



Shetland Islands Council

**Roads Asset
Management Plan
2025-30**

Version 3

February 2025

Foreword

This plan sets out the Council's intentions for the management of its road asset for the next five years and beyond. It has been produced in accordance with national guidance and recommended good practice.

In essence asset management sets out an approach to be used in acquiring, maintaining, improving and disposal of an asset. In terms of roads Asset Management can be defined as:

“A structured, long-term approach to planning optimal maintenance and eventual renewal of infrastructure.”

It is widely recognised that the application of modern asset management practices can enable improved value for money. It is essential that the Council embraces these methods and strives to ensure that budgets are invested as wisely as possible. This plan forms an important part of the Council's commitment to apply good asset management to roads.

The plan has recognised the views of road users and residents and in particular the importance that is placed upon our road assets. However, the opinion of residents needs to be updated so opinion surveys will be undertaken on a biennial basis. Recent harsh winters have shown that our roads are susceptible to damage when bad weather occurs. In the longer term climate change could have significant detrimental impacts on road assets. It is essential that an appropriate level of investment is put into the road network to maintain and ultimately contribute to the main principles of the Council, including the economic wellbeing of the locality.

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Executive Manager – Roads

Document Control & Council Approval

Version Number/Date	Approved by Council
v1	Progress with this document's development has been noted at various meetings of the Environment and Transport Committee and the Roads – Member Officer/Working Group.
v2	Approved by Environment & Transport Committee on 3 October 2016 and Shetland Islands Council on 2 November 2016.
v3	Approved by Environment & Transport Committee on 8 September, Policy & Resources Committee on 15 September and Council on 24 September 2025.
Next Update Due	September 2030

Responsibility for the Plan

The persons responsible for the delivery of and updating of this plan are shown below

Position	Name	Responsible for
Shetland Islands Council		To approve material changes to the RAMP; act as custodians of community assets; and to set levels of service and policy.
Environment & Transport Committee		Approval of the functional amendments to the RAMP and ensure appropriate resources are available for Asset Management activities.
Executive Director of Infrastructure Services	John R Smith	Approval of functional amendments to be proposed to Committee, provide strategic direction and leadership.
Executive Manager of Roads Service	Neil Hutcheson	Champion of RAMP and updating RAMP document as required, presenting accurate and reliable asset information to Council.
Team Leader-Asset and Network Management	Colin Gair	Monitoring improvement actions, informed decision making & ensuring updates to the documents. Identifying where improvements to the service can be made.
Team Leaders	Barrie Scobie, John Duncan, Ian Smith & Vacant	Producing integrated forward work programmes, both long and short term, and ensuring their availability to all interested parties. Identifying conflicts and opportunities for rationalisation of works.
Network Engineer	Neil Robertson	Ensuring data management procedures are followed and that all information is kept up to date. Providing requested information outputs to other parties.
Team Leaders	Barrie Scobie, John Duncan, Ian Smith & Colin Gair	Monitoring and updating risk registers, ensuring control measures are put in place & identifying risks that need to be passed up the management tree.
Asset "Owner" Carriageways	John Duncan	Updating lifecycle plans, ensuring implementation of improvement actions. Identifying asset specific investment requirements; works programmes and changes to procedures and documentation; to deliver levels of service to agreed cost and risk standards; to see community feedback on proposed changes to service levels.
Asset "Owner" Footways and Active Travel Paths	Barrie Scobie	
Asset "Owner" Structures	Ian Smith	
Asset "Owner" Street Lighting and Traffic Signs	Mervyn Smith	
Asset "Owner" Drainage	Barrie Scobie	

1. Introduction

Overview

This Road Asset Management Plan (RAMP) sets out and records the plans for Shetland's road assets for the period 2025-2030. The "road asset" comprises of carriageways, footways, structures, street lighting, traffic management and street furniture (also drainage etc.). The definition of asset management adopted by the Shetland Islands Council Roads Service is:

"Asset management is a strategic approach that identifies the optimal allocation of resources for the management, operation, preservation and enhancement of the road infrastructure to meet the needs of current and future customers."

The Scottish Collaboration of Transportation Specialists (SCOTS) guidance requires the RAMP to be produced together with a road maintenance manual (RMM) and an annual status and options report (ASOR). In Shetland the latter is reported as the "Carriageway Condition of Shetland's Roads."

Purpose

There are many reasons for implementing a RAMP which include:

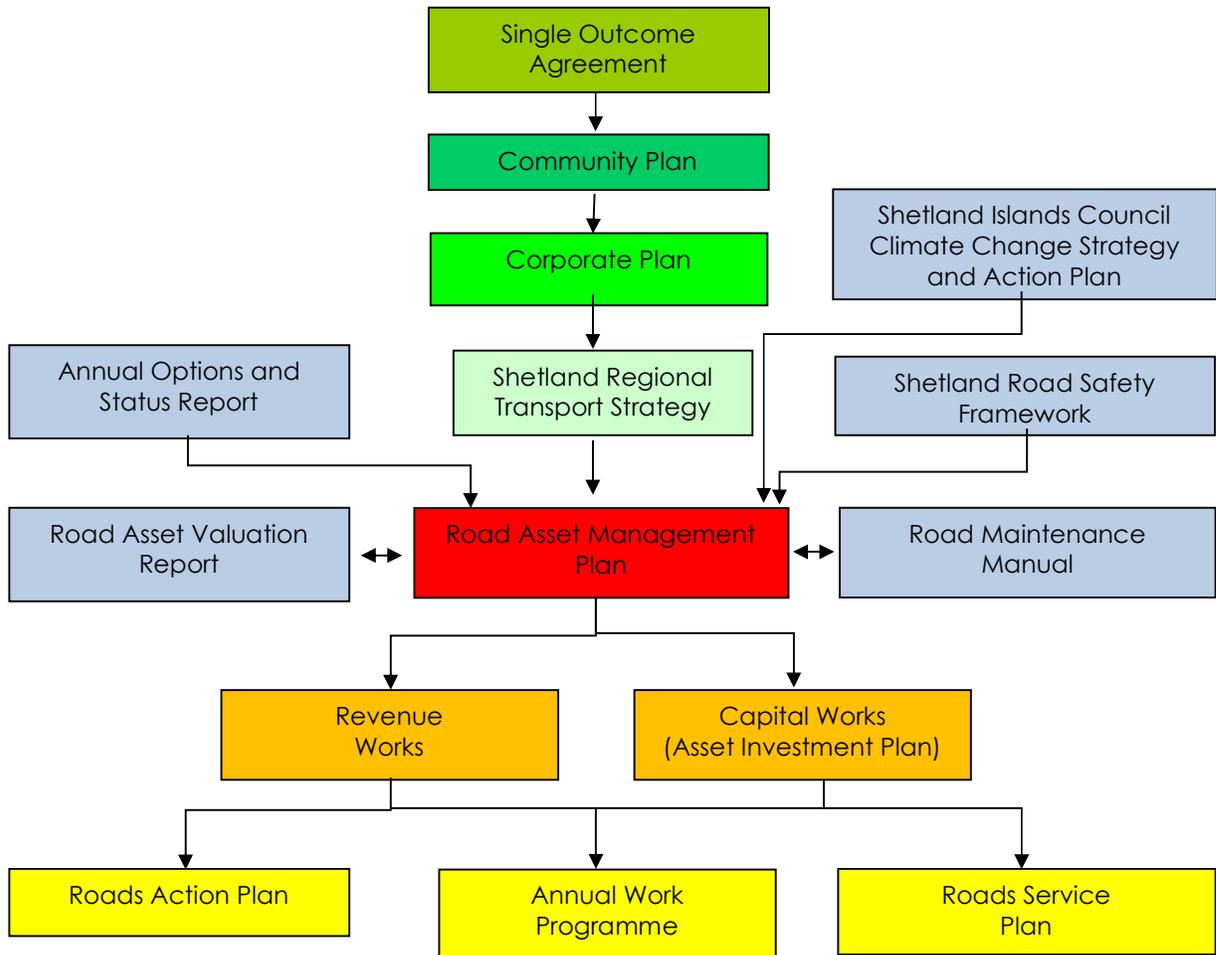
- providing evidence of strategic thinking and long-term planning with regard to maintenance and management of the road infrastructure;
- to identify and take account of the needs of road users;
- a satisfactory explanation to stakeholders of a fair and reasonable way of allocating limited operational, maintenance and improvement resources;
- in order to meet both national and local outcomes as specified within the single outcome agreement;
- formalising strategies for investment in road asset groups;
- defining service standards;
- ensuring that road safety is embedded in the management and maintenance of the road network at all levels; and
- to identify maintenance techniques and materials that will reduce the road authority's carbon emissions.

The plan aims to improve how the road asset is managed and to enable the delivery of a better value for money Roads Service. Local authorities have a statutory duty to pursue best value. Expenditure must be prioritised to ensure corporate objectives can be effectively delivered within budgetary constraints. Asset management assists this process by enabling the allocation of resources based upon assessed need.

The use of lifecycle planning, the minimisation of whole life costs and decision making informed by an appreciation of risk and benefit are key asset management components that will help the Roads Service allocate resources to where they are likely to provide the best long-term benefits.

RAMP and Other Plans

The RAMP relates to the Council's other strategic documents and plans as illustrated below:



The RAMP is informed directly by the Shetland Regional Transport Strategy, the Annual Status and Options (Carriageway Condition) Report, the Road Maintenance Manual the Council's Climate Change Strategy and the Shetland Road Safety Framework. Targets and strategies contained in the RAMP are used to develop annual works programmes once the Council's annual budget for roads has been agreed.

A priority of "Our Ambition," the Council's corporate plan, is to "invest in the maintenance of our road network to ensure it continues to support our economy and communities." Further aims of the corporate plan are to have an integrated transport network that "will support our community outcomes of achieving climate change targets, reducing inequality, improving public health and enabling access to essential goods and services as well as other opportunities to ensure economic growth." A sustainable public road network would also contribute to achieving the Council's aim of becoming "more financially sustainable and resilient in order to safeguard public funds while achieving value for money." An effective asset management strategy is required

to ensure that the road network can play its part in achieving these goals. To that end this latest version of Shetland Island Council's RAMP is concentrating on two of these priorities, namely road safety and the reduction of greenhouse gas emissions.

2. Road Safety – Vision Zero and the “Safe System” Approach

The mid-term review of “Go Safe on Scotland’s Roads Its Everyone’s Responsibility” moved the Government’s road safety strategy “systematically towards Vision Zero” and advised, “the Safe System approach should be formally adopted in progressing towards 2020 targets.” These methodologies are explained below.

Vision Zero

In October 1997 the Swedish Parliament adopted its “Vision Zero” road safety policy. It set a “target of zero deaths and zero serious injuries” in the road traffic environment and put the “responsibility for achieving this goal on all those responsible for the total road safety system.” This means that the detailed design of the road, the vehicle and driving behaviour must be tackled as a “total system” so that “a mistake in the road traffic environment does not carry the death penalty.”

“The Safe System Approach”

The Safe System approach recognises that humans as road users are fallible and will make mistakes. There are also limits to the kinetic energy exchange which humans can tolerate (e.g. during the rapid deceleration associated with a crash) before serious injury or death occurs. A key part of the Safe System approach requires that road infrastructure be designed to take account of these errors and vulnerabilities. Therefore, in the event of a crash, the impact energies should remain below the threshold likely to produce serious injury or death.

The four guiding general principles of the Safe System approach are:

- people make mistakes that can lead to road traffic accidents;
- the human body has a known, limited physical ability to tolerate crash forces before harm occurs;
- individuals have a responsibility to act with care and within traffic laws, but a shared responsibility exists with those who design, build, manage and use roads and vehicles to prevent crashes resulting in serious injury or death and to provide post-crash care; and
- in order to multiply their effects, all parts of the system must be strengthened in combination, and road users are still protected if one part fails.

The Safe System approach rejects the view that road deaths and injuries are an inevitable price that must be paid for a highly motorised mobility and challenges the public’s frequently poor perception of risk. It sees the road user as the weakest link in the chain, unpredictable and capable of error, education and information efforts notwithstanding. In order to reduce road accidents a more holistic strategy is needed including enforcement supported by public awareness campaigns, safer road design, and improved vehicles and vehicle technologies. A strategy that improves the safety of vehicles and road infrastructure rather than just

pursuing the impossible task of eliminating all human error will be more effective in reducing accidents on our roads.

Implications for Road Asset Management Planning

Adoption of these methodologies has had implications for the management and maintenance of the road network.

There has been a dramatic improvement in the safety of vehicles in recent years though improved “mechanical” engineering, especially since the introduction of the European New Car Assessment Programme (EuroNCAP) in 1997. A similar approach to road infrastructure is now considered to be the next area where significant road safety advances should be made.

The safety of a road can be enhanced through improvements to its infrastructure that will in turn reduce the number and/or severity of accidents. There are a number of engineering interventions that will result in more “readable” and forgiving roads that reduce human error and cushion crash impacts.

There is a need for greater financial investment in road safety when implementing the “safe system” approach in comparison to the previous approach which identified and treated accident cluster sites or black spots. This may appear unaffordable in the current financial climate but is required if significant further accident reductions are to be achieved. Should these accident reductions be forthcoming then there will be very significant economic savings due to the financial costs associated with road accidents. The Department for Transport noted that the UK economy as a whole would receive “a 10-year stream of benefits that can be valued at £111 billion” from the implementation of Vision Zero. Studies have also shown that there is a benefit to cost ratio of 3:1 from implementing the type of engineering improvement listed above, meaning that for every £1 spent on these types of treatment, £3 or more is returned to the wider economy in accident savings. The additional funding required for infrastructure improvements, identified through the “safe system” approach, requires a different funding source. Depending on the nature of the works this may be available through the Council’s Business Case Process for capital funding. Safety improvements have also been funded through revenue budgets. However, in the current economic climate these budgets have remained stagnant or been reduced in the drive for efficiency savings. There is little if any scope to do other than essential maintenance with these budgets. Despite this consideration has been given to the allocation of funds within budgets, such as those for road markings and traffic signs, with priority having been skewed more toward safety. For example, the introduction of a “practice” that faded warning signs are replaced but faded direction signs are not. This is not a huge step given that the programming of surface dressing has for 20 years prioritised sections of road with poor skid resistance over those which are simply worn or in need of sealing. This has been extended to allocation between budgets with, for example, monies taken from the resurfacing or structures budgets and given to the safety barrier or road markings budget. This will allow safety improvements to be undertaken without a corresponding increase in the overall Roads budget. The consequence of this, of course, is a reduction in spend on general maintenance and a possible reduction in the condition of the road network as a result.

Strategy for “Safe System” Approach

The majority of accident cluster sites in Shetland have been addressed through bend improvements, junction improvements, the provision of roundabouts and traffic calming measures. This means that the accidents that are occurring are spread randomly across the road network. The fatal and serious injury accidents tending to be concentrated on our two-lane A and B class roads. The Roads Service strategy for addressing this is “route treatment” which to date has consisted of:

- the upgrading of roadside safety barriers;
- improved signage including chevrons at bends and SLOW road markings;
- the replacement of steel sign posts with their passively safe or collapsible equivalent;
- anti-skid surfacing on bends; and
- centre hatching to increase the distance between vehicles in opposite traffic lanes.

These have been employed on lengths of road covering many miles rather than addressing one site or location. This is aimed at reducing the number of single vehicle “loss of control” accidents that is currently the most common accident type occurring on Shetland’s roads. Use has been made of existing revenue budgets with some provision funded through capital budgets, most notably the upgrading of safety barriers.

The result is safer roadsides, a key component of the “Safe System” approach, which should reduce accidents and should reduce the severity of any that still occur. The Roads Service is continuing this strategy through the installation of verge markers, improved edge and centreline markings and new reflective roads studs (“cat’s eyes”) on our two-lane roads. These new works are in part funded by the Scottish Government’s Road Safety Infrastructure Fund.

A further component of the “Safe System” approach is safer speeds. The introduction of reduced limits is now considered where the nature of a road including tight bends, blind summits, the lack of safety barriers and other hazards indicate that there would be a safety benefit. This led to the reduction in the speed limit to 50 mph on the A971 road between Whiteness and Cova.

Active Travel

The provision of active travel infrastructure in the form of remote shared-use paths, for pedestrians and cyclists, is another component of the “safe system” approach that will be provided in a number of settlements throughout Shetland in the coming years. This process has already started with a number of paths constructed in 2023 and 2024 including at Aith School and on the A970 at Gulberwick. To date their works have been funded by Transport Scotland grant funding so as far as the construction phase is concerned the implications for road budgets and the resulting effect on roads asset management has been relatively minor. However, the development of these projects including their design, land acquisition and planning consent uses significant staff resource. Not least in the Council’s Legal and Procurement services. A further issue is

that new assets, including active travel paths, will eventually require maintenance. This needs to be accounted for when planning future asset management.

3. Greenhouse Gas Emissions

Shetland Islands Council acknowledged a Climate Emergency in January 2020, prompting the creation of the Climate Change Programme, with the purpose to minimise the risks of climate change to the Shetland community. A mandate was set to establish an appropriate and informed target date for Shetland Islands Council to be net zero as an organisation, and for Shetland to be net zero as an area. The first step in determining an appropriate target was to develop Net Zero Route Maps.

The purpose of each route map was to establish a scope and methodology of measuring greenhouse gas (GHG) emissions, establish a baseline for emissions and develop pathways for what measures need to be taken for the Council as an organisation and Shetland as an area to reduce emissions and reach net zero. For the Council, pathways included measures around decarbonising the fleet, vessels, estate, and operations. The latter led to actions for road management and maintenance that when implemented would mitigate against GHG emissions.

These actions are as follows:

- Warm Mix Asphalt: Undertake a project to trial and measure the outcome of a low-temperature "warm mix" asphalt in terms of cost and emissions savings over regular high-temperature asphalt production. Make recommendations for further implementation based on outcomes of the pilot project;
- Decarbonise Road Plant: Decarbonise plant operational emissions associated with roads projects. To be done at the time of plant upgrades required, procure an asphalt laying plant, including paver, planer and roller, that has zero emissions;
- Biogenic Asphalt Binders: Undertake a project to trial and measure the outcome of using biogenic asphalt binders in terms of cost and emissions savings. Make recommendations for further implementation based on outcomes of the pilot project; and
- Renewable Energy for Quarries: The installation of a wind turbine to provide power to heat the bitumen storage tanks at the Scord Quarry. The bitumen has to be heated prior to its use in the mixing of asphalt. The energy required for this results in significant costs to the Council and Road Service.

In addition to these actions, it is important that the Roads Service considers the possible reduction of GHG emissions in all its day-to-day activities. This is a necessity if the Roads Service is to meet Council policy and has informed this document and the services' asset management strategy. For example, the strategy for carriageways is to maintain them through the use of surface dressing as and when their condition dictates. This is a cost-effective treatment which reduces the incidence of potholes and similar defects preventing the need for resurfacing which is more costly financially and environmentally. Use is also made of new technologies and materials such as proprietary cold applied asphalts for patching which can be used to repair defects without the

need to mix asphalt at the Scord Quarry. This saves the carbon cost of mixing the required asphalt and because these are bagged products reduces the waste that can occur due to the overordering of quarry asphalts.

Climate Change Risks to Shetland

With the changing climate, there are numerous risks we are likely to be exposed to in Shetland including the following which have implications for road asset management

- Increased frequency in extreme weather events;
- Increased rates of both coastal and surface flooding; and
- Disrupted supply chains.

There are numerous flooding hazards in Shetland, with coastal flooding historically resulting in the greatest impacts, followed by burn flooding and then surface/flash flooding. This can overwhelm existing road drainage, cause structural damage to bridges or result in landslides which block roads.

The management of our roads must begin the process of adapting assets in preparation for these changes to Shetland's climate. The changes that we are already seeing are projected to intensify over the coming decades. Sea levels have risen rainfall patterns have changed, with increased seasonality and heavy downpours.

4. Road Assets

Road Assets

The Council's road assets covered by this plan are:

- Carriageways 1,052 km
- Footways 126 km
- Active Travel Paths 1.6 km
- Structures 409 Bridges, Culverts (over 900mm), Underpasses etc
- Street Lighting 3,964 Lighting Columns
- Traffic Management Systems 10 Pedestrian Crossings (Pelicans & Zebras)
- Road Drainage Infrastructure (extent currently unknown)

The asset also includes traffic signs, roadside safety barriers, pedestrian barriers, gullies, ditches, traffic calming features, road markings, car parks, verges and street furniture such as bollards.

Assets Not Covered

Some related assets that the Roads Services maintain are the responsibility of other Council departments. The Council owned road assets not covered in this RAMP are:

- footpaths managed by the Housing Service and Sport & Leisure Service;
- bus shelters managed by Estate Operations;
- amenity grassed areas which are maintained by Environmental Services;
- private roads;
- private bridges;
- public rights of way; and
- water related infrastructure that does not form part of the road network.

Inventory Data

This plan is based upon currently available inventory data for road assets, i.e. carriageway, footway, structures, street lighting, traffic signals and street furniture. For some road assets inventory data is not currently held, however, an attempt has been made to incorporate these assets within this plan using local estimates and sample surveys. The continual improvement of the asset data will form an important part of the process of updating the road asset data management plan. The Road Service is currently using the Vaisala Road AI tool to assist with and augment our inspections. This tool allows the automatic logging of road assets, such as traffic signs, safety barriers and road markings, as the inspectors travel along a road at normal traffic speeds. In time this data will be used to update our inventory and thereafter to revise it on an annual basis. This will avoid the need for costly and time consuming manual asset surveys of the road network.

5. Customer Expectations & Feedback

Customer Preferences

The expectations of road users need to be sought and understood as part of the asset management process. The Council takes part in national performance reviews through APSE and SCOTS. We have sought the views of the local community by taking part in the Council's general "your voice" surveys. Questions relating to roads were included in the autumn 2005 survey, with the same questions repeated in autumn 2008. The survey allowed satisfaction to be rated at one of five levels, from very poor to excellent, which gave us a useful indication of the changes in satisfaction levels over that three-year period. The most recent surveys were undertaken in 2019 and 2022. These were Roads Service only surveys with a format provided by APSE so that they were consistent with surveys undertaken by other local authorities, enabling comparisons to be made for benchmarking purposes. A further survey is now due in 2025.

In addition, project specific consultation is undertaken for all major works and traffic management schemes where local residents, Councillors and appropriate user groups are consulted to gauge their opinion of the scheme. A questionnaire is circulated to all Community Councils bi-annually also using the “Highway Maintenance Services Customer Satisfaction Survey” as produced by APSE. The results of this consultation feed back into the road maintenance plan, determining the respective priorities within each Community Council area.

Additional consultation takes place with transport stakeholders on an as required basis, for example, reviewing specific issues such as winter maintenance, or parking restrictions and traffic management.

Survey Results

The results of the latest two surveys from 2019 and 2022 are shown in the following table:

Table 1: Customer Satisfaction Survey Results

Thinking about the roads in your area , how satisfied or dissatisfied are you with the following?	Satisfied or Better 2019	Satisfied or Better 2022
Traffic levels & congestion	85	72
Cycle routes and facilities	16	18
The condition of the main road carriageways	71	67
The condition of the single-track road carriageways	49	39
The condition of the footpaths	65	35
The condition of road markings, cats eyes and verge markers	55	34
Street Lighting	74	77
Safety on roads	51	45

The results of the surveys have been used by the Roads Service to identify areas of the service that may require revised strategies to be implemented.

Analysis of Survey Results

Traffic levels & Congestion:

The results show that of the eight queries there has been a decline in customer satisfaction in six. The result for “Traffic Levels & Congestion” has reduced from 85% who were “satisfied or better” in 2019 to only 72% in 2022. This may be due to the return of pre-lockdown traffic volumes after the pandemic.

Carriageways & Footpaths:

Satisfaction with the condition of carriageways and footpaths has also declined, most notably for footpath condition which has reduced from 65% to 35% who were “satisfied or better.” This has been addressed in recent years with the re-introduction of micro-surfacing for footpaths. This cost-effective treatment allows the surface of significant lengths of footpath to be improved each summer so should see an improvement in this result in due course. Satisfaction with the condition of main road and single-track carriageways has reduced despite condition surveys showing that they have improved over this three-year period. The single-track result is particularly surprising given the decision to give more priority to the resurfacing of these more minor roads to address their condition. This has seen a significant number of single-track roads resurfaced in prior to 2022.

Road Markings, Cats Eyes & Verge Markers:

There was recognition that the condition of these assets was not as required. Since 2022 additional Roads budget has been allocated to road markings to allow additional road length to be marked and to allow the specification to be improved to a more resilient material. Additional road safety related funding has also been available from the Scottish Government and this has been used to install new “cats’ eyes” and verge markers.

Safety on Roads:

The reduction in satisfaction from 51% to 45% for this query is perhaps a reflection of the poor condition of road markings and “cats’ eyes” across our road network. However, this has been partly addressed since 2022 although work on their improvement is ongoing. The Council’s adoption of the “safe System” approach to road safety and the resulting initiatives such as reduced speed limits on appropriate roads should see this result improve.

Cycle Routes and Facilities:

There was a slight improvement on this category, perhaps due to a number of smaller scale active travel paths that were beginning to appear in communities in 2022. However, the satisfaction figure is still low at only 18% but hopefully this will improve as the planned active travel improvements are awarded funding and are constructed.

Streetlighting:

An improvement and a high percentage of satisfied customers which is to be expected given the recent capital investment to replace conventional lanterns with their LED equivalent and the replacement of all defective lighting columns.

Customer Contacts & Interface

Customers or road users make contact with the Roads Service in the traditional way via letters, personally visiting the office and through the local Community Council or their Council member. The most common method has been to e-mail the Roads Service at our address which is available on the Council’s website. The Council also has a Twitter address and the Roads Service has occasionally received messages for our attention over

this newer form of social media. In 2026 the aim is that the customer interface module of our Highway Infrastructure Asset Management System (HIAMS) will be activated and made available to the public via the Council's website. This map-based system will simplify the process for road users and the public when they wish to report a road defect.

6. Demands

Asset Growth

The road asset has increased by approximately 0.3 kilometres per year over the last 5 years, mainly due to a number of small housing developments complete with attendant footways and lighting columns. This low rate of growth, equating to only 0.15 % p.a., was in part due to a reduction in funding to Housing Associations. However, this rate is expected to increase in the next 5 years with a number of developments being planned by the Council, Hjaltland Housing Association and private developers. There may be as many as 145 houses built at the former Anderson High School site at the Knab and 300 houses at Hjaltland's Staney Hill site. These developments are likely to be phased and together with the private development will require the Roads Service to "process" several construction consents for the associated roads. The processing of these will be quite involved given that the use of shared surfacing and requirement for vehicles speeds on these roads to be managed when they are in use.

The use of traffic calming features and high friction surfacing have increased the maintenance budget requirements due to additional maintenance costs. The use of the former has reduced in recent years as most problem areas have now been addressed. However, there has recently been an increase in the number of speed limits introduced following the Council's adoption of the "safe system" approach to roads safety and the Scottish Government's aim to reduce the limit to 20 mph on all appropriate roads.

New or additional assets such as active travel infrastructure create the need for maintenance, management and associated funding in future years as these assets age. This is particularly relevant to street lighting as energy cost increases immediately result in an increase in the budget required. However, we have now replaced the majority of the conventional street lighting lanterns on the road network with their LED equivalents. This has significantly reduced financial costs and carbon emissions. Since LED lighting is our new standard we now require developers to provide the same on roads that they construct.

Traffic Growth and Composition

The SIC traffic section keeps records of traffic volumes from a number of permanent and temporary counter sites throughout the Isles. As would be expected the majority of HGV traffic occurs on the principal roads. However, largely due to the aquaculture industry, there are a number of unclassified routes where significant volumes of HGV vehicles are present and this is undoubtedly causing significant damage to single track roads which were never intended to be subjected to this level of traffic loading. In recent years the volume of salmon related HGV movements on classified roads has increased, notably the A968 in Yell and the B9075 between

the head of Weisdale Voe and Sandwater. This creates a growing need for investment in the maintenance of the affected roads.

Environmental Conditions

Pressure has also been placed upon the asset as a result of environmental conditions, most notably the harsher than normal winters experienced in 2022/23 and 2023/24. These have likely caused significant damage to carriageways with a freeze/thaw action resulting in cracking of the road surface, throughout Shetland. There is also a noted increase in the occurrence of landslips on hillsides where peat overlies a rock substrate. These are usually as a result of high intensity rainfall events which now appear to be more common, possibly as a result of climate change. These have the potential to damage roads and/or disrupt travel. The most notable incidents were the landslides across the A970 at Channerwick but more recently they have resulted in lengthy road closures on the A968 Dales Lees Road in Delting.

Utility Activity (For Example:- Scottish Water, BT, District Heating)

Utility activity can have a major effect on the maintenance and management of the road assets. There is undoubtedly a significant increase in the number of defects found following the disturbance of the carriageway, footway or verge due to utilities. This is apparent even when the utility has reinstated the surface to the required standard. In the past the renewals of water mains within Lerwick and the installation of district heating scheme infrastructure has increased maintenance costs. Fortunately, Scottish Water use “pipe bursting” technology to replace or line existing pipework without the need for excavations in the carriageway. We also understand that the district heating scheme is now operating at capacity so there is unlikely to be any significant increase in new connections in the immediate future.

Statutory undertakers are responsible for carrying out their own reinstatements although these may be contracted and/or sub-contracted to others. This can cause programming problems where different contractors are responsible for different aspects of the reinstatement. The Roads Service enforces a 6-year guarantee period on all reinstatements in the carriageway in accordance with that specified in the New Roads and Streetworks Act 1991.

Where statutory undertakers have caused damage to Council assets it is our practice to endeavour to reclaim the costs of repair or replacement from the responsible party. The Council will also seek to reach prior agreement with the developers of large-scale projects, such as the Shetland Gas Plant and the Viking Energy Windfarm, in order that it can be compensated for damage to the road network caused by their works. This is done under Section 96 of the Roads (Scotland) Act 1984 when it appears to a road authority that extraordinary expenses in repairing roads damaged by heavy vehicles etc. have been or will be incurred.

It is difficult to predict the amount of utility activity in any one year. Work is in progress on upgrading broadband in Shetland with fibre optic cables being installed for the “R100” project by BT Openreach and its contractors. This is being done in areas without existing cable ducts so there has been significant disturbance of the roadside verges and some work in carriageways. This work is nearing completion (February 2025) and the contractors

are busy with reinstatements. Time will tell regarding the long-term implications of these works for the condition of the road network. Scottish & Southern Energy (SSE) are currently (Summer 2025) excavating cable tracks through significant lengths of the A968 and A970 roads in Shetland’s north and central Mainland. It also remains to be seen what the long-term effect of these works will be on these lengths of carriageway. However, SSE have agreed to full width resurfacing of the traffic lane in which the trench is located so this should at least return the condition of the carriageway surface to what it was prior to the works.

7. Service Standards

This plan is based upon delivering the service standards listed below. The standards reflect recent annual budgets and the funding likely to be available for management and maintenance of the road network. They are the standards that road users can expect from Shetland’s road assets during the plan period. This plan targets delivery of service standards shown below. Details of how the specific measures shown below are calculated are included in the road maintenance manual.

Table 2: SCOTS CORE PERFORMANCE INDICATORS

Service	Measured By	Targets	
		2023	2030
Carriageways			
Safety	Percentage of Cat 1 defects made safe within response times.	100%	100%
	Percentage of safety inspections completed on time	96.9%	96.9%
Condition	Percentage of all roads to be considered for maintenance treatment	30.6%	28.0%
	Percentage of “A” Class roads to be considered for maintenance treatment	13.7%	15.0%
	Percentage of “B” Class roads to be considered for maintenance treatment	27.0%	20.0%
	Percentage of “C” Class roads to be considered for maintenance treatment	29.7%	25.0%
	Percentage of unclassified, non-principal roads network where maintenance should be considered	40.5%	35.0%
	Percentage of carriageway length treated	7.1%	7.1%

Footways			
Safety	Percentage of Cat 1 defects made safe within response times.	None identified	100%
	Percentage of safety inspections completed on time	100%	100%
Condition	Percentage of footway area to be considered for maintenance treatment	Not formally inspected	TBA
	% of footway area treated	1.6%	2%

Street Lighting – Core Indicators			
Safety	Percentage of LED lanterns	91.2%	98%
	Number of calls from public to report street lighting defects	25	20
Environment	Average annual electricity consumption per streetlight (kWHrs)	184	170

Structures			
Condition	Percentage of general inspections carried out on time	100%	100%
	Bridge Stock Condition Indicator Average BSCLav	98.2	99.0
	Bridge Stock Condition Indicator Average BSCLcrit	95.6	99.0

The Road Service Design section is responsible for undertaking inspections of the bridges on the road network with structural elements such as the bridge deck, abutments and founds being visually checked. The updating of the bridge inspection regime was an action specified in the previous RAMP. This has been done and the figures for the Bridge Condition Indicator in 2023, the data last reported to SCOTS/APSE, are shown above. An action going forward is to identify bridge defects and programme their repair over the next ten years. This is necessary to avoid a situation where an unmanageable number of defects require capital funding over the course of a year or two and as a consequence there is insufficient budget to undertake all of the required repairs.

8. Financial Summary

Sources of Funding and Budget Allocation

Revenue

Revenue funding within roads is based on historical precedence and identified need and is split between a number of service headings which are broadly in line with Asset Management elements. Currently within the service individual budget holders are encouraged to make a case for any additional funds that are required to enable the ongoing maintenance and management of the assets such that the funding split can be adjusted to reflect current priorities. Each of the budget holders is then responsible for determining how the funding is used within their service area. Revenue funding for roads maintenance has been relatively consistent in recent years meaning a real terms reduction when construction inflation is taken into account.

A large part of the budget is dictated by the cost of running the Council's Roads Maintenance Section which is predicated upon the labour required to deliver the winter service. The vast majority of routine and reactive works are carried out by the Maintenance Section. Therefore, there is little scope to vary the total Roads budget unless there is a corresponding reduction or increase to the extents of the road network gritted/ploughed during the winter months. However, there is scope for amending the use of the current budget via the consideration of differing ways of directing the resources to the most productive work and that which has the greatest benefit to the asset. Since 2017-18 the "carriageway cost projection model" produced by SCOTS has been a method used to optimise this "direction of resources." This model allows spend on surface dressing, resurfacing and carriageway reconstruction to be varied and then gives an indication of the resulting effect on carriageway condition. This in turn can be used to optimise condition for the available spend.

It should be noted that the opportunity to vary budgets may also be constrained by resource considerations. As the majority of the works is carried out by "in house" resources it may be that a need to provide work that these resources are most able to do is, in some part, a stronger consideration than doing the work that is most beneficial to the asset. This can be offset to a certain extent by reallocating a proportion of, for example, the surface dressing budget to micro surfacing which requires a specialist contractor. The same process can be applied with the budgets for our traffic signs, safety barriers and cattle grids maintenance which is undertaken by a private contractor.

Capital

Roads capital projects are included as part of the Council's Asset Investment Plan. The plan is coordinated by the Capital Programme Service. Currently funding is allocated to Roads projects through a Business Justification Case or "Gateway" process where each proposal is assessed and prioritised by the Council's Asset Investment Group. This ensures that only the proposals, which will yield the most benefit for the Shetland public, are added to the Asset Investment Plan. The schemes "promoted" by Roads

through the Business Justification Case process are generally carriageways needing reconstruction, street lighting that needs replacement and structures such as bridges or retaining walls that need significant maintenance. These are issues that require immediate investment to maintain the value of the asset.

Where a capital roads scheme is being undertaken largely for maintenance purposes the required funding is to be related to an “asset investment plan” derived from a carriageway cost model. This funding is allocated to carriageway reconstruction in the “carriageway cost projection spreadsheet” so that both capital and revenue funding are considered when modelling carriageway condition.

Further sources of funding for works on the public road include the following:

Income

The Roads Service operated a trading account until 2014-15. Since then works have been done on an “at cost” basis. However, the service still tenders for external contracts when it has sufficient available resources (labour and plant). These works, which vary from private winter maintenance to the resurfacing of private accesses, generate an income for the Council as well as ensuring resources are fully utilised thereby reducing their unit cost. The income generated varies greatly from year to year but has increased recently due to works associated with the construction of the overhead power lines between Upper Kergord and Lerwick. This has mainly been due to the supply of drystone material from the Scord Quarry.

Grants

Individual grants may be available for specific types of improvement work from Government or specialist interest groups. Budget holders produce applications for external grants which are used for the specific projects identified. Recent examples of this are the active travel paths along the A970 at Gulberwick and at Aith School. Their construction was made possible by the Scottish Government’s “Active Travel Transformation” and “Cycling, Walking and Safer Routes” funding.

Other

The Council seeks to obtain costs from developers, or works done by them, as contributions towards improvements to the road infrastructure that are required in the local vicinity due to their development. A number of large scale developments have been constructed in Shetland in recent years but given their location there has been little in the way of contributions to improve the road network. Therefore, the A970 South Road/South Lochside Roundabout remains the most notable example as its construction was part funded by Safeway Ltd. Developers of housing estates are on occasion required to make smaller contributions such as meeting the costs of a new footpath to link the development with a nearby settlement.

Asset Valuation

As at May 2025 the Road asset is valued as follows:

Table 3: Road Asset Values

Asset Type	Gross Replacement Cost (GRC) (£000k)	Depreciated Replacement Cost (DRC) (£000k)	Annualised Depreciation Cost (ADC) (£000k)	Comments
Carriageways	953,507	819,480	11,584	
Footways & Cycleways	29,544	21,212	293	
Structures	45,171	43,591	160	
Street Lighting	27,738	14,573	702	Column replacement and lantern upgrade to LED recently completed
Traffic Management	200	149	10	Only 7 Sets of Pedestrian Crossing Lights
Street Furniture	20,668	10,284	976	
Land	6,634	-6,634	-	
Total	1,083,462	915,923	13,725	

The valuation figures above illustrate the very high financial value of the road asset which is calculated on the basis of a depreciated replacement cost. This method of valuation provides the current cost of replacing an asset with its modern equivalent less deductions for all physical deterioration and obsolescence.

Historical Expenditure

Historical expenditure invested in works on the Road asset is shown below:

Table 4: Historical Roads Expenditure

Asset	Works	Historical Expenditure £ 000				
		19/20	20/21	21/22	22/23	23/24
Carriageways	Capital	223	116	192	127	259
	Revenue	1,528	1,142	1,524	943	1,643
Footways	Capital	0	0	0	0	100
	Revenue	106	61	108	100	52
Structures	Routine & Reactive	0	47	34	40	35
	Planned	123	0	53	0	43
Street Lighting	Energy Costs	277	216	207	206	252
	Routine & Reactive	0	0	0	0	0
	Planned	851	638	609	787	768
Traffic Signals	Energy Costs	Energy Costs included in Street Lighting				
	Routine, Planned & Reactive	Included in Street Lighting				
Totals:		3,108	2,220	2,727	2,203	3,152

Expenditure on carriageways has remained relatively static since 2019/20. This, of course, means that in real terms there has been a reduction in real terms when construction inflation is taken into account. The increased costs of bitumen and fuel being most notable with a resulting impact on the area of carriageway that could be treated. Despite this significant improvement has been achieved in the Road Condition Indicator (RCI). This indicator is a measure of carriageway condition and is expressed as a percentage of “the road network that should be considered for maintenance treatment.” Therefore, the lower the figure the better the carriageway condition. The carriageways are surveyed annually by a contractor and reported to Transport Scotland. It is the only statutory performance indicator submitted by the road authority. The overall figure for Shetland’s carriageways improved from 35.6% in 2019/20 to the latest figure of 30.6% in 2023/24. Similarly, the condition of our “A class” roads improved from 16.5% to 13.7% in the same period while our “B class” roads improved from 36.4% to 27.0%. The “C class” roads improved from 32.9% to 27.0% and the unclassified roads improved from 45.8% to 40.5%. Making full use of the SCANNER survey data to target the most appropriate roads for preventative maintenance has enabled this improvement even while the carriageway budget has stagnated.

Footway spending has also had a real terms reduction. The main impact being that until recently no new footpaths have been constructed or reconstructed in the past ten years apart from in 2015/16 when the grant assisted Millbrae footpath was provided. However, in recent years new active travel paths have been provided at Gilbertson Park, Lerwick; the Aith Junior High School and on the A970 at Gulberwick. This provision has been funded by the Scottish Government's Active Travel funding.

There has also been a general reduction in planned spending on structures/bridges down from £123,000 to approximately £80,000. This reduction has been met by undertaking repairs to existing bridges rather than replacing them with culverts.

Planned Funding

The service standard targets shown in section 7 are based upon the following funding levels. The funding for years 26/27 to 27/28 is based upon the budget for the 2025/26 financial year as confirmed by Council at its meeting on 25 February 2025. This decision was largely based on previous budgets although the length of the network to be treated and an estimated improvement in road condition was a consideration.

Reactive and routine funding beyond 25/26 shown below is an estimate included solely to allow the prediction of long-term condition. It has been assumed that a level of funding similar to current funding levels (the average of the last 3 years) will be provided. Any changes to these funding predictions in the future will require an update of this RAMP. The planned funding is based on the Council's five-year Asset Investment Plan.

Table 5: Planned Funding

Asset	Works	Funding Required £k			Long Term Funding Assumed £k
		25/26	26/27	27/28	Y3-Y20 pa
Carriageways	Reactive	650	650	650	700
	Routine	1,550	1,550	1,550	1,700
	Planned	250	270	725	755
Footways	Reactive	20	20	20	25
	Routine	80	80	80	90
	Planned	Grant Funded	Grant Funded	Grant Funded	Grant Funded
Structures	Reactive	15	15	15	20
	Planned	0	77	125	150
Street Lighting	Energy Costs	213	220	230	250
	Reactive	75	75	75	80

Asset	Works	Funding Required £k			Long Term Funding Assumed £k
		25/26	26/27	27/28	Y3-Y20 pa
	Planned	100	100	100	110
Traffic Signals	Energy Costs	Included in Street Lighting Energy Costs			
	Reactive	Included in Street Lighting Reactive Costs			
	Planned	20	20	20	21
Totals:		2,973	3,057	3,115	3,901

It is hoped that the Scottish Government will continue to fund active travel infrastructure to the same extent that it has in recent years. A programme of active travel infrastructure improvements has been developed on that basis and is due to be reports to ZetTrans and the Council in spring 2025. This programme includes active travel paths as identified by settlement audits and more strategic paths linking settlements. For example, between Lerwick and Scalloway, via the Black Gaet, and onward to Quarff and possibly Cunningsburgh.

The stagnation of revenue funding for routine repair of footways has resulted in the use of additional micro surfacing to improve their surface condition thereby preventing. This cost-effective treatment seals the paths reducing water damage and the need for more costly repairs in the long term. This should result in improved customer satisfaction with the additional benefit of reduced carbon emissions when compared to the excavating and reconstruction of a footpath surface.

The life extension repairs of our bridges, that have been made necessary by reducing budgets, will maintain them in the short to medium term. However, there will inevitably come a time when the only option is the replacement of certain bridges with large diameter culvert. This is reflected above with the budget for planned works increasing significantly in Years 3 to 20. This needs to be programmed now so that bridges can be replaced at a steady rate which is manageable and affordable from the annual budget.

9. Asset Investment Strategies

The strategies in this section have been determined using predictions of future condition over a 20-year period by making use of the “carriageway cost projection model” produced by SCOTS. This will enable strategies to be created to look at the whole life cost of maintaining the asset. Using long term predictions means that decisions about funding levels can be taken with due consideration of the future maintenance funding liabilities that are being created.

Investment strategies for the major asset types are summarised below. These strategies are designed to enable the service standards in section 5 to be delivered.

Investment between Asset Types

In comparison to historical investment, future investment, for the main asset types, is planned to be:

- Carriageways: level of investment maintained at similar levels
- Footways: level of investment maintained at similar levels
- Structures: level of revenue investment maintained at similar levels, capital investment increased to allow the replacement or repair of two to three bridges per year. The intention being to have a prioritised programme of repairs thereby avoiding the concentration of replacements in a short period in future years.
- Street lighting: level of revenue investment maintained at similar levels, capital investment reduced. This has been made possible by the capital improvement project that replaced over 90% of our conventional lanterns with their LED equivalent. The projected cost savings from the reduction on energy use also allowed the renewal of a large number of deteriorated lighting columns. This means that the maintenance of our streetlights can now be managed through the undertaking of maintenance inspections with costs met from existing revenue and capital budgets. Going forward there should not be a need for another major capital improvement project. However, capital expenditure will be required to undertake the electrical testing of our street lighting circuits and to undertake the necessary repairs should faults be identified
- Traffic signals: level of investment slightly reduced to reflect reduced number of Pelican crossings.
- Active travel infrastructure (other than existing footways): level investment is entirely dependent on the availability of grant funding from Transport Scotland. The Tier 1 Active Travel funding is allocated to each local authority on an annual basis and for Shetland Islands Council currently stands at £200K. This can be used for the design, construction and maintenance of active travel infrastructure. Tier 2 funding is available on application and is intended for the construction of larger scale active travel infrastructure such as shared use paths.

Carriageways

Table 5: Investment Strategy - Carriageways

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	<p>The strategy requires the deployment of roadworker squads on seasonal repairs such as patching prior to surface dressing. To a lesser extent they are also deployed to undertake urgent and/or emergency repairs. This is now augmented by “jet-patching” which is used to repair minor side roads. This cost-effective repair method enables the repair of a significant number of defects during the contractors 4 week visit to Shetland. Also when used in conjunction with surface dressing it provides a low-cost alternative for roads which have deteriorated beyond the point where surface dressing and conventional patching are considered a viable repair. Jet patching has a lower carbon footprint than conventional patching because there are no wasted materials, it uses one rather than several vehicles and uses cold bitumen emulsion to bind aggregate rather than a hot mixed asphalt.</p> <p>Repair of potholes and other defects within prescribed periods is important to prevent accidents where poor road condition is a contributory factor.</p>
Planned Maintenance Preventative	A programme of preventative treatment or roads in the initial stages of deterioration.	<p>The strategy is predicted to require approximately</p> <ul style="list-style-type: none"> – A roads: Surface dressing 10.0 km pa on average – B & C Roads: surface dressing 20.0 km pa – U Roads: Surface dressing 20.0 km pa <p>This split reflects the respective area of each road classification. Priority has been given to “A class” roads in the past at the expense of other classifications. This was followed by a period where our unclassified roads were given increased priority which did result in their RCI improving. The intention now is to concentrate on our “B and C class” roads, particularly those that are single-track as their RCI has stagnated for a number of years without any sign of improving. The ultimate aim being that this split will result in a greater improvement in the overall RCI for the given budget. This approach is supported by the “Financial Reporting Tools for Carriageways” produced by</p>

		<p>SCOTS. This totals 50 km so it would take 21 years for the entire 1,052 km carriageway network to be surface dressed.</p> <p>Surface dressing has a significantly lower carbon footprint than resurfacing primarily due to its use of significantly less bitumen, aggregates and fuel. SIC is generally in the top three local authorities for the use of surface dressing per kilometre of road network showing the importance we place on preventing the need for resurfacing thereby reducing financial and carbon costs.</p> <p>Timeous surface dressing is vital for maintaining skid resistance and thereby maintaining road safety.</p>
<p>Planned Maintenance Corrective</p>	<p>Programme of resurfacing where a preventative treatment cannot be applied due to rutting or poor longitudinal profile.</p>	<p>The strategy is predicted to require:</p> <ul style="list-style-type: none"> - A roads 2.0 km resurfacing pa - B & C roads 4.0 km of resurfacing pa - U roads 3.0 km of resurfacing pa. <p>This split reflects the respective area of each road classification. Priority has been given to “A class” roads in the past at the expense of other classifications. This was followed by a period where our unclassified roads were given increased priority which did result in their RCI improving. The intention now is to concentrate on our “B and C class” roads, particularly those that are single-track as their RCI has stagnated for a number of years without any sign of improving. The ultimate aim being that this split will result in a greater improvement in the overall RCI for the given budget. This approach is supported by the “Financial Reporting Tools for Carriageways” produced by SCOTS. This totals 9.0 km so it would take 116 years for the entire carriageway network to be resurfaced.</p> <p>The use of “warm mix” asphalts utilising a specialised bitumen binder that can be laid at lower temperatures is to be trialled with the aim of reducing the carbon footprint of our asphalt mixes.</p>

The strategy will apply a low-cost preventative treatment, such as surface dressing, before carriageways deteriorate to a condition where more expensive treatments are required. The level of investment has effectively reduced in recent years due to construction inflation. Despite this carriageway condition has steadily improved. However, given that a large part of the “two lane” road network was constructed over a short period, during the oil construction phase, there may come a point when large lengths of the road

network deteriorate structurally at the same time. Should this occur then a significant increase in investment would be required to enable the overlay resurfacing and reconstruction of these roads. In the immediate future we will continue to make full use of the condition surveys to target the lengths of road that should be repaired and to identify the most appropriate treatment method.

It is intended that this strategy through the reduction in materials use, and associated quarrying, will reduce carbon emissions as well as reducing financial costs.

Footways

Table 6: Investment Strategies - Footways

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The majority of Shetland's footways have been maintained to a high standard and there is only occasionally a need for a Roadworker squad to repair or undertake other urgent or emergency repairs.
Planned Maintenance Preventative	A programme of preventative treatment of bituminous footways in the initial stages of deterioration.	The strategy is predicted to require: <ul style="list-style-type: none"> - Footway Surface Treatment (slurry sealing) 4.0 km pa on average Coverage at this rate means that it would take 28.5 years to treat the entire 114 km footway network. Sufficient use of this cost effective and low carbon treatment should prevent the need for the resurfacing of significant lengths of footpath. It also improved the skid resistance of the surface while preventing water ingress which can result in the deterioration of the surface eventually resulting in trips and falls.
Planned Maintenance Corrective	Programme of resurfacing/renewal of footways.	The strategy is predicted to require approximately: <ul style="list-style-type: none"> - Renewal of flagged footways 100 sqm pa - Resurfacing of bituminous footways 200sqm pa These are relatively low figures because as stated above our footways have been maintained to a high standard and slurry sealing will be targeted to prevent further deterioration.

The strategy will apply a low-cost preventative treatment, such as micro surfacing, before the footways deteriorate to a condition where more expensive treatments are required. This approach will also reduce carbon emissions due to a reduction in materials used (quarried stone and bitumen) and, because micro surfacing uses cold applied binder, a reduction in the energy used in the asphalt mixing process. The level of investment should be sufficient to maintain the generally good condition of the footways. There are some footpaths in adopted housing estates that are deteriorating and may need resurfacing in the

near future. However, they are not significant lengths and the proposed preventative maintenance funding should allow the worst of these to be resurfaced.

Structures

Table 7: Investment Strategies - Structures

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of Roadworker squads on minor repairs to parapets, movement joints, patching of the bridge deck surfacing and the pointing of stonework walls or abutments.
Replacement	Replacement of deteriorated bridges or those assessed as being weak.	The strategy involves the replacement of "traditional" bridge types with large diameter twinwall culverts. The older bridges are generally short span reinforced concrete slabs with concrete or stonework abutments. It is more cost effective to replace these with culverts than strengthening the existing structure.
Refurbishment	Refurbishment of structures that show signs of deterioration	The strategy involves the annual inspection of Trondra, Burra and Muckle Roe bridges with any defects being rectified shortly thereafter. The bearings on both the Burra and Trondra have recently been painted and refurbished. Inspections of these bridges are undertaken by the Roads Service, Design Section.
Parapet works	Strengthening or replacement of weak parapets	Existing parapets on older bridges are generally of sub-standard height so unsuitable for pedestrians. They are usually constructed from in-situ concrete so are a hazard to vehicles. They are replaced with galvanised pedestrian barrier panels on bridge parapets for safety reasons. In addition to this the Design Section regularly inspect the parapets at Burra, Trondra and Muckle Roe bridges regularly.
Scour Protection	Protection works on structures susceptible to scour	As appropriate from surveys but this type of work is reducing as large diameter twinwall culverts replace "traditional" bridge types.

The structures strategy will see the inspection and reassessment of all our bridges over a two-year period. The proposed funding for replacements is £125K per year, increasing to £150K, which would allow two new culverts to be installed. The maintenance budget of £25K would only be sufficient to allow more minor repair or refurbishment such as the pointing to stonework.

Street Lighting

Table 8: Investment Strategies – Street Lighting

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of a single two-man squad to undertake the routine inspections of the street lighting asset. The same squad will repair any defects that are identified during the inspections.
Planned Maintenance Preventative	There are no plans to undertake any significant level of preventative maintenance.	A number of local authorities have a programme of repainting lighting columns to prevent corrosion. We have shown that this is not cost effective in Shetland. The majority of our columns were approaching 25 to 30 years old but have been replaced with new hot dipped galvanised columns.
Planned Maintenance Corrective	Programme of structural renewal	This is now largely complete following the capital project for the fitting of LED lanterns and the replacement of columns that were inspected and assessed to be in poor condition. However, condition inspections of columns will be undertaken every two years and if required funding will be sought from the Council's AIP through the business case process. Lighting in compliance with the design standards is essential for road safety, particularly at junctions and in areas with higher numbers of pedestrians.
Invest to save		Initial efficiency savings proposals that involved part-night lighting were discontinued when the LED replacement project was approved. This together with the dimming of the LED streetlights between midnight and 6am resulted in significantly greater financial and carbon savings without the inconvenience associated with part-night lighting. The cost of the replacement project, including that of the deteriorated columns, will be met by the financial savings over the 25 years plus design life of the columns.

The majority of defective lighting columns on the road network have now been replaced. The proposed budget levels would now be sufficient to replace deteriorated columns as and when they are identified by condition inspections. They will also be sufficient to replace any LED lanterns that become faulty after their warranty period has expired. In addition to this they would allow some additional work such as

the testing of electrical circuits and any subsequent repairs. However, additional capital funding is likely to be required if an extensive programme of circuit testing is to be undertaken.

Traffic Signals (“Pelican” Controlled Pedestrian Crossings)

Table 9: Investment Strategies – Traffic Signals

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of an Electrician and assistant from the Council’s Estate Operations on emergency repairs and on other non-emergency repairs. Occasionally assistance may be required from the supplier.
Refurbishment of signalised crossings	Refurbishment of controlled crossings that have deteriorated or the equipment has become obsolete/unreliable	When possible pedestrian crossings are refurbished with parts that are taken from crossings that are being replaced. The type of signal heads currently in place are the latest model so parts are readily available when this is not possible.
Replacement of signalised crossings	Replacement of controlled crossings that have deteriorated or the equipment has become obsolete/unreliable	The number of Pelican crossings on the network was reduced from ten to seven when three Zebra crossings were installed on the Esplanade, Lerwick as part of a traffic calming scheme. The strategy involves the regular renewal of pedestrian crossings before their reliability deteriorates to the point where regular maintenance is required and they are regularly unavailable for use by pedestrians. This has implications for the convenience of pedestrians but more importantly also for their safety.

The seven Pelican crossings in Lerwick are all relatively new. Therefore, the expectation is that they have a number of years of useful life before there is a need for their replacement. This will be done in phases of at most two entire crossings per year. This will be done by the mainland based supplier with the routine maintenance of all signal heads done during the same visit.

There signal heads at all our Pelican crossings use LED lights. The Belisha beacons also use LED light so the carbon emissions from these assets is minimised.

Active Travel Infrastructure

Table 10: Investment Strategies – Active Travel Infrastructure

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defects to intervention standards and response times.	The provision of active travel paths is in the very early stages so it will be some time before the new surfaces deteriorate to the point where reactive maintenance (filling of potholes etc.) is needed. Roadworker squad to repair or undertake other urgent or emergency repairs. Relatively low cost so would be funded from existing footways budget. Minor repair of cycle shelters, signage etc. would be met from the existing "Traffic Signs & Street Furniture" budget.
Planned Maintenance Preventative	A programme of preventative treatment of bituminous footways in the initial stages of deterioration.	The strategy is predicted to require: – Surface Treatment (slurry sealing) In time, as the active travel path network increases in length, preventative treatment would be required in order to effectively and efficiently manage its maintenance. Sufficient use of this cost effective and low carbon treatment should prevent the need for the resurfacing of significant lengths of path. It also improves skid resistance while preventing water ingress The level of funding required could not be met from existing Roads budgets, but the intention would be to use Tier 1 active travel funding which is allocated annually by Transport Scotland.
Planned Maintenance Corrective	Programme of resurfacing/renewal of footways.	This should be a relatively low figure providing sufficient funding is available for preventative maintenance in the form of slurry sealing. Should there be a need for resurfacing costs would be met from the Tier 1 active travel fund allocation.
Winter Maintenance	Treatment of snow and ice.	Reliance on active travel paths will increase as the length of the network increases and more road users switch from their cars to walking and cycling. This will eventually require the active travel paths to receive the same level of winter maintenance as priority 1 footpaths in Lerwick and Scalloway. This will initially be undertaken by footpath tractors fitted with salt/grit hoppers. The Roads Service currently has a sufficient number of these tractors to treat significant lengths of path although additional staff would be required. The existing winter maintenance budget would need to be increased in order to meet the cost of this additional treatment.

The maintenance strategy will be the same as our current strategy for the maintenance of footways (see above). The strategy for provision of new active travel infrastructure, including shared use paths, is the responsibility of the Council's Transport Planning. This will be done in accordance with the Shetland Active Travel Strategy with reference made to Active Travel Settlement Audits and the priorities of communities. A prioritised programme is currently being developed (Sept 2025) for active travel infrastructure provision within settlements and on a strategic network between settlements. The Road Service will provide assistance in the delivery of this programme through the design, project management and construction of this infrastructure.

10. Risks to the Plan

Risk Management

Risk management is the systematic application of management policies, procedures and practices in order to identify, analyse, contextualise, control, monitor and review risks that may impact on the Council or its Plans.

The Shetland Islands Council has developed a risk management strategy which is intended to:

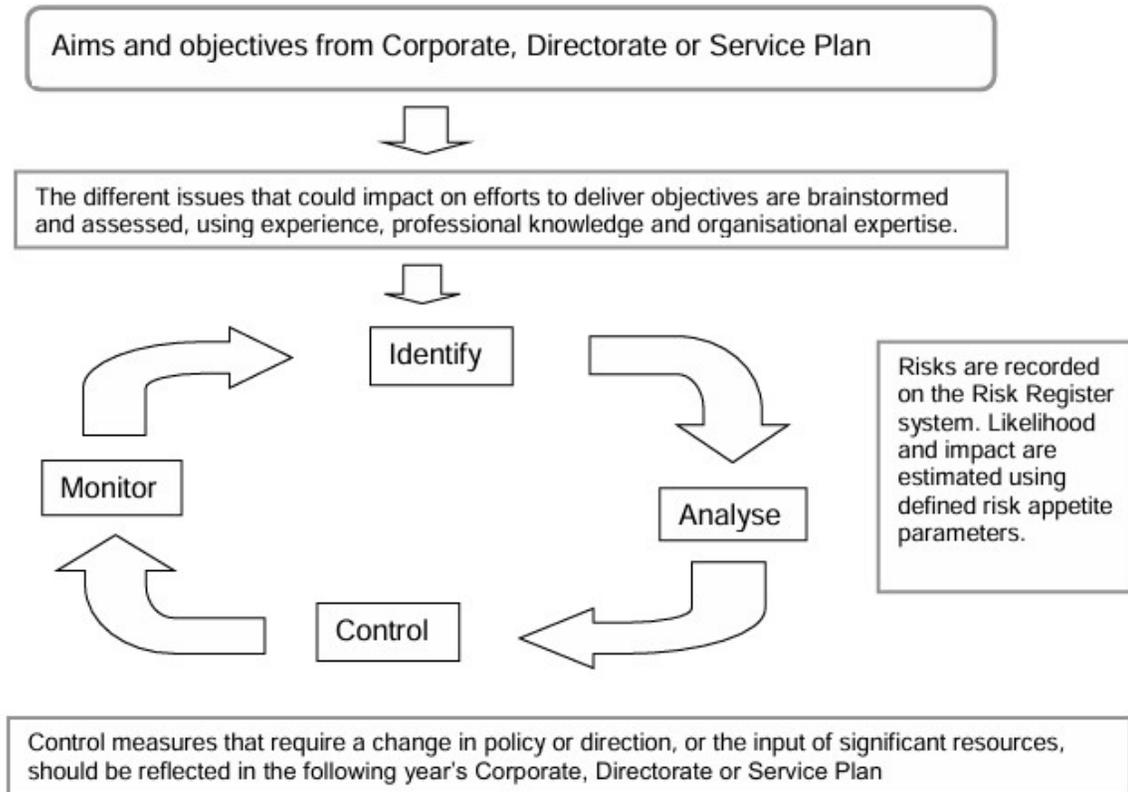
- ensure consistency and transparency in the management of risk throughout the organisation;
- create greater ownership and awareness of risk, reduce uncertainty and strive for more resilient services;
- add value to the decision-making, Corporate, Directorate, Service and project planning and financial management systems; and
- protect the Council, its staff, services, assets, reputation and finances.

By managing risk effectively, the Council benefits from improved and effective strategic, operational and financial management and customer service, and thus has the best possible opportunities to achieve its objectives on time and within budget as set out in the Corporate and Directorate Plans.

The Council sets out its aims and objectives in the Corporate Plan, the Directorate Plans, the Roads Service Plan and the RAMP. Each plan identifies the risks that could threaten the activities, actions and goals set out in that plan and those risks are detailed in the organisation's Risk Register system. Identification, analysis, control and monitoring of risks are ongoing, continuous and core to planning and the management of projects, services and the organisation.

The Council has a four-step framework for identifying, assessing, managing and controlling and reviewing risk (see below). This is a continuous process and can easily be integrated with performance management. The Council has agreed criteria by which to judge the likelihood and impact of risks, effectiveness of control measures and required levels of management of residual risks.

Figure 1: Four-step risk management framework



Risk Identification

Risk to the Council’s business can take a variety of forms; for example, financial risk, risks to project and service delivery, its reputation, partnerships, employees and Councillors and risks from missed opportunities. Those risks could affect the Council’s performance, its assets, stakeholders, customers or members of the public. They can also affect the Council’s viability.

Risk Evaluation

The next step is to assess those risks in terms of the likelihood that they will occur and the impact if they do. The criteria for the levels of likelihood and impact for risks are shown in Table ?? and ?? below.

Table 10: Description and definitions of LIKELIHOOD of the RISK occurring

Descriptor	Description
Almost certain	I would not be at all surprised if this happened within the next few months
Likely	I think this could occur sometime in the coming year or so
Possible	I think this could maybe occur at some point, but not necessarily in the immediate future
Unlikely	I would be mildly surprised if this occurred, but cannot entirely rule out the possibility
Rare	I would be very surprised to see this happen, but cannot entirely rule out the possibility

Table 11: Description and definitions of IMPACT of the RISK should it occur

HAZARD IMPACT	Personal Safety	Property loss or damage	Failure to provide Statutory Service or breach of legal requirements	Financial Loss or Increased cost of Working	Disruption in Service (Days) (This may vary with the criticality of the service)	Personal Privacy Infringement	Environmental	Community	Reputation
Insignificant	Minor injury or discomfort to an individual	Negligible property damage	Reported to HSE, Stage 2 complaint	<£10k	None	Isolated personal detail revealed	Minor localised - damage to plants	Inconvenience to an individual or small group	Contained within Service Unit
Minor	Minor injury or discomfort to several people	Minor damage to one property	HSE investigation. Complaint requiring investigation	£10k to £100k	1	Isolated personal detail comprised	Death of invertebrates	Impact on an individual or small group	Contained within Service
Significant	Major injury to an individual	Significant damage to small building or minor damage to several properties from one source	Litigation, claim or fine to £250k HSE improvement notice served Complaint referred to Ombudsman	£100k to £500k	2-3	Several persons details revealed	Death of fish	Impact on a local community	Local public or press interested
Major	Major injury to several people or death of an individual	Major damage to critical building or serious damage to several properties from one source	Litigation, claim or fine £250k to £1m imposed HSE prohibition notice served Adverse report from external adviser	£500k to £1m	4-14	Several persons details comprised	Death of animals	Impact on several communities	National public or press interest
Extreme	Death of several people	Total loss of critical building	Multiple civil or criminal actions. Litigation, claim or fine above £1m or custodial sentence	>£1m	>14	All personal details revealed/comprised	Permanent damage to site of special interest	Impact on the whole of Shetland	Officer(s) and/or members forced to resign

Multiplying the likelihood score by the impact score gives the uncontrolled risk score. The next stage identifies controls (strategy, policies, practices that exist currently) and their efficacy (ineffective, partially effective, effective, and very effective).

The risk is then re-assessed for likelihood and impact. The new score is the current risk score that exists after controls have been applied and so the real level of risk. That information is then recorded in the risk register. The risks are then prioritised to enable decisions to be made about the significance of those risks to the Council, and how they will be managed.

Table 12: Residual Risk Rating Matrix

Extreme	5	10	15	20	25
Major	4	8	12	16	20
Significant	3	6	9	12	15
Minor	2	4	6	8	10
Insignificant	1	2	3	4	5
Impact Likelihood	Rare	Unlikely	Possible	Likely	Almost certain

Risk profiles: Green = Low, Amber = Medium, Red = high, Purple = Very high

Risk Control

When the risks and opportunities have been identified and assessed for likelihood and impact, there needs to be agreement on who will “own” the risk and how it will be managed, controlled or exploited. When the existing controls and action plans have been identified, the risks are re-assessed for likelihood and impact. This gives a forecasted controlled score of the Risk Profile as a result of the mitigation action plans. That information is then recorded in the risk register.

Risk Register

A risk register has been developed for the Infrastructure Service. The risks from this register which are applicable to the Roads Service are listed in Table 13 below. These are risks that could prevent achievement of the aims and objectives detailed in this plan. Further major risks specific to the Roads Service, not included on the Infrastructure Risk Register, are detailed in Table 14 below.

Assumptions

A number of assumptions had to be made when developing this plan. They are listed in Table 15 below.

Table 13: Roads Service Risk Register

SIC Infrastructure Services Risk Register					
No.	Risk	Control Measures	Likelihood	Severity	Rating
F0024	Infrastructure Services have a large cohort of staff and a relatively low turnover which reduced the likelihood of service not being able to continue or failing to deliver statutory duties. However, many of the services employ specialist staff so should a vacancy arise, it may be difficult to fill. Several geographically specific/ unique/ single-person roles. There is a pressure is on retention and recruitment	Workforce planning undertaken, key roles identified and training plans to build resilience. Career grades developed. Directorate considering focus on succession planning	Almost certain	Major	20
F0026	Department is responsible for a wide range of infrastructure and services across Shetland. Climate change has increased the likelihood of extreme weather events cause flooding, costal erosion, loss of key infrastructure lost sailings, increased snow conditions, additional repairs.	Various - Contingency budget for weather events, insurance, Emergency plans, BC plans services. Climate risk and controls are on SIC Corporate risk register	Likely	Major	16
F0028	The department manages a wide range of infrastructure and services. It does not carry a contingency budget for in the event of breakdowns	Developing maintenance programme, long term financial plan, Asset/Investment Plan - contingency budgets for breakdowns.	Likely	Significant	12
F0021	Infrastructure delivers front line services across Shetland, employing a large number of staff delivering a range of heavy engineering and transport services, including ferries.	Various systems and controls in place - Service-specific Safety Management Systems include Construction industry CSCS cards and gradings, etc. Organisation's Health, Safety and Welfare Policy, Risk Assessments, and staff are trained and competent to deliver duties. Managers trained in Health & Safety. Safety culture to flag concerns	Possible	Major	12

No.	Risk	Control Measures	Likelihood	Severity	Rating
F0030	Changes in legislation for fuel, waste, carbon emission levels	<p>Identification of climate change and carbon management, fuel efficiency - key service redesign projects in progress</p> <p>A professional, experienced and knowledgeable staff contribute to the monitoring and management of change. Service planning for forward asset plan, upcoming legislative changes, regular dialogue with regulatory bodies to ensure teams are kept abreast of change</p>	Possible	Significant	9

Table 14: Road Asset Major Risks

Road Asset Major Risks							
Risk	Likelihood Score	Impact Score	Uncontrolled Risk Score	Current Controls in Place	Revised Likelihood Score	Revised Impact Score	Controlled Risk Score
Structures							
Inability to complete maintenance work due to lack of funding may lead to substantial failure of the structure causing injury and increased costs due to emergency works, or diversions due to bridge closure	3	3	9	Regular bridge inspections and allocating more of the budget to preventative/early repairs prior to the onset of structural damage.	1	3	3
Street Lighting							
Lack of funding may lead to reduction in the condition of the asset, may be unable to replace columns that are taken up for safety reasons leaving dark areas	2	4	8	Continue the structural inspection of lighting columns and programming of repairs as required.	2	4	8
Carriageways							
Lack of funding for maintenance works may lead to a backlog of required works, the continued deterioration of the network and the need for higher cost remedial works in the future	4	4	16	Careful use of SCANNER survey data to target surface dressing will delay the deterioration in the short to mid-term but structural defects such as rutting will eventually require more expensive repairs.	3	4	12
Footways							
Lack of funding for maintenance works may lead to a backlog of required works, the continued deterioration of the network and the need for higher cost remedial works in the future	3	3	9	Continue the programme of micro surfacing footways/paths to prevent water ingress that will ultimately result in more severe/costly defects	2	3	6

Road Asset Major Risks							
Risk	Likelihood Score	Impact Score	Uncontrolled Risk Score	Current Controls in Place	Revised Likelihood Score	Revised Impact Score	Controlled Risk Score
Drainage							
Climate change resulting in higher intensity rainfall events with the capacity of existing drainage systems being exceeded	2	4	8	Ensure that replacement culverts etc. are designed to cope with 1 in 200 year flood events.	2	3	6

Table 15: Assumptions

Plan Assumption	Risk	Action If Risk Occurs
The plan is based upon winters with an average number of frost days.	Adverse weather will create higher levels of defects and deterioration than have been considered.	Budgets and predictions will be revised and this plan updated if abnormally harsh winters occur.
Available budgets have been assumed as shown in section 8.	Pressures on budgets mean that the Council may reduce the funding available for Roads.	Target service standards will be revised to affordable levels.
Construction inflation will remain at level similar to the last 5 years.	Construction inflation will increase the cost of works (particularly oil costs as they affect the cost of road surfacing materials)	Target service standards will be revised to affordable levels.
Levels of defect and deterioration are based on current data which is limited for some assets (e.g. footways)	Assets deteriorate more rapidly than predicted and the investment required to meet targets is insufficient.	Split between planned and reactive maintenance budgets will be revised.
Resources are available to deliver the improvement actions	Pressures on resources mean that staff are not allocated to service improvement tasks, predicted benefits may not be fully achieved	Target dates will be revised and reported.

References

- 1) Shetland Transport Strategy
- 2) Asset Management Policy
- 3) Network Management Plan
- 4) Road Asset Management Manual
- 5) Carriageway Condition Report
- 6) Road Asset Data Management Plan
- 7) Shetland Active Travel Strategy