North Ayrshire Council
Comhairle Siorrachd Àir a Tuath

ASSET MANAGEMENT PLAN

ROADS

Version	Owner	Date
1.3	Head of Neighbourhood Services	22/08/2023
1.4	Head of Neighbourhood Services	31/01/2024

Contents

1. Introduction

This Road Asset Management Plan (RAMP) sets out the Council's approach for the management and maintenance of its road assets.

2. Aims & Objectives

Road Asset Management

Road Asset Management is defined in the County Surveyors Framework for Highway Asset Management as:

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

This definition brings together themes that define an asset management approach: -

Strategic Approach – adopting a strategic approach to maintain and renew the asset and make best use of available resources for the long-term benefit of the asset.

Optimal Allocation of Resources – investment is allocated to prioritise the delivery of corporate objectives and to provide best value to our customers. Asset management provides a framework for this process by identifying and prioritising needs across the network. Lifecycle planning is used to minimise whole life costs to ensure efficient and effective use of resources.

Customer Focus – considering the needs and expectations of customers is addressed by developing appropriate levels of service for each asset.

Through prudent asset management, North Ayrshire Council will make best use of available resources in maintaining its road network and associated infrastructure.

Council Plan

The importance of asset management is evident in how well managed and maintained road infrastructure contributes to the Council Plan 2023-28 Priorities:

Priority – Wellbeing

- Ensure our places and spaces where we live, work and visit are well maintained and accessible.
- Developing infrastructure to support business growth.

Priority – Climate Change

- Improving resilience and reducing carbon by developing and supporting supply chains where materials and goods are sourced locally.
- Developing and promoting active travel infrastructure.

- Transitioning to low and zero carbon travel.

Priority - A Sustainable Council

- Ensuring robust governance arrangements are in place to fulfil the Council's statutory duties, manage risk and support delivery of key priorities.
- Working with partners nationally, regionally, and locally to secure investment and target resources towards our priorities.
- Focusing our investment on priorities
- Effective workforce planning ensuring that we have the right skills/resources to deliver priorities.

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3. General Description

The Council's adopted road asset is made up of the following:

Asset	**Quantity at 31st March 2023**
Carriageway – Mainland	883.9km
Carriageway – Arran	166.3km
Footways/footpaths	1026.84km
Bridges & Culverts	630
Car Parks	66
Retaining Walls	116
Street Lighting Columns	24,338
Traffic Signals	81 sets
Vehicle Activated Signs	39
Non-illuminated Signs	12,413
Illuminated Signs/Bollards	2,045
Pedestrian Guardrail	10,750m
Grit Bins	510
Safety Fences	40,575m
Street Name Plates	3,673
Cattle Grids	11
Verge Marker Posts	4,465
Weather Stations	2

Asset Management Planning Documentation

The following documents are produced to support the asset management process and are reviewed and updated regularly:

Road Asset Management Plan – records the service standards for each asset group, identifies risks, reflects local traffic levels, customer preferences and current investment strategies.

Data Management Plan – records methods for collection, validating and updating of asset data and an action plan for improvements regarding estimated or missing data.

Road Asset Valuation Report – provides information on data used in the valuation, methods of calculation and interpretation of results.

Performance Report – APSE/SCOTS results

Improvement Action Plan – to support the asset management planning process.

Customer Information Report – provides current customer information.

APSE / SCOTS Customer Questionnaire – help us understand the customer expectations and experiences of winter gritting, road works and other road maintenance related matters.

Road Maintenance Manual – defines how and when each asset group is inspected, categorisation of repairs, condition assessment, prioritisation methods and procurement and management of works.

Annual Status Report – provides a summary of the status of each asset group in meeting service standards.

Road Risk Register – details of risks to implementation of the plan

Works Programme – a Strategic List of Priorities is provided from which the annual programme is determined.

Other Road Assets

There are several road infrastructure assets currently not covered within the RAMP that require data to be collected to ensure a complete overview of the Councils' responsibilities.

- Drainage systems are not covered by this plan. There is limited recorded information on drainage. New drainage installed or existing drainage that is being worked on, is included in the recording procedures for asset changes. Historic plans of drainage will ultimately be fully recorded on GIS. This element will form part of the new SCOTS asset management project. Sustainable Urban Drainage Systems (SuDs) are an integral part of all new development. Developers are required to install a SuDs as part of their drainage infrastructure. NAC have signed up to the Memorandum of Understanding with Scottish Water that states that Scottish Water will be responsible for the below ground assets and the council will be responsible for the above ground asset. As part of the construction consent process, NAC

have ensured that the above ground assets are part of the developments factor arrangements.

- Road & Lighting Infrastructure that is not part of the adopted road network is not currently included within this RAMP. Work has commenced to collect lighting, carriageway, and footway condition data for Housing areas, and limited information regarding additional road infrastructure out with the adopted road network has been recorded. A methodology for the prioritisation of maintenance on these assets is being developed. Further work is required to ascertain how the financial valuation of these non-adopted assets should be reported. There is a list of additional assets recorded within the GIS system as they are highlighted, and further assets will continue to be added to the list as they are identified.
- Private Roads and Footways – those not on the list of public roads. This also includes non-adopted council assets, such as promenades, car parks, council properties and open space paths.
- Urban road verges within 30mph zones.
- Cycle paths – not forming part of existing carriageways or footways/footpaths.
- Private Bridges (including Network Rail and Sustrans structures).
- ¨Roadside Trees that are within the extents of the adopted road network. Trees are inspected by the Streetscene service when any issues are highlighted by members of the public or the Roads Inspector. If required, the roads service will serve notice on a neighbouring landowner to action any problems identified with the tree.

Flooding Assets

The Flood Risk Management (Scotland) Act 2009 confers certain powers and places specific duties on Local Authorities to help them manage flood risk in their areas. Flooding assets are varied and can include both built and natural features, which are not always located on Council owned land.

Flood Risk Management assets can be either:

1. An asset that is subject to Council intervention, which is necessary to reduce the risk of a flood that is likely to occur imminently and have serious consequences. These types of assets are only identified in urgent situations and may generally be maintained by another asset owner at other times.
2. A relevant body of water that has been subject to an assessment, which finds that clearance and repair work would substantially reduce flood risk; The Schedule of Clearance and Repair, that is published on the Council's website, lists the trash screens, watercourses and culverted watercourses that are regularly cleared and repaired. Note only works that would substantially reduce flood risk can be undertaken.
3. A formal flood protection scheme. There are Flood Protection Schemes at Largs, Saltcoats and the Upper Garnock. The standard of protection offered by these schemes rely on both the maintenance of these assets and on the operation of flood gates, barriers and other features that are part of the schemes.
4. An asset located on Council owned ground that provides a flood risk management function. Examples can include built or natural coastal defences, Council owned drainage infrastructure etc.

4. Current Performance / Drivers for Change

Service Standards

The following service standards apply to the road asset and define the level of service that customers can expect. The standards allow the appropriate prioritisation of resources within available funding. Details of how the specific measures are calculated are included in the road maintenance manual.

Service	Measure	Target Standard
	Carriageways	
Safety	Response times to Category 1 defects	4 hours (24h on Isle of Cumbrae)
	Response times to Category 2 defects	5 working days
	Response times to Category 3 defects	60 working days
	Routine safety inspection frequency – Strategic routes	12 times per year
	Routine safety inspection frequency – Main Distributor routes	12 times per year
	Routine safety inspection frequency - Secondary Distributor routes	12 times per year
	Routine safety inspection frequency – Link roads	4 times per year
	Routine safety inspection frequency – all other routes and car parks	once per year
	Utility Inspections	
	% of Sample A Inspections completed against number of potential inspections	100%
	% of Sample B Inspections completed against number of potential inspections	100%
	% of Sample C Inspections completed against number of potential inspections	100%
Condition	Maintain RCI	34.8%
	Maintain condition of A Class Roads at target levels	32%
	Maintain condition of B Class Roads at target levels	32%
	Maintain condition of C Class Roads at target levels	42%
	Maintain condition of U Class Roads at target levels	37%
	Footways	
	Response times to Category 1 defects	4 hours (24h on Isle of Cumbrae)
	Response times to Category 2 defects	5 working days
	Response times to Category 3 defects	60 working days

Safety	Routine safety inspection frequency – footways associated with strategic, main and secondary routes	12 times per year
	Routine safety inspection frequency – footways associated with link roads	4 times per year
Service	**Measure**	**Target Standard**
	Footways	
	Routine safety inspection frequency – Castlepark and Lower Vennel	Twice per year
	Routine safety inspection frequency – all other footways and footpaths	Once per year
Condition	Maintain % of footways requiring maintenance at current levels	13%
Service	**Measure**	**Target Standard**
	Street Lighting	
Safety	% of street lanterns with a valid Electrical Test Certificate	40%
Condition	% of lamps restored to working condition within 7 days	96%
	% of lanterns that exceed their Expected Service Life should be no more than	20%
	% of columns that exceed their Expected Service Life should be no more than	20%
	Structures	
Safety	Carry out General Inspections	2 yearly
	Carry out Principal Inspections	6 yearly
Condition	Response time to emergency calls	4 hours
	Target figure for Average Bridge Stock Condition Indicator	86.4
	Target figure for Critical Bridge Stock Indicator	75
	Traffic Signals	
	Response time to attend urgent faults	2 hours
Safety	Repair/make safe time for urgent faults	4 hours
	Response and repair time for non-urgent faults	12 working hours

Details of our Road Hierarchy are shown in Appendix B.

Road Condition

The table in the image below shows the Road Condition Indicators for North Ayrshire Council reported as Statutory Performance Indicators and the comparison with the Scottish average. Road condition improved from 2014 to 2016 because of asset management practices using lifecycle planning to target investment to make optimum use of available resources. Road condition deteriorated slightly by 1.3% between 2014-16 and 2016-18, additional budget invested in roads infrastructure in 2017/18 and 2018/19 stabilised road condition and further additional investment contributed to an overall improvement in road condition. There has been a marginal deterioration in the percentage of the road network that should be considered for maintenance treatment reported in 2023, additional investment in road infrastructure improvements in 2022/23 and 2023/24 should assist in improving road condition over the longer term.

RCI Comparison to Scottish average										
	2012-14	**2013-15**	**2014-16**	**2015-17**	**2016-18**	**2017-19**	**2018-20**	**2018-21***	**2020-22**	**2021-23**
North Ayrshire	40.8	39.1	37.8	38.3	39.1	38.1	37.3	37.1	33.9	34.8
Scottish average	36.7	37.0	36.7	36.4	36.7	36.3	35.8	35.5	34.2	33.6
Comparison to Scottish average	+4.1 %	+2.1 %	+1.1%	+1.9 %	+2.4 %	+1.8	+1.5	+1.6	-0.3	+1.5
Overall Ranking	21st	20th	20th	22nd	26th	23rd	23rd	23rd	20th	21st

*3 year composite PI due to issues completing survey during Covid19

5. Condition and Suitability

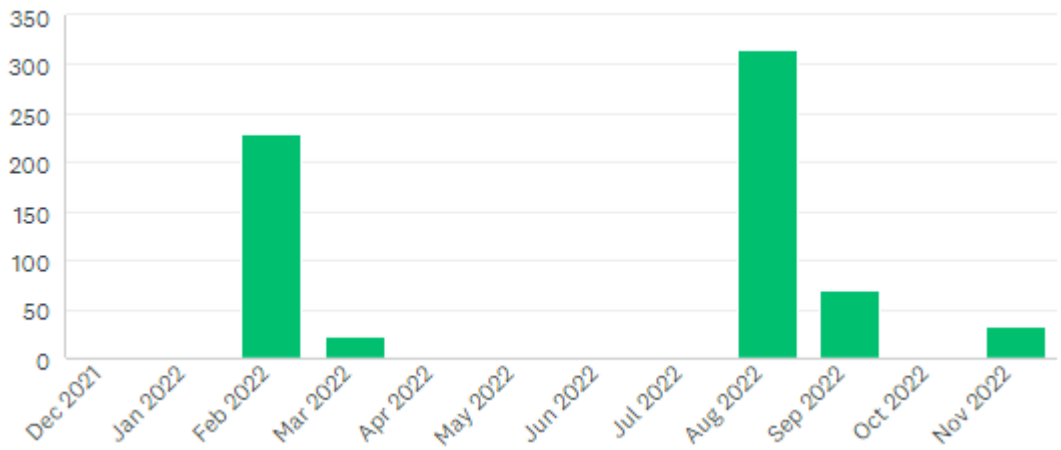
Customer Surveys, Enquiries and Consultation

A Roads Service customer survey was undertaken in 2013. The survey covered customer contact and levels of satisfaction with various areas of the service – winter service, road maintenance, street lighting. The surveys identified that although we were delivering a high-quality service in the works being carried out, the condition of the roads and footways was perceived to be in decline.

North Ayrshire took part in the National Highways and Transport (NHT) Networks survey in 2016. This survey measures public satisfaction with highways and transport services across the UK with results shared on the NHT website to encourage benchmarking and drive improvement.

Contract specific questionnaires are distributed after completion of contracts to properties in the vicinity of works. These results are recorded on a customer survey database to provide information for future improvements to be incorporated into Service Delivery.

The Roads Service now participates in the APSE / SCOTS customer satisfaction survey to enable benchmarking between other Scottish authorities. This is an online survey managed by APSE that is available to all local authorities to use and it asks a set of standard questions which are specific to your own council area. This survey is always open for members of the public to access, and available on our website. However, a review of the data collected indicates that activity is generally because of specific social media promotions of the survey. The bar chart below shows a huge increase in uptake of the survey in February and August 2022 and this correlates against the timing of social media promotions carried out by our communications team.



The results of the customer satisfaction surveys can be found in the Asset group Status reports in Section 6 - Sufficiecy.

North Ayrshire Council has a procedure in place for recording and dealing with complaints. Details of general enquiries are recorded in the Verint EMPro System and all reported defects are recorded in WDM Road Management System (RMS). This information highlights numbers of specific types of fault or faults occurring in a geographical area.

North Ayrshire Council also has representatives who attend various meetings to ascertain views and/or requirements – e.g. North Ayrshire Access Panel, community groups and Estate Based Inspections. Responses are also sought via the North Ayrshire Community Planning Partnership People's Panel that is comprised of 2000 representatives of the population of North Ayrshire.

Consultation is undertaken through the Locality Partnerships for local people within communities; set in North Coast and Cumbrae, Three Towns, Garnock Valley, Arran, Kilwinning and Irvine. This identifies and addresses local issues, sets out priorities for each locality and how they can be addressed within a developed Locality Plan.

We work closely with Arran Community Council, Visit Arran, and other key stakeholders to consult on works programmed to be undertaken on the Island of Arran to ensure that disruption is minimised and that any concerns are addressed.

Public consultation exercises are undertaken prior to final design decisions being made about major projects – for example, consultation has been carried out across West Kilbride to consider improvements to traffic management in the town and also in Gateside to agree traffic calming measures to improve safety. Consultation is also undertaken through local press releases for traffic orders and proposed road closures. An extensive series of consultations was held during the development of the Millport Flood Protection Scheme.

Condition

Scots backlog model

A study was completed in 2010 using the 2007 and 2008 SRMCS data to determine the effect of applying different maintenance budgets to the Scottish local public road network. This concluded that the budget required to return to the position where the carriageway is in a good state of repair (the Headline Backlog figure) was £1.539bn. The model was re-run using 2009 and 2010 SRMCS data in order to determine the effect of the February 2010 winter weather resulting in a new figure of £1.729bn, an increase of 12.33%. Analysis of information in 2015 identified that the budget required to remove all carriageway defects in 1 year in North Ayrshire was £30.9million. The backlog figure was re-calculated again in 2017 and 2019. 2017 figures were further revised based on the 2019 Scotland wide treatment costs to provide a comparison with the 2019 figures. The 2019 figures are calculated based on a set of Scotland-wide treatment costs to provide a sound basis for comparison between family groups, although any comparisons must still be treated with caution as the widths of carriageway used in the calculations are a combination of actuals and estimates provided by individual authorities.

Due to the impact of inflationary increases in material and contractor costs, the backlog figure is being recalculated for 2023 using current market costs to provide a more accurate picture of the extent of the backlog facing local authorities, this figure is not yet available.

Backlog figures for North Ayrshire Council (to be updated in 2023)

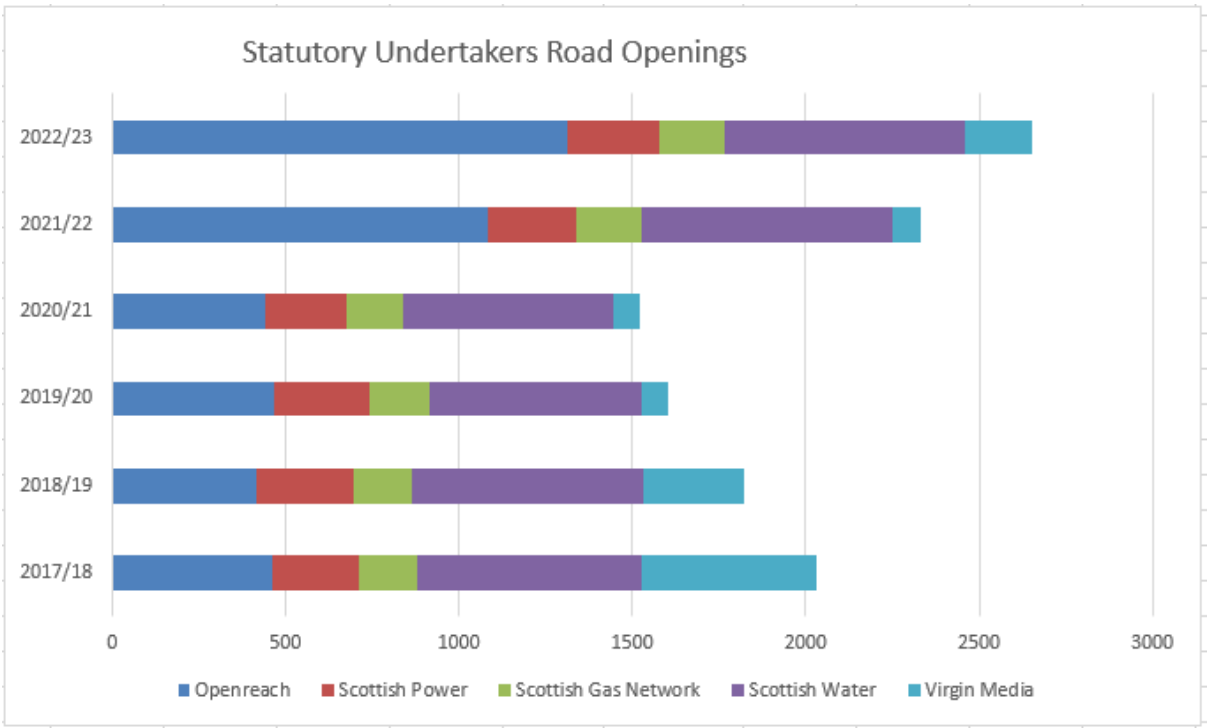
North Ayrshire has a network length of 1,036km and in 2017 the backlog figure was £31,653,000. In 2019 the backlog figure was £34,807,000 showing a percentage change of minus 3.8 percent.

Scotland has a network length of 52,737km and in 2017 the backlog figure was £1.671 billion. In 2019 the backlog figure was £1.888 billion showing a percentage change of minus 1.6 percent.

Utility Activity

Utility activity can have a major effect on the maintenance and management of the road assets. There are currently no recorded figures to quantify the effect that utility openings have on the road structure, but it is widely believed that these lead to an increase in defects and earlier deterioration of the road surface than would otherwise be expected. All statutory undertakers are responsible for carrying out their own reinstatements and the new fifth edition of “Specification for the Reinstatement of Openings in Roads” is going to introduce a 6-year guarantee on these works.

This change was the result of the Office of the Scottish Road Works Commissioner undertaking a review of the long-term damage that can result from utility activity. This included a review of the existing 2-year guarantee period, and it was felt appropriate to change this to a 6-year period, with some minor exceptions.



The graph above shows high levels of work for telecoms operators, these are due to the national rollout of high-speed fibre broadband. This has resulted in telecoms poles being erected in residential areas in addition to an increase in excavations in order that new ducting can be laid to provide accessibility for all residents.

North Ayrshire Council work closely with utility companies to try to minimise the effects of utility works on the travelling public and to ensure that, as far as is possible, newly surfaced roads are not disturbed for a minimum period of 3 years. However, in the event of emergency works being required or new service connections, the utility companies must be allowed to carry out their works.

6. Sufficiecy (Asset Demand)

There is a constant demand for improved road infrastructure for driving, walking, cycling and accessibility.

Environmental factors also impact on both deterioration of the road network and the solutions that can be found to address the challenges of providing a sustainable network for the travelling public.

Environmental Factors

Climate change – changeable weather conditions with severe weather extremes becoming more common result in rapid deterioration of the road network. Landslides undermining roads on Arran have resulted in prolonged closures on both the Ross Road and at Kildonan within the last 2 years. Further landslides have been reported in 2023 because of heavy rainfall. Further, re-routing of traffic due to prolonged closures results in heavy vehicles causing damage to alternative roads not constructed to withstand either the volume or type of traffic.

Winter weather – harsh winter weather, particularly the extreme low temperatures becoming more common causes significant damage to road surfaces

Flooding – flooding is becoming more common due to prolonged periods of intense rainfall with historical road drainage unable to cope. This further leads to rapid deterioration on rural roads where there is little or no formal drainage in place.

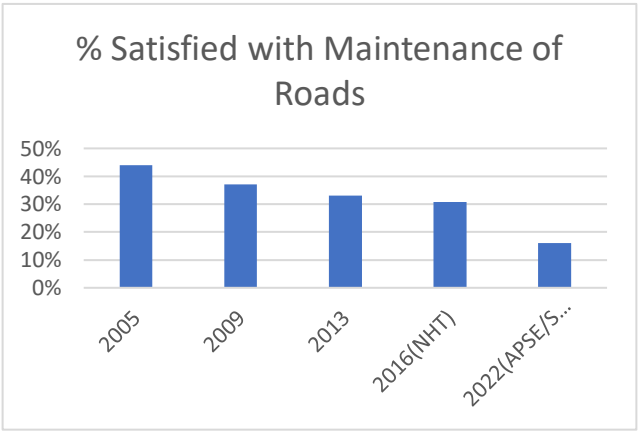
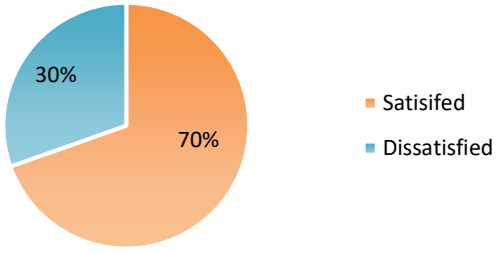
Electric Vehicle Charging has introduced several new assets within public car parks to allow members of the public access to charge their vehicles.

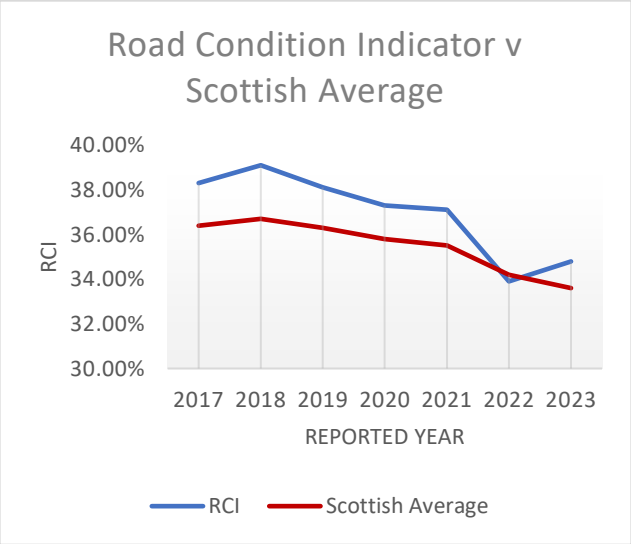
Electric cars are around twice as heavy as standard vehicles and are expected to cause increased deterioration to road networks, with further deterioration because of the introduction of electric buses and lorries which are significantly heavier

Materials are constantly under review to see if there are more sustainable and environmentally friendly products available that meet the required standards. Recycled materials are considered for use where appropriate.

Asset Group Status Reports

The status of the major asset groups that make up the road asset as of April 2023 are summarised in the following pages.

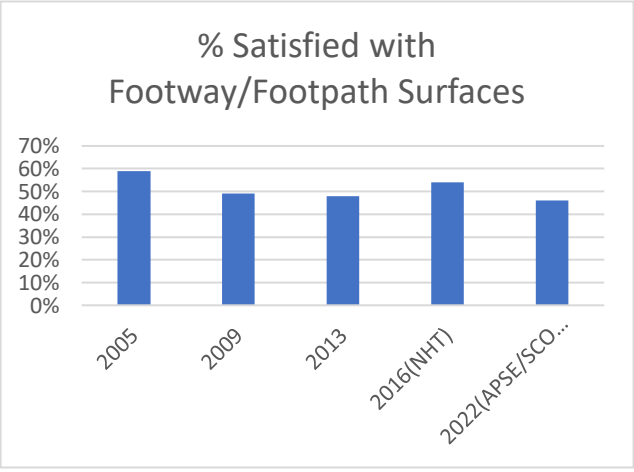
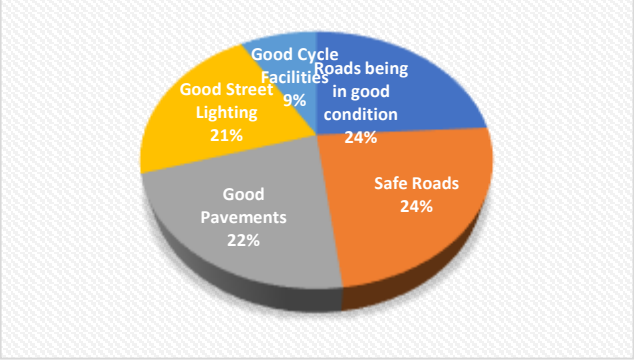
Carriageways	Statistics	Commentary
The Asset	North Ayrshire Council has 1050 km of public road network. Growth of 0.80% over the last 5 years. Growth of 14.32 km over the last five years.	Predicted growth over the next 5 years of 0.2% per year.
Customer Expectations	 **Overall Satisfaction with Winter Service** 	Roads Services customer surveys carried out in 2005, 2009 and repeated in 2013 show a decrease in satisfaction with the maintenance of our roads. The 2016 NHT survey indicates the low level of satisfaction with the condition of our roads. This decrease in satisfaction with our road network is despite an improvement in overall road condition and indicates the increasing expectations of the community. A roads customer survey created jointly by APSE/SCOTS to enable national satisfaction comparison was made available. It asked, how satisfied or dissatisfied are you with the condition of roads, this indicates that the satisfaction level has now dropped to 16%. A winter survey carried out in 2013 indicated that 70% of the community are satisfied with the winter service provided. The APSE / SCOTS survey in 2022 shows that the level of satisfaction with the winter service has remained the same.

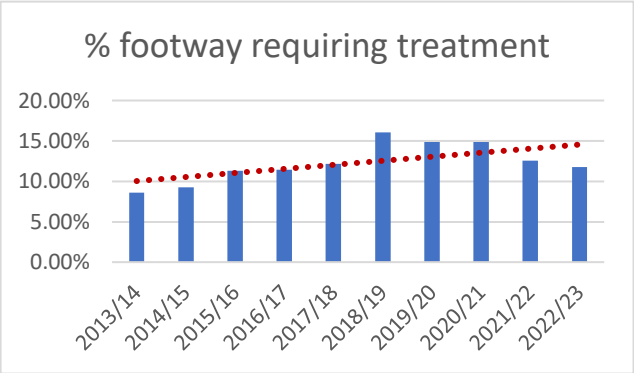
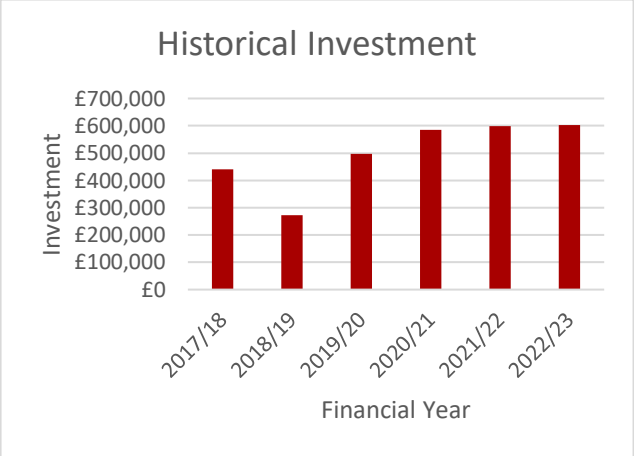
Condition		SRMCS results in 2017/19 indicate that 38.1% of our carriageways may require attention – approximately 400km. Our RCI has improved with 34.8% of our road network to be considered for maintenance in 2023. The Scottish Average has improved over the same period to an RCI of 33.6%. Increased investment in road maintenance since 2020/21 should assist in maintaining current condition.
Investment Historical		These figures include capital and revenue investment in planned maintenance works. The investment figures include planned kerbing works (as per Financial accounting guidelines), planned patching and works carried out for external authorities The carriageway investment plan includes £3.8m Capital Investment and £0.5m Revenue. These investment levels were set to maintain steady state in road condition. The reported steady state figure in 2019 increased to £4.3m.
Valuation (Figures to be recalculated by SCOTS in 2023)	Steady State figure **£4.3million** (May 2019) (Increased from £3.8m in May 2017)	Cost per year to maintain the current Road Condition Indicator (RCI). (1)
	Headline backlog figure is **£34.8million**. (May 2019)	Budget required to remove all defects in one year.
Planned **Future Investment**	It is calculated that **£11.1million** per year is required to prevent further deterioration across the network. This figure does not include for increasing materials and construction costs.	This figure does not take into consideration the additional costs associated with surfacing works on Arran. Increased costs are

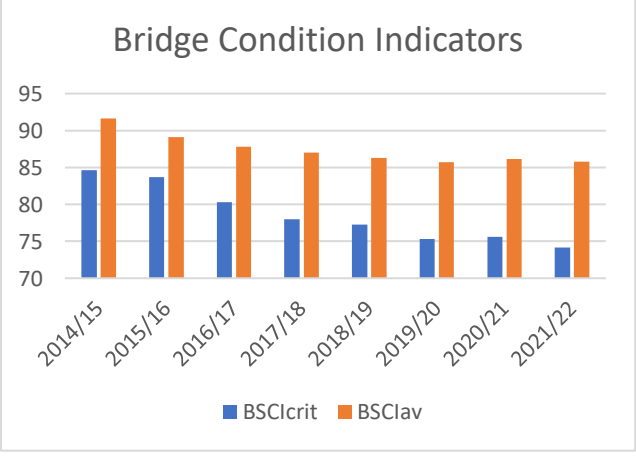
		estimated to be 50% for materials and transport. No distinction is made between capital or revenue funding.
Forward Works Programme	A forward investment plan has been developed for Arran using Road Condition data and Inspectors surveys which also takes account of identified community priorities to provide options for optimising investment. A 3 year plan for the Mainland is currently being revised due to changes to the plan as a result of rapid deterioration in some areas.	Locations identified are subject to annual re-assessment. Our system is utilised to identify the optimum strategy for long term planning for road maintenance which maximises budget efficiency for both Arran and the Mainland.

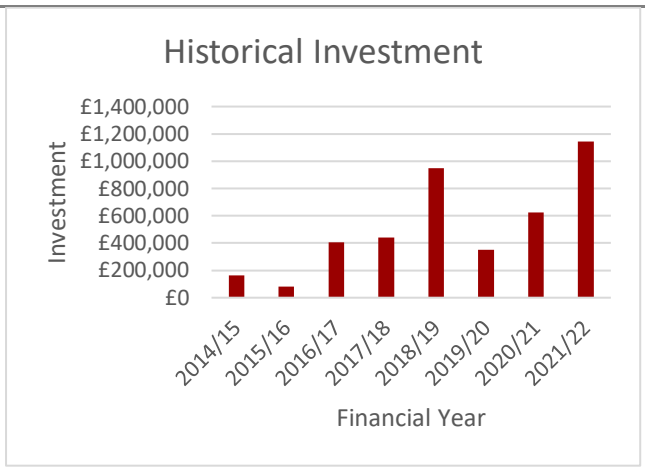
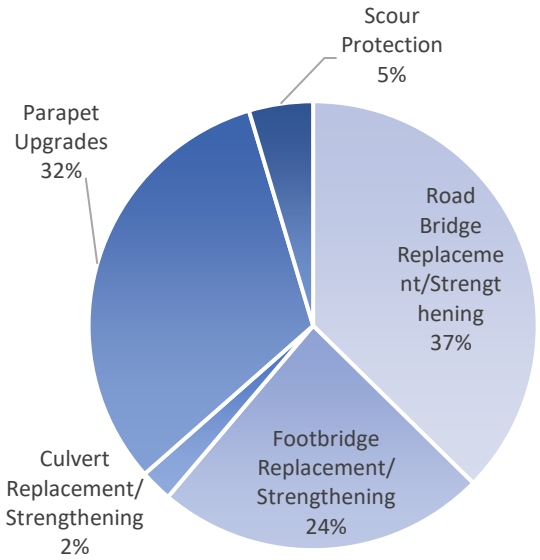
(1) The Steady State calculation is based on investment required to ensure carriageways currently in amber condition do not deteriorate to red condition, and carriageways currently in good condition do not deteriorate to requiring maintenance treatment. This figure does not include treating all carriageways currently requiring major maintenance works as those in red condition will not deteriorate further.

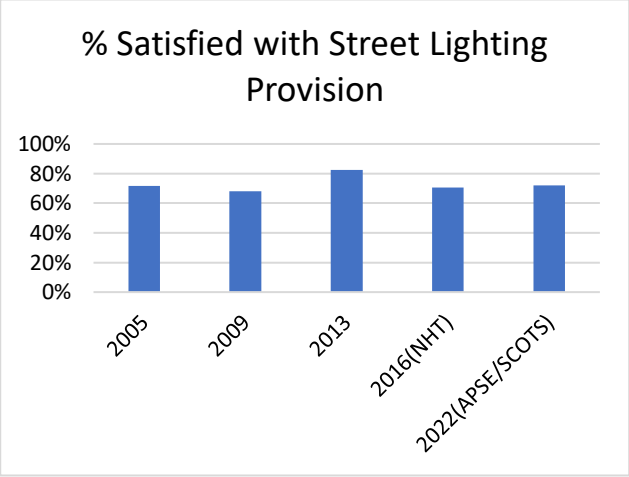
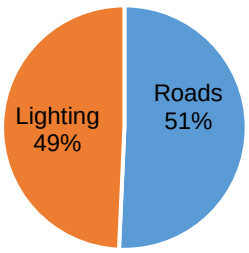
(2)
Footways

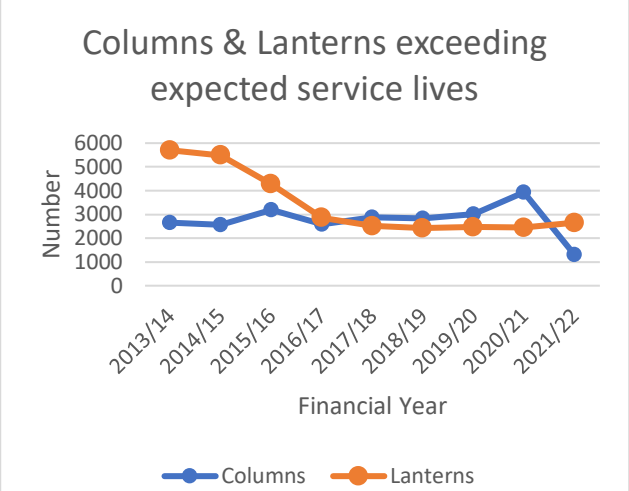
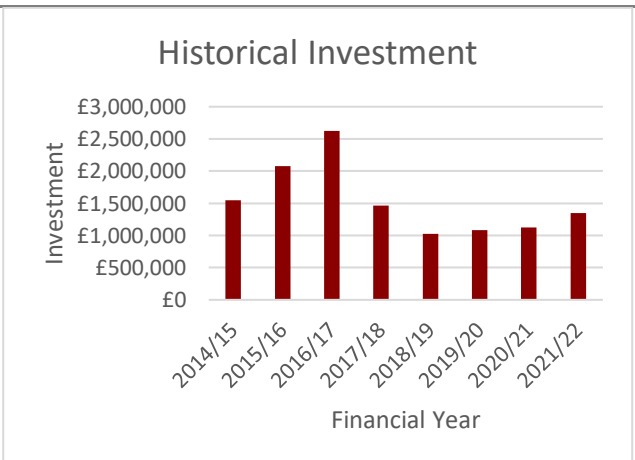
The Asset	North Ayrshire Council has 1014.8 km of footway/footpath network. Growth of 1.6% over the last 5 years. An extra 17.1 km of footway to be maintained.	Predicted growth over the next 5 years of 0.15% per year. Predicted increase in footway length of 7.5 km over the next 5 years.
Customer Expectations	 	Roads Services customer surveys carried out in 2005, 2009 and repeated in 2013 show a decrease in satisfaction with the maintenance of footways and footpaths. The NHT survey indicates that this increased to 54% of respondents satisfied with the condition of footways. From the APSE/SCOTS survey in 2022 we saw a decrease to 46%. Footways are third only to safe roads and good road condition as the most important assets to our customers.

Condition		A condition survey of the whole footway is completed annually. Assessments are undertaken by the Road Inspectors as part of their inspection programme. Condition assessments carried out on the footway network indicate that footway condition is around 12% of our footway/footpath network is currently in need of maintenance treatment – approximately 122km.
Investment Historical		Planned footway maintenance includes footway resurfacing/ reconstruction and planned footway patching. Additional investment in 2016/17 was as a result of capital investment in town centre regeneration projects, however remaining years have stayed relatively stable. It is expected that footway condition will continue to stay static around 12% unless the level of investment is increased.
Planned **Future Investment**	It is calculated that **£1 million** per year is required to prevent further deterioration in the footway network. This figure does not include for increasing materials and construction costs.	This figure does not take into consideration the additional costs associated with surfacing works on Arran. Increased costs are estimated to be 36% for materials and transport. No distinction is made between capital or major revenue funding.
Forward Works Programme	All footways requiring maintenance treatment are assessed according to our priority assessment matrix. This lists all footways requiring maintenance works in order of priority.	Locations identified are subject to continual re-assessment.

Structures	Statistics	Commentary
The Asset	The Structures asset consists of: 249 Road Bridges 88 Footbridges 116 Retaining Walls 293 Culverts 7 Underpasses 1 Tunnel 34 Revetments	The figure for the length of retaining walls is estimated. There are two flood protection schemes currently being progressed - Upper Garnock Valley, Largs Seawall and Millport which will involve the creation of a dam and rock armour sea defences.
Customer Expectations	100% of requests relating to abnormal loads are responded to within service response times.	There have been no adverse comments in respect of Structures.
Condition		The Bridge Condition Indicators require that Principal Inspections (PIs) are undertaken over a 6 year cycle. A combination of a backlog of PIs and limited capital investment has resulted in a deterioration of bridge condition. Capital investment from 2016/17 onwards has seen the rate of decline reduce in BSCIs. General Inspections (GIs) are undertaken 2 yearly.

Investment Historical		These figures represent revenue expenditure only from 2013/14 to 2015/16. The application of asset management to maintenance of the structures asset resulted in planned Capital investment of £560,000 annually for maintenance of Structures assets from 2016/17 util 2022/23. Further additional Capital investment of £300,000 was made in 2018/19 to carry out improvement works.
Planned **Future Investment**	Estimated Outstanding Maintenance Work Required 	Value of outstanding maintenance work for the Structures asset is estimated to be £6.7million. This estimate is based on the inspections that have been carried out to date and may rise as inspections are reviewed. A formalised process for establishing the ongoing, long-term budgetary requirements for the maintenance of the Structures Asset, is being developed to build upon existing Capital Programme Asset Group (CPAG) work.
Forward Works Programme	The capital programme is identified based on the structures prioritisation methodology which ranks assets based on a number of factors including condition, safety, and usage.	The revenue programme is based on priorities from identified maintenance work, this is adapted throughout the year due to defects of a higher priority being identified through the annual inspection process. All works are subject to continual re-assessment. The capital programme may be revised as a result of higher priorities being identified through results of inspections.

Lighting	Statistics	Commentary
The Asset	No. of luminaires 24,448 No. of columns 24,338 Over the last 3 years the no. of luminaires has increased by 821 reflecting a rise of 3.4% per annum and the no. of lighting columns has increased by 1002; a rise of 4.1%.	The growth pattern is expected to remain constant due to additional infrastructure as part of new developments. In addition, infrastructure replacement works will continue to increase the number of lighting points to reflect current design spacings.
Customer Expectations	 Customer Enquiries and Service Requests 	Roads Services customer surveys carried out in 2005, 2009 and repeated in 2013 indicated an increase in satisfaction with the provision of street lighting. The NHT survey shows a decrease in the level of satisfaction with street lighting. The lower level of satisfaction may be due to the introduction of LED lighting which is being installed across North Ayrshire as part of an energy efficiency programme. These ensure that the lighting is concentrated onto the road network thereby reducing light spread onto surrounding private areas, gardens and pathways. The APSE/SCOTS survey now shows that the level of satisfaction for street lighting has remained the same as the 2016 survey at 72%. In 2017/18, 49% of enquiries and service requests recorded for the Service were regarding Street Lighting. This is an increase of 8% over the last 2 years. This may partially be a result of public reaction to the changed perception of lighting levels from the installation of LED lighting, but is also partially resulting from policy decision to remove night-time fault inspection arising from longer life LEDs.

Condition		The number of lanterns exceeding expected service life has decreased by 55% since 2013/14, due largely to bulk LED lantern changes despite fluctuations in Capital investment. The increase in the number of columns exceeding service life may have been affected by estimated historic installation date records and will also be affected by reprofiled capital investment in the years 2019-21. The age profile of lighting assets is variable dependent on original development or bulk spend and over years can account for differences in age expired units. Overall the profile is managed through use of structural safety inspections which allow targeted replacement and budget setting to maintain at least a static depreciation. A SCOTS exercise to further refine the life expectancy of L.A. cable network is ongoing
Investment Historical		Level of historic investment reflected the ongoing £1m approx. required annually to maintain existing lighting infrastructure depreciation. Reprofiled Capital in 19/20 resulted in reduced investment to £750k. This has been restored in later years. An increase in investment from 2014/15 to 2017/18 is due to a major spend to save energy initiative to introduce LED lanterns into approx. 60% of the network. This resulted in an energy efficiency saving of an estimated £570k per year. However, reduction in energy and carbon has been offset by significant increased energy costs since 2022.
Planned **Future Investment**	Capital Investment 2015/16 - £2,654,000 2016/17 - £2,222,000 2017/18 - £1,460,428 2018/19 - £1,000,000 2019/20 - £750,000	The additional spend to save investment was completed in 2017/18 reducing investment thereafter to the ongoing £1M approx. annual investment to maintain the lighting infrastructure depreciation at status quo. However, reprofiled investment over financial years 2019 – 2021 impacted these statistics with an increase in units exceeding life expectancy. There was also a further identification of £690k energy efficiency funding in 21/22 for earlier

	2020/21 - £750,000 2021/22 - £1,940,000 2022/23 - £1,250,000	installed white lighting units to be converted to LED.
Forward Works Programme	Structural inspection programme of risk certification is ongoing. Priority major infrastructure replacement programme is drawn from inspection, age profile and asset profile information.	Continued structural inspection manages risk between priority replacement and interim inspection certification.

7. Financial

Historical Expenditure

Historical expenditure on the Road Asset over the last five years is shown in the table below:

Asset	Works	18/19 £	19/20 £	20/21 £	21/22 £	22/23 £
Carriageways	Reactive	1,210,964	1,087,364	885,282	987,755	637,259
	Routine	371,277	262,830	224,136	184,966	280,516
	[1]Planned	4,568,828	3,821,785	4,047,703	5,642,824	5,205,937
Footways	Planned	272,982	[4]409,610	[4]528,053	[4]538,415	[4]530,857
Winter Maintenance	CW and FW	685,632	481,195	611,076	452,926	493,955
Structures	Total	[2]950,153	267,054	623,258	1,102,570	1,068,433
Lighting (excluding energy costs)	Cyclic	47,316	[3]1,084,258	1,125,450	1,346,570	Figures not available
	Reactive	211,482				
	Planned	1,026,793				

[1]Planned carriageway expenditure includes externally funded improvement works and additional allocated budget.

[2]Additional Capital investment allocated for Structures planned improvement works from 18/19 onwards.

[3]Total spend as internal works claims are not broken down into work types.

[4]Revenue footway budget remains at £250k, externally funded improvements, generally on shared paths, have increased investment on the footway network. In addition, footway improvements are being included as part of capital carriageway resurfacing projects.

Expenditure on street furniture and traffic management systems have been excluded from these figures as maintenance is based upon ongoing inspection regimes which determine repairs/replacements to be carried out on a needs basis.

Planned Investment

Service standard targets and investment strategies are based on available budgets detailed in the table below. Any changes to these predicted budget levels will require changes to both service standard targets and investment programmes**.** These budget figures are based on a 10-year plan and can vary annually depending on grant funding and further budget allocations. Due to internal payment management systems with internal service providers, it is not possible to break down lighting costs to equivalent figures for cyclic, reactive, and planned work types. The breakdown shown for long term funding reflects the annual capital grant and revenue budgets for the lighting service broken down to an estimated split.

Asset	**Works**	**£'000 2020/21**	**£'000 2021/22**	**£'000 2022/23**	**Y4-Y10 pa**
Carriageways	Reactive/Routine	£1,100	£1,100	£1,100	£1,100
Carriageways	Planned	£3,800	£3,800	£3,800	£3,800
Footways	Reactive/Routine	£130	£130	£130	£130
Footways	Planned	£250	£250	£250	£250
Structures	Reactive	£135	£135	£135	£135
Structures	Planned	£560	£560	£560	£560
Street Lighting	Energy Costs	£643	£678	£693	Based on current energy supplier prices. Long term market prices are unpredictable
Street Lighting	Cyclic	£47	N/A*	N/A*	£100
Street Lighting	Reactive	£289	N/A*	N/A*	£350
Street Lighting	Planned	£1,027	N/A*	N/A*	£800

*Figures not available for these years.

Investment Strategies

The strategies in this section have been determined using predictions of future condition over a 10-year period. The predictions 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 five to be delivered.

Investment between Asset Types

In comparison to historical investment future investment is planned to be:

Carriageways: level of investment - £3.8m Capital investment planned annually, expected to be maintained until 2025-26. Revenue contribution to planned investment expected to be maintained at £500,000. These figures meet the current steady state figure calculated by SCOTS to maintain existing road condition.

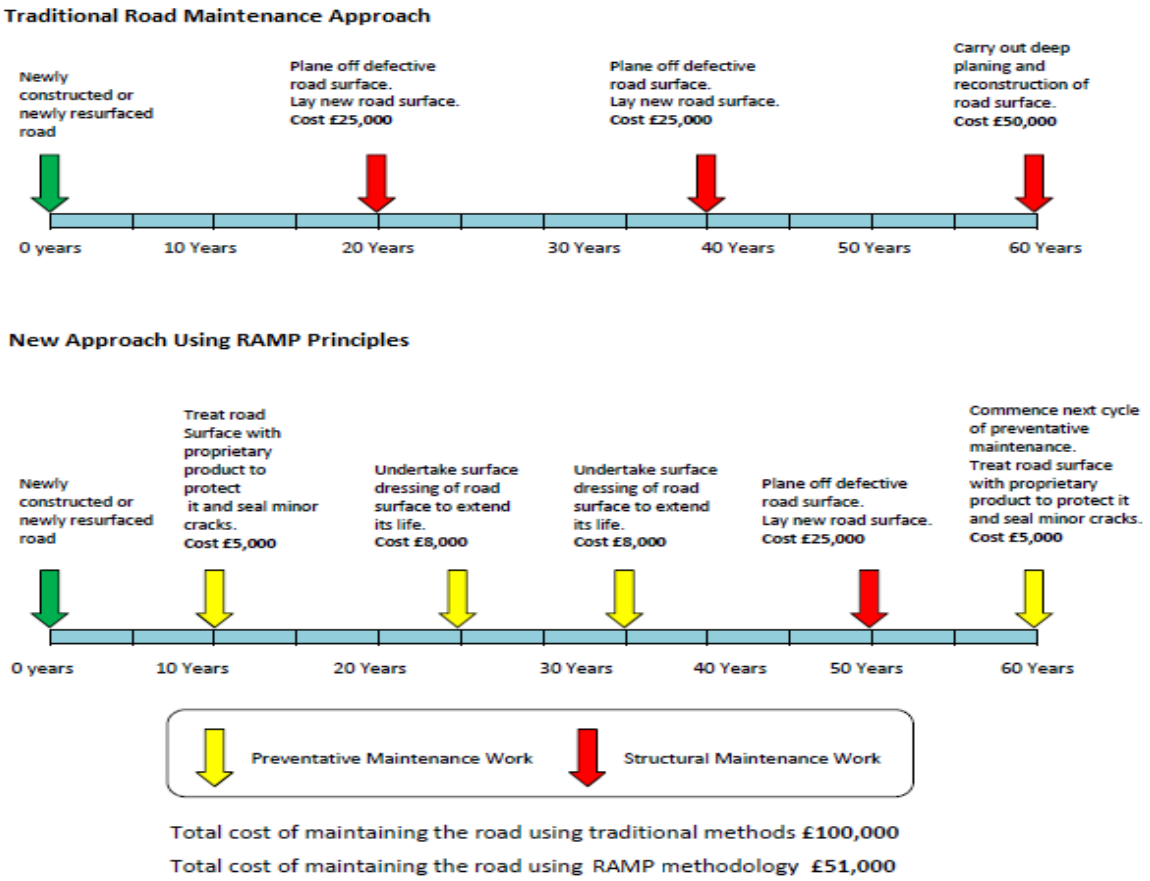
Footways: level of planned investment decreased to £250k to assist in maintaining carriageway investment levels, grant funding for active travel and footway improvements as part of capital carriageway works have increased the level of investment annually in the footway asset.

Structures: level of investment increased from 2016/17 to enable a programme of improvements. Additional Capital investment of £300,000 was granted in 2018/19. Investment of £560,000 is expected to remain steady going forward.

Street lighting: level of investment was increased until 2017/18 as part of a 'spend to save' initiative to introduce modern efficient LED lighting. Capital investment of £1M annually required to keep pace with annualised depreciation, was reduced in 2019/20 and 2020/21 to £750k before reprofiled increase in subsequent two years. The immediate impact of this was an increase in depreciated assets which resulted in reprofiling to £1.25m in the following two years which should stabilise the annual depreciation figures by 2024/25.

Carriageways

The investment strategy for carriageways is to optimise investment by using life cycle planning to undertake targeted improvements to ensure that efficiency of spend is maximised. This will increase investment in lower cost treatments, although investment will also require continuing in higher cost resurfacing where carriageways are in poor condition. The budget available is insufficient to undertake a full preventative programme as there are areas of major deterioration that must be addressed for public safety. The strategy is to minimise deterioration by optimising available investment to maintain current condition.



The above illustration shows that by applying road asset management principles the whole life cost of maintaining the asset is greatly reduced. The use of preventative maintenance treatments at the optimum intervention timings extends the life of the asset leading to less need for reactive and planned maintenance.

The budget currently allocated for planned maintenance is to meet the steady state figure calculated by SCOTS to assist in maintaining current road condition as measured by the Road Condition Index. This figure is being recalculated to consider inflationary increases in construction costs and is expected to be available late 2023. A programme of carriageway screeding is planned annually to improve our rural road network.

A method of prioritisation is utilised in addition to Scottish Road Maintenance Condition survey data to target investment for long term planning. Carriageway prioritisation data is included at Appendix C.

Footways

The strategy for planned improvement works to footway is to develop a long-term programme for footway improvements using our prioritisation matrix (Appendix D).

Preventative treatments have been used in previous years in residential streets but had poor feedback from the public. As a result of this, all town centre footways are resurfaced in asphalt with white limestone chips or to meet public realm requirements, but all other footways are now resurfaced with a 6 or 10mm asphalt concrete finish as this is a more efficient use of limited funding for footway improvements. Although initial feedback has been varied on this matter, it is more acceptable to our residents than the extended use of thin surfacing treatments.

To move to programming investment in our footway network using lifecycle planning, there is a requirement to use a range of treatments. As thin surfacing treatments are further developed, they will be trialled, and the results analysed to enable lifecycle planning to be fully implemented and investment optimised across our footway network.

Routine and reactive repairs are expected to continue at current levels and will be undertaken within available budgets.

Structures

The structures maintenance strategy is to use available funding to ensure the safety of the travelling public by maintaining the structures in a serviceable condition. The methodology used to allocate Revenue and Capital funding is outlined below.

Revenue

Works carried out under the revenue budget are generally reactive and routine works identified through the inspection regime and/or reported defects from the public.

Works identified, where there is insufficient budget to immediately carry out repairs and where they are not prioritised due to safety reasons, are recorded in the Work Bank which is a list of works to be completed as funding is available.

The maintenance strategy attempts to balance the need to complete essential reactive works, whilst allocating funds to routine preventative and corrective works identified through inspections. A reduction in routine maintenance will accelerate the rate of deterioration of the asset.

Capital

A capital budget has been allocated to the structures asset from 2016/17. This is enabling a programme of strengthening and replacement to be put in place.

These works will be prioritised using the structures prioritisation methodology and a programme of works established. The Structures Prioritisation Matrix is contained in Appendix E.

The annual capital budget allocated is £560,000. This means that the current list of works required would take approximately 12 years to compete.

Street Lighting

The investment strategy for lighting is to continue to use lifecycle planning to undertake targeted improvements of the overall asset infrastructure by using the prioritisation of profiled deteriorated, age expired and energy improvement opportunities. This is to ensure that the asset remains safe and fit for purpose and avoids collapse and injury, such as that experienced in 2023 in Glasgow.

The funding available currently for infrastructure replacement will not be sufficient to improve the age/condition profiles, however the overall strategy is to minimise further deterioration of the asset profile by keeping pace with annualised depreciation.

However, the short term reduced Capital investment resulting from reprofiling will increase the annualised depreciation cost; increase poor condition assessment statistics; increase the impact of energy increases, carbon tariffs and unplanned reactive repairs on future revenue budgets until the balance is redressed from increased spend in subsequent years.

The Capital funding will continue to be required to support annual replacement of deteriorated support column and cable infrastructure on those locations which have been converted to energy savings lanterns, as those supporting networks themselves become deteriorated and age expired.

8. Legislation

Legislation can lead to increased demand on Local Authorities' resources in managing their road assets. The following list is legislation requirements currently in place that have an impact on the Road Service and should be taken account of.

- Roads (Scotland) Act 1984
- New Roads and Street Works Act 1991
- Transport (Scotland) Act 2005
- Transport (Scotland) Act 2019
- Flood Risk Management (Scotland) Act 2009
- Disabled Persons Parking Places (Scotland) 2009
- Traffic Signs Regulations and General Directions 2016
- Reform of red diesel and other rebated fuels entitlement
- Public Health etc. (Scotland) Act 2008 (Artificial Light Nuisance)
- Electricity at Work Regulations 1989
- Environmental Protection Act 1990
- Clean Neighbourhoods and Environmental Act 2005
- Climate Change (Scotland) Act 2009

As well as the above primary legislation, there are also secondary legislations, these are Regulations and Orders that are made under the enabling powers provided by primary legislation to implement and administer the requirements of that primary legislation.

- The Road Works (Reinstatement Quality Plans, Qualifications of Supervisors and Operative and Miscellaneous Amendments) (Scotland) Regulations 2023
- The Scottish Road Works Register (Prescribed Fees) Regulations 2022
- The Scottish Road Works Commissioner (Imposition of Penalties) Regulations 2022
- The Road Works (Qualifications of Operatives and Supervisors) (Scotland) Amendment Regulations 2019
- The Road Works (Inspection Fees) (Scotland) Amendment Regulations 2014

The following national policies and guidance documents also have an impact on the service provided:

- Well-Managed Highway Infrastructure: A Code of Practice
- Safety at Street Works and Road Works: A Code of Practice
- Designing Streets Manual for Scotland
- SCOTS National Roads Development Guide
- SUDS Section 7 agreements may create further maintenance responsibilities in relation to sustainable drainage systems. Section 7 agreements state that the Roads Authority and Scottish Water may agree to the provision, management and maintenance or use of their sewers or road drains for the conveyance of water bringing shared responsibilities for systems.
- Cycling by Design
- BS 7671:2018 The Requirements for Electrical Installations
- BS 5489-1-2020 Design of Road Lighting: Code of Practice

9. Policy/Guidance

The following policies associated with the Roads asset have been approved by the Council Members:

- Council Plan
- Performance Management Framework
- Corporate Procurement Strategy
- Place Directorate Plan
- Roads Operational Plan
- Road Asset Management Plan
- Permission for Attachment of Amenity Displays
- Arran Lighting Policy
- Lighting Energy Efficiency Strategy
- Local Transport Strategy
- Winter Service and Weather Emergencies Plan
- Road Asset Safety Inspection Policy

Guidance

- Well Managed Highway Infrastructure - Code of Practice
- BS 5489-1-2020 Design of Road Lighting – Code of Practice

10. Health and Safety

The assets are managed in accordance with Well Managed Highway Infrastructure – A Code of Practice. The code highlights a statutory obligation on Highway Authorities to maintain the public highway and embraces the 2 essential functions of Safe for Use and Fit for Purpose.

- Safe for Use requires carriageways to be managed in such a way that they do not pose an unacceptable risk to public safety.
- Fit for Purpose requires carriageways to be managed in such a way that they remain available for use by traffic permitted for the route.

Road Safety information and details of initiatives to promote road safety are available from the North Ayrshire Council website.

Structures assets are managed in accordance with the Code of Practice for Management of Highway Structures. The code highlights a statutory obligation on Highway Authorities to maintain the public highway and embraces the two essential functions of Safe for Use and Fit for Purpose.

Safe for Use requires a highway structure to be managed in such a way that they do not pose an unacceptable risk to public safety.

Fit for Purpose requires a highway structure to be managed in such a way that they remain available for use by traffic permitted for the route.

Regular inspections of structures identify problem areas that require urgent rectification or the imposition of other safety measures such as the implementation and enforcement of weight or height restrictions.

The lighting assets are managed in accordance with Well Managed Highway Infrastructure – A Code of Practice. The code highlights a statutory obligation on Highway Authorities to maintain the lighting asset and embraces the two essential functions of Safe for Use and Fit for Purpose.

Safe for Use requires lighting plant to be structurally & electrically safe.

Fit for Purpose requires lighting to be operational or to restore inoperative lighting within a defined time.

The lighting levels and outputs are defined within British Standard BS5489-1:2020 A Code of Practice for the Design of Road Lighting and within the ILP Guidance Note 01/21: The Reduction of Obtrusive Light (JM) and are based on type of road and night-time use of road, environmental area and whether an alternative lit route is available.

Works carried out which involve traffic management, excavation or working at height are progressed in accordance with the legislative framework provided within.

- The New Roads and Street Works Act 1991
- The Working at Height Regulations
- The Electricity at Work Regulations 1989

Overarching requirements in respect of climate change are managed with respect to Climate Change (Scotland) Act 2009.

11. Risk Management

This section summarises how the council's risk management strategy is applied to the management of the road asset. It identifies where risks associated with the road asset are recorded, identifies the major risks associated with the asset and outlines how they are currently being controlled.

Corporate Risk Management Strategy

The Corporate Risk Management Strategy provides a framework through which risk can be identified and managed, thereby reducing the Council's exposure to loss.

Risk Identification

The Roads management team identifies significant strategic risks impacting upon the priorities outlined in the Councils Plans.

Risk Categorisation

A risk assessment matrix is used to identify the level of risk associated with carriageway and footway defects and to categorise and prioritise repairs accordingly. There is a long-established process in place to risk assess and prioritise defects related to structures.

Risk Control

Risks within the Roads Service are controlled by carrying out inspections in accordance with Codes of Practice, adherence to the winter policy and compliance with the Flood Risk Strategy.

Monitoring and Reporting

Risk is continually monitored by the Roads management team and reported to the Corporate Management Team through quarterly performance reports and annually through the Roads Operational Plan.

Risk Register

A corporate risk register has been produced and this contains the risks associated with Neighbourhood Services. A summary of the risks associated with the Roads Service are recorded in the following table:

Risk	Strategic / Corporate / Operational
Climate Change	Operational
Financial Variation on Flood Scheme	Operational
Flood Programme Risk	Operational
Energy Pricing	Corporate
Sustainability of Asset Management Model (Capital Investment)	Operational
Decriminalised Parking / Legislative Changes	Operational
Workforce Demographics / Contingency Capacity Risk	Operational
Recruitment / Retention	Corporate
Reputation Risk	Corporate
Fuel Resilience	Operational

Specific risks associated with the Roads asset are recorded in the table below.

Risk	Controls	Monitoring Process
Reduced resources leading to a reduction in levels of service and an increase in complaints and legal claims	Road Asset Inspection Policy Prioritisation scheme for works	Regular monitoring of performance achievable with allocated resources Number of 3rd party liability claims Number of defects reported
Failure of street lighting electrical networks leading to dark area or electrical accidents or injury	Statutory Inspection Regime	Number of units with valid electrical inspection
Failure of street lights leading to accidents	Regular inspection programme in place and investment in replacement programme	Number of reported dark lamps
Failure of street lighting structures leading to damage or injury	Regular inspection programme in place and investment in replacement programme.	Number of age expired units with valid structural inspection certification
Flooding leading to service and local transport disruption and associated financial cost	Emergency plans for flooding Flood Risk Strategy	Regular inspection of trash screens and culverts
Severe winter weather or failure of proactive winter procedures leading to traffic disruption and impact on the local economy	Annual review of winter maintenance policy. Operative training in winter procedures	% of priority routes completed on time Ongoing review of measures in place throughout the winter period.

12. Governance of the Assets Plan Management

The Head of Neighbourhood Services is responsible for management and control of the plan, and the Senior Managers (Roads and Engineering Services) are responsible for its implementation.

This Roads Asset Management Plan (RAMP) will be presented to Members as a component of the overall Corporate Asset Management Plan.

Plan Review

The plan will be reviewed annually as part of the Council's service planning and budget setting exercise and in response to planned changes within the delivery of Council services.

13. Service Delivery Aspirations/Challenges. The roads infrastructure asset is constantly changing because of changes in legislation, active travel improvements, public transport infrastructure improvements, the introduction of electric vehicles charging points, requirements for traffic calming measures, and to meet community aspirations.

Asset Growth

In addition to the above reasons for asset growth, this also arises from the adoption of new development sites.

The carriageway asset has increased by 1.17% over the last 5 years, which has resulted in an additional 12.2 km of carriageway to be inspected and maintained. This increase included an additional 3.56km from the de-trunking of the A737 through Dalry. Due to the increase in new housing developments, it is expected that the carriageway asset growth will increase at approximately 0.4% per year. Growth of our footways/footpaths over the same period was 10.9 km representing a 1.08% increase over the same 5-year period, this is expected to decrease by 0.2% per year due to the increased use of shared surfaces and the resultant decrease in footway provision.

The number of lighting columns has increased by approximately 0.22% over the last 5 years. This rate of growth is due both to adoption of new development sites and increased numbers resulting from improvement of lighting to current standards. This trend is expected to continue.

The number of traffic signals remains relatively static with any increases due to a requirement to regulate traffic flow on busy routes and to provide safe crossing points for the public. Several driver feedback signs are provided, all of which have been installed in the last 8 years.

New infrastructure that isn't going to form part of the public road network and appear in the List of Public Roads is classified as non-adopted assets. These mostly consist of new cycleways and remote paths. These are not recorded as part of the adopted

network assets but do increase the inspection and maintenance liability of the service.

Flooding has seen a significant capital investment in recent years, and this has resulted in several large-scale flood prevention schemes, namely, Largs Seawall, Garnock Flood Prevention scheme and Millport Flood Prevention.

Increasing demand for speed reduction measures is likely to continue, particularly because of the ongoing assessment of 20mph limits for residential streets as part of the Scottish Governments National Strategy to ensure all appropriate roads in built up areas have a speed limit of 20mph by 2025. The installation of traffic calming measures and associated signage further incurs additional maintenance costs.

Traffic Growth

Demand for traffic management measures and parking availability because of increased car ownership has resulted in an increasing number of enquiries and requests for the service to 'do something' to alleviate the problem. It is hoped that improvements in public transport and cycling/walking facilities will encourage active travel and have an impact on the level of demand on the road infrastructure.

Traffic movements are also affected by roadworks and changes to the trunk road network resulting in increased loading on carriageways not designed for high levels of traffic. A shift in local traffic patterns took place with the opening of the 3 Towns by-pass in 2005 and again with the opening of the new Dalry Bypass in April 2020. The opening of the 3 Towns bypass resulted in significant deterioration of the B714 because of increased traffic volumes, partly due to drivers choosing to use the B714 as an alternative route when traffic management is in place in Kilwinning. It is anticipated there will be another change in future years when the realignment and improvements on the B714 are complete.

With the proposed B714 improvement works it is expected that there will be an increase of traffic through Kilwinning while works are being undertaken, however this should only be a temporary situation while the public find alternative routes to avoid the construction work.

Road Equivalent Tariff (RET) was introduced on ferry routes to Arran with a reduction in fares for the travelling public. There is currently no information available on any increase in vehicular traffic because of this however, anecdotal information suggests a significant increase due to the influx of tourists, with private cars and bus tours throughout the summer months further contributing to the deterioration of Arran's roads. There are projected figures for increases in timber transport calculated from predicted volumes of timber to be felled in future years. It is estimated that haulage traffic had increased by 39% between 2012-2016 and 2017-2021, the demands placed on the road network by timber haulage is expected to continue.

Traffic Composition

Traffic composition is considered where deterioration in the road surface requires repeated maintenance.

There are several rural routes where constant maintenance is required due to heavy traffic causing damage to roads of sub-standard construction. A survey undertaken on several of our C class routes established actual volumes of heavy traffic. It was determined that the C80 (Whiskey Bond Road) experienced the highest volume at 27% HGV traffic, compared to the other surveyed routes that had an average of 2%. High volumes of buses and lorries were also noted on the C118 Routenburn Road (27%) and C41 Brisbane Glen Road (20%) compared to an average of 16% over the 8 surveyed routes. Cars and light goods vehicles accounted for only 55% of the vehicular traffic using the C80. This study highlighted the need to determine appropriate treatment options for these routes to consider the type and volume of traffic using them; or to look at alternative routes, if possible, for this traffic.

A programme of improvements to rural roads is ongoing to provide for more permanent solutions to maintaining the road surfaces.

Rural roads are not designed or in a state to be used by heavy goods or large numbers of vehicles. The C87 from Whitehurst Park to the A737 is a short cut used by residents and haulage firms trying to avoid going through Kilwinning town centre. This has resulted in this road requiring significant maintenance, further measures are being considered to reduce the level of traffic choosing to take this rural route.

14. How assets will be used in the future

Local Transport Strategy

The Local Transport Strategy is currently under review and the updated document will help improve the transport network in North Ayrshire and its connectivity beyond to create an attractive place for businesses and communities to thrive. The new draft Local Transport & Active Travel Strategy sets out the policies to be adopted and the actions to be implemented to guide the planning and improvement of the local transport and active travel networks. It also outlines behaviour change initiatives aimed at supporting and encouraging people to use the sustainable transport networks more often. A detailed action plan identifies actions and priorities for the period of the strategy. The new draft Local Transport & Active Travel Strategy refers to all types of transport, including walking, wheeling, cycling, bus, rail, ferry, and car and considers how to integrate these types of transport to make travel by several modes easier for all. The Local Transport Strategy may result in additional public transport and walking/cycling routes that will result in increasing future maintenance costs.

North Ayrshire Council is committed to implementing low maintenance solutions, where possible, for example widening existing footways to create shared footway/cycleways rather than constructing separate new cycleways that would incur additional inspections costs..

15. Performance Indicators

The table below shows some of the main APSE/SCOTS performance indicators used to measure performance of the roads assets.

Performance Indicator	2019/20	2020/21	2021/22	2022/23	2023/24 (target)
RDS_PI010 - Percentage of top priority winter gritting routes completed on time	98.76	98.74	99.2	98.6	100
CP_20 (RCI) - % of overall road network that should be considered for maintenance treatment	37.3	37.1	33.9	34.8	34.8
SOL_ENV04b - % of Class A roads that should be considered for maintenance treatment	38.8	36.3	29.9	30.7	36
SOL_ENV04c - % of Class B roads that should be considered for maintenance treatment	36.8	32.6	29.4	28.9	32
SOL_ENV04d - % of Class C roads that should be considered for maintenance treatment	46.9	44.9	39.4	39.9	42
SOL_ENV04e - % of unclassified roads that should be considered for maintenance treatment	33.7	35.6	33.9	35.4	37
RDS_PI008 - Bridge Stock Condition Indicator (average BSCIav)	85.7	86.1	85.8	86.4	86.4
RDS_PI009 - Bridge Stock Condition Indicator (BSCIcrit)	75.3	75.6	74.2	74.8	75

Performance Indicator	2019/20	2020/21	2021/22	2022/23	2023/24 (target)
OP_PL_LIGHT_01 - % of lamps restored to working condition within seven days	93.9	94.8	94.7	96	96
OP_PL_LIGHT_06a - Average annual electricity consumption per street light (kw hours)	199.6	192	184.9	184.9	180
RDS_PI003 - % of street lights which are LED	60.8	61.9	65	79.5	81

The target for RCI % of road network that should be considered for maintenance treatment is to maintain current road condition. The targets for the A, B, C and Unclassified roads are variable due to the differences in survey timings and percentages of each classification of road that are surveyed annually. Road condition can deteriorate quickly because of inclement weather, subsidence, and material failures.

Further performance information is reported through SCOTS/APSE to enable benchmarking between authorities in Scotland and assist in sharing and learning through best practice.

16. Action Plan

Asset Management Plan Action Plan

The following actions have been identified as the Road Asset Management improvement actions and are recorded on Covalent.

Action Ref	Action	Lead	Timescale
RAMP_A02	Develop risk-based approach for illuminated sign approval, produce policy document for implementation and assess impact and possible requirement for committee approval.	Lighting Manager	March 2024
RAMP_A15	Review & Update Rural Lighting Policy in respect of updated Arran Plan and Legal comment	Lighting Manager	March 2024

Action Ref	Action	Lead	Timescale
RAMP_A21	Assess NAC impact & policy for illuminated sign reduction arising from Risk Based guidance	Lighting Manager	March 2024
RAMP_A22	Integrate Roads & Building Services lighting operational and financial management systems	Lighting Manager	March 2024
RAMP_A23	Review & Update Road Lighting Policy to incorporate guidance on Non-Road Assets and other services impacts"	Lighting Manager	March 2024
RAMP_A30	Develop a programme for the structural review and re-assessment of bridges.	Team Leader Structures	March 2024
RAMP_A31	Review the results of bridge scour assessments and create database of scour risk.	Team Leader Structures	Ongoing
RAMP_A32	Use coastal inspections to identify and prioritise long term maintenance requirements for coastal assets.	Team Leader Flooding	March 2024
RAMP_A33	Undertake location surveys for watercourses and review and update the schedule of watercourses in accordance with legislative requirements	Team Leader Flooding	Ongoing
RAMP_A34	Assess the suitability of low carbon road materials for use on the NAC road network	Network Manager	March 2024
RAMP_A35	Review the sustainability/lifecycle of historical and current road surfacing materials	Team Leader Asset Management	March 2024
RAMP_A36	Option appraisal for inspection and management of non-adopted road network assets	Team Leader Asset Management	March 2024
RAMP_A37	Prepare a proposal for the removal/replacement of obsolete flashing 20s outside schools	Team Leaders Network	March 2024

17. Glossary

The following abbreviations are used in this plan.

ACoP	Approved Code of Practice
ADC	Annualised Depreciated Cost
AMP	Asset Management Plan
APSE	Association for Public Service Excellence
BCI	Bridge Condition Indicator
BSCIav	Average Bridge Stock Condition Indicator
BSCIcrit	Critical Bridge Stock Condition Indicator
CSS	County Surveyors Society
DRC	Depreciated Replacement Cost
GRC	Gross Replacement Cost
HGV	Heavy Goods Vehicle
IA	Improvement Action
LCP	Lifecycle Plan
LTS	Local Transport Strategy
NRSWA	New Roads and Street Works Act
RAMP	Roads Asset Management Plan
RAUC(S)	Roads Authorities and Utilities Committee (Scotland)
RCI	Road Condition Indicator
RMS	Road Management System
SCOTS	Society of Chief Officers of Transportation in Scotland
SRMCS	Scottish Road Maintenance Condition Survey
SRWR	Scottish Road Works Register
SPI	Statutory Performance Indicator
TRO	Traffic Regulation Order
WDM	Williams Detail Management Limited
WGA	Whole of Government Accounts

The following terms are used in this plan:

Annualised Depreciation - The cost of annual deterioration of the road network if no maintenance works are carried out.

Asset Management - 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.

Asset Valuation - The calculation of the current monetary value of an authority's assets.

Depreciation - The systematic allocation of the depreciable amount of an asset over its useful life arising from use, ageing, deterioration, or obsolescence.

Depreciated Replacement Cost - Method of valuation which provides the current cost of replacing as asset with its modern equivalent asset less deductions for all physical deterioration and all relevant forms of obsolescence and optimisation.

Gross Replacement Cost - The monetary cost of replacing the existing asset with a modern equivalent asset.

Levels of Service - A statement of the performance of the asset in terms that the customer can understand.

Lifecycle Plan - Document defining the standards applied to an asset and detailing the management processes used to deliver those standards.

Public Realm - Publicly owned streets, pathways, right of ways, parks, publicly available open spaces; all areas to which the public has open access.

Road Infrastructure Assets - An authority's portfolio of road assets including roads, segregated footpaths and cycle routes, structures, lighting, traffic management systems, etc. Together they function as a system or network which is intended to be maintained at a specified Level of Service (assessed through performance measures) by the continuing replacement and refurbishment of its assets and elements.

Section 7 Agreement - A Roads Authority and Scottish Water may agree to the provision, management, maintenance or use of their sewers or road drains for the conveyance of water from the surface of a road or surface water from premises and that neither party shall unreasonably refuse to enter into such an agreement or insist on terms or conditions unacceptable to the other party.

Statutory Undertakers - Various companies and agencies with legal rights to carry out works on the road.

18. Appendix A – Maintenance Hierarchy Mainland & Cumbrae

Strategic

Main Distributor

Secondary Distributor

Link and Access Roads

19. Appendix B – Maintenance Hierarchy Arran

Strategic

Main Distributor

Secondary Distributor

Link and Access Roads

20. Appendix C – Carriageway Prioritisation Criteria

The annual carriageway resurfacing programme is developed using WDMs UKPMS Scheme Manager software.

This takes into consideration the following data when determining prioritisation of carriageways for inclusion in the works programme.

The following road condition data sources are used:

Scottish Road Maintenance Condition Survey Data

RoadAI Condition Data

SCRIM

Primary condition data sources utilised for each classification of road are:

A, B & C roads are using SRMCS

U class are using RoadAI

Local Rankings are also included:

Accident Data

Road Hierarchy

Defects

Scheme Manager produces a prioritised list of carriageways in need of maintenance treatment. This includes a determination of the most efficient treatment type i.e. surface treatment, thin surface, or inlay/overlay, considering its condition and lifecycle.

The outputs from Scheme Manager are then compared to the Locality Inspectors annual Condition Assessments to identify any areas that may not have been highlighted through this process.

21. Appendix D – Footway Priority System

North Ayrshire Council - Roads
Footway & Footpath Resurfacing Scheme Priority System

General

The weighting system devised enables the programme of footway & footpath resurfacing schemes to be objective, rated against a number of important criteria.

Scoring System			
Criteria	**Maximum Score**	**Weighting**	**Score**
1. Condition	16	4	64
2. Importance / Accessibility	5	2	10
3. Public Liability Claims / RMS Faults / Complaints	6	1	6
4. Assistance to Other Priorities	10	2	20
		Maximum Total:	**100**

1. Condition

Taken from initial Condition Assessment Score generated during inspection

Condition → / Extent ↓	1 – Acceptable	2 – Safe but poor appearance	3 – Minor deterioration	4 – Major Deterioration
1 – Up to 25%		5	9	13
2 – 25% - 50%		6	10	14
3 – 50% - 75%		7	11	15
4 – 75% - 100%	4	8	12	16

2. Importance / Accessibility

	Score
Footway / Footpath Priority 1 Gritting Route	5
Footway / Footpath Priority 2 Gritting Route	3
Footway / Footpath Priority 3 Gritting Route	2
Other Footway / Footpath	1

3. Public Liability Claims / Fault Reports / Complaints

Score according to the type / source of complaint / fault report / request for service received for the location

- **1 -** Public Complaint or Fault Report resulting in a confirmed defect
- **2 -** Multiple Requests for service or Fault Reports resulting in confirmed defects
- **4 -** Elected Member Complaint or Request for Service
- **6 -** Public Liability Claim

4. Assistance to Other Priorities

Use your own knowledge of the surrounding area to rate the location in relation to:

- **1 -** Shared Cycle / Footways
- **2 -** Adjacent to Local Shops
- **4 -** Adjacent to Schools, Leisure Facilities and Tourist Attractions
- **6 -** Adjacent to Amenity Housing, Residential Care Homes and Medical Centres
- **8 -** Local Bus Route, access to Train Stations and Park & Ride facilities
- **10 -** Town Centre

22. Appendix E – Structures Priority System

Structure Name:											
Date when the scoring is carried out:					Structure Name:						
					Structure	Net score	% of				
		Maximum			Score		total Score				
No.	Factors	Score			Input			Additional comments			
1	Type of Bridge	1	Score 1 if road bridge and 0 if foot bridge	Culverts, Subways which carry road shall be considered as road bridge as per this scoring system. Structures which carry only pedestrians, cyclists and equestrians shall be considered as footbridge.	1	NA					
2	Route Factor	**40**	Score based on NAC route hierachy	Route hierachy	0	0	0%				
				Cat 2 - SPT/ NAC strategic routes - 40							
				Cat 3a - Main distributor routes - 30							
				Cat 3b - secondary distributor routes - 20							
				Any other category - 10							
				Routes serving fewer than 5 properties - 5							
3	HGV Restriction	**20**	Score based on weight capacity	Weight restriction	0	0	0%				
	factor			3 tonnes - 20							
				7.5 to 13 tonnes tonnes - 15							
				18 tonnes - 10							
				26 to 38 tonnes - 5							
				No weight restriction - 0							
4	Condition factor	**10**	Score based on the condition of the bridge	Sliding score based on 0 for very good condition to 10 for poor condition. (10 - (BCI crit/ 10))	0	0	0%				
5	Deterioration factor	**10**	Score based on the rate of deterioration of the structure	Sliding score based on 0 for very slow deterioration to 10 for rapid deterioration	0	0	0%				
6	Pedestrian factor	**30**	Score based on pedestrian usage. Bridges with footways of heavy pedestrian usage shall score a maximum of **30**.	Structures with footways in heavily used urban areas score 30. Score 30 if route is access to a school or railway station. Apply a sliding scale going down to 0 for rural structures without footways.	0	0	0%				
7	Flooding factor	**40**	Score based on the potential for the existing structure to contrubute to flooding	A structure that makes no contribution to flooding risk will score 0. Structures that are know to increase the risk of flooding due to restrictions in width or soffit height will score 30.	0	0	0%				
8	Scour factor	**60**	Score based on risk of collapse due to expose to scour in heavy flow conditions	Risk of collapse of structure due to scouring. Structures which have been deterioted severely because of inadequate scour protection and on verge of collapse score maximum. Scour risk based on a sliding scale.	0	0	0%				
9	Parapet Condition Factor	**15**	Score based on the condition of the parapets	Structures with substandard Parapets with poor conditon will score 15 . Structures with substandard parapets with a 'monitor only' recommendation will score 10. Structures which have parapets to current standards will score 0.	0	0	0%				
10	Parapet Risk Factor	**10**	Score based on risk in the event of a parapet collapse leading to high risk injuries and human casualties.	What is the likelihood of someone getting high risk injury or even death while the parapet is open to use considering the condition of the structure. Risk based on a sliding scale.	0	-5	100%				
11	Delay factor	**20**	Score based on whether existing restrictions such as limited width cause delays at the structure	Structures where delays are caused by width, weight, height or other restrictions such as traffic lights will be given a score higher than zero. Delays less then 2 minutes at peak times will score 10 and longer than 2 minutes will score 20. Score maximum if fire station, railway station or hospital affected by delay.	0	0	0%				
12	Structure Risk factor	**10**	Score based on risk in the event of a Structure collapse leading to high risk injuries and human casualties.	What is the likelihood of someone getting a high risk injury or even death while the structure is open to use considering the condition of the structure. Risk based on a sliding scale.	0	0	0%				
13	Maintenance factor	**30**	Score based on maintenance required to keep the existing structure open.	Score based on known maintenance history and requirement. No maintenance requirement will score 0. Listed structures score 15.	0	0	0%				
14	Diversion factor	**20**	Score based on the length of the diversion route if the structure is closed in an unplanned manner with no finite time limit.	Score based on diversion length. Any diversion equal to or more than 20 miles scores 20. Score 1 for each mile of diversion up to 20. Score 20 if a road closure adversly affects a fire or railway station or hospital. Score 20 if there is no alternative diversion.	0	0	0%				
						-5					

Note maximum score that can be achieved for road bridge= 500

Priority level Chart	**Structure Name:**								
	Date of Scoring:	00-Jan-00							
Priority Level Indicator		**Overall works (500)**		**Structure works (100)**		**Parapet works (70)**		**Scour Protection (60)**	
		Level	Score	Level	Score	Level	Score	Level	Score
No Action Rquired									
Low Priority									
Medium Priority									
High Priority									
Immediate action required									

Note : Works are divided above into three sub categories as each work can be independent and each has its own significance in terms of attention required.