



Argyll and Bute Council  
Roads Annual Status and Options Report  
(ASOR)

24th November 2016

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## Document Information

Title	Roads Annual Status and Options Report (ASOR)
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Description	The document enables authorities to report the current condition of their road assets to management and Elected Members and to structure and present options for future investment based upon the predicted condition and level of performance possible for different budget levels.

Version	Date	Author	Changes from Previous Version
Draft	5 <sup>th</sup> Oct 2016	Lyndis Davidson	
1.0	7 <sup>th</sup> Oct 2016	Lyndis Davidson	Addition of Capital investment by administrative area for carriageways.
1.1	16 <sup>th</sup> Oct 2016	Lyndis Davidson	More accurate unit rates, more accurate capital cost schedule, and incorporating comments from Executive Director of Development & Infrastructure.
1.2	18 <sup>th</sup> Oct 2016	Stuart Watson	Addition of Option 5
1.3	3 <sup>rd</sup> Nov 2016	Lyndis Davidson	Option 5 commentary, information on safety schemes, flooding schemes, timber transport and bridge weight restrictions.
1.4	24 <sup>th</sup> Nov 2016	Lyndis Davidson	Bridges – revised estimate for Kilbridemore bridge.
1.5	14 <sup>th</sup> Dec 2016	Jim Smith	



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## 1 Executive Summary

This report details the council's road assets at April 2016, their current condition and future investment options. The report estimates the level of funding required to maintain a steady state position and to improve the network in the longer term, and compares with current budget levels. This should help inform members' future investment decisions.

### Summary of Asset Options

#### Carriageway

- Carriageways are a key inventory. We have 2283 km of carriageway, valued at £2.1 billion. Recent investment has seen the condition of the roads improve, however the current nationally agreed measure of road condition still rates Argyll and Bute's roads as the worst in Scotland.
- The required steady state investment is estimated at £6.35 - £8million.
- 5 levels of capital investment have been modelled - £2 million, £5 million, £8 million, and £11 million – over a period of 20 years. The 5<sup>th</sup> option models £1.5 million for 3 years, increasing to £8 million for 17 years.
- The first two options leads to roads which are in a worse condition than they are today, options 3 and 4 lead to improving conditions. Option 3 will improve our roads to around the average condition for all Scottish authorities (by today's standards). Option 5 improves over time but is hampered by initial disinvestment.

#### Footways

- We have 420 km of footways and 9 km of footpaths, valued at £68,000,000.
- Given an expected service life of 60 years, the estimate for steady state capital investment is £221,000 per year.

#### Street Lighting

- The street lighting asset is valued at £46 million, with energy costs at £800,000 in 2015-16.
- The LED replacement programme will replace over 14,000 lights with energy efficient bulbs, thus reducing the energy costs. Part of the energy savings will be reinvested back into the network to improve the condition of street lighting columns.
- Steady state capital investment is estimated at £1.18 million, this is in addition to the LED replacement programme.

#### Structures

- There are 2825 structure assets, valued at £551 million.
- The average bridge condition indicator has reduced (got worse) by a small amount every year for the last 3 years. The number of Council bridges with a weight restriction or subject to monitoring has increased in the last year.
- The estimated steady state capital investment is £1.5 million plus £750k for Kilbridemore bridge.

**Total Investment for Steady State**

The investment to maintain steady state for all the main Roads assets group is shown below:

<b>Asset Group</b>	<b>Steady State requirement</b>	
Carriageways	£6,350,000	(this is the lower end of the estimated range £6.35-8million)
Footways	£221,000	
Street Lighting	£1,180,000	
Structures	£2,250,000	(includes £750k for Kilbridemore bridge)
<b>Total</b>	<b>£10,001,000</b>	

## 2 Introduction

In Argyll and Bute connectivity for the transport of goods and people is vital to the area and is a key component to developing a thriving economic climate for our communities. As Scotland's second largest local authority, our road network extends some 2253 km and is the largest and most valuable asset in Argyll and Bute, with an estimated value of £2.2billion.

A significant number of our roads provide lifeline links to communities where no alternative route or transport mode is readily available. This means that a single asset, for example a bridge, can play a critical part in serving a community's needs and requires adequate investment in a robust maintenance.

This report presents a summary of the council's Road assets as at April 2016. It

- Describes the current condition of the asset.
- Details the service that the assets and current budgets are able to provide.
- Presents the options available for the future.

The report complements the Road Asset Management Plan (RAMP). It provides information to assist with budget setting for roads.

### **Status**

The status of each asset group is provided in terms of current condition, the output that are delivered and the standards being achieved.

### **Options**

The report considers the following options:

- A continuance of current funding levels
- The predicted cost of maintaining current standards
- Predicted effect of specific budget changes

### **Long Term Forecasts**

As highway assets deteriorate slowly it is not possible to determine the impact of a level of investment by looking at the next couple of years. The report therefore includes where available data permits forecasts covering a 20 year period to ensure that decisions can be taken with an understanding of their long term implications.

### 3 Carriageways

#### The Asset

The council's carriageway asset as at 1<sup>st</sup> April 2016 totals 2882km and is detailed below:

Carriageway Asset Length			
Class	Urban (km)	Rural (km)	Totals by Class (Km)
A	82.386	422.904	505.29
B	43.552	569.956	613.508
C	41.717	392.548	434.265
U	272.950	456.881	729.831
Total By Urban/Rural	440.605	1842.289	2282.894

Data source – Public List of Roads

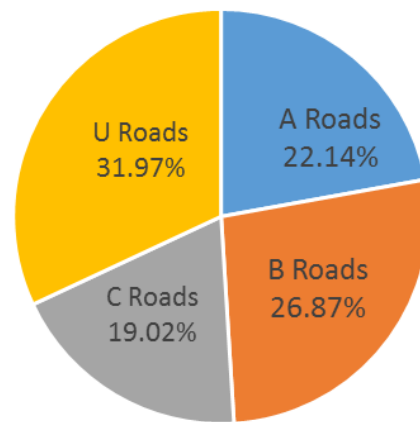
This pie chart shows the split between the different classes of road. Nearly one third of our network is made up of unclassified roads (U class).

- A Roads – major roads intended to provide large-scale transport links within or between areas. Trunk roads.
- B Roads – Usually single carriageway, generally narrower and windier than A class roads.
- C Roads – smaller roads intended to connect together unclassified roads with A and B roads, and often linking a housing estate or a village to the rest of the network.
- U Roads – Usually very narrow country lanes or roads in housing estates.

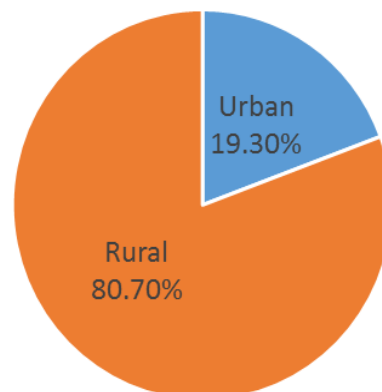
Most of the carriageway is rural, with 1842 km or 81% of the network in rural areas.

Maintenance costs tend to be higher because our geography is spread out over a large area.

Road Length by class



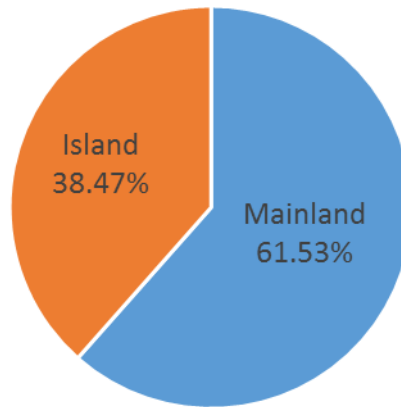
Road length by Urban/Rural



866 km or 38% of our carriageway is located on islands.

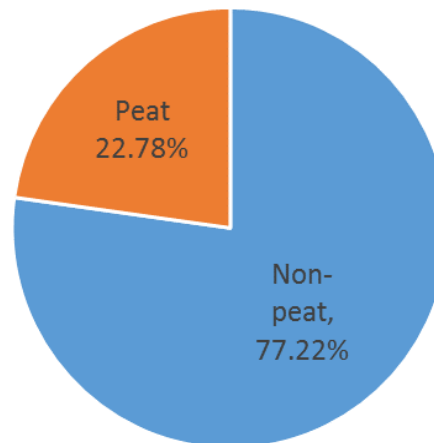
This is a significant portion of the network and incurs increased costs in delivering essential maintenance tasks particularly with regard to resurfacing works where materials have to be sourced from mainland suppliers and rely heavily on the availability of suitable ferry services.

Road Length by Mainland / Island



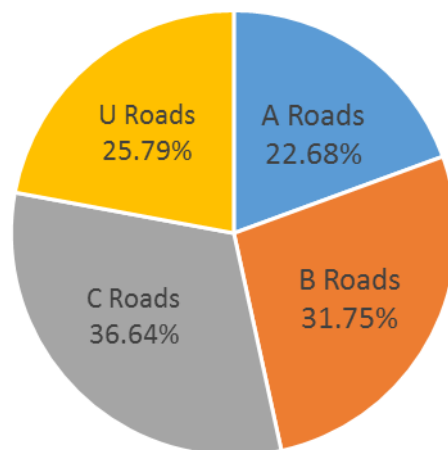
657 km or 23% of our roads are constructed on peat. These incur greater construction and maintenance costs, and may require restrictions on the weight of vehicles using the road.

Roads on Peat



It is not just unclassified roads that are built on peat. This pie chart shows the percentage of each class of road built on peat. Nearly 23% of our A roads are built on peat.

% of each Class of road on peat





## Asset Value

The council's carriageway asset was valued at 1<sup>st</sup> April 2016 in accordance with the CIPFA Transport Asset Code for Whole of Government Accounts (WGA) and is detailed below.

Carriageway Asset Valuation: April 2016		
Gross Replacement Cost (GRC)	Depreciated Replacement Cost (DRC)	Annualised Depreciation (AD)
£2,146,238,607	£1,803,468,407	£27,085,333
Data source – WGA valuation spreadsheet 2016		

The Annualised Depreciation (AD) is the estimated annual cost to maintain and restore the carriageway over a 21 year lifecycle. The calculation of the AD has been established by the CIPFA Transport Asset Code and provides a consistent methodology for local authorities to value their assets in compliance with Whole of Government Accounts (WGA) requirements. The method assumes that the top 100mm of each carriageway will be replaced on average every 21 years.

## Maintenance Backlog

The Scottish Road Machine Condition Survey (SRMCS) is used annually to determine a Road Condition Indicator (RCI) value for each local authority road network. From these results SCOTS calculate the Maintenance Backlog for each authority every second year. The Maintenance Backlog is the cost of achieving in one year a network free from any sections in an amber or red condition using the latest survey data.

The Maintenance Backlog calculated in 2015 for Argyll and Bute is £187million (Data source – SCOTS backlog Modelling Report February 2015).

## Steady State

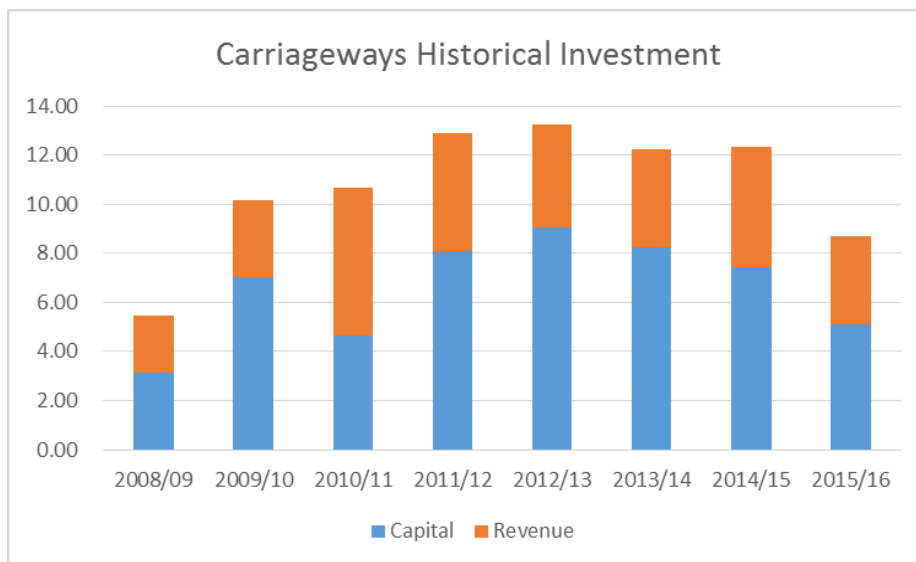
The SCOTS modelling tool also predicts the annual investment required to maintain a steady state for all conditions of road. This is a much reduced treatment regime aimed at maintaining existing road condition at minimal expense.

The Steady State value for Argyll and Bute is £6.35 - £8million (Data source – SCOTS backlog Modelling Report February 2015).

## Investment

Historical investment in carriageways is detailed in the following table.

Carriageways Investment in £ millions								
Year	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Capital	£3.16	£7.02	£4.64	£8.11	£9.05	£8.26	£7.42	£5.11
Revenue	£2.32	£3.13	£6.02	£4.80	£4.23	£3.96	£4.93	£3.61
Total Spend	£5.48	£10.15	£10.66	£12.91	£13.28	£12.22	£12.36	£8.72
Data source – Finance end of year accounts (WGA)								



As mentioned previously there are 3 key figures which indicate the level of investment required in the network:

1. Annualised depreciation £27 million
2. Maintenance backlog £187 million
3. Steady state annual investment £6.35 - £8million

The average annual investment in the last 8 years has been £10.7 million.

In 2015-16 it was £8.72 million.

This level of investment has halted the deterioration of the surfacing and is a contributory factor in reducing the number of CAT 1 & 2 defects.

## 2015-16 Investment - Capital

During 2015-16 the total investment in the carriageway was £5.11 million (Finance end of year accounts). This was split as follows:

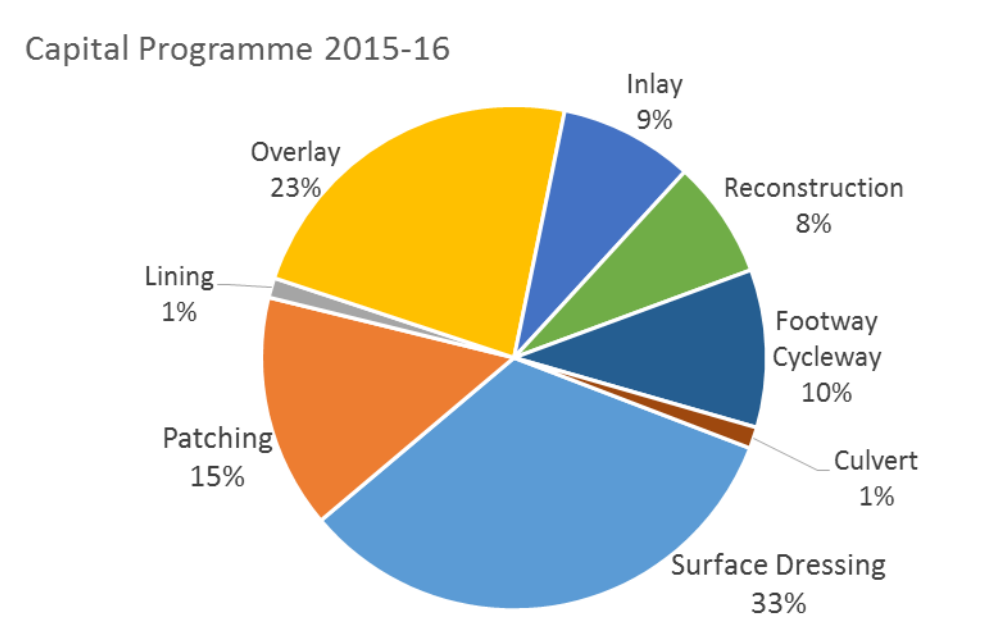
<b>MIDARGYLL</b>		
A816 Kilmartin North	116,324	Patching, surface dressing, lining
B8025 Tayvallich	103,090	Patching, surface dressing, lining
U24 Barrananaoil	57,123	Patching
C62 Argyll Street	51,950	Overlay
A816 Meadows, Lochgilphead	2,100	Reconstruction
A816 Tibertich Realignment	136,924	Reconstruction
<b>KINTYRE</b>		
C19 Polliwilline PH1	254,854	Patching, surface dressing, lining
U38 Moss Road	55,434	Patching, surface dressing, lining
B842 Saddell	45,938	Overlay
B842 East of Askomil	32,428	Overlay
C21 Tayinloan	25,587	Overlay
U45 Princes Street, Campbeltown	32,054	Overlay
CWSS Machrihanish F/ways	40,006	Footway
<b>ISLAY / JURA</b>		
C15 Loch Gorm	103,857	Patching, surface dressing, lining
C14 Ardilistry Bay	79,759	Patching, surface dressing, lining
A846 Knockcrome	25,622	Patching, surface dressing, lining
U42 Ballimony	85,079	Patching, surface dressing, lining
U47 Knockcrome Village	67,284	Overlay
U34 Loch Gruinart	76,521	Overlay
U49 Claddach Loop	52,703	Overlay
<b>LORN</b>		
Taynuilt - Kilchrenan Edge Strengthening	108,695	Overlay
A819 Inistrynich / Bouvey	257,565	Overlay
A816 Scammadale	105,292	Reconstruction
B845 Taynuilt	247,087	Overlay
U36 William Street	19,562	Inlay
U82 Kerrera Terrace	32,234	Inlay
Corran Brae	14,819	Inlay
U49 Salen Loop	10,605	Overlay

**2015-16 Investment - Capital (continued)**

<b>MULL</b>		
A849 Salen South	687,562	Patching, surface dressing, lining
C48 Carsaig Road - Embankment Collapse	69,725	Culvert
<b>BUTE</b>		
A844 Kilmory Circle	387,114	Patching, surface dressing, lining
B878 Barone Hill	35,059	Patching, surface dressing, lining
B881 Kilchattan Bay	25,251	Patching, surface dressing, lining
U28 Eastlands Roads	17,640	Patching, surface dressing, lining
U69 Westlands Road	22,245	Patching, surface dressing, lining
B836 Stronafian to Clachaig	15,000	Reconstruction
A815 Hafton Footway Link	46,567	Footway
A880 PH2 Kilmun Footway	110,257	Footway
<b>COWAL</b>		
A815 Strachur	58,665	Overlay
U1 Ardenslate Road	44,107	Inlay
A815 Glenbranter	44,655	Overlay
U52 Lochan Avenue	67,559	Inlay
U7 Auchamore Road	58,617	Inlay
B839 Hells Glen	51,286	Reconstruction
B828 Gleann Mor	75,036	Reconstruction
B8000 Leanach	41,253	Surface Dressing
A815 Footway (Sandhaven to Invereck)	109,264	Footway
<b>LOMOND</b>		
A814 Glenmallan	77,411	Patching, surface dressing, lining
A814 Morelaggan	54,573	Patching, surface dressing, lining
A814 Tighness South	50,827	Patching, surface dressing, lining
B833 Coulport South	53,696	Patching, surface dressing, lining
B872 Whistlefield	66,633	Patching, surface dressing, lining
A814 Gareloch Road	33,267	Patching, surface dressing, lining
A814 East Clyde Street	84,264	Patching, surface dressing, lining
DISR - U268 South King Street	72,573	Inlay
DISR - U229 OLD LUSS ROAD	53,488	Inlay
DISR - A814 Finnart Depot	68,882	Overlay
DISR - U101 East King Street	75,796	Inlay
DISR - Cardross	210,772	Cycleway/Footway

## 2015-16 Capital Investment - Road Treatments

The following pie chart shows the spread of different treatments in the capital programme:



The next table shows the length and percentage of the road network that was treated in 2015-16, and also the total treated between 2011 and 2016 which equates to nearly 30% of the whole network.

Road Category	Treatment 2015-16		Treatment 2011-2016	
	km	% network treated	km	% network treated
<b>A</b>	43.83	8.67%	266.48	52.74%
<b>B</b>	14.54	2.37%	194.56	31.71%
<b>C</b>	26.49	6.10%	65.36	15.05%
<b>U</b>	16	2.20%	153.51	21.13%
Totals	100.86	4.42%	679.91	29.78%

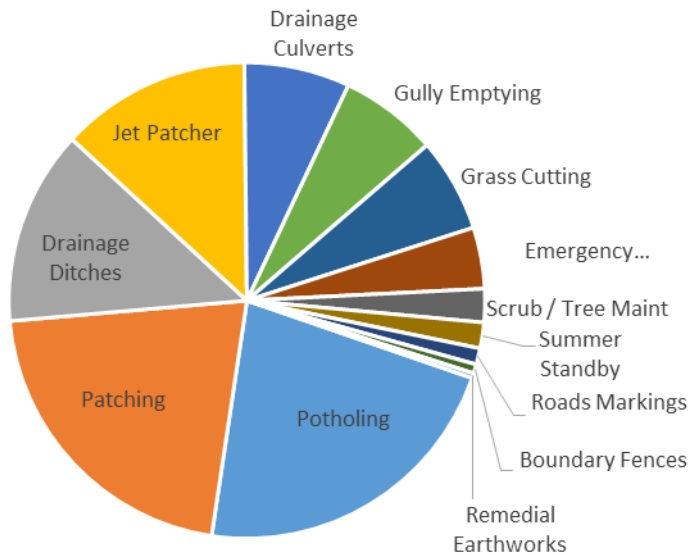
### 2015-16 Investment - Revenue

Revenue spend on carriageways in 2015-16 was £3.61 million. The table and pie chart below show the revenue spend by activity.

Revenue spend 2015-16			
Patching	767,703	Scrub / Tree Maintenance	81,893
Potholing Flexible	798,305	Roads Markings	39,938
Jet Patcher	468,445	Gully Emptying	240,432
Remedial Earthworks	11,984	Boundary Fences / Walls	22,330
Drainage Culverts	259,417	Emergency Incidents	150,649
Drainage Ditches	477,880	Summer Standby	63,119
Grass Cutting	230,225		

Data source – Finance end of year accounts (WGA)

Revenue split by Activity



## Carriageway Condition

The Scottish Road Maintenance Condition Survey uses a traffic speed machine based survey (Surface Condition Assessment for the National Network of Roads – SCANNER) to make a number of measurements that describe the condition of the road surface, including rutting, cracking and ride quality. This allows councils to assess the length of road requiring maintenance. The length of road surveyed annually includes:

- 100 per cent of A class roads with the direction of travel changed in alternate years
- 50 per cent of B and C class roads with the remaining 50 per cent surveyed the following year. The direction of travel is also alternated such that every B and C class road lane is surveyed every four years
- 10 per cent of unclassified roads are surveyed in one direction each year.

The results of the survey are used to classify roads into 3 categories:

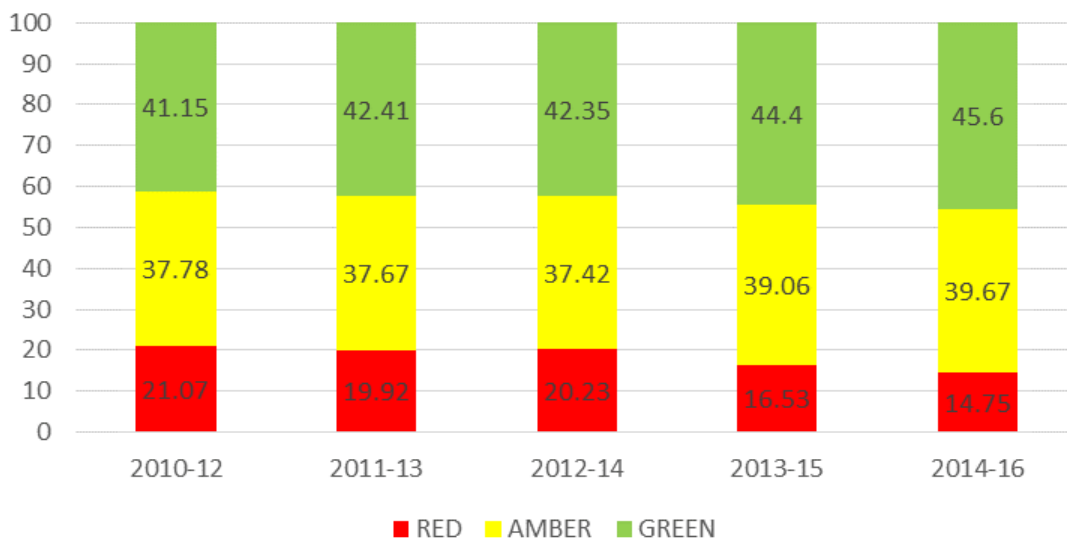
**GREEN** - roads are in acceptable condition.

**AMBER** - some deterioration is apparent on the roads and should be investigated to determine the best time to carry out planned maintenance treatment.

**RED** – roads are in poor condition and are likely to require repairs within one year.

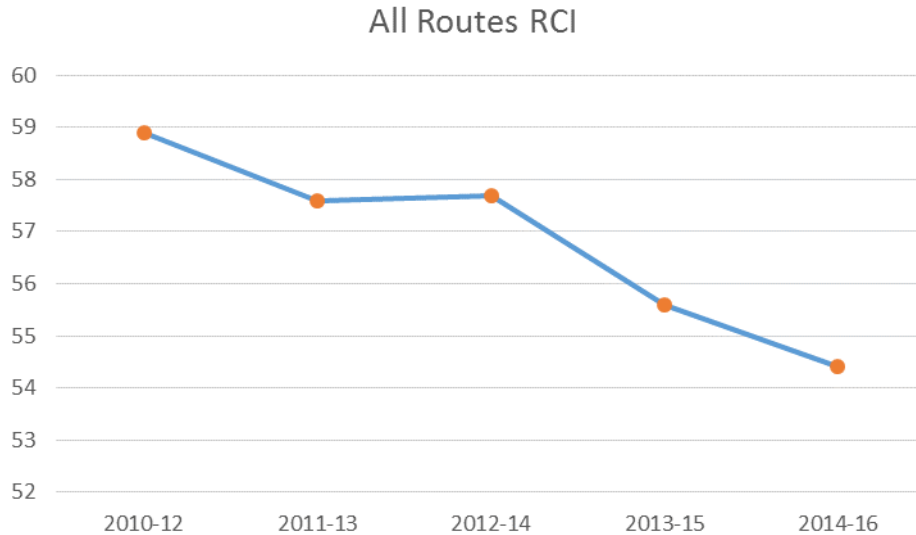
Road Condition Survey results for Argyll and Bute from 2009 – 2016 are shown below.

Road Condition Index survey results 2010-2016



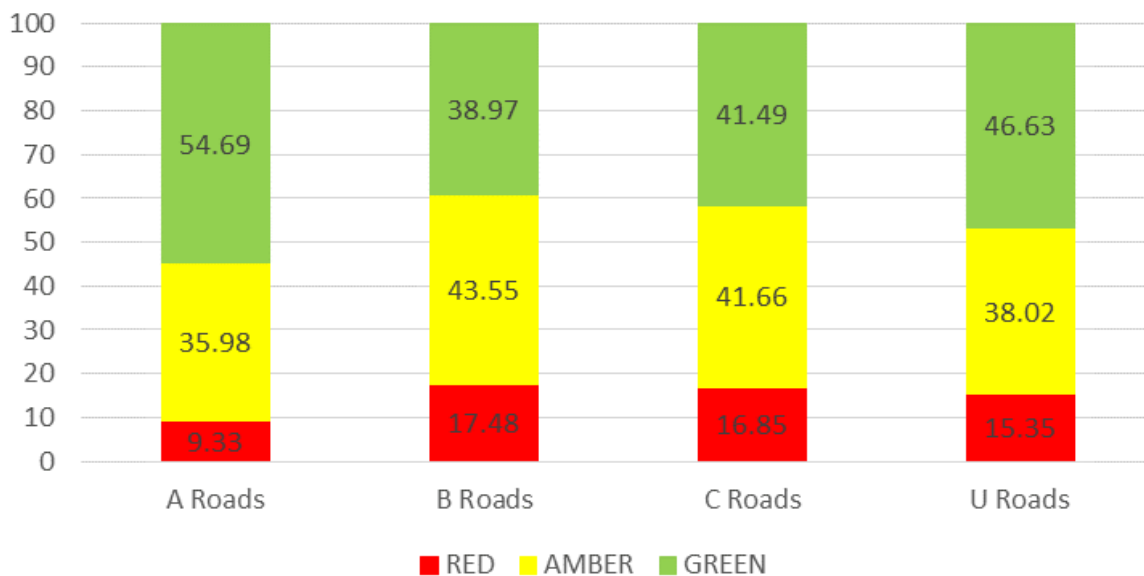
Over this period the percentage of roads assessed as RED has reduced from 21.07 to 14.75 and in the same period the percentage of roads assessed as GREEN has increased from 41.15 to 45.6. This is a substantial improvement and provides confirmation of the effect of increased investment and effective delivery of the roads reconstruction programme.

If we consider the whole network, the percentage of roads which are in need of maintenance (Red plus Amber) has been decreasing steadily since 2010.



If we look at the road condition index for each class of road, it is the A roads which are in the best condition, with only 9.33% in a red condition. These tend to be our busiest roads which often serve a lifeline purpose. When preparing the Capital programme, the A roads are given a higher priority for maintenance.

### Road condition index by Road Class





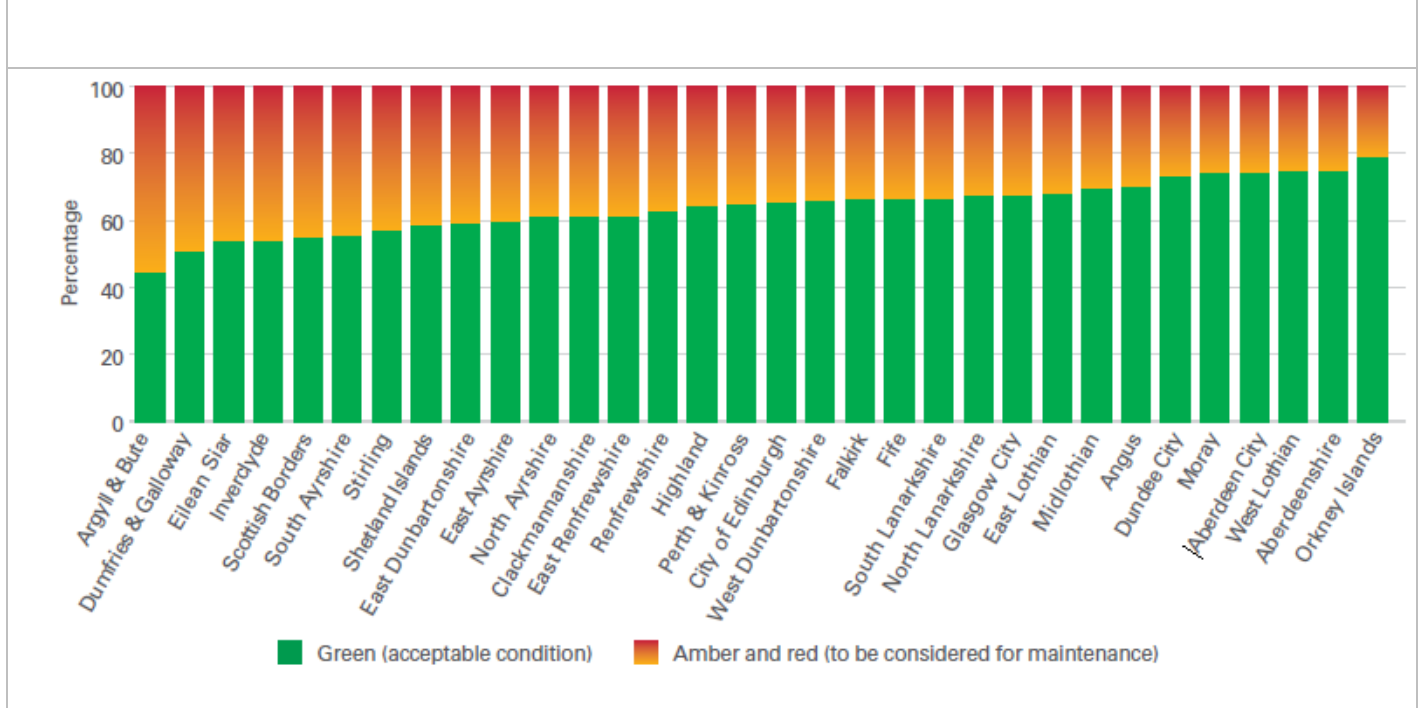
### 3.1 Comparison with other Authorities

Audit Scotland published “Maintaining Scotland’s Roads” in August 2016 which looks at the status of Scotland’s roads and makes recommendations for their improvement. The source of most of this information is SCOTS data accumulated for all authorities.

The graph below shows how Argyll and Bute’s roads compare with other authorities in Scotland. Unfortunately we still have roads rated as being in the poorest condition and a significantly higher proportion of red and amber roads.

This is partly due to our geography, as we have many rural roads built on peat with poor vertical and horizontal alignment. Historically these roads were not constructed to today’s standards. The road condition index includes a measure of longitudinal profile (the bumpiness of the road) which tends to be high for roads built on peat. Arguably this bumpiness is not a feature we are overly concerned about, but this is the measure currently used for comparison with other authorities.

**Comparison of the proportion of roads in acceptable condition by council for 2014/15.**

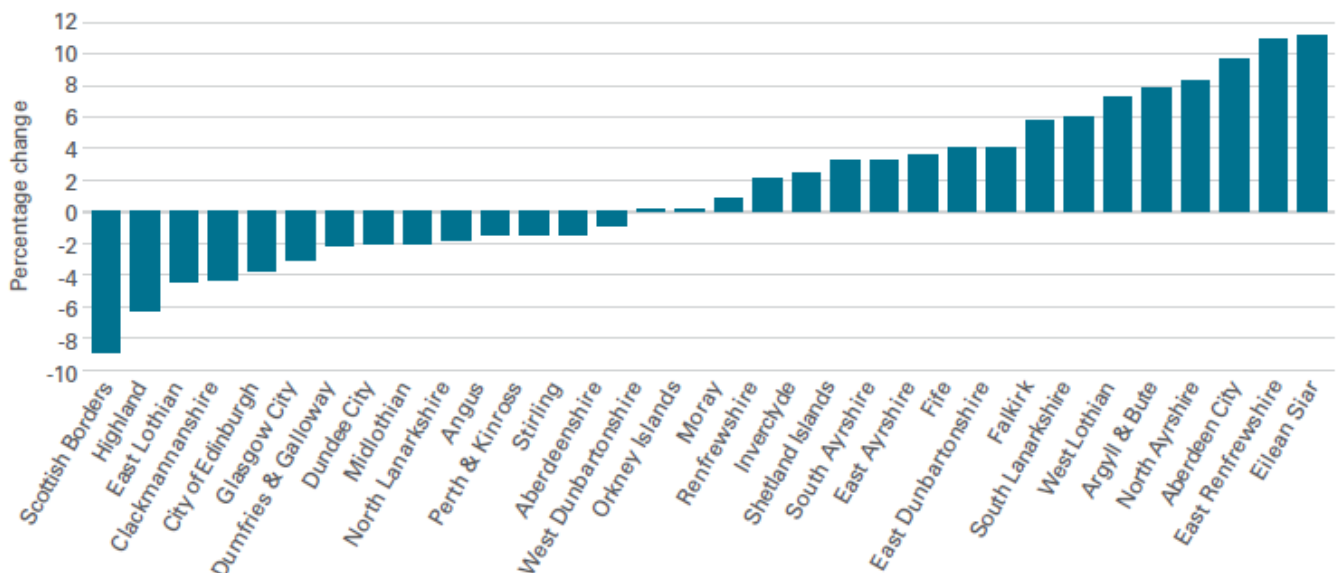


Source: Audit Scotland - Maintaining Scotland’s Roads - August 2016

The situation is improving however. The graph below shows the change in the condition of the roads belonging to each Local Authority between 2011/12 and 2014/15. Argyll and Bute are the 5<sup>th</sup> most improved Council in Scotland.

This is a direct result of the higher level of capital funding for the five years between 2010-11 and 2014-15.

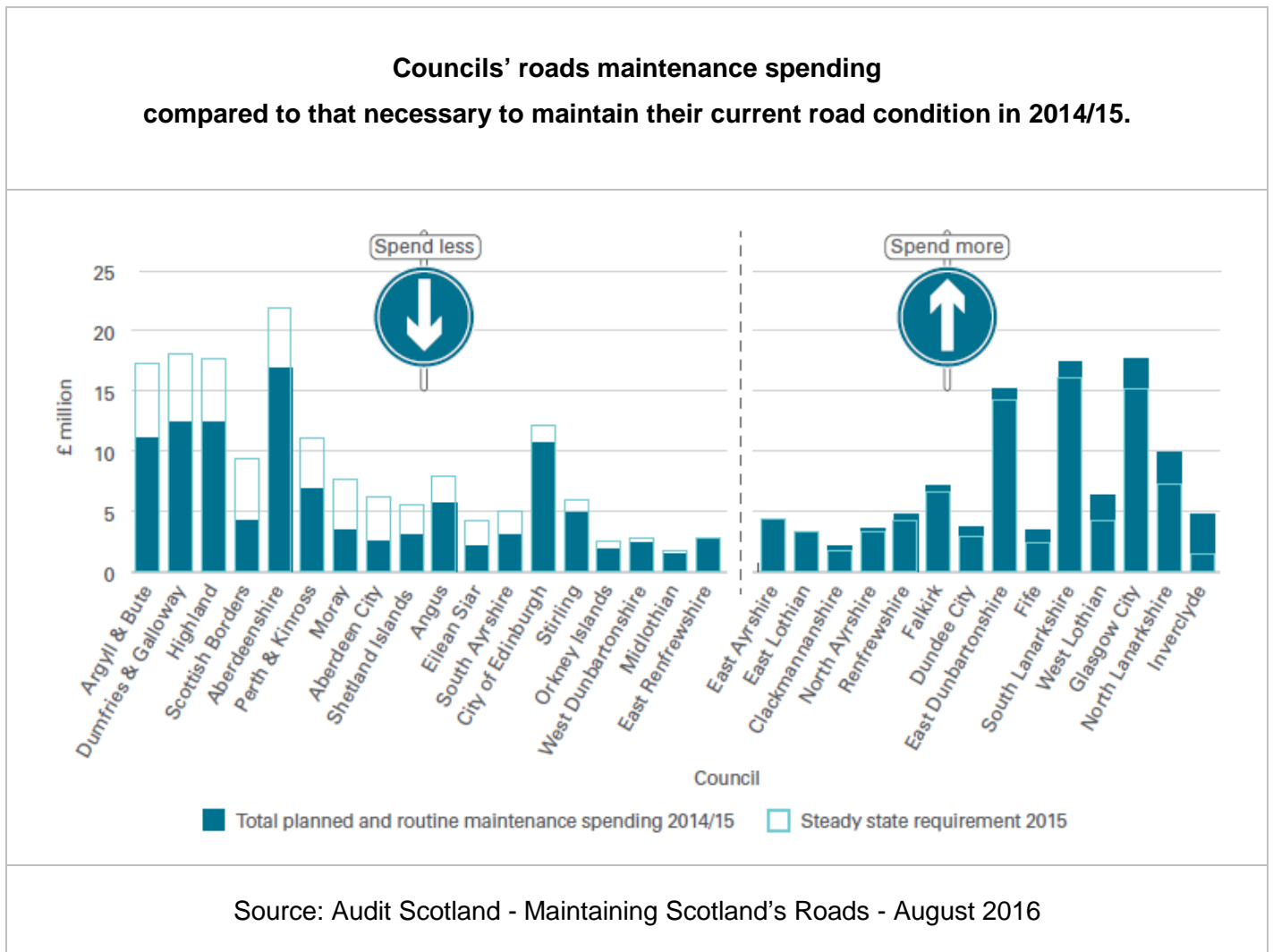
**Change in the percentage of Council-maintained roads in acceptable condition from 2011/12 to 2014/15.**



Source: Audit Scotland - Maintaining Scotland's Roads - August 2016

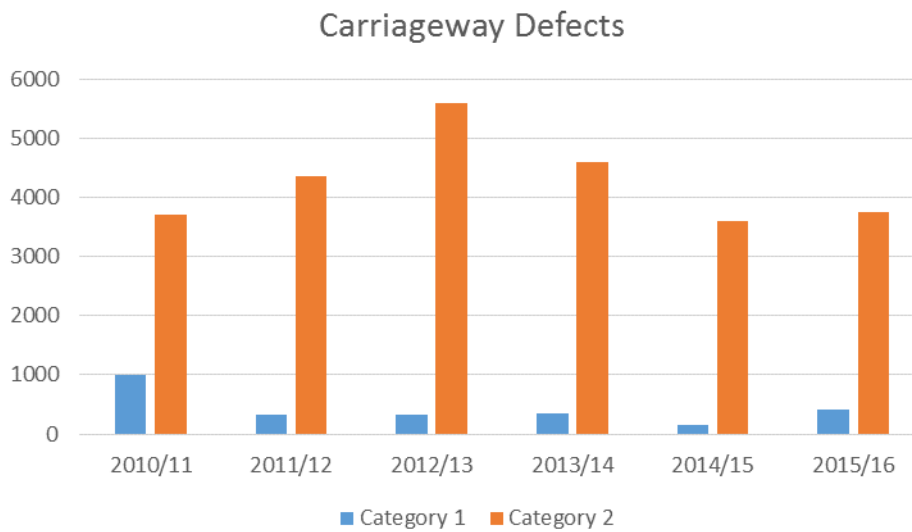
The following chart compares spend by each Scottish Council with their required spend to achieve steady state. The left hand side of the chart shows those authorities who have spent less than required to achieve steady state, the right hand side have spent more than required. In 2014-15 Argyll and Bute had the largest gap between current spend and steady state requirement.

This shows that we need to secure a higher level of funding to keep Argyll’s roads in their current condition.



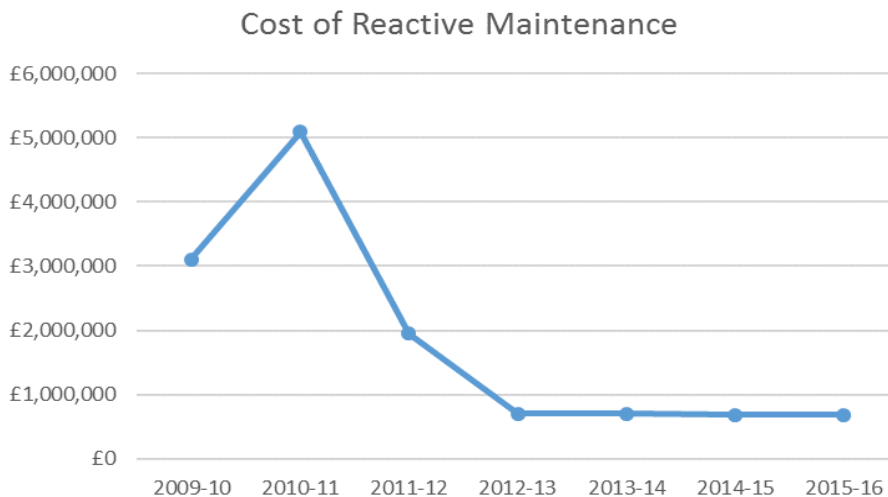
### 3.2 Reactive Repairs

The figures above are based upon a set of defects that can be measured by a machine survey (SCANNER) and not necessarily all the defects that may exist on a section of road. A full picture of the condition of the carriageway asset also needs to take into account the amount of reactive repair that is undertaken e.g. pothole repairs, patching and other small scale maintenance works. The table below details the number of Category 1 and 2 defects in Argyll and Bute reported to APSE/SCOTS since 2010/11. The graph shows a general downward trend, indicating less reactive maintenance in the more recent past, however there has been a slight increase in 2015-16.



The percentage of Category 1 and Category 2 defects which were repaired timeously over the whole of 2015-16 was 93.21% against a target of 90%.

Reactive Maintenance costs have significantly reduced and may be attributed to the recent investment in the roads reconstruction programme however they remain an area of concern and require close monitoring.



### 3.3 Winter Maintenance

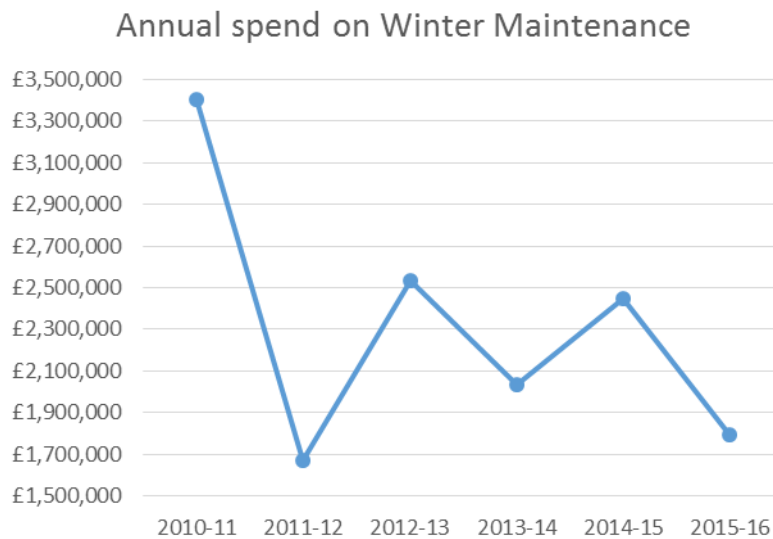
The winter maintenance service is generally provided between 1<sup>st</sup> November and mid to end of April although these dates may be varied slightly to accommodate unexpected weather patterns. The service is delivered in accordance with the Winter Maintenance Policy and plays a vital role in ensuring communities and businesses can function normally during periods of adverse weather conditions.

Details of performance indicators for winter maintenance as reported to APSE over the previous six years are detailed in below:

Performance Indicator	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Km of total carriageway network treated on receipt of an adverse weather forecast	1205	1205	1205	1205	1199	1199
Km travelled to achieve the above treatment (includes non-treated lengths)	2491	2491	2491	2491	2471	2471
Route efficiency	48.37%	48.37%	48.37%	48.37%	48.52%	48.52%
Number of precautionary treatment routes	31	31	31	31	31	31
Number of gritters available	33	33	33	33	33	33
Total number of equivalent full fleet runs	108	59	106	65	82	58
Actual number of days on which any non-planned winter maintenance function was carried out during year	27	6	17	0	0	0
Total aggregate annual treatment mileage travelled by all gritting vehicles on all planned routes	83439	72875	80261	50688	99746	44306
Total tonnage of salt used on carriageways	19727	10431	17777	9962	19104	10392
Total Winter actual spend carriageways ( All inclusive - Administration, Salt Storage , Vehicle maintenance, Fuel, Labour, Training, Weather stations, Communication systems, Vehicle tracking, Gritter hire, Weather forecasting etc.)	£3,402,695	£1,670,677	£2,534,435	£2,034,463	£2,450,175	£1,794,837
Average Cost per equivalent full fleet run (all inclusive )	£31,506	£28,317	£23,910	£31,299	£29,880	£30,945
Average cost per mile of planned treatment (all inclusive)	£40.78	£22.93	£31.58	£40.14	£24.56	£40.51

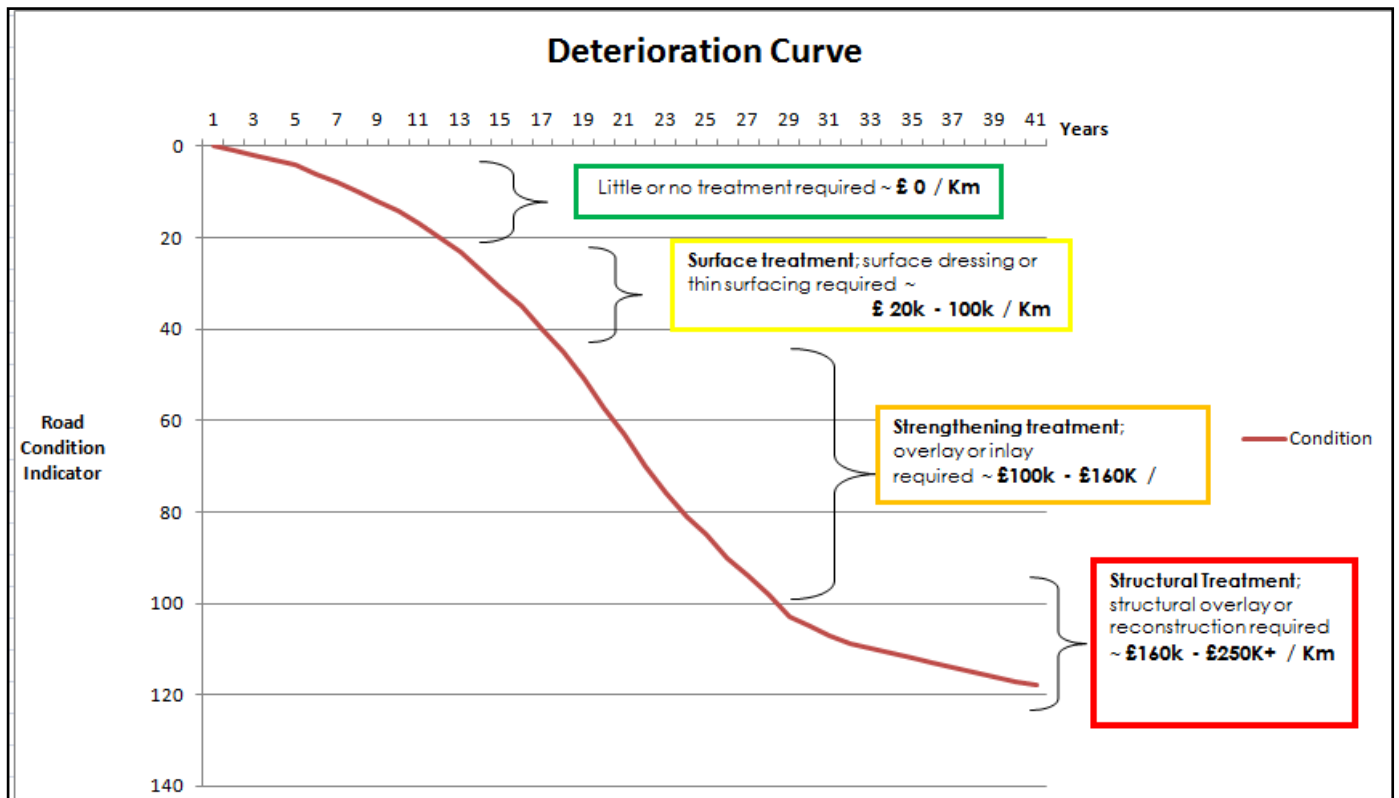
Budgets for the provision of winter services are difficult to plan considering our unpredictable climate and are therefore generally based on an “average winter” or 58 planned treatment runs. Service resilience is the greatest concern as year on year budget reductions take effect. There is an inadequate number of drivers and second men to sustain continuous operations on a widespread adverse weather event. Additional resources provided in these conditions are likely to result in an overspend of the core budget.

As can be seen from the graph below, spend on Winter Maintenance varies greatly from year to year, from an annual minimum of £1.7 million to a maximum of £3.4 million in the last 6 years. This is almost entirely dependent on the weather.



### 3.4 Deterioration of carriageway over time

The following projection has been prepared using a projection model provided by SCOTS. The curve below illustrates the way in which carriageways deteriorate over time along with potential treatments and estimated costs to restore network condition.



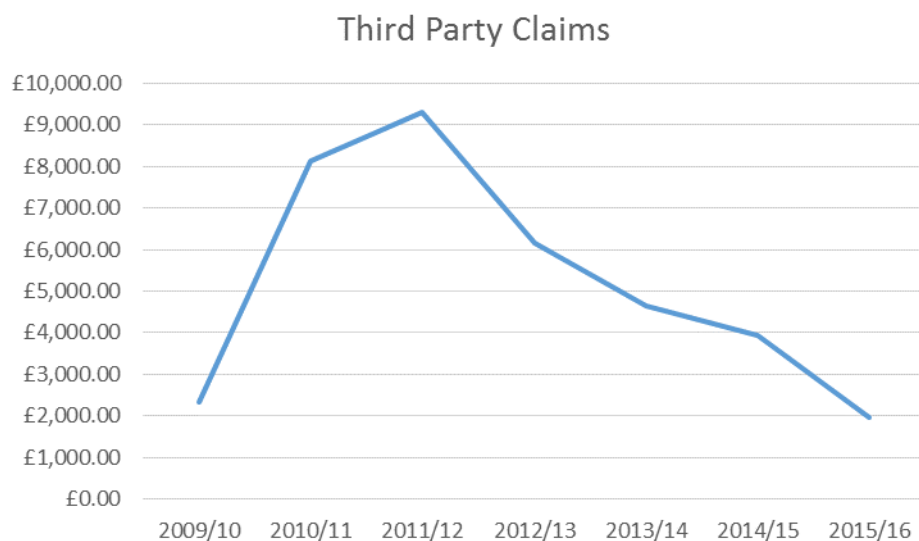
1. Initially carriageways deteriorate very little as illustrated by the flatness of the curve in the first years. During this period little or no treatment is required.
2. Initial deterioration occurs in the surface layers. During this period the surface can be restored using a surface dressing or a thin surfacing (Surface Treatment 25 – 60mm). These treatments are comparatively cheap and offer an opportunity for cost effective preventative maintenance to extend service life.
3. If a preventative treatment is not applied deterioration increases causing deeper distresses in the road. Roads in this middle level of deterioration become unsuitable for preventative maintenance treatments such as surface dressing. Such treatments would have a very limited life at this stage. Roads in the middle levels of deterioration are usually restored using resurfacing treatments of inlays or overlays.
4. If a resurfacing treatment is not applied at this middle level and further deterioration occurs, structural damage to the carriageway can occur requiring more extensive treatments to be required comprising of deep overlays or inlays or in some circumstances reconstruction.

The cost projection models in this report takes the deterioration curve into account by considering the road condition index and assessing the type of treatment required to improve this.

### 3.5 Third Party Claims

The number and value of third party claims is shown below. The value of settled claims has dropped consistently over the last few years. Consistent investment in the roads asset should prevent this from increasing in future.

Third Party Claims							
	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2105/16
Number of claims received	103	182	199	95	144	55	49
Number of claims settled	21	17	35	16	19	16	7
Value of settled claims	£2,318	£8,133	£9,308	£6,151	£4,629	£3,927	£1,949
Number of Non-Repudiated 3 <sup>rd</sup> party claims settled in previous 3 years	43	50	73	68	70	51	47





### 3.6 Investment Options for Carriageways

The SCOTS financial modelling tool has been used to create five investment options for carriageways. This tool has been revised and updated by SCOTS as part of a continuous improvement process. This has been achieved through the submission of robust and detailed historical carriageway data from a number of authorities which has permitted comparisons to be made between the modelling tool predictions and the actual condition over time to be evaluated.

Technical officers in Argyll and Bute have used historical information to estimate costs of the different road treatments. These are entered into the modelling tool to calculate the amount of works that can be undertaken for each of the investment options. The relative proportions of each treatment type are defined which the model uses to predict the effect of different treatment types over the period, and allows us to optimise the types of treatment used. The model predicts the effect on the road condition for the next 20 years.

The unit rates and treatment types used in the modelling tool are shown below.

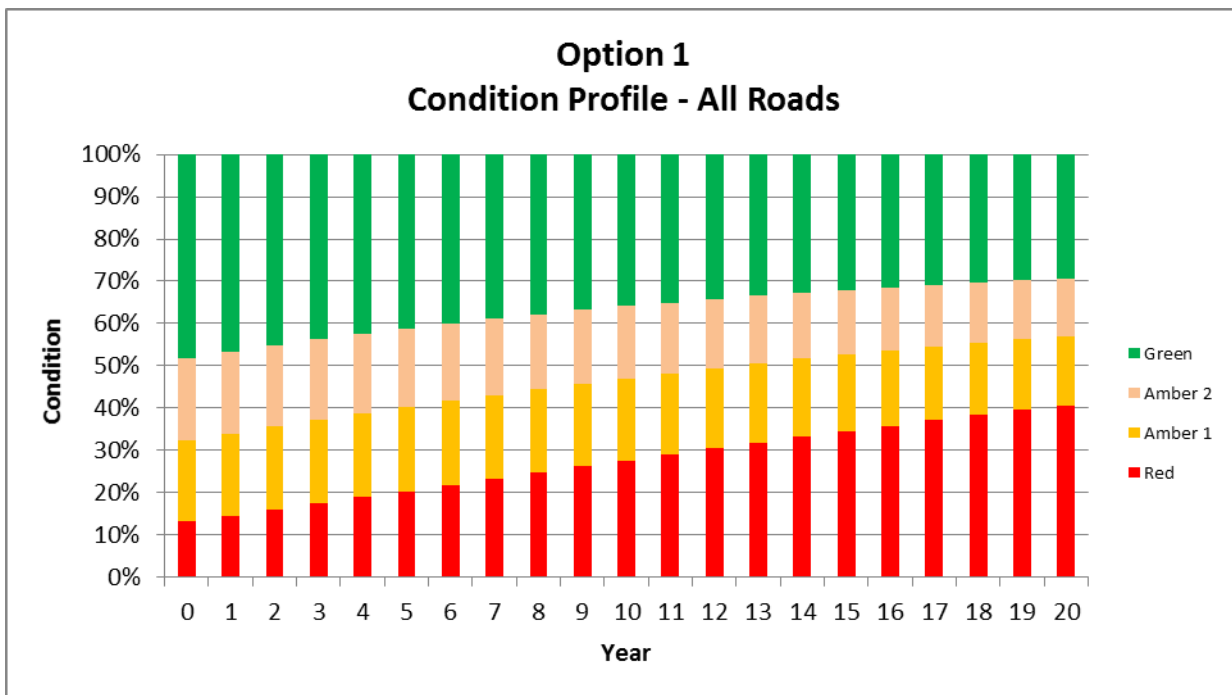
SCOTS cost projection tool unit rates		
Treatment Type	Description of Treatment	Unit Rate (£/sqm)
Surface Dressing	Pre-Patch & Premium SD	£6.40
Thin Overlay	40mm Overlay	£21.74
Moderate Overlay	60mm Overlay	£30.43
Structural Overlay	100mm Overlay	£42.87
Thin Inlay	40mm Inlay	£25.12
Moderate Inlay	60mm Inlay	£33.82
Structural Inlay	100mm Inlay	£46.87
Fully Reconstructed	1.5m wide Flex-Edge Strength/Deep Patching	£99.61
Data source – Average rates derived by roads technical officers from historical data		

The modelling tool has been used to create four options for investment based on budgets of £2M, £5M, £8M, £11M where it is assumed that investment will be maintained at the same level throughout the 20 year period. The fifth option considers a budget of £1.5 million Capital Budget for 3 years increasing to £8 million from Year 4. It is assumed that investment will be maintained at the same level throughout a 20 year period. The projection tool shows the best mix to be 30% strengthening treatments, 30% resurfacing works and 40% surface dressing treatments.

The reported RCI for Argyll and Bute Council is 54.4, however, the starting RCI for the SCOTS model is 51.8. This difference is due to the model operating on carriageway area rather than network length.

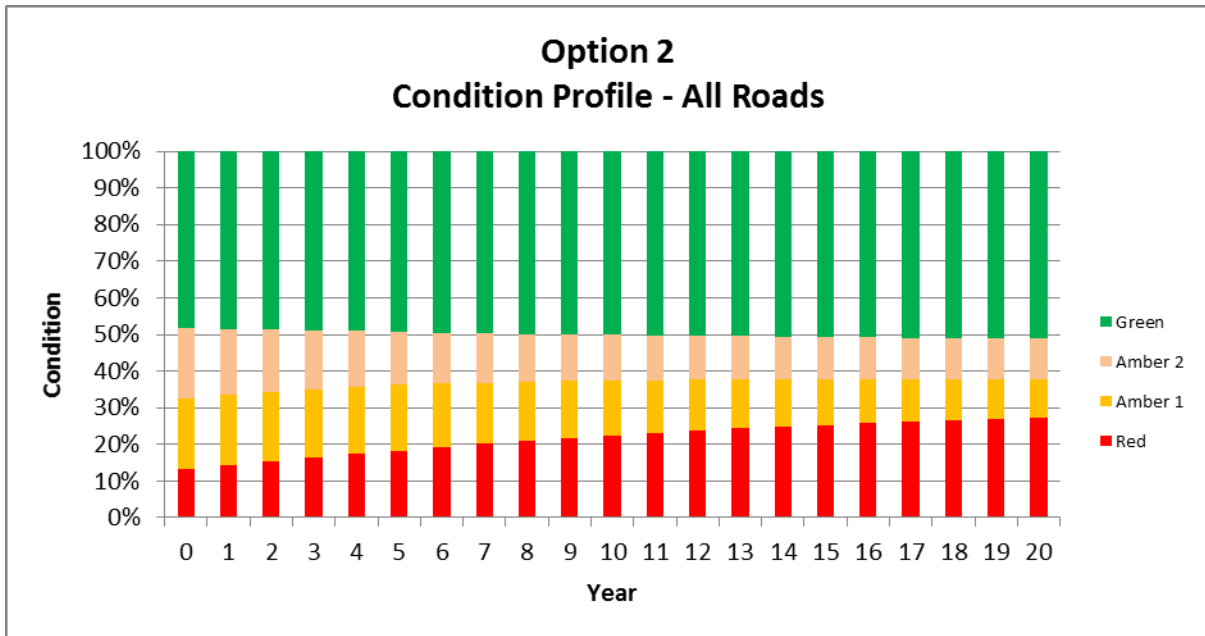
**Option 1 : £2 million Capital Budget**

- The SCOTS model predicts the network will deteriorate with this level of funding.
- This option clearly demonstrates the impact of under-investment on the road condition; the RCI increases from 51.8 to 70.74 in the 20 year period shown in the graph below.
- The Red RCI increases from 13.5 to 40.69 in the same period, which means that nearly 41% of our roads will be in very poor condition.
- This will lead to a substantial increase in reactive maintenance, particularly potholing. It is possible that some roads will need to be closed as they will no longer be able to be repaired, and will need total reconstruction.
- The number and value of claims for damage as a result of poor roads is likely to increase.
- The condition of our roads will remain the worst in Scotland.
- This represents both financial and reputational risks to the Council.



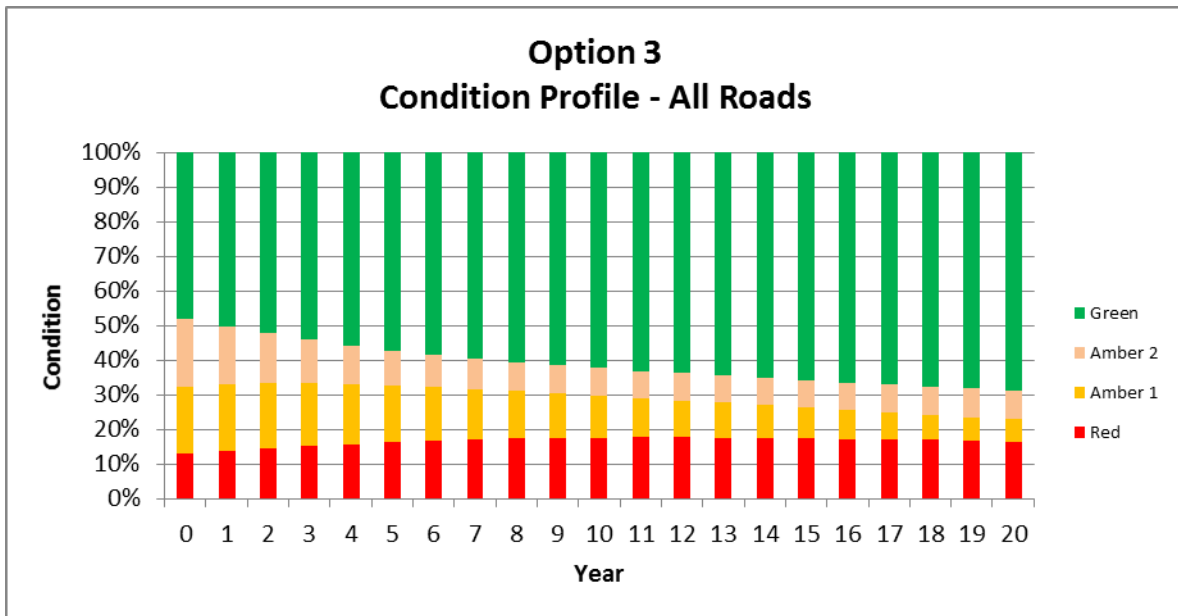
### Option 2 : £5 million Capital Budget

- The SCOTS model predicts that with this level of funding the RCI improves slightly falling from 51.8 to 48.
- The number of roads in GREEN condition will stay roughly the same.
- The number of roads in AMBER condition will decrease.
- However, it is important to note that the number of roads in a RED condition doubles, leaving close to 30% of our roads in a very poor condition.
- Overall the network will continue to deteriorate with an associated increase in the level of reactive maintenance.
- The condition of our roads will remain the worst in Scotland.



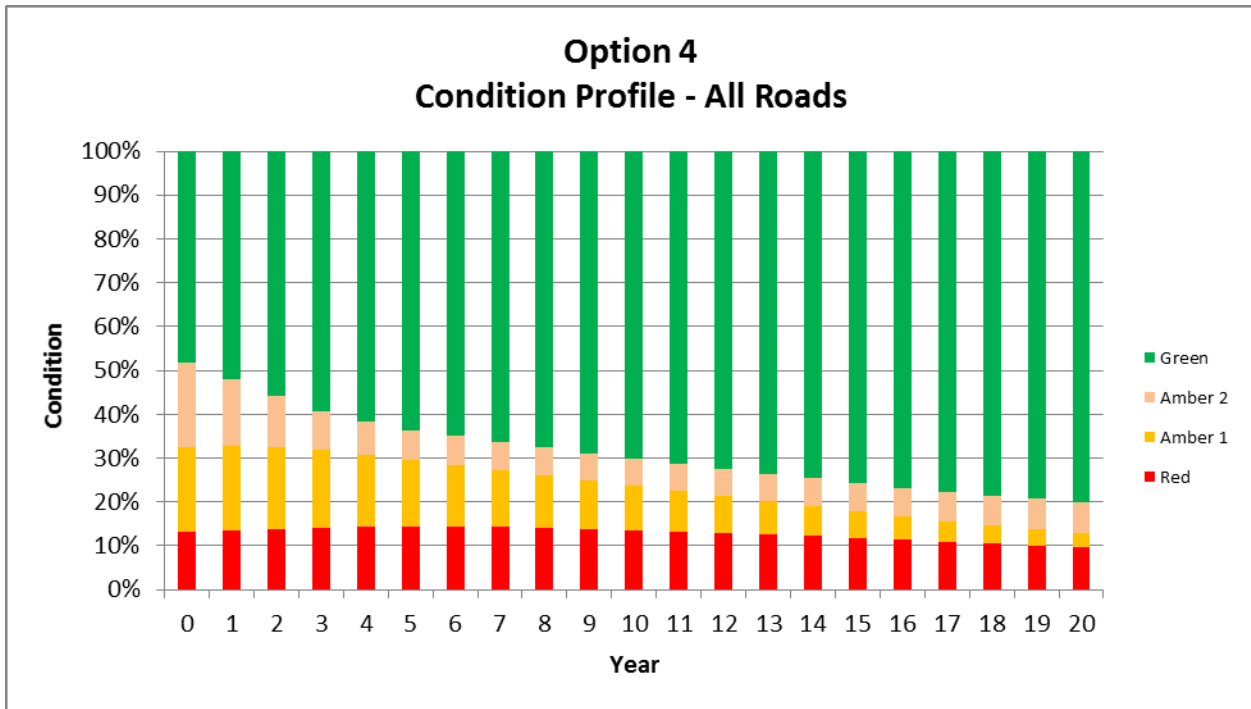
### Option 3 : £8 million Capital Budget

- The SCOTS model predicts an overall improvement in the RCI over 20 years; falling from 51.8 to 31.27.
- This plan will significantly improve the network and result in our road condition being about average compared to other Scottish authorities.
- The number of roads in a RED condition will stay roughly the same. This is reasonable given that some of our rural roads have very low levels of traffic, therefore this does not generate a high risk.
- The number of roads in a GREEN condition will increase significantly by almost 20% over 20 years.
- This option would allow us to ensure that all mainland “A” class roads are in a satisfactory condition.
- This level of investment will to lead to a reduction in reactive maintenance.
- This follows the treatment strategy already in place, but provides sufficient funding to allow this strategy to be implemented effectively.



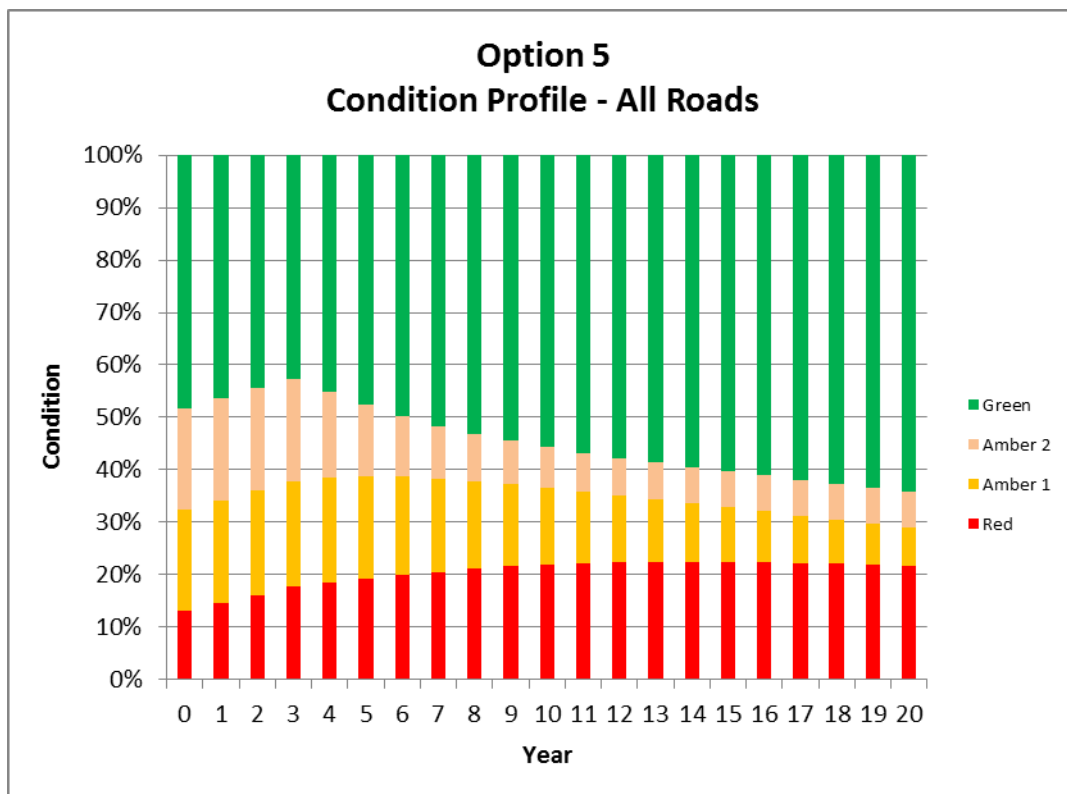
### Option 4 : £11 million Capital Budget

- This is the fast track option to an excellent road network.
- The SCOTS model predicts a significant improvement in the RCI over 20 years; falling from 51.8 to 19.95.
- Within 10 years our roads will have improved to about average in Scotland, within 20 they will be the best of all authorities in Scotland.
- After 20 years around 80% of the roads will be in a GREEN condition.
- This is the only option where the number of roads in a RED condition will reduce.
- This option would allow us to ensure that all mainland and island “A” class roads are in a good condition.
- This level of investment will to lead to a substantial reduction in reactive maintenance within 10 years.
- This will allow us to target treatments in the most effective way.



### Option 5 : £1.5 million Capital Budget for 3 years increasing to £8 million from Year 4

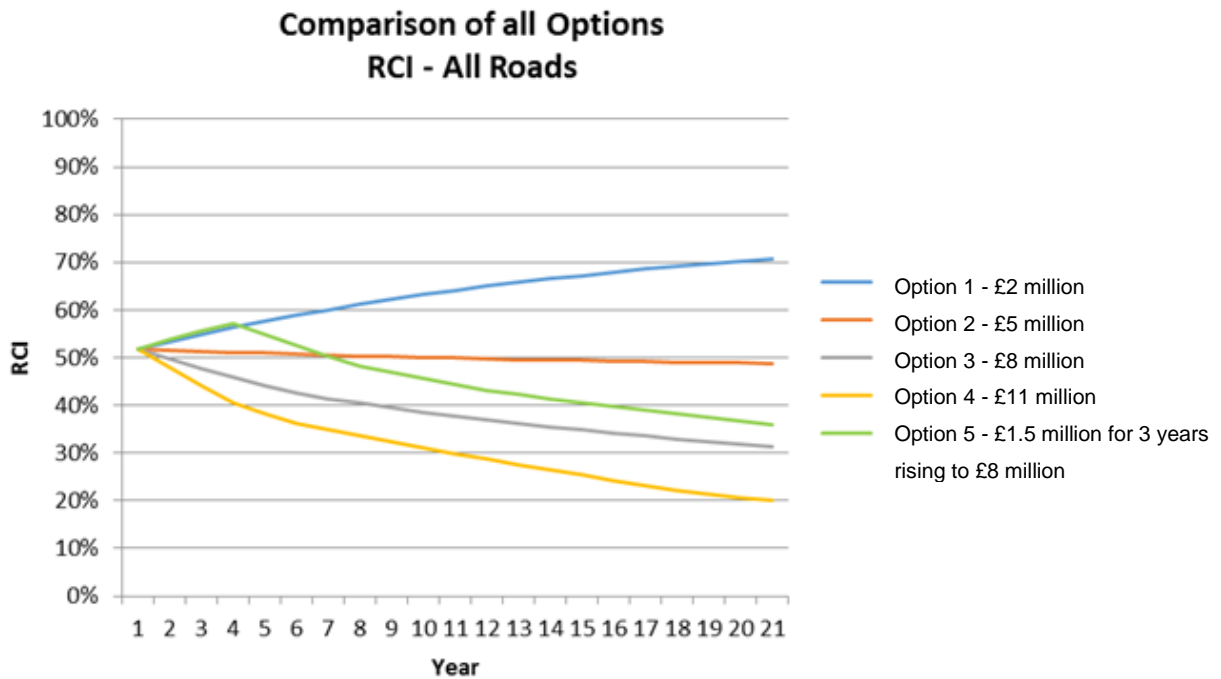
- In the short term this option has a negative effect on the network with the RCI increasing by 5%. There will be an increase in reactive maintenance for the first 5 or 6 years.
- In the longer term the SCOTS model predicts an overall improvement in the RCI over 20 years; falling from 51.8 to 35.92.
- However the number of roads in a RED condition will increase from 13.15 to 21.69, leaving just over a fifth of our roads in a poor condition. This is the direct impact of several years of insufficient investment, and unfortunately negates the improvement achieved over the last 5 years.
- Over 20 years this plan will improve the network and result in our road condition being about average compared to other Scottish authorities.
- The number of roads in a GREEN condition will increase significantly by 16% over 20 years.
- This level of investment will lead to a reduction in reactive maintenance over the 20 year period.
- This follows the treatment strategy already in place, but provides sufficient funding to allow this strategy to be implemented effectively.



### 3.7 Comparison of Carriageway Options

The following graph shows a comparison of the overall RCI for the 5 investment options. The overall RCI is the total percentage of roads in RED and AMBER conditions. Note that the RCI is getting worse (i.e. higher) for Option 1, and is improving for each of the other options.

These statistics must be viewed along with the previous, more detailed graphs. Although the overall RCI is improving very slightly for Option 2, this is at the expense of our poorest, red condition roads, which will continue to deteriorate. Option 3 provides slow and steady improvement, while Option 4 is the fast track to a better network. Option 5 shows deterioration for the first 5 years and then steady improvement after the budget increases to £8million.



The following table shows a summary of the results of each option, green indicates an improving situation:

	Option 1	Option 2	Option 3	Option 4	Option 5
Overall RCI	Significantly worse (70.74)	Slightly better (48)	Significantly better (31.27)	Much better (19.95)	Better (36)
% Green	Significantly worse (30%)	The same (50%)	Significantly better (70%)	Much better (80%)	Better (66%)
% Red	Much worse (41%)	Significantly worse (30%)	The same (17%)	Significantly better (10%)	Worse (22%)
Reactive maintenance	Much more maintenance	Significantly more maintenance	Significantly less maintenance	Much less maintenance	More maintenance in the short term, less in long term
Comparison with other Scottish authorities	The worst in Scotland by a long way	The worst in Scotland	About average	The best in Scotland	About average

### 3.8 Considerations for the Capital Programme

The capital programme for roads reconstruction is primarily focused on improving the road condition index (RCI). In simplistic terms we treat the roads which are most in need of work, with a view to improving the overall condition of the network over time. The SCOTS model helps us predict the optimum balance of budget and treatment type over a 20 year period. However there are a number of other considerations which affect the capital budget and how it is spent. In a number of cases (Flooding schemes, Timber Transport schemes and work with SUSTRANS) there is a requirement for the Council to offer partial or match funding in order to secure grants.

#### Flooding Schemes

Argyll and Bute Council has one potential flood scheme for Campbeltown to be developed and designed, at least four schemes for development/further study and four Surface Water Management Plans to be drafted. The cost profile of the delivery of the Local Flood Risk Management Plan is expected to be (very approximately) as below:-

Year	16-17	17-18	18-19	19-20	20-21	21-22	Total
Funding source	(£k)	(£k)	(£k)	(£k)	(£k)	(£k)	(£k)
Capital Cost	100	150	400	2,000	6,430	250	9,330
<b>Capital – Council Contribution</b>	<b>20</b>	<b>30</b>	<b>80</b>	<b>400</b>	<b>1,286</b>	<b>50</b>	<b>1,866</b>
Revenue	250	350	350	250	250	250	1,700

The Scottish Government has awarded the Council an additional £113k (still to be confirmed by Council as to which subject areas this will be allocated to) to assist with preparation of the studies and plans and £80k to assist with the Campbeltown Flood Prevention Scheme (representing 80% of the estimated total capital cost in 2016-17).

With regard to taking forward the Local Flood Risk Management Plan, there is a financial risk until the Council confirms that it has set out sufficient capital and revenue investment.

#### Safety Schemes

A portion of the roads revenue budget is allocated to safety barriers – this is £25,000 per administrative area per year. This is mostly used to repair barriers damaged due to accidents.

The majority of our safety scheme works are reactive, based on hazards identified through inspections or accidents. To ensure the network is as safe as possible and to protect the reputation of the Council we need to start developing a more proactive approach to safety. To this end we are currently developing a safety barrier policy which will include proactive identification of sites in need of safety barriers and assessment of existing barriers. This will produce a long term plan for upgrading the safety of the network in a structured way.

There are numerous sites across Argyll where safety could be improved, for example we could install safety barriers alongside all routes which run beside a loch. It is unrealistic to expect that this could be achieved in a few years as it



would cost millions of pounds. The safety barrier policy will allow us to prioritise the sites in most need of work and create a long term plan to address safety across the network.

Safety schemes will be included in the capital programme. We may wish to consider ring fencing a portion of the budget to ensure this is achieved.

### **Timber Transport**

Argyll and Bute council work with the Forestry Commission through the ATTG (Argyll Transport Group) to identify timber haul routes in need of maintenance or repair. We can access funding to assist with repairs of timber routes via the Strategic Timber Transport Fund but these require partial match funding from the Council. Examples where we have benefited in the recent past are Glenralloch road in Tarbert and the B386 Glenlean in Cowal. We are currently investigating potential schemes in West Loch Awe.

## 4 Footways & Footpaths

### The Asset

The council's footways (path adjacent to carriageway) asset totals 420km. The quantities of footway are based on current available inventory data stored within the pavement management system WDM. These quantities will be reviewed and updated as more inventory data is collected.

Footways Quantities by Hierarchy		
Footway Hierarchy	Length (m)	Area (sqm)
Higher Amenity Footways	41,977	117,536
Other Footways	377,796	755,592
<b>Total</b>	<b>419,773</b>	<b>873,128</b>
Quantities based on current WDM inventory data.		

The council's Footpath (path remote from carriageway) asset is detailed within the Public List of Roads and totals 9.2Km as below:

Footpath Quantities		
Quantity	Length (m)	Area (sqm)
Footpaths	9,195	11,034
Data Source - Public List of Roads		
Note – Area is estimated based on average width of 1.2m		

### Asset Value

The council's footways assets were valued in accordance with the CIPFA Transport Asset Code and are detailed below:

Footway Asset Valuation: 1 <sup>st</sup> April 2016			
Classification	Gross Replacement Cost (GRC)	Depreciated Replacement Cost (DRC)	Annualised Depreciation (AD)
Footways	£67,367,672	£53,485,816	£633,752
Footpaths	£852,045	£661,459	£8,405
<b>Total</b>	<b>£68,219,717</b>	<b>£54,147,275</b>	<b>£642,157</b>
Data source – WGA valuation spreadsheet 2016			

## Investment

### Historical Investment

Historical investment in footways is shown below:

Historical Investment in Footway Asset								
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Footways (Revenue)	£138,791	£215,907	£186,990	£61,675	£226,263	£187,066	167,127	163,232
Footways (Capital)	£25,056	Nil	£144,057	£0	£271,265	£81,609	272,156	156,987
Cycleways (Capital)	Nil	Nil	£552,449	£0	£93,954	65,341	£0 (all work grant funded)	£0 (all work grant funded)
Data source – Finance end of year accounts								

### Last Year's investment

During 2015-16 the investment in the footway asset was as detailed below:

Previous Years Investment 2015-16		
Cost of All Maintenance Work on Footway	Spend (£)	Percentage of Total F/way Spend
Footway Planned Maintenance	309,196	98%
Footway Reactive Maintenance	5,277	2%
Footway Routine Maintenance	0	0%
Total	314,473	100 %
Data Source – WGA / APSE returns		

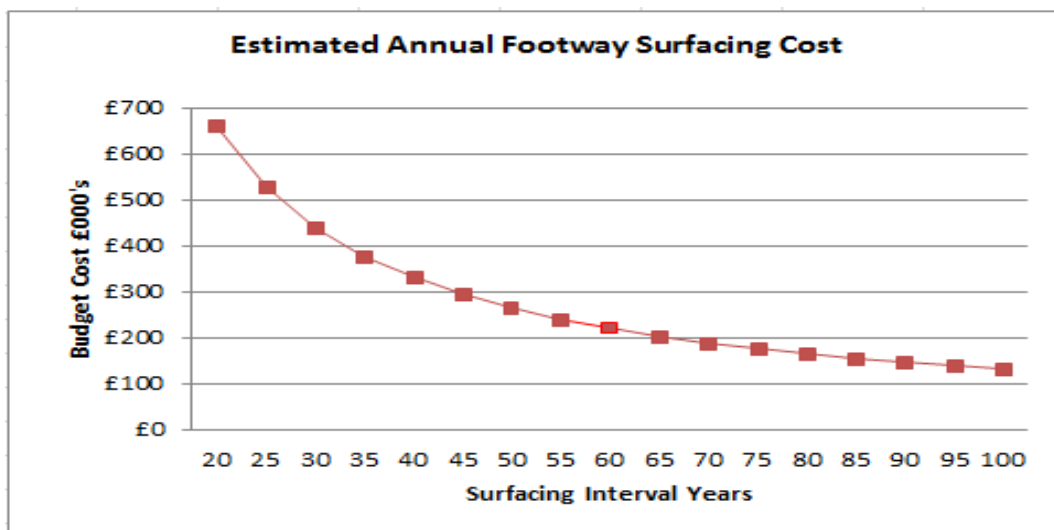
## Investment Options

There is currently insufficient data available to project future condition and maintenance costs. The only option presented is an estimated steady state budget based on current available data.

### Steady State

The following steady state projection is based upon estimated asset length (moderate confidence), estimated average width and estimated unit rate for the replacement of surfacing materials. The table below shows the annual budget required for a range of service lives. Roads Engineers estimate the expected service life for footways to be 60 years.

Expected Service Life versus Estimated Annual Budget						
Expected Service Life	Service Required	Annual Budget	Expected Service Life	Estimated Budget	Annual	
20		£662,805	65	£203,940		
25		£530,244	70	£189,373		
30		£441,870	75	£176,748		
35		£378,746	80	£165,701		
40		£331,403	85	£155,954		
45		£294,580	90	£147,290		
50		£265,122	95	£139,538		
55		£241,020	100	£132,561		
<b>60</b>		<b>£220,935</b>				



Based on the estimated 60 years service life, the steady state budget is £220,935.

<b>Estimated Steady State Budget</b>					
<b>Asset Inventory (estimated)</b>					
<b>Asset Length</b>		<b>Average Width</b>		<b>Total Area</b>	
429	Km	2.06	m	883740	Sqm
<b>Unit Rate for surfacing</b>		<b>Expected Service Life</b>		<b>Annual Surfacing Quantity</b>	
£15.00	Sqm	60	Years	14729	Sqm
<b>Estimated Steady State Budget</b>				<b>Annual Surfacing length</b>	
<b>£220,935</b>				<b>7.15</b>	<b>Km</b>

### Footways Option Summary

Footways			
No.	Options		Comment
	Description	Annual Funding	
1	Assumed Steady State	Capital £221k Revenue N/A	Estimated by officers to be required to replace surfacing on average every 60 years
2	Current Funding	Capital £0k Revenue £96k	Current Capital funding does not provide any investment in surface renewal.

## 5 Street Lighting

### The Asset

The council's street lighting assets are detailed below (Data source – WGA valuation spreadsheet 2016)

Street Lighting Columns by Material Type					
Material Type					Total
Non Galvanised Steel					3120
Galvanised Steel					9730
Concrete					45
Aluminium					1089
Stainless steel					10
Wood Poles					183
<b>Total</b>					<b>13937</b>
Street Lighting Lamp Assets					
Lamp Type	UMSUG Assessed Circuit Wattage (W)				Total
	0-50W	50-100W	100W-150W	150W+	
SON (High Pressure Sodium vapour)		10596	2847	100	13543
SOX (Low pressure Sodium Vapour)	7	133	6		146
HQI (High Intensity discharge)		3			3
MCF	422				422
TUN	65		4		69
PLS	45				45
LED	137	66			203
<b>TOTAL</b>					<b>14431</b>
Street Lighting Cable Assets					
Location					Total (m)
Carriageway (based on 10% asset length)					41811
Footway (based on 50% asset length)					209055
Verge (based on 40% asset length)					167244
<b>Total (based on estimated 30 Lin m per S/L column)</b>					<b>418.11 Km</b>
Asset growth	Over the last 5 years the street lighting asset has grown by lighting columns primarily due to estate adoptions.				

### Asset Value

The Council's street lighting asset was valued in accordance with the CIPFA Transport Infrastructure Asset Code and a summary of the results detailed in below;

Street Lighting Asset Valuation			
Street Lighting Assets	Gross Replacement Cost (GRC)	Depreciated Replacement Cost (DRC)	Annualised Depreciation (AD)
Columns	£43,045,402.00	£22,503,330.23	£1,050,934.81
Luminaires	£2,163,300	£1,034,040	£108,165
Illuminated Signs	£188,162.72	£92,288.49	£7,526.51
Illuminated Bollards	£13,771.02	£6,837.61	£550.84
<b>Total</b>	<b>£45,756,683</b>	<b>£24,667,593</b>	<b>£1,178,871</b>

AD is the average amount by which the asset will depreciate in one year if there is no investment in renewal of the asset. It is based upon replacement of components at the end of Expected Service Life (ESL).

### Condition

The condition of lighting assets is based on the age of the asset and whether it has exceeded its design life.

The table below details the average expected service lives (ESL) of street lighting components.

Average Expected Service Life (Years) By Material Type	
Column Type	ESL (Years)
Non Galvanised Steel	20
Galvanised Steel	40
Concrete	30
Aluminium	40
Stainless Steel	70
Cast Iron	100
Other (Wall Mounted Equipment)	25

### Lanterns /Equipment Age and Obsolescence

Luminaires and other equipment have a finite life. They can require replacement either as a result of reaching the end of their service life or as a result of becoming obsolete/in need of replacement with more modern equipment.

Luminaires and other equipment are routinely replaced discretely from the columns they are fixed to.

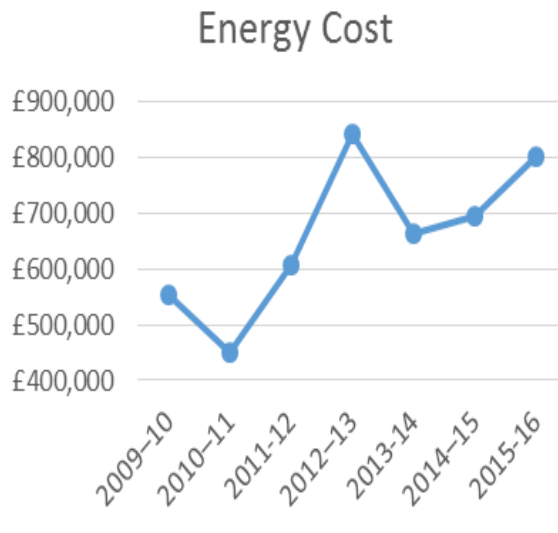
### Energy Use and Cost

Increasing energy costs are a significant challenge requiring increased investment in low energy components to offset costs. This coupled with a desire to reduce carbon adds greater pressure to invest wisely in asset renewal/replacement.

The cost of energy is calculated based on the total wattage of street lamps and other illuminated signs, actual charge per unit and estimated annualised burning hours.

The table below details historical energy costs.

Street Lighting Energy Costs	
Year	Cost
2009-10	£553,971
2010-11	£450,379
2011-12	£607,005
2012-13	£841,333
2013-14	£661,513
2014-15	£692,994
2015-16	£799,558
Data Source – Finance	



The LED replacement programme aims to replace around 14,416 of our street lights with LED equivalents. These are more resilient, use less energy and have a longer lifecycle. This will reduce future energy and maintenance costs. After a contribution is made to budget reductions, energy savings will be reinvested back into the network to improve the condition of street lighting columns.

### Investment in Lighting

Historical investment in lighting has been as shown in the table below:

Historical investment							
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Capital	£585,647	£740,616	£729,376	£532,925	£551,264	£562,800	£156,266
Revenue	£619,130	£623,624	£815,379	£375,416	£356,724	£387,984	£510,855

### Investment Options

An updated inventory survey has been completed. This will allow a detailed business case to be produced detailing investment opportunities and options.



### Predicted Future Funding Need

Future funding needs can be predicted more accurately as more information on asset inventory, condition, and maintenance costs becomes available. This is a recognised benefit of implementing and practicing an accepted asset management approach.

### Maintenance/Cost Impacts

The impact on reactive maintenance costs attributed to more columns exceeding their expected service life cannot be quantified at this time. Further work needs to be undertaken to understand the relationship between street lighting asset (column) age/condition and corresponding reactive maintenance costs if these impacts are to be understood better.

### Option Summary

Street Lighting			
No.	Options		Comment
	Funding	Annual Funding	
1	Assumed Steady State	Capital £1.18m	Capital Investment based on Annual Depreciation Table
		Revenue £500k (estimated)	
2	Current Funding	Capital £292k	
		Revenue £352k	
Comment – There is currently insufficient data to provide future predictions of funding need and investment options.			

## 6 Structures

### The Asset

The structures listed within this report relate only to structures owned and maintained by the Council which form an integral part of the carriageway asset. It does not include;

- Structures not owned or maintained by Argyll and Bute Council.
- Structures located on the Trunk road network which are maintained by Transport Scotland.
- Structures located on private roads or maintained by others
- Buildings or property

### Inventory

The authority's structures asset is detailed below:

Structures Quantities	
	Quantity
Road Bridges	881
Footbridges	17
Unusual Structures	2
Retaining Walls	1556
Height, Sign and Signal Gantries	0
Culverts	369
Subways	0
<b>Total</b>	<b>2825</b>

### Asset Value

The Councils structures assets were valued at April 2016 as detailed below:

Structures Valuation Summary				
Structure Type	Gross Replacement Cost	Depreciated Replacement Cost	Annualised Depreciation Cost	Total Depreciation
Road Bridges	£110,053,159	£103,349,832	£1,231,289	£6,703,327
Footbridges	£3,072,736	£3,063,571	£2,331	£9,165
Unusual Structures	£2,253,684	£1,833,055	£0	£420,629
Retaining Walls	£430,915,249	£430,749,411	£53,609	£165,838
Height, Sign and Signal Gantries	£0	£0	£0	£0
Culverts	£4,727,616	£4,727,616	£83	£0
Subways	£0	£0	£0	£0
<b>TOTALS</b>	<b>£551,022,444</b>	<b>£543,723,485</b>	<b>£1,287,312</b>	<b>£7,298,959</b>

## Inspection

The inspection regime applied to the structures stock is as illustrated below:

Inspections	
Performance Indicator	No.
Number of general inspections scheduled to be undertaken between 2014-2016	843
Number of general inspections undertaken between 2014-2016	873
The frequency of general inspections (in years)	2

## Structural Condition: Failed Assessment/Strength

A number of structures on the network have failed structural assessment (40T). These are potentially in need of strengthening works and are detailed below:

Assessment Statistics		
Performance Indicator	2014-15	2015-16
Number of council owned / maintained bridges that failed assessment	21	21
Number of privately owned bridges within council's road network that failed assessment (passed 3t assessment) (British Waterways / Scottish Canals & Network Rail Structures)	N/A	4
Number of council owned / maintained bridges subject to monitoring/special inspection regimes	11	25

For some of the structures included in the statistics above a continuance of the special monitoring/special inspection regime is acceptable in the short term as shown below. Note this value has increased in the last year.

Weight Restrictions		
Type of Restriction	2014-15	2015-16
Council owned / maintained weight restricted bridges (excluding acceptable weight restriction)	11	16
Council owned / maintained height / width restricted bridges (Inveraray Arch)	1	1

The numbers of Council bridges with a weight restriction or subject to monitoring has increased in the last year.

## Current Structural Condition

### Bridge/Structure Stock Indicator

The bridge/structure stock indicator is determined from inspection and assigned a score in one of the following categories:

<b>Excellent (score 90-100)</b>	No functional or structural defects
<b>Good (score 80-89)</b>	Some minor defects that have limited impact on the structure.
<b>Fair (score 65-79)</b>	Minor to moderate defects that may impact on the durability of the structure and may impact function.
<b>Poor (score 40-64)</b>	Moderate to major defects that are likely to impact on the function of the structure.
<b>Very Poor (score 0-39)</b>	Major structural defects and some components on the bridge may be failed, requires attention

A high Bridge condition indicator score is desirable, a low score indicates multiple defects.

The bridge condition indicator scores for the structures stock up to and including 2015/16 are detailed below.

Bridge Stock Indicator	2010/11	2011/12	2012/13	2014/15	2015-16
BSClave - average condition index	N/A	92	90.75	90.12	89.16
BSClcrit – critical condition index	N/A	N/A	85.65	85.70	84.57

- BSClave: The bridge stock condition indicator (ave) is the numerical value of a bridge stock evaluated as an average of the bridge condition indicator values weighted by the deck area of each bridge.
- BSClcrit: The bridge stock indicator (crit) is the numerical value of the critical condition index for the bridge stock evaluated using the BClcrit values for each bridge.

The average bridge condition indicator has reduced by a small amount every year for the last 3 years, indicating that the stock is deteriorating.

## **Weight Restrictions**

The number of weight restricted bridges and retaining walls has been managed by a programme of strengthening and replacement, alongside inspection and maintenance works.

The capital expenditure has averaged £437k over the last 9 years and was able to prevent any need for new weight restrictions apart from emergency requirements due to weather damaged structures. Currently the budget for 2017/18 financial year is £69k with no further budget allocated for future years. This may require additional structural restrictions to be able to keep them open for lighter traffic. The number of Abnormal Loads in the Council area has steadily increased to nearly 800 per annum (mainly due to wind farm developments) and this together with the inspections, technical approval, maintenance and general management of the structures all compete for funding from the bridge maintenance (Revenue) budget allocation.

### **Kilbridemore Bridge**

The Kilbridemore Bridge on the U22, off the A886 in West Glendaruel has recently deteriorated to the point where it now requires a 3 tonnes weight restriction. At the other end of this road there is another bridge which already has a 7.5 tonnes weight restriction. This will cause major inconvenience for residents and will affect Council services like bin lorries and the school bus.

The options for repair or replacement of this bridge are currently being developed and are likely to be expensive, in the order of £0.5 million.

### **Bridges likely to need a weight restriction in the near future**

There are a number of bridges which are likely to need a weight restriction in the next couple of years. These are already being monitored because of their condition. These are:

- Pennyghael bridge in Bunessan, Mull
- Claonaig Bridge near the ferry terminal at the north end of Kintyre
- Knock Bridge on Mull

Other structures that may need restrictions if monitoring their performance is not a suitable interim measure include:

- Kilninver bridge – leading to Seil and the Luìng ferry
- Ford Bridge at the south end of Loch Awe
- Springbank, Glenevedale (2) bridges on the Islay section of the A846
- Craigens Bridge at Gruinart on Islay

A large percentage of the Council's retaining walls were constructed over 100 years ago and will need replacement or strengthening in the near future.

The risks centre on funding to maintain, operate and improve the assets as well as condition risks. With regard to bridges or wall, the effect of a weight restriction on the (potentially only) road to a community can be quite devastating.

It can also be particularly expensive and take many years to develop projects for the replacement of a large structure like Kilninver or Pennyghael bridge. There is an increasing risk of additional weight restrictions becoming necessary to protect road users if sufficient funding is not available for bridge replacement or strengthening. Structures as those mentioned above and also B842 Claonaig Bridge would have lengthy scheme development time and pose a severe restriction on traffic flows if they had to be restricted.

**Output from Investment**

The output from investment in during 2015-16 is detailed below:

Output from Investment		
Category		Output
Capital	£496,000	<ul style="list-style-type: none"> <li>• B8018 Braigo – Bridge Replacement</li> <li>• C27 Taychreggan Wall – Wall Replacement</li> <li>• C12 Ballygrant – Bridge Replacement</li> <li>• B840 Ar Taigh – Wall Replacement</li> <li>• Preliminary Design Work</li> </ul>
Revenue	£247,280	<ul style="list-style-type: none"> <li>• Structural Assessment</li> <li>• Bridge Inspections - (This will include any costs for Bridge Maintenance Works / Planned Inspections and Works / Emergency Inspections and Works)</li> <li>• Abnormal Load Routing</li> <li>• Management of Structures</li> </ul>
Total Investment	£651,327	
Data source – Finance / Design Services		

### Options for Structures

Structures			
No.	Options		Comment
	Description	Annual Funding	
1	Current Funding 2015-16	Capital £496k Revenue £247k	
2	Assumed Steady State	Planned/Capital £1.0m	Estimated by officers to be required to maintain stock in a reasonable condition
		Revenue £500k	
		Kilbridemore bridge £750k	
<p>Comment – Cost projection tools are currently not sufficiently sophisticated to enable prediction of future condition and funding need based on present structures data.</p>			

## 7 Comparison of Steady State requirement with committed Capital Budget

The previous sections have outlined the Steady State requirement for each of the main Roads assets groups. This is summarised below:

Asset Group	Steady State requirement	
Carriageways	£6,350,000	(this is the lower end of the estimated range £6.35-8million)
Footways	£221,000	
Street Lighting	£1,180,000	
Structures	£2,250,000	(includes £750k for Kilbridemore bridge)
<b>Total</b>	<b>£10,001,000</b>	

The following table shows the comparison of the Steady State requirement with the committed capital budget for Roads and Amenity over the next 3 years:

	Steady state requirement	Committed Capital Budget
2017-18	£10,001,000	£1,631,000
2018-19	£9,251,000	£3,504,000
2019-20	£9,251,000	£5,250,000
<b>Total</b>	<b>£28,503,000</b>	<b>£10,385,000</b>

If this is the full capital budget allocated to Roads and Amenity, by the end of 2019-20 we will have invested £18,118,000 LESS than the steady state requirement over these 3 years. This will have a detrimental effect on the condition of all of our assets and will inevitably lead to greater maintenance costs. As the revenue budget will not be increased to accommodate the higher costs, this will lead to a worsening condition of all our assets.