

To: INFRASTRUCTURE, LAND AND ENVIRONMENT POLICY BOARD

On: 29th May 2019

Report by: DIRECTOR OF ENVIRONMENT AND INFRASTRUCTURE

Heading: CODE OF PRACTICE “WELL MANAGED HIGHWAY INFRASTRUCTURE”

1. Summary

- 1.1 At its meeting on the 29th August 2018 the Infrastructure, Land and Environment Policy Board approved that the Council should adopt the new Code of Practice for Well Managed Highways in relation to a risk-based approach for the management of road infrastructure network. The Policy Board also noted that a further report on the New Code of Practice, Policy will be brought to a future meeting of this Policy Board to approve revised inspection policies for roads and footways upon publication of the SCOTS guidance.
- 1.2 The new Code recommends that a risk-based approach should be adopted for all aspects of highway infrastructure maintenance, including setting levels of service, inspections, responses, resilience, priorities and programmes. All inspections of Renfrewshire’s roads will now be governed by a risk matrix analysis, whereby the level of risk will be defined by considering the category of probability or likelihood against the category of consequence and severity. In some instances, carriageway inspections will become more onerous under the new Code, meaning that some carriageway types will be inspected on a more frequent basis.
- 1.3 Although the Code of Practice was launched in 2016, guidance on implementation of the Code of Practice has only recently been issued by the Scottish Chief Officers of Transportation in Scotland (SCOTS). This has ensured that Councils in Scotland develop policy in a consistent manner, reflecting the priorities within the new Code of Practice.
- 1.4 As a result, Environment & Infrastructure has developed a risk matrix based on the Code of Practice which tailors it to Renfrewshire’s own particular priorities, needs and resources. The process involves the assessment of every road in Renfrewshire by inspectors in our Roads, Lighting and Structures areas and ensures that resources are prioritised in accordance with

known problem areas, local knowledge and inspection results rather than standardised inspection cycles.

- 1.5 The revised road safety inspection policy is attached as Appendix 1. The assessment process has commenced and is likely to be completed by the end of September 2019 at which point the new policy will apply to all roads in Renfrewshire and they will be inspected in line with the guidance associated with the Code of Practice.
 - 1.6 It should be noted that no road or footway will be inspected less frequently under the new policy than it was previously inspected under the previous policy with the resources identified for addressing the additional requirements under the new policy.
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2. Recommendations

It is recommended that the Infrastructure, Land and Environment Policy Board:

- 2.1 Approves the new road safety inspection policy as outlined at Appendix 1 which establishes the Council's implementation of the Code of Practice, Well Managed Highways.
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3. Background

3.1 Previous Roads Maintenance Policy

- 3.2 Renfrewshire Council's current Carriageway and Footway Inspection Policy was approved at the Roads and Transportation Committee on 30 July 1997. The policy reflected the guidance given in 'Well Maintained Highways', which was the current industry standard at that time, for all aspects of road maintenance.
- 3.3 The inspection frequency for carriageways was related to the classification of the road set out in detail in appendix 1 but can be summarised as follows:
 - Monthly inspections on main distributor roads, local distributor roads and A and B class rural roads
 - 3 monthly inspections on general access roads and rural C class roads
 - 6 monthly inspections on minor access links
 - 12 monthly inspections on residential streets and unclassified rural roads.
- 3.4 The inspection frequency for footways and footpaths was dictated by pedestrian usage with monthly inspections on pedestrianised walking zones and pedestrianised areas, down to annual inspections for local access footways and cul-de-sacs. Defects are currently prioritised depending on the degree of danger presented to the public with five categories of response timescales available ranging from 2-hours for an emergency to 6 months for programmed works.

4. New Risk Based Roads Maintenance Policy

- 4.1 The intention of the new Code of Practice is that local authorities will develop their own levels of service, with the new Code providing guidance for authorities to consider when developing their approach in accordance with local needs, priorities and affordability. The new Code of Practice is a major change in policy, moving away from prescribed inspection frequencies and response times towards a fully risk-based process whereby local authorities can develop their own levels of service based on the nature of their own particular network, road types and conditions and historical inspection records.
- 4.2 There are a number of opportunities presented with the introduction of a risk-based approach, including:
- o Provides an integrated approach to asset management,
 - o Creates flexibility within inspection programmes to target resources to priority areas,
 - o Provides a sound evidence base for future capital investment programmes, and
 - o Delivers the ultimate aim of providing a framework for improving safety of infrastructure within the Council area.
- 4.3 The guidance document produced by the Scottish Chief Officers of Transportation in Scotland (SCOTS) requires each local authority to tailor the document to suit their own particular priorities, needs and resources. This process requires input from inspectors in the roads, lighting and infrastructure team to ensure that resources are prioritised in accordance with the road network, local knowledge and historical inspection results, as opposed to standard inspection cycles. This will require to be backed up with a documented risk assessment for roads where there is departure from standard frequencies.
- 4.4 The new risk-based matrix has been developed taking account of the likelihood and risk of issues occurring. This then generates a risk score for the road and associated priority interventions are then identified ranging from Priority 1 to Priority 5. The range of priorities and associated timescales for remedial action are outlined within Appendix 1.
- 4.5 All of the footway and carriageway inspectors have been trained in the new risk-based matrix methodology and the roads asset management software (symology) has been updated to reflect changes to current inspection and response frequencies.

Implications of this Report

1. **Financial** – The additional requirements as a result of implementation of the new road safety inspection policy will be met from within planned resources.
2. **HR & Organisational Development** – None
3. **Community Planning** – None
4. **Legal** - None

5. **Property/Assets** – The implementation of the new Code of Practice is designed to improve the safety of roads infrastructure within the Council area.
6. **Information Technology** - None
7. **Equality & Human Rights** - The recommendations contained within this report have been assessed in relation to their impact on equalities and human rights. No negative impacts on equality groups or potential for infringement of individuals' human rights have been identified arising from the recommendations contained in the report. If required following implementation, the actual impact of the recommendations and the mitigating actions will be reviewed and monitored, and the results of the assessment will be published on the Council's website.
8. **Health & Safety** – None
9. **Procurement** – None
10. **Risk** – The implementation of the Code of Practice will target inspection resources in priority areas which could reduce the level of insurance risk in relation to roads and footway defects
11. **Privacy Impact** – None
12. **CoSLA Policy Position** – None

List of Background Papers - none

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Road Asset Inspections: A Risk Based Approach

Road Safety Inspection Policy



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Introduction

This Road Safety Inspection Policy has been developed with the primary aim of providing operational guidance to those officers involved in managing and undertaking road asset safety inspections. This is in order to ensure a consistent approach by utilising a formalised system that prescribes the frequency of inspections as well as the method of assessing, recording and responding to defects in the road asset.

‘Well-Managed Highway Infrastructure: A Code of Practice’ has specific recommendations regarding inspections of all road elements. This guidance document specifically relates to the procedure for the carrying out of road safety inspections. Recommendation 7 is that Road Authorities should adopt a Risk Based Approach to all aspects of road maintenance. A Risk Based Approach is also recommended by the Institute of Highway Engineers in their guidance on managing risk and liability, ‘Well Managed Highway Liability Risk’.

The establishment of an effective regime of safety inspections is a crucial component of road maintenance in accordance with the Code of Practice, The Society of Chief Officers of Transportation in Scotland (SCOTS) seeks to encourage the benefits that will be gained by harmonising such procedures across Scotland.

This Road Safety Inspection Policy 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.

Adoption of this guidance 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 the implementation of this new guidance will also allow performance to be monitored and reviewed, implementing any necessary improvements identified through its use.

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 Road Safety Inspection Policy contains guidance for safety inspections on public roads in the roads authority area including the nature and priority of response to defects encountered.

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.

Safety inspections are derived from two main sources:

1. Planned Cyclic Safety Inspections

To identify defects which are hazardous (to any user of the road including drivers, pedestrians and cyclists) so that an effective repair can be carried out within a predetermined response time.

Cyclic Safety Inspections are carried out to specified frequencies, dependent upon the hierarchy of each section of road. During the inspection, defects are identified and processed for repair.

2. Reactive Safety Inspections (Ad-hoc)

Undertaken in response to particular circumstances, such as reports of defects from the

Police, general public, public utilities and other agencies.

The Safety Inspection regime forms a key aspect of the road authority's strategy for managing liability and risk.

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 and
- Provide a clear, accurate and comprehensive response to claims.

The method of undertaking each inspection is subject to a risk-based approach considering

traffic type, accessibility and footfall. The reason for the mode of inspection adopted should be documented.

During safety inspections, observed defects that provide any foreseeable degree of risk to users will be recorded. 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 and location within the road network.

Any individual safety-related defect identified and inspected outside a planned or ad-hoc cyclic safety inspection originated from any source e.g. Police Report, Public Communication, Council Officer identified etc must be recorded.

In the case of absence of an inspector due to, for example, annual leave or ill health the roads authority will ensure that a suitably trained substitute Inspector undertakes any inspection due within the time frames set down in this document.

During periods of extreme weather, 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.

Other Inspections

Road Condition Inspections (or Structural Condition Surveys)

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.

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.

Service Inspections

These are detailed inspection 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.

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 TRO's
- Missing or significantly damaged covers

Footways, Footpaths and Cycleways

- Surface defects
- Excessive standing water and water discharging onto and or flowing across the foot/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

Hierarchy

Carriageways

Carriageway hierarchy is not necessarily determined by the road classification but more by functionality and use. Table 1 below provides descriptions for carriageway categories based on those in 'Well-Managed Highway Infrastructure: A Code of Practice'.

Table 1 **Carriageway Hierarchy**

Category	Hierarchy Description	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 the 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 the 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 width and unsuitable for HGVs. In urban areas they are often residential loop roads or cul-de-sacs.
6	Minor Road	Locally defined roads.

Footways

Footway hierarchy is determined by functionality and level of use. Table 2 below is based on the recommendations of 'Well-Managed Highway Infrastructure: A Code of Practice' 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 and
- 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 the main routes and cul-de-sacs.
6	Minor Footways	Little used, serving limited number of properties.

Cycle Routes

Cycle routes are categorised by location and a proposed hierarchy is shown in Table 3 below. The cycling infrastructure inspection programme helps to support the aims of the Council's Cycling Strategy which strives to significantly improve cycling infrastructure across the Council area.

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 unsegregated.
3	Cycle trails - leisure routes through open spaces, remote from carriageways

Inspection Frequencies

'Well-Managed Highway Infrastructure: A Code of Practice' advises that the frequencies for safety inspections for individual sections of the road network or for individual assets should be based upon consideration of the following,

- category within the network hierarchy,
- type of asset, e.g. carriageway, footway, embankment, cutting, structure, electrical apparatus, etc,
- critical assets,
- consequence of failure,
- network resilience,
- use, characteristics and trends,
- incident and inspection history,
- characteristics of adjoining networks elements,
- the approach of adjoining roads authorities and
- wider policy or operational considerations.

Table 4 Frequency of Inspection – Carriageways

Category	Hierarchy Description	Frequency
1	Strategic Route	Monthly
2	Main Distributor	Monthly
3	Secondary Distributor	Monthly
4	Link Road	Quarterly
5	Local Access Road	Annually
6	Minor Road	Annually

Table 5 Frequency of Inspection – Footways & Footpaths

Category	Category Name	Frequency
1	Prestige Walking Zones	Monthly
2	Primary Walking Routes	Monthly
3	Secondary Walking Routes	Quarterly
4	Link Footways / Footpaths	Six Monthly
5	Local Access Footways / Footpaths	Annually
6	Minor Footways	Annually

Table 6 Frequency of Inspections – Cycleways

Category	Category Name	Frequency
1	Cycle Lane	As per adjacent road
2	Cycle Track	Six Monthly
3	Cycle Trail	Annually

Inspection Tolerances

All road safety inspections will be carried out to the 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.

But subject to the following limitations

- If and for reasons beyond the control of the roads authority, any inspection cannot be carried out in compliance with Table 7 then a record should be made to document the circumstances,
- 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 then the inspection should be abandoned and an entry should be made to document the circumstances,

- As soon as reasonably practicable following the above events a deferred programmed safety inspection should be carried out on the effected length of road,
- If an inspection Due Date falls during an extended period of absence e.g. inspector holiday or illness, then the inspection must be allocated to another suitably experienced member of staff who has the capacity to undertake the inspection and
- Additional inspections may be necessary in response to user or community concerns, as a result of incidents or extreme weather conditions, or in the light of monitoring information.

Defect Risk Assessment

Inspectors undertaking safety inspections or responding to reported incidents require to use judgement in determining response times to observed or reported defects. 'Well-Managed Highway Infrastructure: A Code of Practice' recommends that roads authorities adopt a system of defect risk assessment for determining the response categories to road defects.

The Code does not provide any minimum or default standards but provides guidance and advice to support the development of local levels of service in accordance with local needs, priorities and affordability.

The procedure for risk assessment is as follows:

- **Risk Identification**

An inspection item for which the inspector identifies a hazard is to be identified as a risk. The types of asset to be inspected and the potential associated hazards from defects are detailed in the Inspectors Operations Manual.

- **Risk Evaluation**

All risks identified through this process must be evaluated in terms of their significance which means assessing the likelihood of the risk happening and the likely impact should the risk occur.

- **Risk Likelihood**

The probability of a risk occurring will be quantified on a scale of Remote to Almost Certain. The probability of a risk occurring will also be quantified by assessing how many users are likely to pass by or over the defect and consequently the network hierarchy and defect location are important considerations in the assessment.

- **Risk Impact / Severity**

The impact of a risk occurring will be quantified on a scale of Negligible to Catastrophic.

- **Risk Matrix**

The risk factor for a particular risk is the product of the risk impact and risk. 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 8.

Table 8 Risk Matrix

Impact 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**

Having identified a particular risk, assessed its likely impact and probability and calculated the risk factor, the risk management procedure can be shown in the form of a risk management (response) matrix in Table 9.

Table 9 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

For defects located where carriageway and/or footway hierarchies intersect, for example at pelican or zebra crossings, or other defined crossing points at junctions, the hierarchy of the route with the most frequent inspection category will always take precedence in determining defect definition and responses. This principle will also apply to intersections between carriageways and cycle routes and between cycleways and footways and footpaths.

Priority Response Times

The Priority Response Times for each Defect Category are shown in Table 10 below.

Table 10 **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

Priority 1: Make safe within 24 hours

Represent 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.

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.