ASSET MANAGEMENT PLAN

ROADS

November 2016

Road Asset Management Plan

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1 Introduction

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

1.1 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 as a whole. Lifecycle planning is used to minimise whole life costs to ensure efficient and effective use of resources.

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

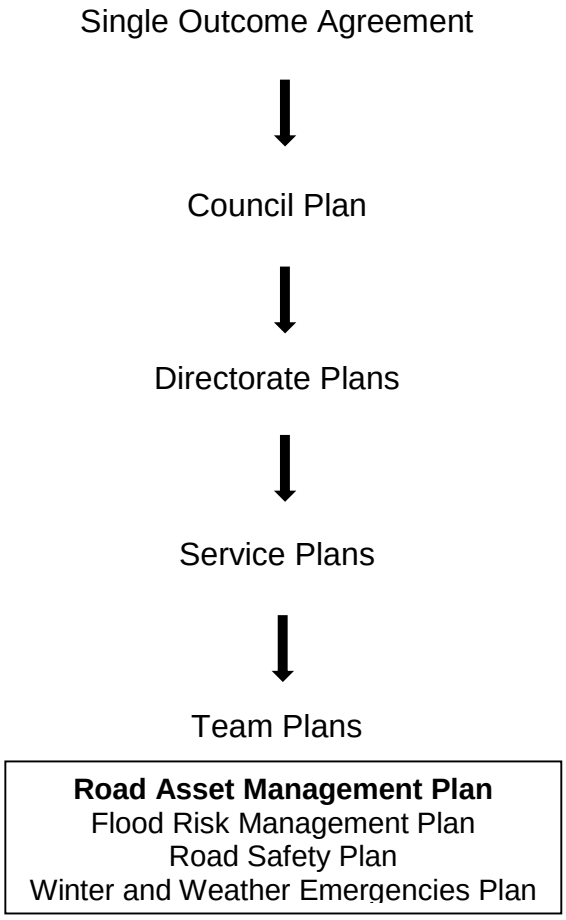
Through prudent asset management, North Ayrshire Council will make best use of available resources in maintaining its road network and associated infrastructure.

1.2 Corporate Asset Management

The Road Asset Management Plan links to the Council's Corporate Asset Management Strategy and assists the Council in its' drive to use our resources more efficiently and effectively.

1.3 Strategic Document Framework

The Road Asset Management Plan sits within a strategic document framework shown in the diagram below:



1.4 Asset Management Planning Documentation

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

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

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 and Options Report – provides a summary of the status of each asset group in meeting service standards and a prediction of condition based on varying investment levels

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

2 Road Asset

2.1 The Road Asset

The Council's adopted road asset is currently made up of:-

Asset	Quantity	Unit
Carriageway – Mainland	870	km
Carriageway – Arran	164	km
Footways/footpaths	1007	km
Bridges & Culverts	396	no.
Car Parks	66	No.
Retaining Walls	34	No.
Street Lighting Columns	22,978	No.
Traffic Signals	72	No. of sets
Vehicle Activated Signs	37	No.
Real Time Passenger Information	21	No.
Non-illuminated Signs	11,937	No.
Illuminated Signs/Bollards	1,234	No.
Pedestrian Barrier	10,647	m
Grit Bins	441	No.
Safety Fences	40,557	m
Street Name Plates	3,523	No.
Bus Shelters	387	No.
Cattle Grids	11	No.
Verge Marker Posts	4,351	No.
Weather Stations	2	No.

A Data Management Plan has been created to record inventory data, storage, updating and validation processes.

2.2 Other Road Assets

There are a number of 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 asset management project due to commence in 2017.

- 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 outwith the adopted road network has been recorded. A methodology for the prioritisation of maintenance on these assets has been 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 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

- 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)

- Trees

3 Customer Consultation

3.1 Customer Consultation

A Roads Service customer survey was undertaken in 2005 and repeated again in 2009 and 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 is perceived to be in decline.

North Ayrshire took part in the National Highways and Transport (NHT) Networks survey in 2015. 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.

To ascertain customer satisfaction regularly, roads specific questions have now been included in the customer surveys that are carried out by our Customer Services. The first survey that includes roads questions commenced in August 2016 and the awaited results will be reviewed upon receipt.

A winter service customer questionnaire was issued in 2013 to ascertain customer satisfaction levels with our winter service provision. This aspect is now included in the Customer Services survey.

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.

North Ayrshire Council has a procedure in place for recording and dealing with complaints. Details of general enquiries are recorded in the Lagan 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.

The Local Transport Strategy 2015-2020 was developed in consultation with a wide range of representatives including public transport operators, economic groups, environmental groups, community groups and health organisations. Following publication of the draft documents, a six-week public consultation process was undertaken. The public consultation was carried out by e-mails sent out to all previous consultees, information and a link to a small questionnaire were provided on the Council's website and draft documents and questionnaires were placed in local libraries and Cunninghame House reception. In addition an advert was published in the Ardrossan & Saltcoats Herald, Arran Banner, Irvine Herald, Largs and Millport Weekly News and the Herald informing of the consultation.

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 new Locality Partnerships for local people within communities; set in North Coast and Cumbrae, Three Towns, Garnock Valley, Arran, Kilwinning and Irvine. This will identify and address local issues, set out priorities for each locality and how they will 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. Consultation is also undertaken through local press releases for traffic orders and proposed road closures.

3.2 Consultation Results

The results of the roads service surveys of 2005, 2009 and 2013 show a decrease in satisfaction particularly in the condition of road and footway surfaces, but an increase in satisfaction in the provision of street lighting. The 2016 National Highways and Transport (NHT) survey shows similar results for satisfaction with road condition but indicates a lower level of satisfaction with street lighting with 70.7% satisfied with street lighting in comparison to 82% through the service survey in 2013. This may be due to the introduction of LED lighting in certain areas which reduce the light spread by concentrating lighting onto the road network.

The winter maintenance policy is reviewed annually to ensure that an effective winter weather service is provided and disruption due to severe winter weather is minimised. 70% of residents surveyed in 2013 indicated that they were satisfied with the winter service provided.

The Roads Service customer survey carried out in 2013 asked respondents to give a priority rating to each of the services that the Roads Service carries out to indicate how important the public perceives each service to be. Maintenance of Roads and Bridges was rated as the most important area for investment by 46% of respondents and 45% of enquiries made were concerning Road and Path maintenance. The results of this survey are included in the April 2014 Customer Information Report.

The results of our Contract specific customer questionnaires are reported to the Senior Manager on an annual basis in order that areas of concern can be monitored and addressed in pursuit of continuous improvement in the service delivered. 89.6% of customers are satisfied with the overall result, with 71% of customers stating that the service is good or excellent. Issues raised through this process are discussed at the Network weekly progress meetings and with appropriate site personnel. The results of this survey are included in the April 2016 Customer Information Report.

The results of the National Highways and Transport (NHT) Public Satisfaction Survey can be found on the NHT website. A comparison with the roads service surveys is included in the April 2016 Customer Information Report and confirms the results of previous surveys carried out by the roads service.

4 Future Demands

4.1 Asset Growth

Asset growth is generally due to the adoption of new development sites.

The carriageway asset has increased by 0.7% over the last 5 years, which has resulted in an additional 6.8 km of carriageway to be inspected and maintained. Due to the downturn in new housing developments, it is expected that carriageway asset growth will decrease to approximately 0.15% per year. Growth of our footways over the same period was not recorded but is estimated (based on carriageway growth and the assumption that there is a footway on either side) to be approximately 14 km representing a 1.4% increase over the same 5-year period, this is expected to decrease to 0.3% per year.

The number of lighting columns has increased by approximately 2.2% over the last 3 years. This rate of growth 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. A number of driver feedback signs are provided, all of which have been installed in the last 7 years.

4.2 Traffic Growth

Traffic volumes are recorded at various permanent and temporary traffic counter sites across North Ayrshire. Although there are variations in volumes on some routes, these are mainly as a result of long-term closures due to major works and the resulting changes in traffic patterns. It is anticipated that there will be an increase in traffic locally in the next few years as a result of future development projects that will bring increasing numbers of shoppers and visitors to the area.

Traffic patterns altered with the opening of the 3 Towns by-pass in 2005 and it is anticipated that there will be another shift in traffic patterns in future years. The construction phase of the proposed Dalry by-pass will result in diversions having to be put in place to allow the work to be carried out. This will lead to increased traffic volumes travelling on the surrounding local road network. Since the opening of the 3 Towns bypass the B714 has deteriorated significantly as a result of increased traffic. This was exacerbated further when traffic management was put in place in Kilwinning and heavy traffic used the B714 as an alternative route and would be repeated as a result of any work carried out to realign the A737. Improvement works to realign and widen the B714 are scheduled to commence in 2017.

There are currently no figures available for traffic volumes on the Island of Arran; however, there is an expectation of increasing volumes of traffic due to the influx of tourists, in private cars and bus tours throughout the summer months further contributing to the deterioration of Arran's roads. Traffic counters have been installed on the Island to assess traffic volumes; these will provide figures for analysis of seasonal fluctuations and heavily trafficked routes. There are projected figures for increases in timber transport calculated from predicted volumes of timber to be felled

in future years. It is predicted that haulage traffic will increase by 39% between 2012-2016 and 2017-2021.

Road Equivalent Tariff (RET) has now been 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 as a result of this as analysis of traffic counter information recorded on the Island has not yet been completed. However, anecdotal information suggests a significant increase.

4.3 Traffic Composition

There are no changes expected in traffic composition on the Mainland in the foreseeable future.

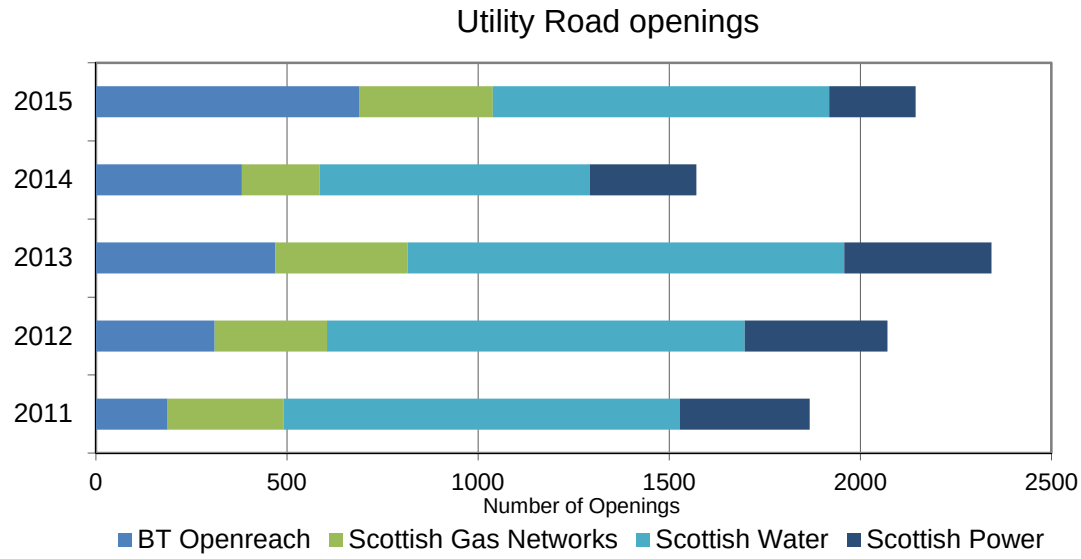
However, there are a number of rural routes where constant maintenance is required due to heavy traffic causing damage to roads of sub-standard construction. A survey undertaken on a number of our C class routes established actual volumes of heavy traffic. It was determined that the C80 (Whiskey Bond 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 (Class OGV1) 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 account for only 55% of the vehicular traffic using the C80. This study has highlighted the need to determine appropriate treatment options for these routes to take into account the type and volume of traffic using them; or to look at alternative routes, if possible, for this traffic.

4.4 Utilities

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 Council enforces a 2-year guarantee on these works.

The Office of the Scottish Road Works Commissioner is currently undertaking a review of the long term damage that can result from utility activity. This includes a review of the current 2-year guarantee period.

Statutory Undertakers Road Openings



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.

4.5 Environmental Conditions

Environmental factors contribute to the demands placed on the road asset.

- Climate change – changeable weather conditions with severe weather extremes becoming more common result in rapid deterioration of the road network
- Winter weather – harsh winter weather has caused significant damage to road surfaces
- Flooding – flooding is becoming more common due to prolonged periods of intense rainfall with road drainage unable to cope. This further leads to rapid deterioration on rural roads where there is little or no formal drainage in place.

4.6 Changes in Legislation

Legislation can lead to increased demand on Local Authorities' resources in managing their road assets.

- New Roads and Street Works Act 1991 and associated Codes of Practice, Transport Scotland Act 2005 and subsequent amendments.
- Flood Risk Management (Scotland) Act 2009
- Disabled Persons Parking Places (Scotland) 2009
- Designing Streets Manual for Scotland
- Potential for 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

- Traffic Signs Regulations and General Directions 2016

4.7 Local Transport Strategy

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.

5 Levels of Service

5.1 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
	Response times to Category 2 defects	7 days
	Response times to Category 3 defects	30 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	50%
	% of Sample B Inspections completed against number of potential inspections	60%
	% of Sample C Inspections completed against number of potential inspections	85%
Condition	Maintain RCI at current level	37.8%
	Maintain condition of A Class Roads at current levels	35.6%
	Maintain condition of B Class Roads at current levels	33.6%
	Maintain condition of C Class Roads at current levels	48.7%
	Maintain condition of U Class Roads at current levels	35.4%
	Footways	
Safety	Response times to Category 1 defects	4 hours
	Response times to Category 2 defects	7 days
	Response times to Category 3 defects	30 days
	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
	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	11.4%
Service	**Measure**	**Target Standard**
	Street Lighting	
Safety	% of street lanterns with a valid Electrical Test Certificate	94%
Condition	% of lamps restored to working condition within 7 days	92%
	% of lanterns dark on any one evening	1.5%
	% of columns that exceed their Expected Service Life should be no more than	15%
	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	85
	Target figure for Critical Bridge Stock Indicator	80
	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

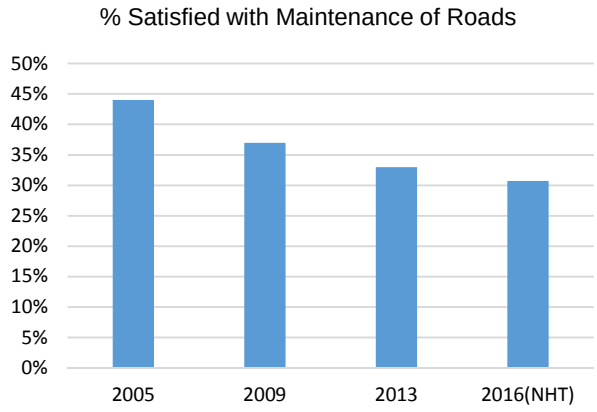
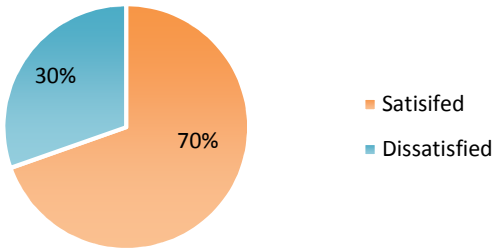
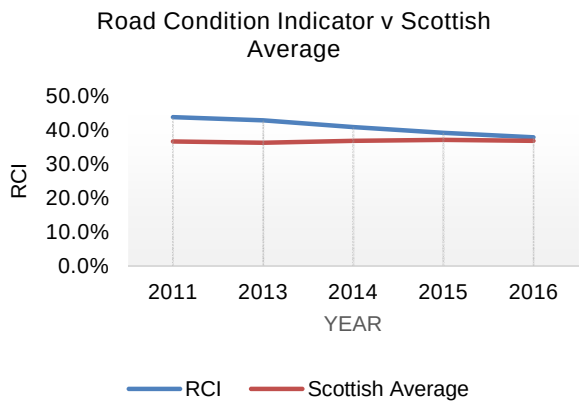
5.2 Road Condition

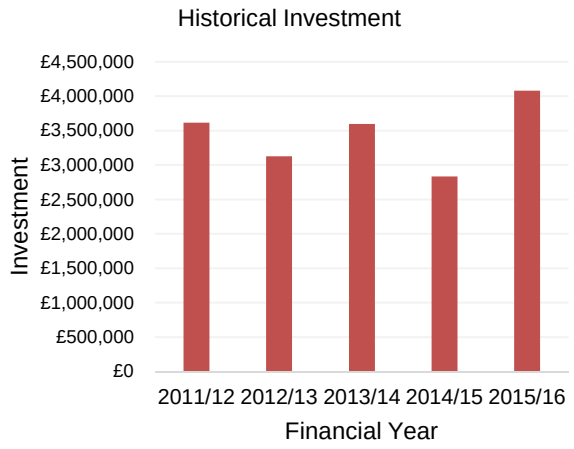
The table below shows the Road Condition Indicators for North Ayrshire Council reported as Statutory Performance Indicators for 2009-2011 to 2014-2016 and the comparison with the Scottish average. The methodology was revised in 2012 to include a 4-year unclassified average. Previous years RCIs were re-calculated to provide trend data.

RCI Comparison to Scottish average								
	2009-11 Reported	**2009-11 Revised**	**2010-12 Reported**	**2010-12 Revised**	**2011-13**	**2012-14**	**2013-15**	**2014-16**
North Ayrshire	47.9	43.7	46.4	43.8	42.7	40.8	39.1	37.8
Scottish average	37.9	36.5	36.1	36.4	36.2	36.7	37.0	36.7
Comparison to Scottish average	+10%	+7.2%	+10.3%	+7.4%	+6.5%	+4.1%	+2.1%	+1.1%
Overall Ranking	27th	23rd	26th	26th	25th	21st	20th	20th

5.3 Asset Group Status Reports

The status of the major asset groups that make up the road asset as at April 2016 are summarised in the following pages:-

Carriageways	Statistics	Commentary
The Asset	North Ayrshire Council has 1034 km of public road network. Growth of 0.7% over the last 5 years. Growth of 6.8 km over the last five years.	Predicted growth over the next 5 years of 0.15% per year. Predicted increase in road length of 7.8 km over the next 5 years.
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 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 winter survey carried out in 2013 indicates that 70% of the community are satisfied with the winter service provided.
Condition		SRMCS results in 2014/16 indicate that 37.8% of our carriageways may require attention – more than 390km. Our RCI has improved year on year over the last 5 years, decreasing by 5.9%. Due to a revised method of calculating the RCI to include 4 years of unclassified road figures, the RCI has improved by 10.1% with regard to published results. The Scottish Average has increased over the same period by 0.2% to 36.7%.

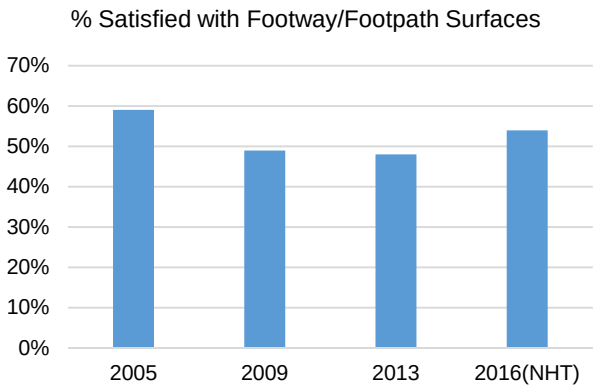
Investment Historical		These figures include capital and revenue investment in planned maintenance works. These works include carriageway resurfacing and realignments, planned carriageway patching, surface dressing and micro surfacing works. Investment in 2015/16 includes £924,870 SPT funding.
Valuation	Gross Replacement Cost (GRC) £906 million.	Cost to replace the carriageway asset with an equivalent new asset.
	Annualised Depreciation Cost (ADC) is currently estimated to be £9.7 million.	Estimated annual depreciation in the carriageway asset if no maintenance is carried out.
	Steady State figure £3.3million	Cost per year to maintain the current Road Condition Indicator (RCI). (1)
	Headline backlog figure is £30.9million.	Budget required to remove all defects in one year.
Planned Future Investment	It is calculated that £9.7million 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 36% for materials and transport. No distinction is made between capital or major revenue funding.
Forward Works Programme	The 2016/17 roads programme for Arran was identified using Horizons which uses condition information and our identified community priorities to optimise investment available. The programme of works on the Mainland was identified using our prioritisation matrix which produces a strategic list of priorities for investment.	Locations identified are subject to continual re-assessment. For the 2017-18 programme, Horizons will be utilised to identify the optimum strategy for long term planning for road maintenance which maximises budget efficiency for both Arran and the Mainland.

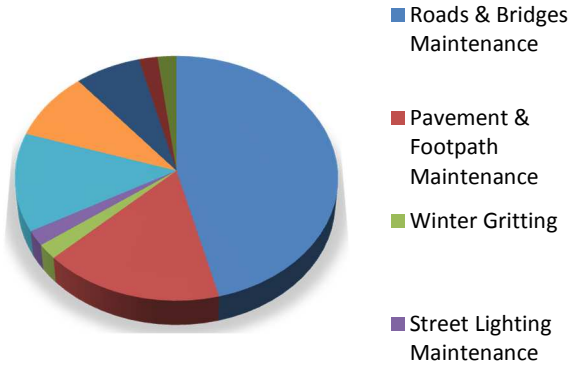
(1) The Steady State calculation is based on investment required to ensure carriageways currently in amber condition do not deteriorate to red condition, and carriageways currently in good condition do not deteriorate to requiring maintenance treatment. This figure does not include treating all carriageways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

<table>
<tr><th>Footways</th><th>Statistics</th><th>Commentary</th></tr>
<tr><td>The Asset</td><td>North Ayrshire Council has 1007 km of footway/footpath network.

Estimated growth of 1.4% over the last 5 years.

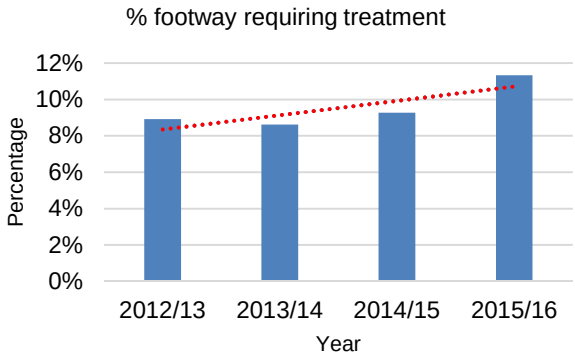
Estimated an extra 14 km of footway to be maintained.</td><td>Predicted growth over the next 5 years of 0.3% per year.

Predicted increase in footway length of 15 km over the next 5 years.</td></tr>
<tr><td>Customer Expectations</td><td> 

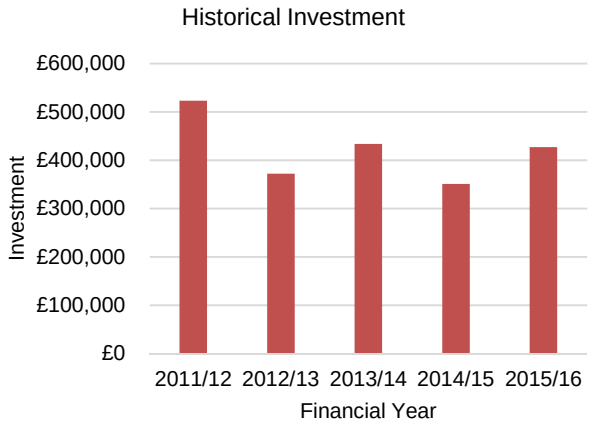

</td><td>Roads Services customer surveys carried out in 2005, 2009 and repeated in 2013 show a decrease in satisfaction with the maintenance of footways and footpaths. The NHT survey indicates that this increased to 54% of respondents satisfied with the condition of footways.

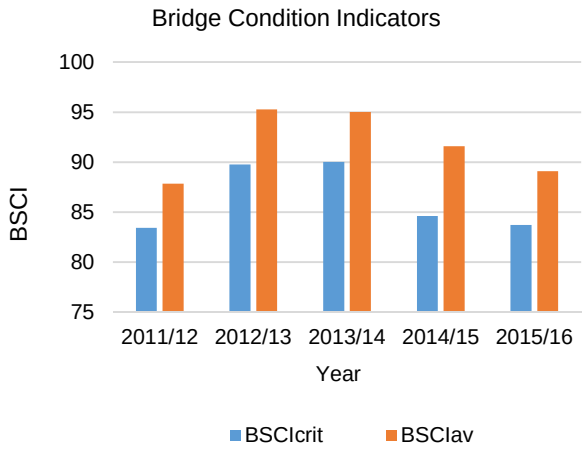
Footways are second only to roads and bridges maintenance as customer investment priorities, with 17% indicating that this should be a priority for service investment.

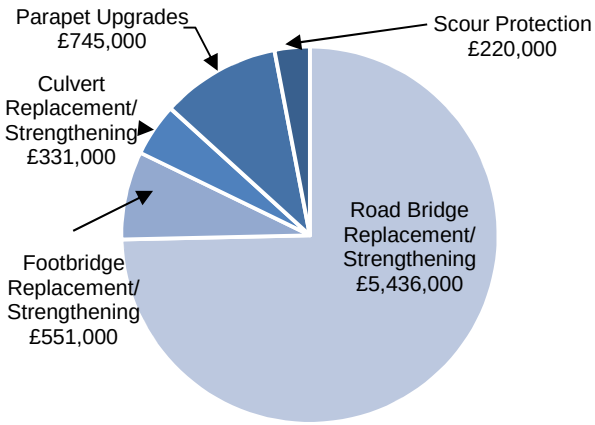
Customer Priorities

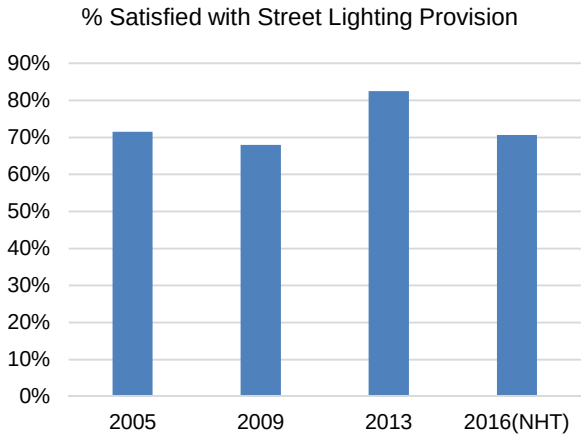
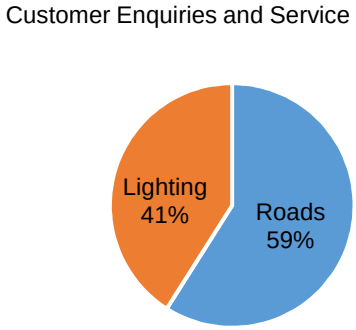
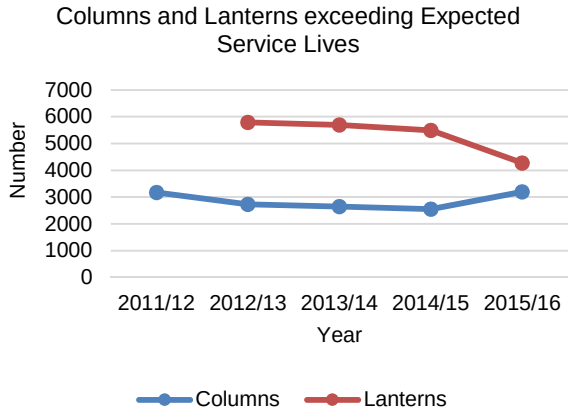
<table>
<tr><td>Roads & Bridges Maintenance</td><td>46%</td></tr>
<tr><td>Pavement & Footpath Maintenance</td><td>17%</td></tr>
<tr><td>Winter Gritting</td><td>2%</td></tr>
<tr><td>Street Lighting Maintenance</td><td>2%</td></tr>
<tr><td>Reduction of Congestion/Traffic Management</td><td>13%</td></tr>
<tr><td>Safety Measures/Traffic Calming</td><td>9%</td></tr>
<tr><td>Flood Prevention</td><td>7%</td></tr>
<tr><td>Maintenance of Public Car Parks</td><td>2%</td></tr>
<tr><td>Road Safety Training</td><td>2%</td></tr>
</table></td></tr>
<tr><td>Condition</td><td> 
</td><td>A condition survey of the whole footway is completed annually. Assessments are undertaken by the Road Inspectors as part of their inspection programme.

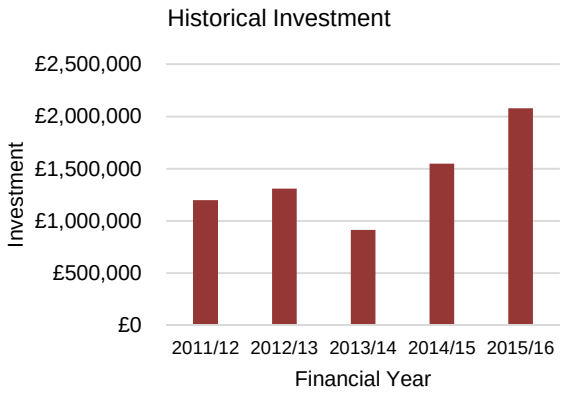
Condition assessments carried out on the footway network indicate that footway condition is deteriorating with 11.3% of our footway/footpath network is currently in need of maintenance treatment – approximately 114km.</td></tr>
</table>

Investment Historical		Planned footway maintenance includes footway resurfacing, slurry seal, planned footway patching and micro surfacing.
Valuation	Gross Replacement Cost (GRC) is £137million	Cost to replace the footway asset with an equivalent new asset.
	Annualised Depreciation Cost (ADC) is currently estimated to be £1.9million	Estimated annual depreciation in the footway asset if no maintenance is carried out.
Planned Future Investment	It is calculated that £1.9 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: 254 Road Bridges 34 Footbridges 34 Retaining Walls 101 Culverts 7 Subways	The figure for the length of retaining walls is estimated. There are two flood protection schemes currently being developed for Upper Garnock Valley 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. To determine customer satisfaction regularly, roads specific questions have now been included in the customer surveys that are carried out by our Customer Services. The first survey that includes roads questions commenced in August 2016 and the awaited results will be reviewed upon receipt.
Condition		The Bridge Condition Indicators require that Principal Inspections (PIs) are undertaken over a 6 year cycle. 64% of PIs had been completed as at 31st March 2016. Additional temporary resource has been provided to ensure PIs will be up-to-date by 31st March 2017. A cycle of PIs enabling completion over 6 years will then commence and will be facilitated by the planned strengthening of the existing Structures Team. General Inspections (GIs) are undertaken 2 yearly. These are slightly behind schedule with 80% completion as at 31st March 2016.

Investment Historical		These figures include revenue expenditure only. There was no capital investment in Structures for the period shown. The revenue budget for 2015/16 was £135,000. However, due to costs of procuring external support to undertake Principal Inspections, the maintenance expenditure during 2015/16 was reduced to £81,320.
Valuation	Gross Replacement Cost (GRC) is £114,707,520	Cost to replace the structures asset with an equivalent new asset.
	Annualised Depreciation Cost (ADC) is currently estimated to be £869,825	Cost per year to maintain the structures asset in its current condition.
Planned Future Investment	Estimated Outstanding Maintenance Work Required 	Value of outstanding maintenance work for the Structures asset is estimated to be £7.3million. This estimate is based on the inspections that have been carried out to date and may rise as inspection of all structures is completed. 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. The Revenue budget is approx. £135,000 per year. Capital investment of £560,000/year has been agreed from 2016/17 to 2022/23.
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. A Capital programme has been identified for 2016/17 and 2017/18.	The revenue programme is based on priorities from identified maintenance work, but 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 23,339 No. of columns 22,978 Over the last 3 years the no. of luminaires has increased by 887 reflecting a rise of 3.9% per annum and the no. of lighting columns has increased by 497; a rise of 2.2%.	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.
Customer Expectations	 	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. In 2015/16, 41% of enquiries and service requests recorded for the Service were regarding Street Lighting. This is a decrease of 10% over the last 3 years. This may be as a result of reduced numbers of failures due to longer life expectancy from LED.
Condition		The number of lanterns exceeding expected service life was not recorded for 2011/12. The number exceeding expected service life has decreased by 26% since 2012/13. The increase in the number of columns exceeding service life may be affected by estimated historic installation date records during IDC Irvine new town development leading to a higher exceeded life group than normal moving into affected date ranges. The value remains under the expected performance target. A SCOTS exercise to further refine the life expectancy of L.A. cable network is underway

Investment Historical		Level of historic investment reflects the ongoing £1m approx. required annually to maintain our lighting infrastructure at status quo across the network. This figure does not take into account increasing material and construction costs. An increase in investment over 2014/15 & 15/16 is due to a major spend to save energy initiative to introduce LED lanterns into approx. 60% of the network which is supportable. This will result in an energy efficiency saving of an estimated £570k per year.
Valuation	Gross Replacement Cost (GRC) is £37.8million	Cost to replace the lighting asset with an equivalent new asset.
	Annualised Depreciation Cost (ADC) is currently estimated to be £0.95million	Cost per year to maintain the lighting asset in its current condition.
Planned Future Investment	Capital Investment 2015/16 - £2,654,000 2016/17 - £2,222,000 2017/18 - £1,000,000 2018/19 onwards - £1,000,000	The additional spend to save investment is due to be completed in 2016/17 reducing investment thereafter to the ongoing £1M approx. annual investment to maintain the lighting infrastructure at status quo.
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.

6 Financial Summary

6.1 Historical Expenditure

Historical expenditure on the Road Asset over the last 5 years is shown in the table below:

Asset	Works	11/12 £	12/13 £	13/14 £	14/15 £	15/16 £
Carriageways	Reactive	1,405,094	1,111,992	1,550,054	1,533,551	1,157,468
	Routine	298,486	461,141	465,303	433,372	443,273
	Planned	3,614,988	[1]3,429,444	3,595,400	2,835,678	[2]4,082,053
Footways	Planned	523,401	372,348	433,766	350,787	427,042
Winter Maintenance		769,629	1,272,039	679,285	955,332	860,897
Structures		184,182	157,251	324,252	163,586	[3]81,320
Lighting (excluding energy costs)	Cyclic	89,900	118,678	279,531	66,522	194,814
	Reactive	308,352	446,028	451,273	286,186	325,334
	Planned	1,198,046	1,308,036	915,348	1,548,886	[4]2,078,355

[1]Planned expenditure figure includes investment in planned carriageway drainage works.

[2]Planned expenditure figure includes SPT funding of £925k for improvement works on the Island of Arran. There is also an increase in patching works carried out internally using the Multihog, approximately £280k.

[3]Reduced spend on structures maintenance is as a result of one off expenditure required to undertake Principal Inspections.

[4] Increased spend includes planned programmed invest to save bulk lantern replacements which will continue across 2016/17 before levelling back out at pre 2014/15 levels.

Investment in the above asset groups in 2015/16 reflects approximately 49.7% of estimated annualised depreciation. 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.

The severe winter weather experienced in Arran and the North Coast in March 2013 impacted significantly on winter maintenance costs for 2012/13. Severe weather conditions further result in the road surfaces deteriorating more rapidly than would normally be expected due to the freeze-thaw process.

6.2 Asset Valuation

As at April 2016, the Roads asset is valued as follows:

Asset Type	Gross Replacement Cost (£'000)	Depreciated Replacement Cost (£'000)	Annualised Depreciation Cost (£'000)
Carriageways	£906,049	£794,482	£9,751
Footways	£136,889	£101,410	£1,909
Structures	£114,708	£106,958	£870
Lighting	£37,817	£22,186	£949
Street Furniture	£17,867	£8,922	£878
Traffic Management Systems	£3,215	£2,258	£132
Land	£226,635		
TOTAL	**£1,443,178**	**£1,036,216**	**£14,489**

The roads infrastructure is currently estimated to have a value of approximately £1,443 million. Information regarding the valuation is discussed in the Roads Asset Valuation Report.

6.3 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 2013 identified that the budget required to remove all carriageway defects in 1 year in North Ayrshire was £34.7million. The backlog figure was re-calculated again in 2015.

Backlog figures for North Ayrshire Council

Authority	Network Length (km)	Headline Backlog				
		2011	2011 Revised	2013	2015	% Change 2011 - 2015
North Ayrshire Council	1,018[1]	£49,703,894	£40,115,791	£34,660,574	£30,944,000	-23%
Scotland	52,272	£1,729,129,158	£2,257,845,935	£2,076,432,440	£2,106,000,000	-7%

[1]Backlog figures have been calculated on a network length of 1018 km as this was the recorded length in 2009 when the first headline backlog figures were calculated.

To give a comparison between 2011 and 2013 backlog figures, the 2011 figure was re-calculated using the updated network dimensions and rate data as for 2013. The reduction in RCI from 47.9% to 40.8% in 2015 is reflected in a reduced backlog figure.

There has been a further improvement in our RCI for 2016 to 37.8% which may result in a further reduction in future backlog calculations.

6.4 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**.**

Asset	**Works**	**£'000**			**Long Term Funding £'000**
		2016/17	**2017/18**	**2018/19**	**Y3-Y10 pa**
Carriageways	Reactive	£1,300	£1,300	£1,300	£1,300
	Planned	£3,200	£3,200	£3,200	£3,200
Footways	Reactive	£90	£90	£90	£90
	Planned	£400	£400	£400	£400
Structures	Reactive	£135	£135	£135	£135
	Planned	£560	£560	£560	£560
Street Lighting	Energy Costs	£571	£532	£554	Based on current energy supplier prices. Long term market prices are unpredictable
	Cyclic	£120	£108	£105	£105
	Reactive	£239	£200	£200	£200
	Planned	£3,057	£1,000	£1,000	£1,000
Totals:		**£9,672**	**£7,525**	**£7,544**	**£6,990 + Energy costs**

7 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 5 to be delivered.

Detailed information on anticipated outcomes of alternative strategies can be found in the Annual Status and Options Report.

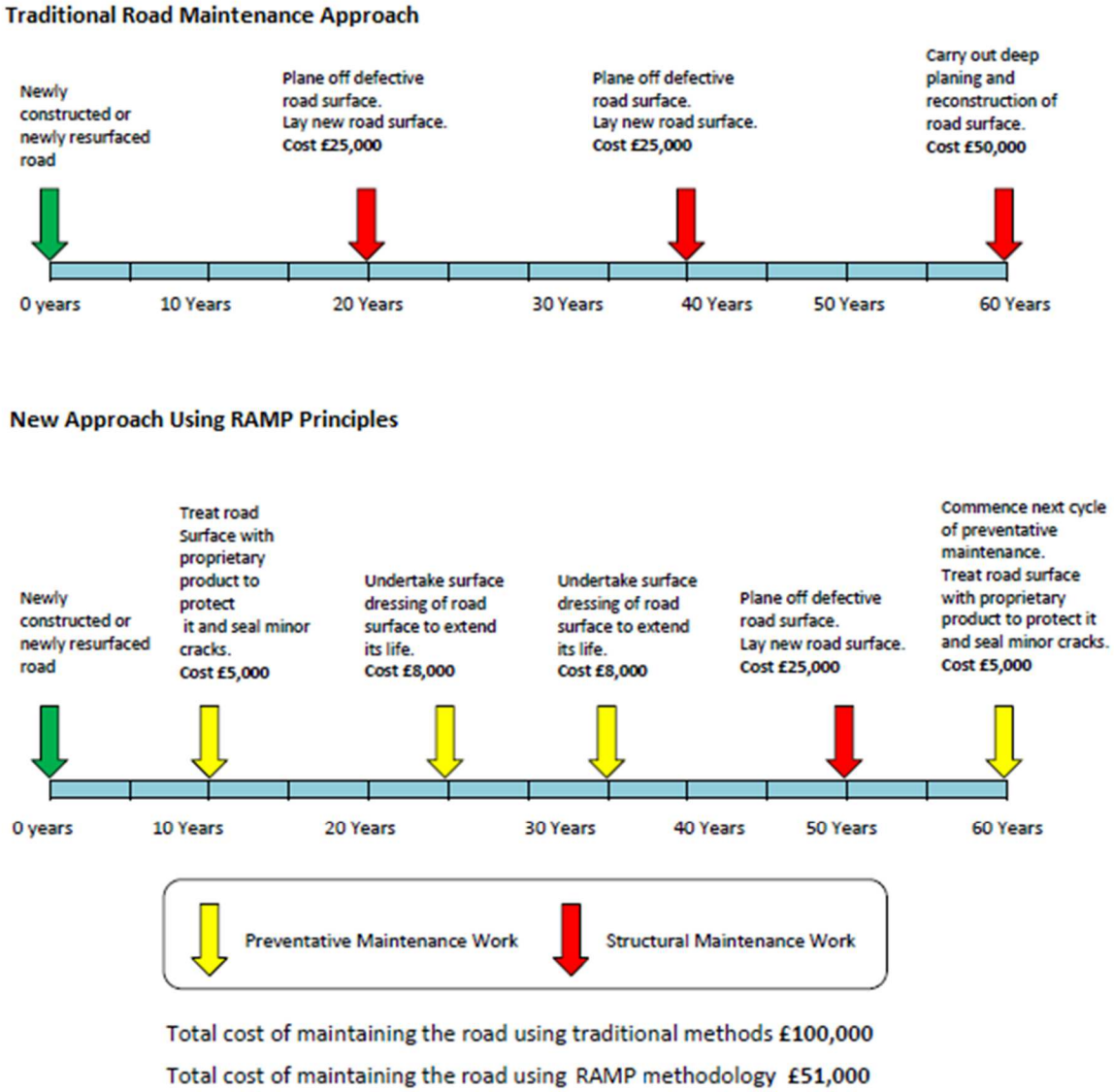
Investment between Asset Types

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

- Carriageways: level of investment maintained at similar levels
- Footways: level of investment maintained at similar levels
- Structures: level of investment increased from 2016/17 to enable a programme of improvements. This is expected to remain steady until 2022/23
- Street lighting; level of investment increased as part of a 'spend to save' initiative to introduce modern efficient LED lighting

Carriageways

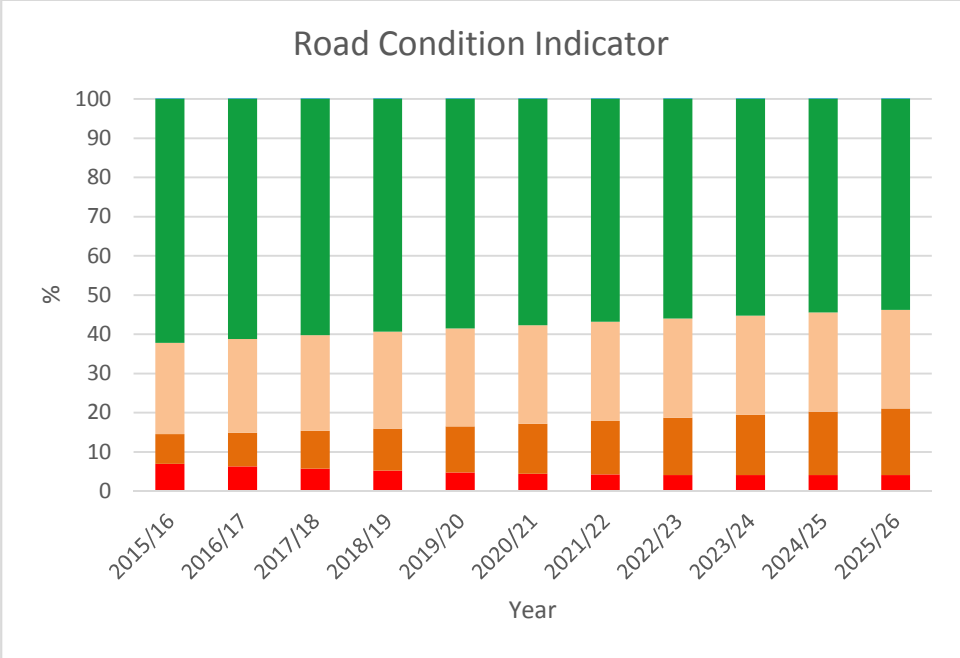
The investment strategy for carriageways is to optimise investment by using life cycle planning to undertake targeted improvements to ensure that efficiency of spend is maximised. This will increase investment in lower cost treatments, although investment will also require to continue in higher cost 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 funding available currently will not be sufficient to improve overall road condition, however, the strategy is to minimise deterioration by optimising available investment in order 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 projected to result in deterioration over the next 10 years resulting in the percentage of roads in need of maintenance treatment increasing to 46.2%. However actions being taken to prevent this are in place utilising the Horizons long term planning resource which looks at whole life costs. Further actions are also detailed within the Roads Improvement Plan. An annual programme of planned permanent patching will be undertaken to minimise deterioration in overall road condition.

Horizons utilises prioritisation data in addition to Scottish Road Maintenance Condition survey data to target investment for long term planning. Carriageway prioritisation data is included at Appendix C.



Horizons, a visualised asset management system, is currently being used to determine a long term investment programme. This takes account of road condition, deterioration rates based on historical data for our road network and prioritisation criteria established to meet Council priorities. It uses life cycle planning to allocate treatments efficiently making optimum use of the available budget.

Expenditure on routine repairs is expected to stay the same. The investment on a Multihog machine which enables first time permanent patching repairs to be carried out by general patching squads is expected to reduce expenditure on reactive repairs as repeated return visits are reduced.

Footways

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

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 6mm dense 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

There has been no capital allocation for the structures asset for a number of years, with the exception of specific allocations for major repairs or new assets. A capital budget has now been allocated to the structures asset from 2016/17 and is expected to be in place until 2022/23. This will enable a programme of strengthening and replacement to be put in place.

The following table contains the current list of locations and estimates for strengthening and upgrade works required.

Strengthening Works - Road Bridges			
C57	Garnock Bridge	C57-40	256,000.00
C6	Millburn Bridge	C6-5	65,000.00
C79	St. Brides Bridge	C79-10	150,000.00
B714	Lynn Bridge	B714-20	1,080,000.00
U54	Seven Acres Mill Bridge	U54-30	270,000.00
C99	Threadmill Bridge	C99-05	85,000.00
U16	Dalgarven Mill Bridge	U16-10	80,000.00
C99	Dusk Water	C99-30	175,000.00
UNC	Corriegils Bridge	UNC.AA - 410	130,000.00
UNC	Halketburn Road	UNC TS-210	165,000.00
B779	Nethermains Bridge	B779-10	
B7081	Annick Water Bridge	B7081-10	80,000.00

Strengthening Works - Road Bridges			
B779	Nethermains Bridge	B779-10	160,000.00
A760	Maybole Bridge	A760-50	50,000
B769	Annick Water Bridge	B769-21	20,000.00
A736	Bungle Burn Bridge	A736-60	230,000.00
C99	Blair Bridge	C99-40	40,000.00
B777	Kirkland Bridge,	B777-40	2,400,000.00
Parapet Upgrade Work - Road Bridges			
C56	Culvert West of Flashwood	C56-65	10,000.00
U32	Highfield - Longbar	U32-10	10,000.00
B706	Burnhouse Bridge	B706-070	15,000.00
A71	Dreghorn Footbridge	A71-60	135,000.00
C67	Tandlehill Bridge	C67-30	10,000.00
UNC	Milton, over Garnock	UNC NM-20	150,000.00
UNC	Milton, Millside Bridge	UNC NM-30	18,000.00
UNC	Garnock View	UNC TG-230	90,000.00
U2	Armsheugh No. 1	U2-10	7,000.00
UNC	Newton, Lochranza	UNC.AA-610	20,000.00
UNC	U/Pass, Glenbervie	UNC.TK-460	85,000.00
Scour Protection Works - Road Bridges			
B730	Holmsford Bridge	B730-70	20,000.00
	Estimated - various		200,000.00
Strengthening Works - Footbridges			
UNC XA	Barrie Terrace, Ardrossan	UNC XA-110	121,000.00
UNC	Kerelaw Castle	UNC.XS-320	100,000.00
UNC	FB Multi Storey Irvine	UNC.XI-110	75,000.00
UNC	Low Green, Irvine	UNC.XI-060	60,000.00
UNC	Merryvale, Irvine	UNC.XI-050	60,000.00
Support Upgrade Works - Footbridges			
A71	Dreghorn Footbridge	A71-60	135,000.00
B7080	Crammond Way	B7080-120	50,000.00
B7080	Fencedyke	B7080-130	50,000.00
Parapet Upgrade Works			
UNC TK	Glenbervie Drive Underpass	UNC TK-460	112,000.00
UNC	Low Green Retaining Wall		75,000.00

Strengthening Works - Culverts			
B777	Gillies Hill Culvert	B777-13	145,000.00
B777	Lochend Bridge	B777-05	71,000.00
B784	Hardcroft Bridge	B784-010	115,000.00
Parapet Upgrade Works - Culverts			
C131	Bannoch Bridge	C131-10	10,000.00
C87	Highgate Bridge	C87-30	7,000.00

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 14 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 matrix to profile deteriorated, age expired and energy improvement opportunities. The short term increased Capital investment in energy efficient lantern replacements will reduce the impact of energy increases, carbon tariffs and unplanned reactive repairs on future revenue budgets, while allowing capital investment to be prioritised in those locations and infrastructure which cannot support in situ lantern replacements without compromising the lighting design standards.

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

The Capital funding will continue to be required to support replacement of deteriorated infrastructure on those locations which have currently been identified for energy savings conversions, as those supporting networks themselves become deteriorated and age expired.

8 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.

8.1 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.

8.2 Risk Identification

The Roads management team identifies significant strategic risks impacting upon the priorities outlined in the Roads Operational Plan.

8.3 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. Assessment matrices for street lighting for lighting have also been developed to categorise lighting defects. There is a long established process in place to risk assess and prioritise

8.4 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.

8.5 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.

8.6 Risk Register

Top level risks for Place Directorate are contained within the Directorate Plan. The top level risk associated with roads is outlined below.

Issue	Current Controls	Directorate Plan Action
Failure to maintain assets to an acceptable standard	Asset management plans and supporting investment programmes are established and in place.	**C07** Continue to develop and implement actions arising from the Roads Asset Management Plan

A specific risk register for road assets has been produced. However, the major risks associated with Roads are recorded in the following table:

Risk	Controls	Monitoring Process
Less resources leading to a reduction in levels of service and an increase in complaints and legal claims	Inspection frequency Categorisation of defects using risk assessment process 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	Ensure control procedures are kept up-to-date 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	Ensure winter maintenance policy has been reviewed. Ensure operatives are fully trained in winter procedures.	Monitor and review winter maintenance policy annually. Constant review of measures in place throughout the winter period.

9 Action Plan

An action plan has been created to support this plan and is included at Appendix A. Road asset management actions are also recorded in Covalent.

10 Management & Control of the Plan

10.1 Introduction

Throughout this RAMP, issues and corresponding improvement actions have been established. These actions will need to be prioritised, programmed, resourced and implemented in order for an asset management approach to be fully introduced. This section states who will be responsible for the management of the Road Asset Management Plan.

10.2 Responsibility

The following officers are responsible for the delivery of the Road Asset Management Plan.

Post	Name	Role
Cabinet		Approval of RAMP
Executive Director	C Hatton	Approval of RAMP
Head of Commercial Services	R McCutcheon	Approval of RAMP (annually)
Team Manager – Traffic & Transportation	C Forsyth	Implementation of the RAM Action Plan
Team Manager - Network	C Dempster	Implementation of the RAM Action Plan
Team Manager - Lighting	G Wilson	Implementation of the RAM Action Plan - Lighting Updating the RAMP - Lighting Reporting on Progress - Lighting
Asset Management Officer	S Macfadyen	Implementation of the RAM Action Plan Updating the RAMP Reporting on Progress
Asset Owner-Carriageways	S Macfadyen	Updating Financial Information, Ensuring Implementation of Improvement Actions
Asset Owner-Footways/Cycleways	S Macfadyen	
Asset Owner-Structures	A Cowley	
Asset Owner-Lighting	G Wilson	
Asset Owner-Traffic	A Crawford	

GLOSSARY

ABBREVIATIONS

The following abbreviations are used in this plan:

Abb.	Definition
ACoP	**Approved Code of Practice**
ADC	**Annualised Depreciated Cost**
AMP	**Asset Management Plan**
BCI	**Bridge Condition Indicator**
BSClav	**Average Bridge Stock Condition Indicator**
BSClcrit	**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	**Road Asset Management Plan**
RAUC(S)	**Roads Authorities and Utilities Committee (Scotland)**
RCI	**Road Condition Indicator**
RMS	**Roads Management System**
SCOTS	**Society of Chief Officers of Transportation in Scotland**

Abb.	Definition
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**

Main Definitions The following terms are used in this plan:

Term	Definition
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 as a whole 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.

APPENDIX A

North Ayrshire Council
Comhairle Siorrachd Àir a Tuath

ACTION PLAN

ROADS

November 2016

The following actions have been identified as the Road Asset Management improvement actions for 2016/17 and are recorded on Covalent.

RAMP ACTION	DESCRIPTION	DUE DATE	EXPECTED OUTCOME	COMMENT
16/17 A1	Develop and implement the Horizons Visualised Asset Management System to develop annual programme. Develop 5 year long term future strategies for carriageways.	March 2017 September 2017	● ●	Long term investment plans currently being prepared
16/17 A2	Develop a planned approach for reduction of lighting of signs and bollards	December 2017	●	Resource to undertake risk review being facilitated as part of refreshed employee structure
16/17 A3	Develop a planned renewal programme for all road signage	December 2017	●	Collection of condition information to inform renewal programme will be based on revised inspection routes implemented as part of the refreshed employee structure
16/17 A4	Undertake a comprehensive review of structures inspection procedures and introduce an improved management process	March 2017	●	A documented procedure is being prepared for carrying out inspections
16/17 A5	Develop and implement a strategy for inspection and maintenance of additional assets	December 2017	●	Implementation will be based on revised inspection routes implemented as part of the refreshed employee structure
16/17 A6	Develop a procedure for the maintenance and repair of electronic signage	March 2017	●	Requirements to be recorded and the most cost effective method for maintenance to be determined
16/17 A7	Develop a strategy for protective painting of structural steelwork	March 2017	●	Identification of structures requiring painting will inform a strategy for planned works
16/17 A8	Improve Roads Service customer information available on the website	December 2017	●	To be facilitated through creation of Publicity and Communications Officer

RAMP ACTION	DESCRIPTION	DUE DATE	EXPECTED OUTCOME	COMMENT
16/17 A9	Develop a strategy for identifying structures at risk of scour	December 2017	●	Initial investigations will be undertaken to inform the strategy

The following actions have been identified as those required to improve the extent and management of inventory data. Accurate data is essential to inform maintenance requirements and undertake lifecycle planning in order to maximise efficiency and effectiveness of investment. These are contained within the Data Management Plan.

ACTION	DESCRIPTION	DUE DATE	EXPECTED OUTCOME	COMMENT
DMC 1	Transfer surface material information into the carriageway layer in ArcGIS	Sept 2017	●	
DMC 2	Combine various layers of carriageways so that adoption and construction information is stored with inventory data	Sept 2017	●	
DMC 3	Incorporate annual visual surveys into an ArcGIS layer	March 2017	●	Condition survey data is visually represented within Horizons
DMF 1	Collect remote footpath inventory	March 2018	●	Methodology will be introduced with new inspection routes
DML 1	Transfer lighting records to WDM	March 2017	●	Ongoing
DMS 1	Record maintenance works information in BMX	March 2017	●	Ongoing
DMS 2	Retaining walls to be inspected	Ongoing	●	Initial assessment to identify poor/fair/good condition completed
DMT 1	Provide each controller with a unique identifier other than serial number	March 2017	●	This will assist with lifecycle planning
DMT 2	Measure actual power usage of individual traffic signal units	Ongoing	●	To identify where efficiencies can be made
DMT 3	Compile site plans and timings for all sites	Ongoing	●	
DMT 4	Record detailed attributes for signals	March 2018	●	

ACTION	DESCRIPTION	DUE DATE	EXPECTED OUTCOME	COMMENT
DMSF 1	Record asset changes in ArcGIS	Ongoing	●	Asset change forms are currently completed and collated in Excel
DMA 1	Collate list of additional assets	Ongoing	●	An initial list has been compiled, further assets will be added as they are identified

APPENDIX B

Maintenance Hierarchy – Mainland & Island of Cumbrae

Strategic

Main Distributor

Secondary Distributor

Link and Access Roads

Maintenance Hierarchy – Arran

Strategic

Main Distributor

Secondary Distributor

Link and Access Roads

APPENDIX C

Carriageway Prioritisation Criteria

Condition

Taken from the 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

Maintenance Category – Local Transport Strategy (LTS)

22 – Strategic Routes – (A760 / A736 / A71)

16 – Main Distributor Routes

11 – Secondary Distributor Routes / Bus Routes

Assistance to Other Priorities

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

2 – Adjacent to Local Shops

4 – Adjacent to Amenity Housing, Residential Care Homes and Medical centres

6 – Adjacent to Schools, Leisure Facilities and Tourist Attractions

8 – Business Parks and Industrial Estates

10 – Access to Train Stations and Park & Ride facilities

14 – Town Centre

APPENDIX D

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

APPENDIX E

Structure Name:

Date when the scoring is carried out:

Structure Name:

No.	Factors	Maximum Score			Structure Score Input	Net score	% of total Score	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.