

Road Asset Inspections: A Risk Based Approach



Road Asset Safety Inspection Strategy

Document Information

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Document Control

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1.0	Final	19.11.2018	Roads Asset Management Section	N/A
1.1	Amended	12/1/2019	Roads Asset Management Section	Table 8 updated by SCOTS
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Introduction

This Road Safety Inspection Strategy has been developed with the primary aim of providing operational guidance to those officers 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 SCOTS Risk Based Approach (RBA) guidance and compiled using their Road Safety Inspection Strategy template.

'Well-Managed Highway Infrastructure: A Code of Practice'¹ has specific recommendations regarding inspections of all road elements. This Strategy document specifically relates to the procedure for carrying out road safety inspections. Recommendation 7 of the code of practice 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'².

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. Recommendation 6 within the Code of Practice refers to consistency with other 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 local 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 'Well-Managed Highway Infrastructure'.

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."

In addition, the Angus Roads Service inspects all footways believed to be held on the Housing Revenue Account and which may be used by the general public. These seen to be public footways are inspected once per annum with immediate repairs arranged as required to keep the said paths safe and serviceable. As part of this inspection regime, maintenance renewal schemes are identified and prioritised subject to potential funding being made available by the Housing Revenue Account. This does not include links to front doors or areas within shared communal areas.

Roads Safety Inspection activity is not carried out on private roads, in car parks or any land under the control of the council which is not a public road.

This Document

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

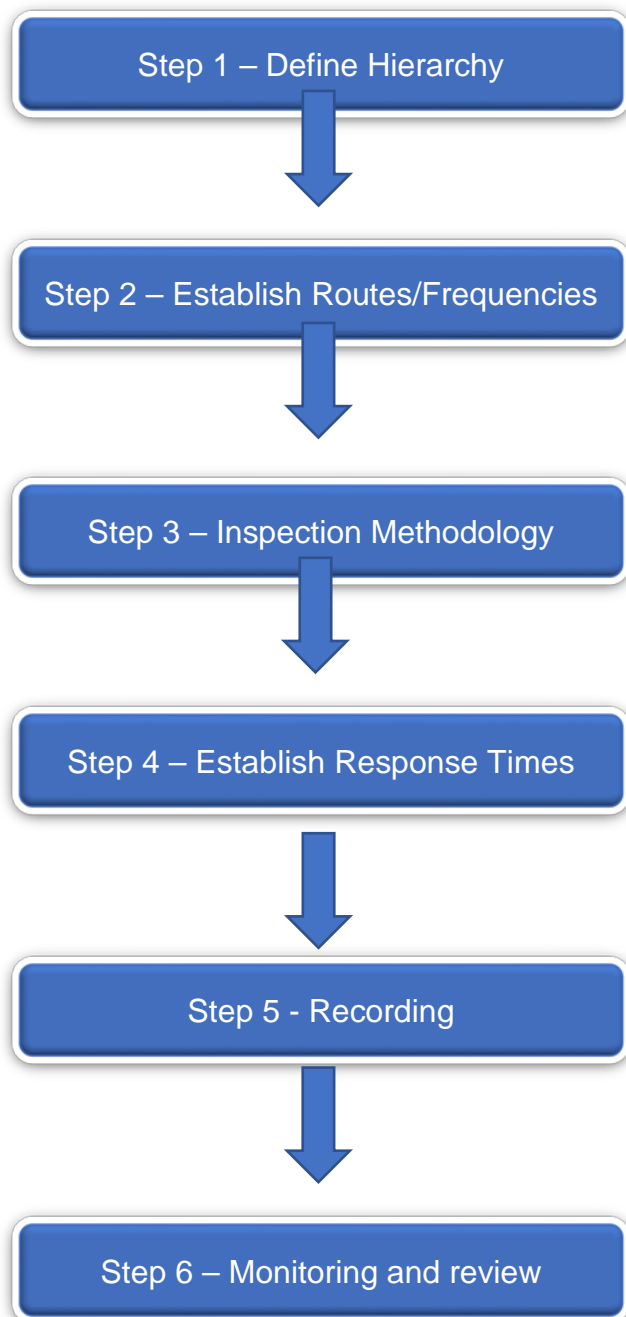
SCOTS formed a focus group to develop this Risk Based Approach documentation. The rationale for producing it and the approach taken to key content is contained in the following document held within the SCOTS Road Asset Management Knowledge Hub (Khub):

[‘SCOTS Rationale for Risk Based Approach to RAM Guidance.doc’](#)

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

Overview

The safety inspection strategy involves requires 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. e.g. Priority 2 (High Risk): Repair within 5 working days.

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

Regularly monitor and review the Safety Inspection strategy and its operation

Hierarchy

“Well-Managed Highways Infrastructure – Code of Practice” (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, 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 ‘Well-Managed Highway Infrastructure: A Code of Practice’.

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 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.

Category	Hierarchy	Description
6	Minor Road	Locally defined roads.

Footways

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 footways serving very limited numbers of properties.

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.
3	Cycle trails, leisure routes through open spaces, remote from carriageway or footway / path 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.

The road network in Angus is assessed and was established in terms of the hierarchy determined by the road category. This takes into account traffic usage and also service provision such as shopping centres, industrial activity, hospitals, schools and other amenities. The categories also take account of the winter maintenance requirement. This Strategy can be read in conjunction with the SCOTS-derived Safety Inspector Operations Manual.

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

Name/Role	Experience	Qualifications/Training
Traffic Officer (adoption)	Experienced Officer	
NRSWA co-ordinator	Experienced Officer	
Area Supervisors – 8 number	Various	Provide local knowledge and are continually trained

Review of Road Network Categories

Road networks are dynamic. 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 Traffic Officer (adoption) will advise area staff of these additions and also determine which hierarchy is to be applied for future inspection purposes. The area staff update and record these changes annually and these are recorded and communicated.

Angus Council employ 8 Area Supervisors who continually monitor changes on the Network and based on these changes, reviews of localised road network categories may be required.

A full review of the road network categories shall be undertaken on a five-year basis.

Continuity of safety and serviceability with neighbouring Roads Authorities

The adoption of the WMHI code of practice 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.

Safety Inspection Routes

Safety inspection routes need to be determined. This can be either manually done, or using an optimisation tool. For this revision of the Strategy, a manual method has been applied and the following approach applied:

- Inspection routes that are either driven (two person activity) or walked (single person). Driven routes are undertaken by two officers so that one person can drive safely with the other person inspecting only.
- Walked routes can be done safely by one person.
- All routes are held on a centralised database. Routes can be downloaded before each inspection is due and followed in the same manner by all members of the inspecting team.

These routes have been optimised manually to ensure efficiencies in time can be maximised with so called “dead” mileage reduced to an absolute minimum.

Inspection Frequencies

Angus Council is adopting the 'Well-Managed Highway Infrastructure: A Code of Practice' Frequencies for safety inspections as follows:

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	6 monthly
5	Local Access Footways / Footpaths	Annually
6	Minor Footways	Annually

Table 6 Frequency of Inspections – Cycleways – where adopted

Category	Frequency
1	As for adjacent road
2	Six Monthly
3	Annually

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 due 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 manager may assess the impact and adjust the programme.
 - A record must be kept of change decisions and reasons for them.

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 4, 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	± 20 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.

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 and
- 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 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

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 'Well-Managed Highway Infrastructure: A Code of Practice' 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 risk based approach, as per the above code of practice, 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 risk based approach, 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 code of practice 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, LGV's, HGV's, PSV's, 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 Inspector's 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

Most Probable 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, severe 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 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 10:

Table 10 Risk Matrix

Consequence	Negligible	Minor	Moderate	Major	Catastrophic
Likelihood					
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 NRSWA³. Sec 140 places duty on Statutory undertakers. However, the roads authority still retains duty of care responsibility.

Such defects will be recorded by the Road Safety Inspectors and then reported to the owning utility company.

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

1. Protect the Public in the immediate short term - Sign and Guard as necessary
2. Inform the Utility
3. If the utility cannot attend in 2 hours, Angus Council to make safe on their behalf and recover costs.

Inspection Records

Record inspections are kept on a manual database for each of Angus Council's 8 inspection areas – example shown below

	A	B	C	D	E	F	G	H	I	J	K	L
1		Driver:		MONTHLY 2 MAN DRIVEN - FORFAR AREA			Weather Condition: Overcast, dry, wet roads, calm					
2		Inspector:					Date Inspection Started: 07/11/2018					
		Road No.	Section Name	Location of Carriageway Defect	Location of Footway/Verge Defect	Date Inspected	Defect Cat	Road Condition	Date Repair Completed	Repaired By	Size of Repair (length x width x depth)	Date Defect made safe where applicable
3	New Line	A926-12	Roundabout West of A90 grade separated junction through to Roundabout east of A90 grade separated junction.	NO DEFECTS	NO DEFECTS	07/11/2018	No Defects	GREEN				
4	New Line	A926-13	Roundabout east of A90 grade separated junction to Roundabout at B9128 Brechin Road, Forfar	NO DEFECTS	NO DEFECTS	07/11/2018	No Defects	GREEN				
30	New Line	A926-14	Roundabout at B9128 Brechin Road, Forfar to Junction with A922 St James Road, Forfar	NO DEFECTS	NO DEFECTS	07/11/2018	No Defects	GREEN				
56	New Line	A94-1	Junction with A926 Craig O Loch Road Road, Forfar to Roundabout east of A90 grade separated junction	PH WEST OF WESTFIELD LOAN EB. 5 SQM.	NO DEFECTS	07/11/2018	Cat 3 (28 Day Response)	GREEN				
82		A94-1	Junction with A926 Craig O Loch Road Road, Forfar to Roundabout east of A90 grade separated junction	PH AT WELCOME TO FORFAR SIGN. EB. 6 SQM.	NO DEFECTS	07/11/2018	Cat 3 (28 Day Response)	GREEN				
83		A94-1	Junction with A926 Craig O Loch Road Road, Forfar to Roundabout east of A90 grade separated junction	PH AT DON & LOW ACCESS. EB. 4 SQM.	NO DEFECTS	07/11/2018	Cat 3 (28 Day Response)	GREEN				
84		A94-1	Junction with A926 Craig O Loch Road Road, Forfar to Roundabout east of A90 grade separated junction	PH AT DON & LOW ACCESS. EB. 2 SQM.	NO DEFECTS	07/11/2018	Cat 3 (28 Day Response)	GREEN				
85		A94-1	Junction with A926 Craig O Loch Road Road, Forfar to Roundabout east of A90 grade separated junction	PH AT DON & LOW ACCESS. EB. 2 SQM.	NO DEFECTS	07/11/2018	Cat 3 (28 Day Response)	GREEN				
86		A94-1	Junction with A926 Craig O Loch Road Road, Forfar to Roundabout east of A90 grade separated junction	PH AT DON & LOW ACCESS. EB. 2 SQM.	NO DEFECTS	07/11/2018	Cat 3 (28 Day Response)	GREEN				

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
Islands or Remote Locations Response Times	Insert Practical Alternative response time or n/a	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.

Service Levels

Table 13 ANGUS 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

Angus Council have set the above response time levels at the same level as recommended by SCOTS above. However in collaboration with Perth and Kinross Council and Dundee City Council, Angus Council will seek to achieve the improved goals of Priority 1 defects in 4 hours and Priority 3 defects within 30 days.

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.

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 or snow, or freeze / thaw conditions. Prolonged periods of adverse weather may also prevent remedial measures being carried out.

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 to Committee and benchmarked against similar Authorities through the SCOTS/APSE benchmarking initiative. These include:

- The percentage of inspections completed on time within the target 95%;
- The number of priority 1 defects repaired on time (within 24 hours) with the target 100% due to the risk of imminent loss or injury arising from the defect;
- The number of priority 2 defects repaired on time (within 5 working days) with the target 100% due to the medium risk arising from the defect; and
- The number of priority 3 defects repaired on time (within 60 working days). 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.

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 Road Asset Safety Inspectors are competent in carrying out safety defect inspections.

Safety Inspectors within Angus Council will undergo the SCOTS Risk-based Approach to Safety Defect Inspections training and be required to achieve a pass grade on the course assessment to demonstrate competency in assessing risk. Training will be delivered by an appropriate line manager, utilising the SCOTS training toolkit. The person delivering the training will be required to have been trained and assessed as competent through SCOTS recognised training. This training will likely be arranged in collaboration with Angus' neighbouring authorities - Perth and Kinross, Dundee City and Fife.

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, a Roads Superintendent or line manager 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.

A new Inspectors training plan is requiring to be developed and implemented as part of this Risk Based Approach Strategy.

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 record.

Training Records

Inspector training 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 digitally.

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:

Angus Council recording process:

- DASH
- Accessline

Road Condition Inspections (or Structural Condition Surveys)

Road Condition Inspections 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.

- Routine Supervisor inspection, monthly, quarterly, bi-annually
- Annual SCRIM and SRMCS surveys

Utility Company Apparatus/Reinstatements Inspections

Utility Company Apparatus/Reinstatements inspections are 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.

- Led by the 8 Area Supervisors and 1 NRSWA co-ordinator.

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.

- Routine Bridge Inspections – refer to the Structures Team
- Flood site inspections – grids/screens etc. in known problem areas.

Safety Inspections of Highway Trees

Any defective trees, hedges or shrubs or feature likely to cause an obvious danger by encroachment, visibility obstruction, damage, ill health or trip hazard is recorded and the appropriate action taken. Under Section 83, or 91, of the Roads (Scotland) Act 1984, Angus Council deals, by consultation with the owners and if required a Notice, with hedges, trees and shrubs growing on adjacent land which overhang the road.

Angus Council carries out additional tree inspections with qualified arboriculturalists.

All Safety Inspectors receive some basic arboricultural guidance but a qualified arboricultural adviser carries out an inspection when specialist knowledge is required. Their advice is also sought before any work is carried out on tree roots causing a problem to a footway surface. Qualified tree surgeons will be used when conducting tree maintenance work for Angus Council.