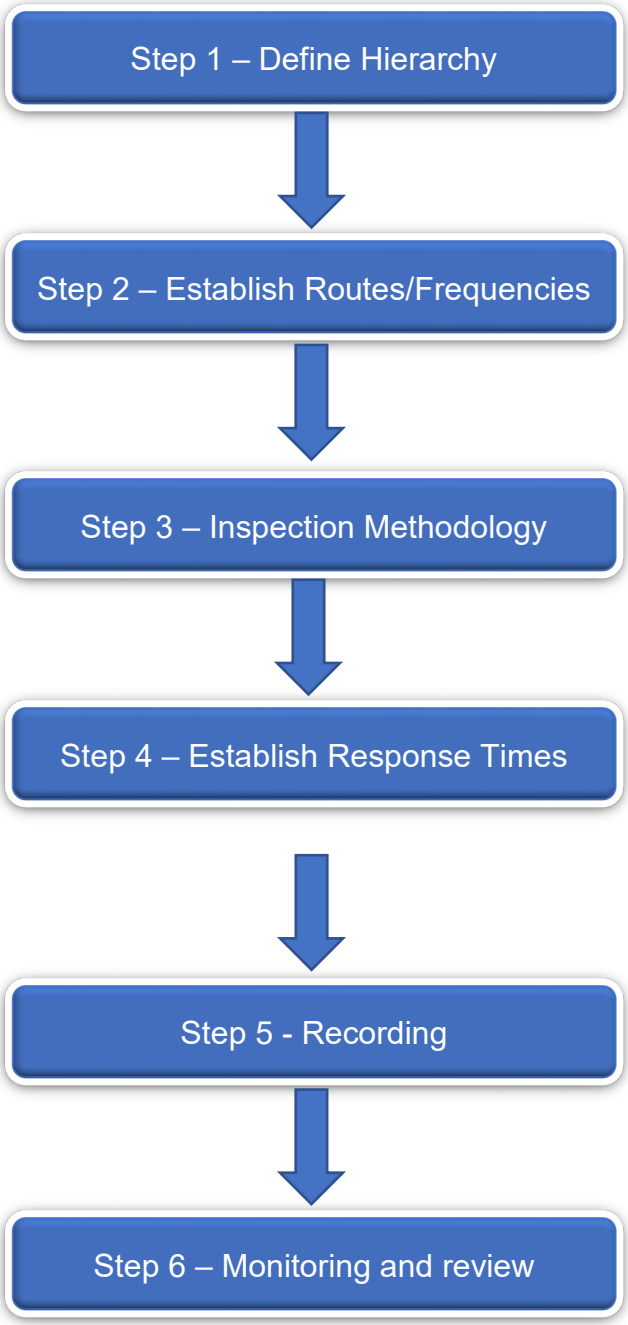
This Road Safety Inspection Strategy contains guidance to assist roads authorities in managing safety inspections on the adopted road network, including the nature and priority of response to defects encountered.

SCOTS formed a focus group to develop this RBA documentation. The rationale for producing it and the approach taken to key content is contained in the following document held within the SCOTS Road Asset Management Knowledge Hub (Khub): 'SCOTS Rationale for Risk Based Approach to RAM Guidance.doc'

The training, competency and experience of all persons involved in developing the SCOTS RBA guidance documentation is also detailed in the rationale document.

Overview

The Road Safety Inspection Strategy involves several key steps, explained in detail within this document. They are:



Road hierarchy forms the foundation of a risk based maintenance strategy; crucial for establishing service levels and network management

Define the physical routes of inspection, the standard frequencies and modes of inspection

A methodology inspectors can follow to assess defects to determine the level of risk and priority of response

Assign an appropriate safety level of response (time and type) to each prioritised category of risk

Establish procedures for documenting safety inspections and other key information such as inspector training and competency records

Regularly monitor and review the Road Safety Inspection Strategy and its operation

Hierarchy

The WMHI CoP indicates that a network hierarchy is the foundation of a risk based maintenance strategy; crucial for establishing service levels and network management.

The hierarchies contained within the WMHI CoP, replicated in the tables below and overleaf, are adopted as described. These are:

- Table 1 Carriageway Hierarchy
- Table 2 Footway Hierarchy
- Table 3 Cycle Route Hierarchy

Carriageways

Table 1 below provides descriptions for carriageway categories based on those in the WMHI CoP.

Table 1 Carriageway Hierarchy

Category	Hierarchy	Description
1	Strategic Route	Routes for fast moving long distance traffic with little frontage access or pedestrian traffic. Speed limits generally in excess of 40mph with few junctions. Parked vehicles are generally not encountered out with urban areas.
2	Main Distributor	Routes between strategic routes and linking urban centres to the strategic network with limited frontage access. In urban areas speed limits are usually 40mph or less.
3	Secondary Distributor	In residential and other built up areas these roads have 20 or 30 mph speed limits and very high levels of pedestrian activity with some crossing facilities including zebra crossings. On- street parking is generally unrestricted except for safety reasons. In rural areas these roads link larger villages, bus routes and HGV generators to the Strategic and Main Distributor Network.
4	Link Road	In urban areas these are residential or industrial interconnecting roads with 20 or 30 mph speed limits, random pedestrian movements and uncontrolled parking. In rural areas these roads link smaller villages to the distributor roads. They are of varying width and not always capable of carrying two-way traffic.
5	Local Access Road	In rural areas these roads serve small settlements and provide access to individual properties and land. They are often only single lane and unsuitable for HGVs. In urban areas they are often residential loop roads or cul-de-sacs.

Footways

Table 2 below is based on the recommendations of the WMHI CoP and should be used as a starting point when allocating a footway/footpath to a particular category.

The following should also be taken into consideration:

- Pedestrian volume
- Designation as a traffic sensitive pedestrian route
- Current usage and proposed usage
- Contribution to the quality of public space and streetscene
- Age and distribution of the population, proximity of schools or other establishments attracting higher than normal numbers or specific groups of pedestrians
- Accidents and other risk assessments
- Character and traffic use of adjoining carriageway

Table 2 Footway Hierarchy

Category	Category Name	Description
1	Prestige Walking Zones	Very busy areas of town centres with high public space and streetscene contribution.
2	Primary Walking Routes	Busy urban shopping and business areas and main pedestrian routes, including links to significant public transport locations.
3	Secondary Walking Routes	Medium usage routes through local areas feeding into primary routes, local shopping centres etc.
4	Link Footways/Footpaths	Linking local access footways through urban areas and busy rural footways.
5	Local Access Footways/Footpaths	Footways associated with low usage, short estate roads to main routes and cul-de-sacs.

Cycle Routes

Cycle routes are categorised by location and a proposed hierarchy is shown in Table 3 below.

Table 3 Cycle Route Hierarchy

Category	Description
1	Cycle lane forming part of the carriageway, commonly a strip adjacent to the nearside kerb. Cycle gaps at road closure point (no entry to traffic, but allowing cycle access).
2	Cycle track, a designated route for cyclists not contiguous with the public footway or carriageway. Shared cycle/pedestrian paths, either segregated by a white line or other physical segregation, or un-segregated.

Category	Description
3	Cycle trails, leisure routes through open spaces, remote from carriageway or footway/footpath where on the list of public roads.

Road Network Assessment

It is important that the road network categorisation reflects the needs, priorities and actual use of the network and infrastructure assets. Our network was last assessed and categorised in 2016 and a review of this categorisation is due to be completed before the end of financial year 2022/23.

The following process will be adopted for assessing the road network categories:

Roads Officers in conjunction with the Senior Asset Management Officer will consider the hierarchies outlined in the WMHI CoP and apply them to list of public roads held by East Renfrewshire Council.

It is recognised that through time, the nature and use of the network changes, therefore, the list of hierarchies will be dynamic and can change to reflect this. Officers and Inspectors are encouraged to question hierarchies applied to the list of public roads as they know the network and traverse it on a daily basis.

The following personnel will be involved in establishing/reviewing the road network categories:

Name/Role	Experience	Qualifications/Training
Roads and Transportation Controller	30+ Years	MICE / IEng HNC
Roads Senior Asset Management Officer	15+ Years	HNC
Roads Principal Network Officer	30+ Years	BSc Civil Engineering
2 x Roads Senior Technical Officers & 4 x Assistant Technical Officers/Inspectors	Various	Various

Review of Road Network Categories

Road networks are dynamic, therefore network categories should be regularly reviewed, considering any changes in the network as it evolves, to ensure that assigned categories remain relevant.

Review Frequency

Road network categories will be applied to roads adopted through new developments. As and when new roads are adopted, the Senior Asset Management Officer will determine which hierarchy is to be applied for future inspection purposes.

A review of our road network categories will be carried out within the next year and thereafter reviews will take place every 5 years.

Continuity of safety and serviceability with neighbouring Roads Authorities

The adoption of the WMHI CoP hierarchy and common SCOTS safety inspection methodology should, while allowing for management of hierarchies with regard to local circumstances, enable a high degree of continuity of safety and serviceability across neighbouring authorities.

Inspection Frequencies

The WMHI CoP / ERC current frequencies for safety inspections as follows:

Table 4 Frequency of Inspection – Carriageways

Category	Hierarchy Description	Code of Practice Frequency	East Renfrewshire Council Frequency
1	Strategic Route	Monthly	Monthly
2	Main Distributor	Monthly	Monthly
3	Secondary Distributor	Monthly	Monthly
4	Link Road	Quarterly	Monthly
5	Local Access Road	Annually	Annually

We have opted to inspect our Link Roads Monthly rather than Quarterly however this may be revised to Quarterly in line with the Code of Practice when a review of our network categorisation is carried out.

Attention is paid to footways adjacent to carriageways during driven carriageway safety inspections. These are carried out in line with the frequencies dictated by carriageway hierarchy and therefore may not be in line with the frequency recommended for footway surveys.

We have opted for different safety inspection frequencies on some categories of footway - this is based on operational resources available and risk factors applied. Our safety inspection frequencies are as below and overleaf:

Table 5 Frequency of Inspection – Footways & Footpaths

Category	Category Name	Code of Practice Frequency	East Renfrewshire Council Frequency
1	Prestige Walking Zones	Monthly	No areas currently identified in ERC as Prestige Walking Zones
2	Primary Walking Routes	Monthly	Monthly
3	Secondary Walking Routes	Quarterly	Annually
4	Link Footways / Footpaths	Six Monthly	Annually
5	Local Access Footways / Footpaths	Annually	Annually

Table 6 Frequency of Inspections – Cycleways

Category	Code of Practice Frequency	East Renfrewshire Council Frequency
1	As for adjacent road	As for adjacent Road
2	Six Monthly	As for adjacent Footway/Road
3	Annually	Not Undertaken – no remote cycleways currently adopted in ERC

Safety Inspection Routes

Safety inspection routes need to be determined. This can be either manually done, or using an optimisation tool.

Safety inspection routes are determined by hierarchy category and split into two sub areas across the East Renfrewshire Council Area. The two sub areas within ERC are Levern Valley (Barrhead) /Eastwood North and Newton Mearns / Eastwood South with an Inspector and Assistant Technical Officer responsible for each sub area. The frequency of each inspection is detailed in Table 4 on page 11. In addition to these driven inspections one of the 12 annual safety inspections for roads with a monthly inspection frequency in urban areas is carried out as a walked inspection.

Carriageway safety inspections are normally undertaken from a slow moving conspicuously marked survey vehicle, proceeding as close to the left hand side of the carriageway as possible. The speed of the inspection is appropriate to allow defects to be recorded but also allow for the safety of staff, other road users and weather conditions. If conditions are unsuitable to inspect safely and effectively, then the inspection shall be rescheduled.

Factors such as carriageway hierarchy, speed and volume of vehicles on each survey route have been taken into account when determining the number of personnel required to undertake surveys.

Type of Survey	Personnel Required
Monthly	1 Driver + 1 Inspector
Annual	1 Inspector

In instances where there is only one member of staff within the vehicle, and prior to recording information on the nature of defects, the survey vehicle should be stopped with the engine turned off and parked in a safe location.

In heavily trafficked urban areas it may be difficult to obtain the necessary level of accuracy from vehicle based inspections and walking should be used in these circumstances, for example where there are a significant number of parked cars.

All routes are recorded in WDM Works Management System and will be reviewed whenever our Roads Asset Management Plan is reviewed.

Inspection frequency and programming is managed through WDM and Inspectors are alerted to upcoming due surveys. In addition, a calendar is created at the beginning of each year with the upcoming due dates for each inspection frequency.

All inspections are recorded in the WDM Works Management System. Records are transferred electronically from the data capture device used on route inspections. All records are referenced to the USRN (Unique Street Reference Number). The inspection records are a valuable resource for the Council when defending 3rd party liability claims and also for locating and prioritising reactive repairs.

All works should be instructed using the standard format of issuing a Works Instruction clearly specifying the location, nature and extent of the work, providing sufficient information, including a plan where necessary, to enable work to be completed without the need for any further clarification.

The order should clearly state the priority for the work and, if necessary any critical dates for completion. The intention is that all Works Instructions will be transmitted electronically. For emergency defects, work should be initiated by telephone with a confirmation order following. This process should be used for all Priority 1 defects.

The detailed programming of all planned road works will be subject to agreement of arrangements for road space occupation for inclusion within the Scottish Road Works Register.

Urgent and emergency works also require to be recorded within the Scottish Road Works Register, if not classed as mobile works, i.e. less than half an hour in duration on non-traffic sensitive roads.

A key concern for road users and communities is the apparent early failure of temporary, and sometimes permanent, repairs and consequent need for duplication. The greater flexibility within the response categories should promote a more cost-effective use of better materials and methods to provide a first visit permanent repair.

Immediately after work is complete on any identified defect the operative should confirm this in WDM using the handheld device provided. This process is crucial for ‘closing the loop’ in case of any subsequent legal issue and to reconcile cost for work undertaken. This is also required to enable the originator, if requested, to inspect the completed work although this should not normally be necessary.

Inspection Tolerances

All road safety inspections will be carried out to the SCOTS recommended frequencies detailed in the following tables and should be completed within the tolerances shown in Table 7, as follows:

Table 7 Inspection Tolerances

Frequency of Inspection	Inspection Tolerances
Monthly	± 5 working days of the Due Date
Quarterly	± 10 working days of the Due Date
Six Monthly	± 15 working days of the Due Date
Annual	± 20 working days of the Due Date

Definition of above terms

- **Frequency of Inspection - Monthly** indicates that twelve regular spaced inspections will be carried out per year.
- **Frequency of Inspection - Quarterly** indicates that four regular spaced inspections will be carried out per year.
- **Frequency of Inspection - Six Monthly** indicates that two regular spaced inspections will be carried out per year.
- **Frequency of Inspection - Annual** indicates that one regular spaced inspection will be carried out per year.
- **Due Date** is the programmed date of an inspection.

Staff Contingency and Alterations to the Inspection Programme

- Due to the nature of the weather in Scotland it is probable that the road surface will be wet with some elements of standing or running water whilst an inspection is in progress. However if the quantity of water is excessive or across the full width of the carriageway then the inspection should be abandoned and an entry should be made to document the circumstances.
- If an inspection Due Date falls during an extended period of absence e.g. inspector holiday or illness, then the inspection should be allocated to another suitably experienced member of staff who has the capacity to undertake the inspection.
- If and for reasons beyond the control of the roads authority (e.g. substantial snow fall), any inspection cannot be carried out in compliance with Table 4 the roads authority will decide on the viability of a safety survey being undertaken, taking into account the availability of staff and the prevailing weather conditions.
- As soon as reasonably practicable following the above events a deferred programmed safety inspection should be carried out on the affected length of road.
    - Where a monthly inspection is more than 2 weeks late then the programmed inspection will be missed and the cycle resumed at the next due inspection date.

- Where substantial unavoidable delays are incurred to other inspection frequencies the Roads and Grounds Manager may assess the impact and adjust the programme.
- A record must be kept of change decisions and reasons for them.

Inspection Methodology

Safety Inspections

Road safety inspections are designed to identify defects likely to cause a hazard or serious inconvenience to users of the network or the wider community. Such defects include those that require urgent attention as well as those where the locations and sizes are such that longer periods of response are appropriate.

Planned Cyclic Safety Inspections

The safety inspection regime forms a key aspect of the road authority's strategy for managing liability and risk. Planned, cyclic safety inspections are carried out to identify defects which are hazardous (to any user of the road including drivers, pedestrians, equestrians and cyclists) so that an effective repair can be carried out within a predetermined response time.

The specified frequency of these inspections is dependent upon the hierarchy category of each section of road but may be varied after a documented risk assessment.

During safety inspections, observed defects that provide any foreseeable degree of risk to users will be recorded and processed for repair as appropriate following the methodology detailed in the 'Defect Risk Assessment' section of this document. The degree of deficiency in the road elements will be crucial in determining the nature and speed of response. Judgement will always need to take account of particular circumstances. For example, the degree of risk from a pothole depends upon not only its depth but also its surface area, location within the road network and usage of the road or footway.

The objectives of safety inspection activity are to:

- Minimise the risk of injury and disruption to road users as far as is reasonably practicable
- Provide a regular, structured inspection of the public road network, within available resources
- Deliver a consistent, reliable response to identified defects, within available resources
- Maintain accurate and comprehensive records of inspections and response
- Provide a clear, accurate and comprehensive response to claims

Items for Inspection

The following are examples of the types of defect which, when identified, should be assessed and an instruction for repair issued with an appropriate response time specified. The list identified below is not exhaustive.

Carriageways

- Surface defects
- Abrupt level differences in running surface
- Edge deterioration of the running surface
- Excessive standing water, water discharging onto and / or flowing across the road

- Blocked gullies and obstructed drainage channels or grips which could lead to ponding or flooding
- Debris and/or spillages likely to be a hazard
- Missing road studs
- Badly worn Stop, Give Way, double continuous white line or markings associated with TROs
- Missing or significantly damaged covers

Footways, Footpaths and Cycleways

- Surface defects
- Excessive standing water and water discharging onto and or flowing across the footway and/or cycleway
- Dangerous rocking paving slabs
- Large cracks or gaps between paving slabs
- Missing or significantly damaged covers
- Debris and/or spillages likely to be a hazard
- Damaged kerbs

Street Furniture

- Damaged vehicle restraint systems, parapets, handrails or guardrails
- Damaged boundary fence where animals or children could gain access
- Damaged or missing signs, such as Give Way, Stop, Speed Limit

Road Lighting

- Damaged column, cabinet, control pillar, wall mounting
- Exposed, live electrical equipment

Others

- Overhead wires in dangerous condition
- Sight-lines obstructed by trees and other vegetation
- Trees in a dangerous condition
- Earthslips where debris has encroached or is likely to encroach the road or causing the road to fall away
- Rocks or rock faces constituting a hazard to road users
- Damaged road structures

Risk Management Process

Inspectors undertaking safety inspections or responding to reported incidents require to use judgement in determining likelihood and consequences of the observed or reported defects. This approach is consistent with the WMHI CoP recommendation that roads authorities adopt a system of defect risk assessment for determining the response categories to road defects. However, it represents a step change in the way that defects are assessed. Taking a RBA, as per the above WMHI CoP, means that there are NO prescriptive investigation or intervention levels to apply. The rationale for removing these is that the same defect will represent a different level of risk in a different context. In the past this has led to inappropriate and often unnecessary, costly, temporary repairs. Instead, by using a RBA, Councils can reduce such reactive interventions and target more of their scarce resources towards programmed work that in the longer term will lead to an overall improvement of road condition.

So while not providing any minimum or default standards, the WMHI CoP does support the development of local levels of service in accordance with local needs, priorities and affordability.

Establishing Context

Establishing context requires the inspector to utilise experience and knowledge during the inspections to assess the road characteristics, such as giving consideration to environment (speed limit, width, rural/urban, road hierarchy, visibility, bend, hill - incline/decline, road camber/crossfall etc.), relevant road user types (pedestrians, cyclists, horse riders, cars, LGVs, HGVs, PSVs, etc.), traffic volumes, maintenance history, historical incidents/claims/complaints (e.g. experience/knowledge of similar hazards being a contributory factor to incidents/claims within the authority or a neighbouring authority), demographics and key local amenities (proximity to doctors surgery, hospitals, shopping areas, schools, etc.).

Risk Assessment

Taking the context into consideration, Risk Assessment is a three step process:

1. Hazard Identification

An inspection item for which the inspector identifies road asset defects which may pose a risk to road users i.e. lead to a negative consequence. The types of asset to be inspected and the potential associated hazards from defects are detailed in the Inspectors' Operations Manual.

2. Risk Analysis

All risks identified through this process must be evaluated in terms of their significance which means assessing the **likelihood** of encountering the hazard and the **most probable** (not worst possible) **consequence** should this occur.

The procedure is designed to mitigate 'worst scenario' thinking and ensure an objective assessment is carried out. It is important therefore that the analysis is carried out in this defined step sequence to determine the appropriate level of risk and corresponding priority response.

Risk Likelihood

The risk likelihood is assessed with regard to how many users are likely to pass by or over the defect, consequently the network hierarchy and defect location are important considerations in the assessment.

The likelihood of encountering a hazard, within the established context, will be quantified on a scale of Remote to Almost Certain as follows:

Table 8 Risk Likelihood

Likelihood / Probability	Likelihood Description	
Almost Certain	Will undoubtedly happen	Daily
Likely	Will probably happen, but not a persistent issue	Monthly
Possible	May happen occasionally	Annually
Unlikely	Not expected to happen, but it is possible	10 Years
Remote	Improbable	20 Years

Risk Consequence

The risk consequence is assessed by considering the most probable (NOT worst possible) outcome (impact) should the risk occur and will be quantified on a scale of Negligible to Catastrophic as follows:

Table 9 Consequence (Impact/Severity) Score

Consequence (Impact/Severity)	Description			
	Impact on Service Objectives	**Financial Impact**	**Impact on People**	**Impact on Reputation**
Catastrophic	Unable to function, inability to fulfil obligations	Severe financial loss	Death	Highly damaging, sever loss of public confidence
Major	Significant impact on services provision	Major financial loss	Extensive injury, major permanent harm	Major adverse publicity, major loss of confidence
Moderate	Service objectives partially achievable	Significant financial loss	Medical treatment required, semi-permanent harm up to 1 year	Some adverse publicity, legal implications
Minor	Minor impact on service objectives	Moderate financial loss	First aid treatment, non-permanent harm up to 1 month	Some public embarrassment, no damage to reputation
Negligible	Minimal impact, no service disruption	Minimal financial loss	No obvious harm/injury	No interest to the press, internal only

3. Risk Evaluation

The risk factor for a particular scenario is the product of the risk likelihood and consequence. It is this factor that identifies the overall seriousness of the risk and consequently therefore the appropriateness of the speed of response to remedy the defect. Accordingly, the priority response time for dealing with a defect can be determined by correlation with the risk factor as shown in the risk matrix, Table 10:

Table 10 Risk Matrix

Consequence / Likelihood	Negligible	Minor	Moderate	Major	Catastrophic
Remote	NR	NR	NR	NR	P3
Unlikely	NR	NR	P4	P4	P3
Possible	NR	P4	P4	P3	P2
Likely	NR	P4	P3	P2	P1
Almost Certain	NR	P3	P2	P1	P1

Risk Management Response

Having identified a particular risk, assessed the likelihood of it occurring and most probable consequence (impact/severity) and thus calculated the risk factor, the appropriate response is identified in the form of a risk management (response) matrix, Table 11.

Table 11 Risk Management Matrix

Risk Category	Priority Response
Critical Risk	Priority 1 response
High Risk	Priority 2 response
Medium Risk	Priority 3 response
Low Risk	Priority 4 response
Negligible Risk	No response

Intersections and Multiple Road Users Types

The hazard context considers the location and the types of road users which could be impacted by the defect. Inspectors should consider the different impacts and consequences for each road user type (e.g. pedestrians, cyclists, vehicle drivers, etc.) and at intersections, consider the hierarchy of each route. Inspectors **must therefore assess the likelihood and consequence for each road user type and/or route hierarchy**. The priority of the response is based on the highest priority determined from the risk matrix (Table 10).

Utility Company Defects

Defects identified may be due to the activities of the utility companies, which are governed and managed by the requirements of NRSWA[3]. However, the road authority still retains duty of care responsibility.

Such defects will be recorded by the Inspector and then reported to the owning utility company.

In the case of urgent attention being required, the following process applies:

It may not always be immediately clear to Inspectors whether road defects are a result from normal wear and tear or are associated with defective reinstatements by utilities and others. Road users, other employees and Councillors will have even more difficulty and will rarely be able to discriminate.

In cases where defects present an immediate and critical hazard to road users, inspectors should take immediate action to make safe irrespective of the cause or owner. If they have reason to suspect defective reinstatement they should then advise the Utility Inspector or where this is not possible, advise the utility company directly, recording a reference number and date and time for future reference, allowing the appropriate utility to initiate the required repair. This should also be confirmed by entering the defect into the Scottish Road Works Register.

In cases where the risks to road users is less immediate and inspectors have reason to suspect defective reinstatement or apparatus they should notify the appropriate utility company.

Inspection Records

All inspections are recorded in the WDM Works Management System. Records are transferred electronically from the data capture device used on route inspections. All records are referenced to the USRN (Unique Street Reference Number). The inspection records are a valuable resource for the Council when defending 3rd party liability claims and also for locating and prioritising repairs.

[3] New Roads and Street Works Act 1991

Priority Response Times

Safety Levels

The Priority Response Times for each Defect Category are shown in Table 12 below.

Table 12 SAFETY LEVELS - Defect Priority and Response Times

Defect Priority	1	2	3	4	NR
Standard Response Time	24 Hours	5 Working Days	60 Working Days	Programmed work	No Action required

Table 12 (above) contains the SCOTS recommended SAFETY LEVEL defect priority and response times. They have been set at a realistic level and authorities are **strongly encouraged** to adopt them for consistency reasons.

Service Levels

Table 13 EAST RENFREWSHIRE COUNCIL SERVICE LEVELS - Defect Priority and Response Times

Defect Priority	1	2	3	4	NR
Response Time	24 HOURS	5 WORKING DAYS	60 WORKING DAYS	Programmed work	No Action required

East Renfrewshire Council have set the above response time levels at the same level as recommended by SCOTS.

Priority 1: Make safe within 24 Hours

Priority 1 represents a critical risk to road users and should be corrected or made safe at the time of inspection, if reasonably practicable. In this context, making safe may constitute displaying warning signs and/or coning off to protect the public from the defect. Where reasonably practicable, safety defects of this Priority should not be left unattended until made safe or, a temporary or permanent repair has been carried out.

When a Priority 1 defect is identified within a larger group/area of defects, only that particular element shall be treated as a Priority 1 defect. The remaining defects shall be categorised accordingly.

Priority 2: Repair within 5 Working Days.

This allows a more proactive approach to be adopted for those defects that represent a high risk to road users or because there is a risk of short-term structural deterioration. Such defects may have safety implications, although of a lesser significance than Priority 1 defects, but are more likely to have serviceability or sustainability implications.

Priority 3: Action within 60 Working Days.

Defects that require attention although they represent a medium risk to road users. This allows defects of this nature to be included in medium term programmes of work. The extended period for repair of these lower risk defects is so that cost effective 1st time permanent repairs can be programmed which will minimise the need to effect temporary repairs and potential return visits.

Priority 4: Consider for Planned Works Programme

The defect is considered to be of low risk; no immediate response is required. Defects in Priority 4 are not classed as safety defects and are collected to assist the development and prioritisation of Planned Maintenance Works Programmes.

NR: No Action Required

The defect is considered to be of negligible risk, no intervention is required and monitoring will continue as per the inspection regime.

Meeting Target Response Times

It may not be possible, particularly at certain times of year, to meet target response times, due to pressure on resources. This could, but not exclusively, be due to the high number of defects that can arise in a short period of time after periods of adverse weather, such as prolonged spells of heavy rain, snow, or freeze/thaw conditions. Prolonged periods of adverse weather may also prevent remedial measures being carried out.

During periods of extreme weather, the Principal Network Officer will make a decision regarding the viability of a safety survey being undertaken, taking into account the availability of staff and the prevailing weather conditions.

In the case of absence of an Inspector due to annual leave or ill health it will be the responsibility of the Principal Network Officer to ensure a suitably trained substitute Inspector undertakes any inspection due within the time frames set out in this document.

The appropriate response time commences from the time that the defect was identified and categorised. For a programmed inspection this will be from the time that the defect was inspected.

Performance Monitoring

The performance of the Safety Inspection regime is monitored using appropriate indicators which are reported annually and benchmarked against similar Authorities through the SCOTS/APSE benchmarking initiative. These include:

• The percentage of inspections carriageway and footway safety inspections completed on time.
• The percentage of priority 1 defects repaired on time (within 24 hours).
• The number of priority 2 defects repaired on time (within 5 working days).
• The number of priority 3 defects repaired on time (within 60 working days).

Regular discussion should take place as necessary between the network and operations sides of the area office regarding the inspection and repair cycle. This will encourage joint planning co-operation and communication at all levels.

Regular monitoring and review of hierarchy, standards, procedures and records is an essential aspect of the system, for a number of reasons:-

- To enable changes in risk to be identified, if necessary, in new standards or procedures
- To enable any uncertainties or problems in responsibilities, procedures or treatments to be discussed and resolved
- To enable actual or potential claims to be reviewed and strategy for defence agreed where appropriate
- To review inspection and response performance and enable any possible improvements or efficiencies to be discussed and introduced

Inspector Competency

For the purpose of this document, the term 'Inspector' is defined as 'a person who the road authority has assessed and certified as competent to identify and undertake a risk assessment of a road asset defect and if required, determine the risk treatment'. Therefore, within this document, 'Inspector' is not utilised exclusively for a person who mainly completes the routine road asset safety inspections, but can include technicians, engineers or other staff within the authority who have been assessed by the authority to achieve the authority's required level of competency.

Training

Road authorities must ensure that all Inspectors are competent in carrying out safety defect inspections.

All Inspectors shall attend relevant training courses such as SCOTS Risk Based Approach Training or those approved by the Institute of Highway Engineers (IHE) – Highways Inspectors Board.

The IHE accredits the UK Highway Inspectors training and certification scheme approved by the UK Roads Board in 2010. It established the Highway Inspectors Board in 2011. All Inspectors will be trained and passed an IHE approved training course based on Scottish legislation and the new risk based approach. Subsequently, all Inspectors are on the IHE Highway Inspectors Register.

Training Plans

Courts accept that there may be circumstances where an Inspector is new to the role and will have to build up their experience, training and competency. In such cases, or where an existing Inspector does not meet the required standard, the Principal Network Officer shall work with the Inspector to develop, document and implement a training plan to assist them to meet the necessary level of competency.

The training plan is evidence that the road authority is supporting the Inspector, assisting them to achieve the level of competency required and ensuring consistency across the authority's Inspectors.

Review of Inspector training plans will be conducted at regular intervals to ensure the plan is progressing as anticipated, to sign off key areas completed and to amend the plan, if required.

Records of the reviews and any actions shall be maintained and held against the inspector's "Training and Competency" record.

Training and Competency Records

Inspector training and competency records will be maintained and reviewed annually for completeness and to identify when Inspector re-assessment is due to ensure that they continue to meet the road authority's minimum competency requirements.

The training and competency records are held in the employee's training and personnel file.

Other Inspections

Service Request Inspections – Externally Reported Defects

Road authorities receive reports of defects from a number of different sources, such as the Police, Emergency Services, general public, public utilities and other agencies; these service request reports are managed as follows:

Service requests or reports of defects will be inspected within 5 working days of receipt and any identified defects will be prioritised in the same way as for defects identified through programmed inspections.

All users, including Councillors and employees should be encouraged to report road and footway defects through the Council's online fault reporting tool.

Road Condition Inspections (or Structural Condition Surveys)

These are undertaken to consider the general condition of the individual roads and footways and the need for planned structural maintenance which can be programmed accordingly. Inspections for the carriageway asset are presently undertaken through the national Scottish Road Maintenance Condition Survey (SRMCS). Visual condition surveys of assets may also be undertaken with SCOTS guidance.

Visual surveys are undertaken by Inspectors, Technical staff and the Principal Network Officer and the planned maintenance programme is formulated using data from a variety of sources including SRMCS.

Utility Company Apparatus

Undertaken in accordance with the requirements of the New Roads and Street Works Act 1991. Where identified, defects will be notified to the relevant Statutory Undertaker.

If any Roads staff have reason to suspect a defective reinstatement or utility related defect, they should advise the Utility Inspecto or where this is not possible, advise the utility company directly, recording a reference number and date and time for future reference, allowing the appropriate utility to initiate the appropriate repair required. This should also be confirmed by entering the defect into the Scottish Road Works Register.

In all cases, the defects must be recorded through the Scottish Road Works Register via the NRSWA team.

Service Inspections

These are detailed inspections to ensure that particular road assets meet serviceability requirements. An example would be a general inspection of a road bridge. Such inspections are not covered in this document.