



Renfrewshire
Council

To: Council

On: 28 April 2022

Report by: Director of Environment & Infrastructure

Heading: Renfrewshire's Roads & Infrastructure Investment Strategy

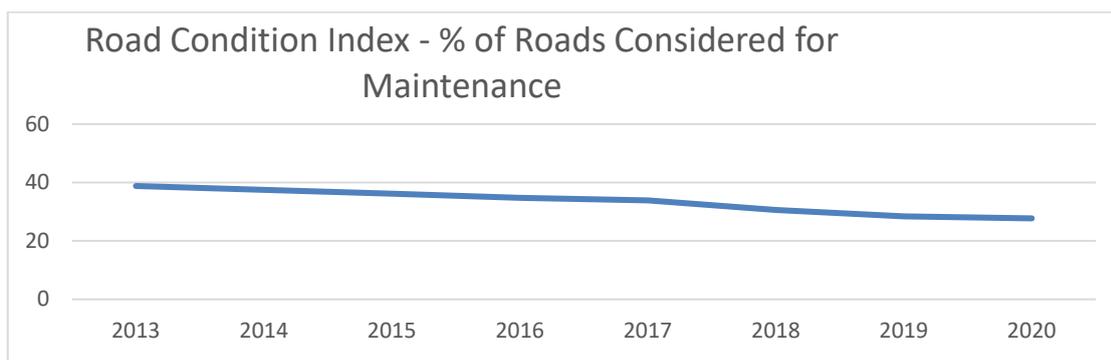
1. Summary

- 1.1 Council agreed at its meeting of 3 March 2022 to prepare for the next Council meeting a comprehensive strategy to improve all of Renfrewshire's roads, pavements and pathways to an acceptable condition.
- 1.2 This report sets out the strategic, proactive approach to maintaining and improving Renfrewshire's roads, pavements and pathways. The strategic approach set out in detail in the appendix to this report is the current strategy, used to support investment decisions in Renfrewshire's road infrastructure over the last 7 years supporting the £13million investment in April 2017 – March 2019 and the 5 years £40million Road Infrastructure Capital Investment Programme agreed at the Council Budget meeting of February 2019 which will take investment through to March 2024. The report also provides a general update of other Capital Investment streams that have delivered significant infrastructure projects over the same period.
- 1.3 The 5 years £40million investment programme approved in 2019, was the first time Renfrewshire Council had approved a multi-year investment which allowed a medium to longer term strategic approach to be taken to maintaining Renfrewshire's road related infrastructure.
- 1.4 The 4th year of the programme has just commenced, with £25million invested over the last 3 years in Renfrewshire's road Infrastructure. A further investment in the road network of over £11million is planned this year in 2022/23.
- 1.5 A summary of the investment achievements delivered over the last 3 years is set out below, with notable highlights including;
 - Over 1.1million square metres of our road and footway network benefitting from proactive maintenance,

- Carrying out preventative maintenance on 20% of our road network including resurfacing, micro surfacing, surface dressing and large area patching,
- Almost £3million has been spent on upgrading strategic routes in and out of Renfrewshire
- Over 605,000sqm of our road network has been fully resurfaced, which equates to 11% of the network.
- A further 8% of the network has benefited from another form of treatment such as surface dressing, micro surfacing or large area patching
- A £1.2million investment in drainage
- Successful applications to external funders totalling over £6million to supplement the Council's £40m capital programme.

1.6 The benefits outlined above have also been supported by sustained improved performance in the Scottish Local Government Benchmarking Framework indicators which can be attributed to the significant investment in recent years. The figure below shows the data available until 2020/21 and highlights sustained improvement in our performance in relation to roads maintenance over recent years. The percentage of Renfrewshire's roads requiring maintenance is now significantly below the Scottish average.

1.7 As a result of the current strategic approach and investment being targeted at our priority road network, Renfrewshire's class A road network is now ranked 4th in Scotland, improving from 8th in 2018 with the class B network being ranked 7th, improving from 10th in 2018. As shown in the graph below, there has been continual improvement in Renfrewshire's Road network over the last 10 years, with an increased improvement over the last 5-year period.



1.8 In addition to the road's investment programme, the Council also invests in capital programmes each year targeted at improving other infrastructure such as bridges and structures and street lighting. These are annual improvement programmes funded from the Council's Capital Programme. In addition to internal funding, the Council regularly secures external funding to deliver priority programmes with around £1million each year being accessed from SPT as well as regular funding requests to Sustrans and Transport Scotland for improvements to active travel and electric charging infrastructure.

1.9 The Service will endeavour continue to adopt a long-term view with regard to roads maintenance activities across all aspects of the Roads Infrastructure. The longer-term strategy adopted over the last few years with a high level of investment can be shown to

have a direct improvement on the condition of the road network. The work undertaken through the current strategy should provide members with reassurance that the strategic approach adopted, supported with a higher level of investment through the £40m investment programme is maintaining and improving the overall condition of the road asset. However, the Council will require to consider its future financial investment strategy beyond the current approved 5 years strategy. Any investment levels to support a future long-term strategy in road's infrastructure will be subject to future consideration and decisions taken by the Council. This will inevitably be influenced by the financially sustainable investment capacity available to the Council and how such capital resources will be deployed not just to roads infrastructure, but also to other investment priorities and unavoidable investment requirements across the Council's wide and complex asset base.

2. Recommendations

It is recommended that the Council:

- 2.1 Notes the strategic approach to maintaining and improving Renfrew Council's Road Assets and Infrastructure as set out in this report and supporting appendices,
 - 2.2 Notes that Environment & Infrastructure will continue to adopt a strategic approach to tackling roads and infrastructure maintenance in the years ahead, subject to approved investment capacity reflecting future decisions made by the Council.
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3. Background & Investment Requirements

- 3.1 The Council's Road and Infrastructure network is the largest physical asset the Council owns and is essential to the daily lives of all our residents, whether it is access for employment, leisure, learning or social activities. The Council maintains almost 5.5million square metres of road network and 2.8million square metres of footway and path network, along with the assets within this such as drainage, signage and 30,000 streetlights.
- 3.2 The ongoing maintenance of the asset is a continuing one and as such there is a required level of investment on an ongoing basis just to maintain the steady state condition of the road network. The steady state condition reflects on a number of aspects, including the average lifespan for a resurfaced road is considered somewhere between 12 and 15 years, meaning around 7% – 8% of our road network would need to be resurfaced on an annual basis, just to maintain the status quo. The average lifespan for a resurfaced footway is between 25 and 30 years, around 3% - 4% of our footway network will need to be resurfaced on an annual basis, just to maintain the network position.
- 3.3 To provide some context around these figures, in the years 2013 – 2018 the annual average percentage of network resurfaced each year was around 3% for carriageways and 1% for footways. The current 5 year £40million investment programme which commenced in 2019/20 has allowed a more comprehensive medium to long term approach to maintaining the Council's Road network and road related infrastructure. This has ensured roads investment has extended beyond just maintaining a steady state condition and rather has secured the improvement in the overall condition of the asset.

4. Approach to Roads Maintenance

4.1 Maintenance & Improvement Strategy

The roads and footways in Renfrewshire are assessed in a number of different ways on a regular basis throughout the year. The methods include our inspector's cyclical inspection regime set out in the Roads Inspection Policy (attached as Appendix 3) approved at the ILE policy board in May 2019 date, which commits a risk-based approach to inspection frequencies based on the use of the road.

4.2 Renfrewshire road network is independently audited annually and involves surveying all classes of road. This is undertaken for all Scottish Local Authorities known, as the Scottish Roads Maintenance Condition Survey (SRMCS). This ensures there is a consistent approach across Scotland in relation to assessment of road condition and deterioration. The information provided from this annual exercise helps to inform the Council's investment strategy for future years and is the first criteria set out in the assessment matrix detailed in appendix 1 to the report. This is also the information used to provide overall road condition and provides the national picture that informs the LGBF indicators.

4.3 In the second year of our current investment strategy the Council sought an external review of our strategic approach to roads investment. The review considered all aspects of our road's maintenance programme, including the criteria used for assessing our roads for inclusion in each year's capital programme.

4.4 The external review concluded that the approach the Council had adopted was appropriate and that a 5-year programme of investment was particularly beneficial in setting out a long-term strategy for improvement, with a few findings for change, which have since been incorporated to the strategic approach. The key findings from the review were:

- The weightings of our road's matrix were slightly amended to ensure consideration was given to roads and areas where there were linkages with other key Council priorities,
- An increased level of footway resurfacing was going to be required recognising the lower than steady state investment that had taken place over the previous 5 - 10 years, this is now reflected in the strategic approach taken since 2020, reflected in Appendix 1.

5. Wider Road, Pathway and Footway Infrastructure

5.1 Public Transport & Active Travel

In addition to Council funded activities, Environment & Infrastructure have been successful in accessing and securing external funding sources to support continued investments in public transport infrastructure and our active travel network. The Council approved in 2016 Cycling Strategy setting out a 10-year strategic plan and the funding and investment is helping to deliver upon the key strategic routes set out in this strategy.

Over the last 3 years the Council has accessed over £6million in funding to deliver on these significant climate change priorities, including;

- Almost £3million worth of funding from SPT which has delivered a number of key Council priorities, including;
 - £500,000 to upgrade traffic signals across Renfrewshire,
 - £330,000 to provide safer road crossing facilities
 - £700,000 to provide bus corridor infrastructure, including improving access to facilities and provision of real time passenger information
- Over 5km of cycling infrastructure has been delivered, including key links now established between Bishopton, Dargavel and Inchinnan

- £400,000 investment in the reopening of the Whitecart Footbridge in conjunction with Sustrans and SPT,
- Securing £1million in funding to deliver the ambitious Paisley to Renfrew cycle route, with works having commenced on site in February 2022.

5.2 Streetlighting and Structures

The Council has committed funding for feasibility and design preparations for significant investment in our bridges and structures assets with an annual capital investment of around £0.5million each year. During this year works were completed on the Crosslee Bridge and planned next year for the Plymuir and Wright Street bridges.

Over £500,000 worth of streetlighting improvements have been made in recent years including KGV and Thomas Shanks Park to supplement increased investment to allow increased access to our parks and play areas.

6. **Equipment Investment**

- 6.1 Over the last two years and into this new financial year the Service has invested significantly in new vehicles and equipment to support the reactive maintenance delivered by the service. This investment includes a £150,000 investment in a new Roadmender machine to improve the efficiency of the operation. There has also been an investment of over £100,000 in a new gulley vehicle which will be operational in April 2022.

The service has also trialled a number of other pothole machines such as the JCB Pothole Pro and Multevo Multihog and further investment is planned as part of our vehicle replacement programme.

7. **Digital Enhancements**

- 7.1 Over the last year the roads service has invested in resource to enhance its digital capabilities. The roads service had been a very traditional paper-based operation and work has been progressed to digitise services, utilise the Council's GIS systems, existing systems and invest in new systems and technology. The Council has just procured a digital system that will be used to support the roads service, building on the systems introduced for waste collection. The aim is to enable these systems over the next 18 months to provide the public and members with information about maintenance regimes and activities. The work undertaken so far has provided far greater management information, which has helped to support the public, members and increase service effectiveness.

8. **Community Investment Fund**

- 8.1 One final aspect of the Roads investment strategy is introduction of a community investment fund. £1.2million has been set aside from the Roads Capital programme to deliver improvements to roads related infrastructure nominated by our communities.
- 8.2 A wide ranging programme of communications and community engagement took place between 4 October and 14 November with roadshows taking place across Renfrewshire, and attendance at each of the local partnership meetings.
- 8.3 The engagement with the communities has been a positive experience with communities and individuals contributing 2,843 ideas. This initial list of ideas has been reduced to a long list of

439 ideas. These 439 suggestions are now undergoing assessments for deliverability and design which will then inform the shortlist that goes to the public vote.

Implications of the Report

1. **Financial** – Members should note that the delivery of the strategic approach to maintenance and improving Renfrewshire’s Road network has a direct correlation to the financial Investment available. There is an existing investment strategy until March 2024. Council will have many investment considerations going forward; roads will be one of these and future road asset investment strategies refined to reflect investment decisions made by the Council.
 2. **HR & Organisational Development** – None
 3. **Community & Council Planning**
 4. **Our Renfrewshire is thriving / Reshaping our place, our economy and our future** – The Road Asset plays a significant role in supporting the development of Renfrewshire’s economy and communities.
 5. **Creating a sustainable Renfrewshire for all to enjoy** – Renfrewshire’s Road & Footway and supporting infrastructure play a key role in supporting Renfrewshire’s climate ambitions
 6. **Legal** – None
 7. **Property/Assets** – The Council’s roads, fleet and open space infrastructure is maintained and enhanced.
 8. **Information Technology** – None
 9. **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
 10. **Health & Safety** – None
 11. **Procurement** – None
 12. **Risk** – None
 13. **Privacy Impact** – None
 14. **CoSLA Policy Position** – None
 15. **Climate Risk** – The Council continues to commit internal and external funding in Road Asset to develop sustainable, green infrastructure.
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List of Background Papers: Road Policy – Roads Inspection Policy

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Appendix 1 – Carriageway and Footway Scoring Matrices

Scheme Ranking System for Carriageways – 2020 -2024

The following is the proposed Carriageway Scheme Ranking system which has been developed as part of the Roads Asset Management Plan project. The system has four attributes:

- 1. Condition / Engineers Assessment** – Based on data obtained from annual Scottish Road Maintenance Condition Surveys (SCMCS), this is supplemented by visual inspections using best practice guidance as set out in the *well- maintained highways 2005 documents*.
Rated from 1 (acceptable condition) to 5 (major deterioration).
(Refer to assessment key below)

- 2. Inspection Outcomes and Enquiries** – Based on issues raised key stakeholders (public, elected members, community councils, Inspectors etc) with consideration given to severity, frequency and insurance claim factors.
Rated 1 (low impact) to 5 (high impact)

- 3. Road Hierarchy** – As defined by agreed carriageway classification system.
 - A Class Road 5pts
 - B Class Road 4pts
 - C Class Road 3pts
 - Unclassified Road 2pts
 - Private Road 1pts

- 4. Linkages to other Council Priorities** – Based on issues raised in consultation with internal and external stakeholders which may have an affect (positive / negative) for key council strategic documents such as
 - Renfrewshire’s Council Plan 2017-2022
 - Renfrewshire’s Community Plan 2017-2027
 - Environment and Infrastructure Service Improvement Plan 2021-2024
 Rated 1 (low impact) to 5 (high impact)

Scoring System				
	Criteria	Maximum Score	Weighting	Score
1	Condition	1 - 5	x 10	50
2	Inspection Outcomes and Enquiries	1 – 5	x 4	20
3	Road Hierarchy	1 – 5	x 4	20
4	Linkages to other CP	1 – 5	x 2	10
Maximum Total				100

Visual Condition Assessment

1. Fretting of Surface.
2. Fretting of Joints
3. Delamination of layers
4. Transverse Cracking.
5. Longitudinal Cracking.
6. Alligator Cracking.
7. Sub-standard Surface Texture Depth.
8. Coated Chipping Loss
9. Uneven / Irregular Surface.
10. Uneven / Irregular Public Utility Apparatus.
11. Potholes.
12. Filled Potholes
13. Patches.
14. Subsidence.
15. Rutting.
16. Failed Surface Dressing / Micro-surfacing.
17. Edge deterioration.
18. Open transverse / longitudinal joints.
19. Public Utility track / reinstatement failure.

Take note of existing surfacing material i.e. HRA, SMA, DBM, Surface Dressing, Micro-asphalt etc.

Note any drainage problems in relation to ponding, gully problems, water discharge from adjacent land, defective dished or Aco channels etc.

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12. Numerous Filled Potholes
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Appendix 2 – Road Treatment Types

Treatment Strategy

The Service has continued to use and explore alternative treatment methodologies to ensure the return for the investment can be as efficient and effective as possible. The paragraphs below outline the approaches used as well as the rationale behind them.

Traditional Resurfacing – The most commonly used technique is traditional road and footway resurfacing where 100mm depth of the road surface is removed and then a new surfaced laid. The new surface is laid in two layers, the base course and then a wearing course. This type of treatment is commonly applied where full streets or significant lengths of road are in need of treatment and is traditionally applied in areas over 1000sqm.

Micro Surfacing – Micro surfacing (also referred to as ‘micro asphalt’, ‘micro’ or ‘thin surfacing’) is a ‘surface treatment’ for roads. It is laid over the top of the existing surface to seal and protect it. It consists of a water-based mix of stones and bitumen which is spread over the existing surface by a special machine. It can take out minor dips and bumps; restores grip and texture and creates a new, waterproof surface. Micro surfacing is used to enhance the lifespan of a road, especially where the depths of defects are not significant enough to warrant full resurfacing. This method allows us to carry out more works, particularly in residential areas and can protect the road for a further 5 to 7 years.

Surface Dressing – In Renfrewshire, Surface Dressing is traditionally used in our more rural locations as it is a quicker and more cost-effective way of restoring a road surface and sealing it in one process. Surface dressing also improves skidding resistance which makes the road safer and also helps to make the road waterproof. The road is sprayed with a bitumen binder followed by a layer of stone chips, which are then pressed in with a roller. To ensure a uniform coating, more chippings are deliberately applied to the surface than are actually required, with the road being swept to remove the excess chips. We treat roads between April and September because the process needs warm, dry weather to allow the dressing to become established.

Large Area Patching – This is not a process of pothole repairs and is considered more like mini resurfacing schemes. In the last two years we have invested over £1million each year in large area patching. Typically, these are roads where there are defects but not so many to warrant a full resurfacing scheme, instead the treatment is targeted at large areas of the road. The patched areas are larger than the defects actually require as there is a need to limit the number of joints created on a road surface. In a standard large patch, the depth removed will be between 60mm and 100mm depending on the integrity of the base surface.

Plastic Roads – The use of recycled plastic in roads construction is becoming more popular, especially in recent years. Pellets made from recycled plastic are mixed with bituminous material and applied to the road surface. This process does not reduce the reliance on bitumen products and is more considered as a bulking agent. The



Renfrewshire
Council

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.

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.

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.