

The Highland Council
Community Services Committee

Agenda Item	11
Report No	COM 46/16

3 November 2016

Road Asset Management Plan (RAMP) Version 4

Report by Director of Community Services

Summary

This report presents the fourth version of the Council's Road Asset Management Plan for approval, developed through participation in the Society of Chief Officers of Transportation in Scotland (SCOTS) joint project with Scottish Local Authorities and Welsh Unitary Authorities to continue implementation of a common asset management framework for road and bridge infrastructure.

1. Introduction

- 1.1. The Road Asset Management Plan (RAMP) is identified as one of the documents required by the Corporate Asset Management Plan, and is driven by related Codes of Practice and Best Value.
- 1.2. The TECS Committee agreed to support the SCOTS Road Asset Management Project by working with all 32 Scottish Local Authorities, to produce a common framework for the Road Asset Management Plan at its meeting on 16 August 2007 (TEC-50-07).
- 1.3. The TECS Committee approved the first version of the RAMP at its meeting on 18 March 2010 (TEC-23-10), the second version on 20 September 2012 (TEC-48-12) and the third version by Community Services committee on 15 May 2014 (COM/06-14). This report invites Members to approve the fourth version of the RAMP.

2. SCOTS Asset Management Project Delivery

- 2.1. The existing contract with the external consultant, engaged by SCOTS and CSSW, has been extended until December 2016. The tender process for the next phase is ongoing with an expected start date in February 2017.

3. Audit Scotland

- 3.1. 'Maintaining Scotland's Roads: A Follow up Report' was published on 4 August 2016 by Audit Scotland. This is its third report on road maintenance in 6 years.
- 3.2. As expected, the report has several recommendations including developing shared services and investigating efficient methods of working. One of the recommendations states that the RAMP should be used to inform Members of the long term investment plans for roads and their whole life costs. The consequences of spending less than necessary to maintain road condition in its current state should also be deliberated in the budget setting process.
- 3.3. Highland will continue to develop asset management techniques and the RAMP to provide more information on the treatment options available, and their predicted

effect on the road asset. Taking part in the SCOTS project provides an efficient method of collaborating with other Councils across Scotland.

4. RAMP Development

- 4.1. Information contained in the RAMP shows that the condition of the road network continues to deteriorate. It states that a more strategic view of maintenance of the network is required due to current budget constraints.
- 4.2. The Council has recognised the need for further investment and has agreed to provide additional Capital funding of £24.52m over 9 years for roads, bridges and piers. This funding will assist in slowing decline in the network condition. Investment has also been made in purchasing new replacement fleet (vehicles) for winter maintenance and a specialist spray injection road repair vehicle. Two spray injection repair vehicles were hired over the summer of 2016 to affect a more durable repair while awaiting delivery of the new one.
- 4.3. The information contained in the RAMP is correct at the time of writing. The Plan does not contain any policy changes.
- 4.4. Copies of the RAMP will be available in the Members Lounge and it will be published on the Council website when approved.

5. Implications

- 5.1. There is a risk that present investment levels will be insufficient to maintain the road network in its current condition.
- 5.2. Resource implications for the SCOTS project have previously been approved by Members and are included in Community Services budgets.
- 5.3. This report has no direct impact on equality, Gaelic, climate change/Carbon Clever or legal implications. However, there may be rural considerations where the lower road usage levels and distances between communities reduce the opportunity to maximize the impact of investment decisions when compared to more densely populated areas /roads with greater usage levels.

Recommendation

The Committee is invited to approve the fourth version of The Highland Council's Road Asset Management Plan, 2016-2019.

Designation: Director of Community Services

Date: 25 October 2016

Author: Robin Pope, Policy & Programmes Manager

Background Papers: COM/06-14 Road Asset Management Plan (RAMP) Version 3 and the Scottish Road Maintenance Condition Survey Results
TEC-48-12 Road Asset Management Plan (RAMP) Version 2
TEC-08-12 Asset Management – Structural Road Maintenance Whole Life Cost Evaluation
TEC-84-10 Scottish Road Maintenance Condition Indicator - 2009
TEC-23-10 Road Asset Management Plan (RAMP)
TEC-09-10 Footway and Cycle Route Network Hierarchies
TEC-96-09 Road Network Hierarchy and Inspections Policy
TEC-36-08 Asset Management – Roads and Bridges
TEC-50-07 Asset Management
RES-134-07 Asset Management

Road Asset Management Plan 2016-2019



Community Services
Roads & Transport

www.highland.gov.uk

Foreword

In Highland we have a diverse geographical area with sparsely populated areas as well as urban ones. This presents challenges when providing local services but we are investing in new technology and trialling innovative techniques to address these issues. Road infrastructure is vital to communities and provides opportunities for employment as well as influencing quality of life. As a local authority, we seek to work collaboratively with others to provide the most efficient and effective service to our customers.

This document sets out the Council's plans for the management of the road asset for the next 3 years. It has been produced in accordance with national guidance and recommended good practice, developed through the Society of Chief Officers for Transportation in Scotland (SCOTS) / County Surveyors Society Wales (CSSW) Road Asset Management Project.

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

The plan recognises the important role road assets have for road users and residents. Increased occurrences of freeze/ thaw cycles in winter and extreme weather events have shown that our roads are susceptible to damage. It is essential that an affordable level of investment is put into the road network to maintain and ultimately improve one of the vital assets of the Council, which will promote the economic wellbeing of local communities.

Councillor Allan Henderson
Chairman
Community Services Committee

Contents

1.0	Introduction	5
2.0	Road Assets	9
3.0	Customer Expectations	11
4.0	Demands	13
5.0	Service Standards	16
6.0	Financial Summary	17
7.0	Asset Investment Strategies	23
8.0	Risks to the Plan	30
9.0	References	31

Figures

Figure 1.2:	Corporate Asset Management Document Structure	5
Figure 1.3:	Asset Management Tasks	6
Figure 3.1.1:	2015 Annual Performance Results	12
Figure 3.1.2:	Spray Injection Repair Vehicle	13
Figure 4.1:	Road Length per Year	14
Figure 6.2.1:	RCI Results per Year	21
Figure 6.2.2:	Example Structure	22
Figure 7.1:	Street Lighting	26

Tables

Table 2.1:	Asset Principal Quantities	9
Table 6.1:	Planned Funding	17
Table 6.2.1:	Historical Expenditure	20
Table 6.2.2:	RCI Annual Results	21
Table 6.2.3:	Annual BSCI Results	22
Table 6.3:	Asset Valuation	23
Table 7.0.1:	Carriageway Strategy	25
Table 7.0.2:	Footway Strategy	26
Table 7.0.3:	Street Lighting Strategy	27
Table 7.0.4:	Structures Strategy	28
Table 7.0.5:	Traffic Signals Strategy	29
Table 8.0:	Plan Risks	30

Document Control

Version Number	Date	Comments
1.0	March 2010	First version of RAMP approved by TECS Committee
2.0	September 2012	First version updated – all sections as necessary. Progress on milestones and improvement actions added.
3.0	November 2013	Second version updated.
4.0	November 2016	Updated using SCOTS template version 2.

Issued

Position	Date
Members	November 2016
Director of Community Services	
Head of Roads & Transport	
Head of Infrastructure	
Policy & Programmes Manager	
Road Operations Managers x 4	
Public via Council website	

1.0 Introduction

1.1. Overview

This plan sets out The Highland Council’s plans for its road assets for the period 2016 - 2019. The Road Asset Management Plan (RAMP) records the Council’s plans for the maintenance of the road asset. The “road asset” comprises of carriageways, footways, structures, street lighting, traffic management systems and street furniture. The powers and duties of road authorities are defined by the Roads (Scotland) Act 1984 and additional relevant legislation.

This Plan is consistent with the Council’s corporate approach to asset management. The purpose of the RAMP is to:

- Formalise strategies for investment in road asset groups
- Define service standards

The plan aims to improve how the road asset is managed and to enable a better value for money roads service to be delivered.

1.2. Corporate Asset Management

The Highland Council has developed a Corporate Asset Management Plan. The RAMP establishes the relationships between the Council’s Corporate Plan objectives and the management practices in operation. The RAMP relates to other council asset management plans as illustrated below:

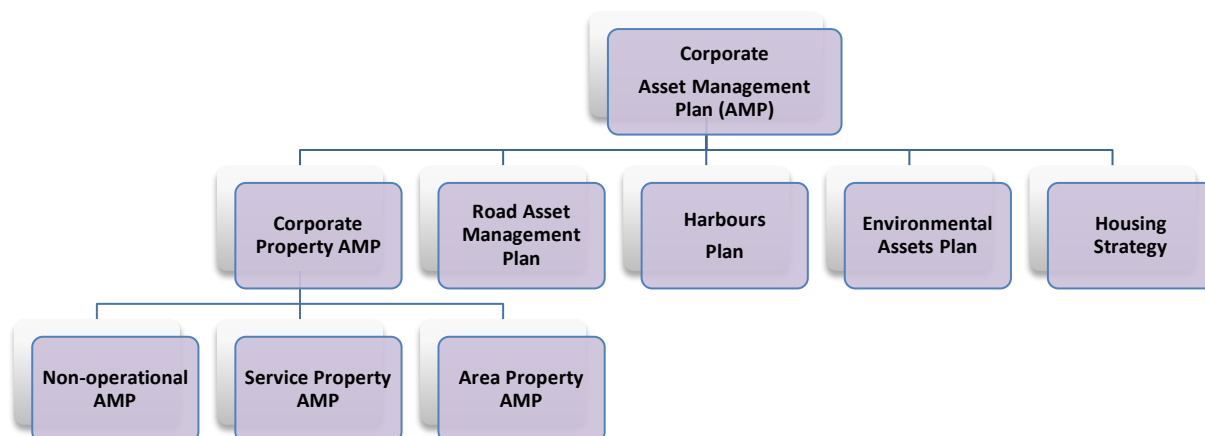


Figure 1.2: Corporate Asset Management Document Structure

1.3. Society of Chief Officers for Transportation in Scotland (SCOTS) / County Surveyors Society Wales (CSSW)

This plan has been developed in accordance with the SCOTS/CSSW recommended asset management planning practices. The diagram below illustrates the tasks and documents required to fully implement asset management and the Council is working towards this.

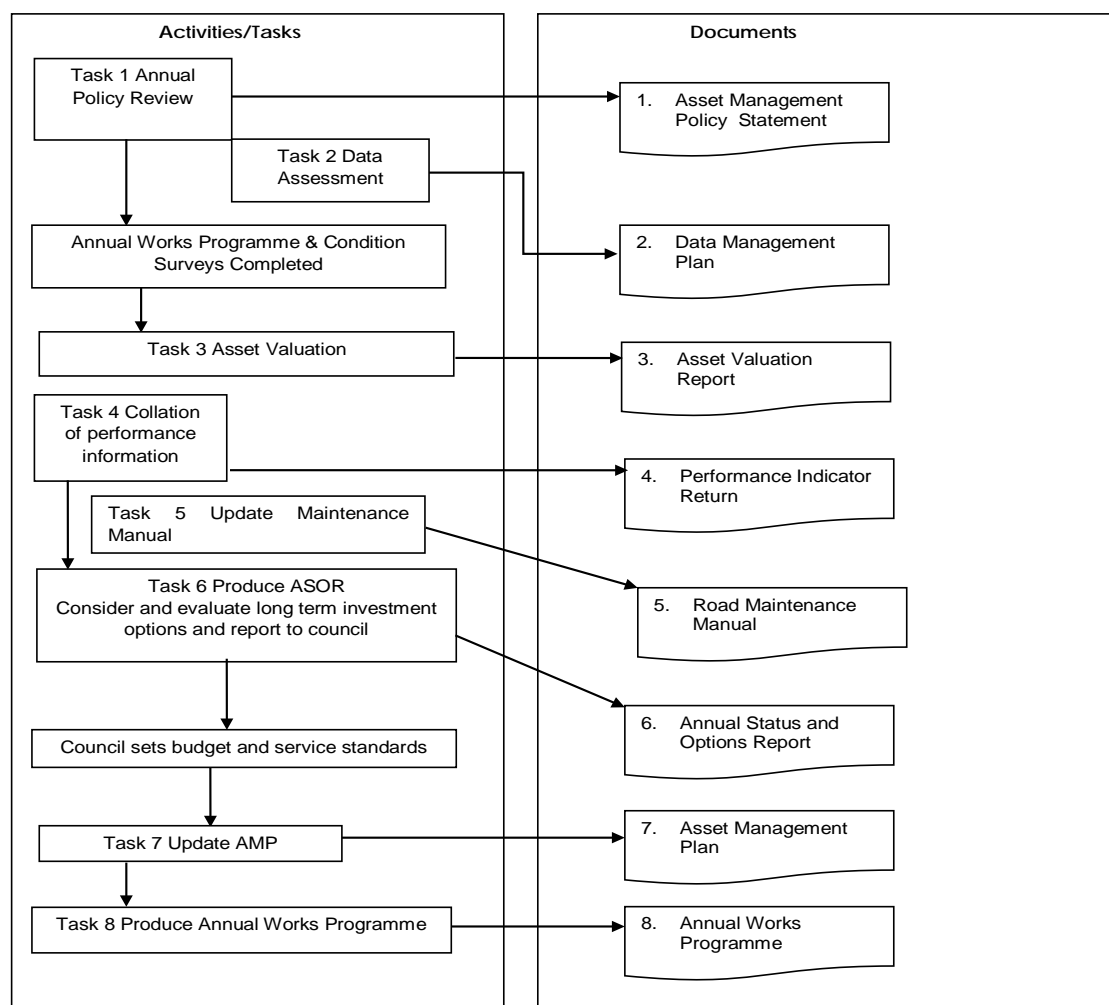


Figure 1.3: Asset Management Tasks

Not all of the tasks above are completed annually. The RAMP document may only be published every 3 or 5 years, depending on changing circumstances. Tasks 3 and 4 are annual returns which are normally completed in quarter 2 of the financial year.

The RAMP is informed directly by the Highland First priorities, Community Services Service Plan and other associated infrastructure documents, some of which are listed below. The strategies contained in the RAMP will be used to develop annual works programmes based upon the Council's road budget allocation.

- Single Outcome Agreement
- Highland First 2015-17
- Corporate Plan 2015-17
- Community Services Service Plan 2016–2017
- The Transport Strategy for the Highlands and Islands, 2008 – 2021, HITRANS
- Local Transport Strategy
- Highland-wide Local Development Plan (HwLDP)

The Highland First plan has 5 specific priorities regarding the road asset. These are listed under 'What the Council will do' and are reproduced below:

21. Roads, Maintenance and Future Investment

We will review capital and maintenance programmes for our Highland roads, identify clear choices and prepare for any investment opportunities that may arise.

22. Winter Maintenance

We will continue to implement our winter maintenance policy including a pre gritting regime.

23. Community Works

We will explore how community works, including drainage, verges, grass cutting and road improvements could be delivered in the context of local decision making and local priorities.

25. Bridges

We will review the arrangements for our bridge inspection along with their maintenance and investment programme.

29. Road Safety

We will work with our communities to promote pedestrian and cycle safety such as expanding the use of 20 mph zones and safer routes to schools.

The Community Services Service Plan addresses these priorities and details can be found in the document at the link below:

http://www.highland.gov.uk/downloads/file/11707/community_services_service_plan

The Road Safety Team in Development and Infrastructure, along with partners such as Police Scotland, take account of, or participate in developing the following strategies and programmes:

- Highland Road Safety Group 2016 to 2018 Action Plan
- Scotland's Road Safety Framework to 2020
- Safer Routes to Schools
- 20mph Zones

1.4. Maintaining Scotland's Roads, Audit Scotland

Audit Scotland published their third report 'Maintaining Scotland's Roads: A Follow Up Report' in August 2016. The report acknowledges that competing budgets are an issue for local authorities with spending on roads put under pressure. It continues to promote efficient working and the use of shared services to enable challenges to be met.

The report has several recommendations, two of which are summarised below. It states councils should:

- Ensure that RAMPs are used to inform elected members of long-term investment plans for maintaining roads that take into account whole-life costing of treatment options.
- Ensure that the consequences of spending less than that necessary to maintain current road condition adequately features in budget-



setting processes to allow elected members to make informed choices which take account of competing demands and priorities.

These recommendations consider the importance of not only the amount of funding made available for roads assets but where and how it is spent. Prioritising maintenance strategically and utilising low cost treatment options is assisting to maintain road condition in the short term. However, short term benefits have the risk of increased costs in the longer term.

2.0 Road Assets

2.1. Asset Description

The Highland Council is responsible for the largest road network in Scotland. The Highland Council road network, as contained in the List of Roads, consists of a wide range of items as summarised below.

Asset	Quantity	Unit
Carriageway (March 2016)	6,743.8	km
Footways (estimated)	1,902	km
Bridges & culverts	2,183	No.
Retaining Walls	1,043	No.
Lighting columns*	51,625	No.
Lanterns on wall brackets*	733	No.
Control Cabinets*	2,344	No.
Internally illuminated signs*	2,731	No.
Illuminated bollards*	415	No.
Traffic signals (incl pedestrian)	103	Sets
Non-illuminated signs (estimated)	9,200	No.
Street Furniture (estimated)	173,864	Items

Table 2.1: Asset Principal Quantities

(*Lighting figures may include non-roads assets, such as housing footways not part of an adopted road, as they cannot be separated out using the database.)

2.2. Assets Not Included in the RAMP

Assets not included in this plan but which will be included in a future revision to the plan:

- Road drainage
- Road markings
- Signs
- Street Furniture
- Intelligent Transport Systems.

Assets which are not covered by this plan include:-

- Trunk Roads including footways/paths and cycleways/paths;
- private roads, footways, cycleways and car parks, including those which are the responsibility of other Council Services;
- privately owned road structures, e.g. Network Rail bridges;
- Public Rights of Way;
- utility infrastructure within the road boundary which is owned and maintained by others, e.g. Scottish Water culverts; BT manholes;
- assets owned and maintained by the Council as part of its other duties, e.g. harbours and recreational parks.

Assets that have been specifically excluded from this plan are:

- Private roads;
- private bridges;
- Council owned bridges, not on or crossing the adopted road network
- water related infrastructure that does not form part of the road network;
- assets relating to the other key areas of Council asset ownership (e.g. buildings, property, Council housing, open space, vehicle fleet and information and communications technology).

2.3. Inventory Data

This plan is based upon currently available inventory data for road assets, i.e. carriageway, footway, structures, street lighting and traffic signals. For

some minor road assets, inventory data is not currently held. However, where necessary, estimates are made of these assets. A plan to improve asset data forms part of the Council's Road Assets Data Management Plan^(R1).

3.0 Customer Expectations

3.1. Customer Preferences

The Council undertakes an annual Citizens' Panel survey to understand the level of public satisfaction in regard to performance. The most recent survey was undertaken in June 2015 with 1,021 participants. It identified that 'road repairs and potholes' and 'winter road maintenance' continued to be at the top of the list of most important services for the public.

The survey collects information relating to the overall performance of the Council and is not specifically a roads related questionnaire. It does, however, provide some information on the importance of services to the public and how well they think the Council is performing. 'Winter road maintenance' and 'road repairs and potholes' were the two services respondents were least satisfied with.

The results of the 2015 survey can be found at:

http://www.highland.gov.uk/downloads/file/15412/annual_survey_of_performance_and_attitudes_2015

The annual performance survey provides an indication of public perceptions gathered from the Panel participants. An asset specific survey would be required to assess the needs and reflect the views of the public with respect to community priorities regarding the whole road network.

The results from the 2015 survey relating to roads have been summarised in Figure 3.1.1. below.



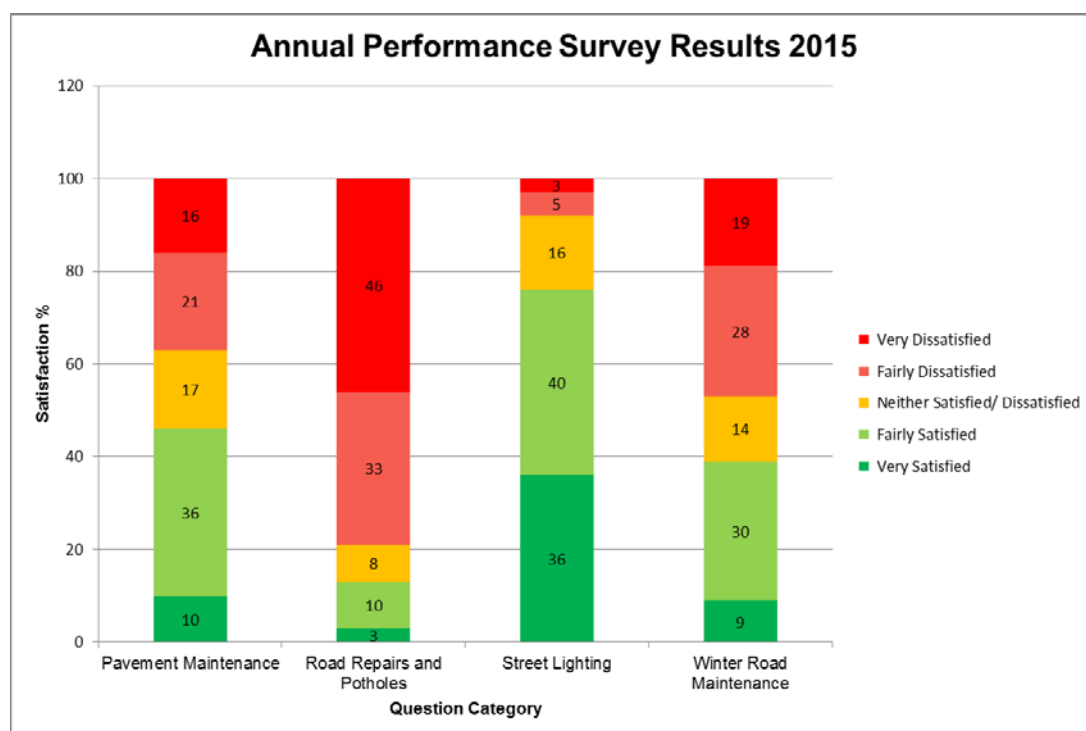


Figure 3.1.1: 2015 Annual Performance Results

Response rates for these categories are stated below.

- Pavement Maintenance – 78% (801 people) responded.
- Road Repairs and potholes – 87% (888 people) responded
- Street Lighting – 78% (793 people) responded.
- Winter Road Maintenance – 83% (952 people) responded.

Service Improvements and Innovation

Since 2015, the Council has been investing in replacement vehicles for its fleet and new technology for winter activities. 25 new specialist winter maintenance vehicles were purchased in 2015/16 and a further 22 in 2016/17. This covers more than 40% of the current winter fleet used to grit the road surface. 16 multi-purpose vehicles (small tractors) were bought in 2016/17 to be used primarily for footway gritting but they can also be utilised for amenity services.

As part of the measures undertaken to reduce the number of potholes, a spray injection road repair vehicle has been purchased following the Roads Innovation Fund trial in 2014/15. With a budget allocation of £150,000, the

Council hired two of these types of vehicles for 13 weeks over the summer of 2016 to undertake repairs while awaiting delivery of the new one. The spray injection repair technique is more durable than hand laid ones as it places material using high pressure, which enables it to be self-compacting and prevent the ingress of water.



Figure 3.1.2: Spray Injection Repair Vehicle

Vehicle Telematics

The installation of a vehicle telematics system is underway which will cover all of the Council's fleet (vehicles). Currently all heavy vehicles, including those used in gritting operations, have had this installed. This is enabling work to be undertaken on route and operational efficiency, which will reduce fuel consumption, maintenance and replacement costs.

3.2. Customer Contacts

The Council operates a Customer Relationship Management (CRM) system where a single service centre receives all telephone enquiries, regardless of which service they relate to. Contact with the Council can also be made at Service Points and local offices as well as by e-mail or letter.

4.0 Demands

4.1. Asset Growth

In recent years, the road asset has grown mainly due to development, either housing or industrial. Roads are occasionally de-trunked and, if required, may become the responsibility of the Council which increases the asset. Detailed data on asset growth is not currently available for all of the major asset groups. However, adopting urban developments usually results in an

immediate increase in the footway, drainage and lighting asset which also increases the electrical consumption.

Figure 4.1 shows how the length of the road asset has grown by 2.7% since 1999. Although the figures appear to show a reduction in road length over the last two years, this is due to a digital re-measure of road lengths rather than unadoption of roads.

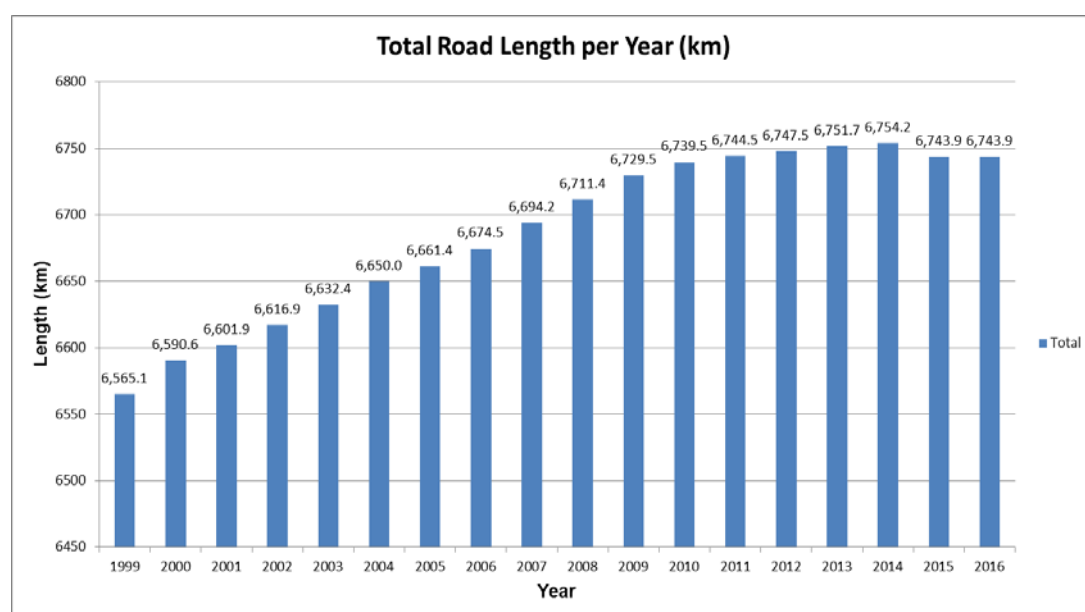


Figure 4.1: Road Length per Year

4.2. Traffic Growth

Traffic growth is a pressure on the road network due to the significant increase in the general volume of vehicles. This includes heavy vehicles used in timber extraction. Many of the Council’s roads were not designed to accommodate the current levels of traffic and this creates a growing need for investment in maintenance.

Traffic growth within the Highlands varies significantly due to the large geographical area covered and the spread of the population. The Council’s Local Transport Strategy (LTS) for the Highlands identifies and discusses key issues for traffic growth. The 2010/11 – 2013/14 LTS states that traffic growth in Highland was at 15% compared to 11% nationally (from 2000 to

2008). The LTS is expected to be updated for 2018, to coincide with the Highland Wide Local Development plan.

The current Local Transport Strategy and active travel masterplans can be found here:

http://www.highland.gov.uk/info/1523/transport_and_streets/121/local_transport_planning

Tourist traffic has a significant seasonal impact on some sites, including Fort William, where summer traffic volumes are significantly higher than winter ones. Other events such as music festivals and the Black Isle Show have a dramatic effect on the network over a short period.

In addition, a new tourist route, the North Coast 500 (NC500) is being promoted for all travellers to experience the uniqueness of Highland coastal areas. Community Services' Head of Roads and Transport is on a Working Group set up to look strategically at the opportunities the NC500 may provide, promote it and try to assist with any issues that local communities may have. The NC500 has many single track sections and these will be affected by the expected increase in traffic volumes and types.

Timber Traffic

Heavy goods vehicles used in timber extraction activities have a significant impact on local roads. Working in partnership with timber hauliers, through the Highland Timber Transport Group (HTTG), the Council has been successful in obtaining match funding for projects to upgrade sections of road subject to timber traffic.

The Highland Council participates in the identification and review of timber routes with the Highland Timber Transport Group. These routes have three different designations which are Agreed, Consultation and Excluded. These classifications are reviewed by the Council in consultation with the HTTG. An interactive map showing the various agreed routes and their locations can be found at the following Timber Transport Forum website link:

<http://timbertransportforum.gaist.co.uk/#/PublicMainPage>

4.3. Environmental Conditions

Pressure is also being placed upon the assets as a result of environmental conditions including:

- Winter Cycles: winters have caused significant damage to road surfaces as a result of increased incidents of freeze/ thaw cycles.
- Storm Events: various areas have been subjected to damage from severe events. This ranges from trees being blown across roads resulting in short term closures to longer term ones caused by landslides or washout.

5.0 Service Standards

This plan is based upon delivering service standards to each asset type. The standards should reflect the funding levels in section 6. They are the standards that users (customers) can expect from the Council's road assets during the plan period. However, the revised Code of Practice^(R2) for managing infrastructure had not been published at the time of writing this plan. It is understood that the revised document is promoting a more risk based approach to managing the road network including setting levels of service. It would therefore be premature to publish service standards in this document when they will need to be revised imminently.

6.0 Financial Summary

6.1. Planned Funding

Asset management planning includes making informed budgetary decisions, taking into account the strategic options presented. With ongoing budget reductions it is unrealistic to expect that all of the funding required to prevent deterioration of the road network will be made available. However, options with the available funding can be developed, showing the impact that budget distribution has.

The service standard targets which will be developed for section 5 will be based upon the following predicted funding levels for the next 3 years. The assumption is that funding levels will remain similar to 2016/17. Updates required to the RAMP will be made if this assumption is incorrect.

Asset	Works	Funding £000
		2016/17
Carriageways	Revenue (Reactive)	5,262
	Capital (Planned)	6,526
Footways	Reactive	240
	Planned	151
Structures	Reactive	607
	Planned	5,831
Street Furniture & Other Assets	Reactive	733
	Planned	247
Street Lighting	Energy Costs	1,694
	Reactive	1,055
	Planned	2,450
Traffic Management Systems	Reactive	120
	Planned	429
Total		25,345

Table 6.1: Planned Funding

The main Capital Programme has been agreed for the period 2015/16-2024/25. Major capital investment includes the Inverness West Link project,

currently under construction, Inshes Roundabout, Kinnairdie Road and bridge replacements such as Muir of Ord and White Bridge.

The Council has agreed to provide additional Capital funding of £24.52M for roads, bridges and piers over 9 years. The 2016/17 allocation for roads and bridges is £2.7M. As well as other works, additional carriageway treatment schemes (surfacing, surface dressing and recycling) will be undertaken with this funding.

Investment in street lighting includes an ongoing £16M project for replacing lamps with LEDs. This will reduce annual energy costs.

There are several sources of funding for works on structures. Future funding levels are assumed to be similar to the current year with investment targeted on a needs basis. Budgets for 2016/17 are shown below:

Development & Infrastructure Capital Programme - £4,885,000;

Community Services Capital Programme - £350,000;

Community Services Revenue works - £607,000.

Funding levels for traffic signals (included as part of traffic management systems) are assumed to be the same as previous years. There are no specific investment strategies for replacement as work priorities depend on outcomes from inspection reports.

Although not a budget aimed specifically at improving the road asset, Decriminalised Parking Enforcement (DPE) has an effect on road markings (lining) and signs. A budget was allocated in 2016/17 to ensure that markings and signs were up to standard before DPE was introduced. Funds raised through the issue of Penalty Charge Notices will be used to maintain the service with any surplus, which is controlled under statute, used for traffic related purposes.

There are other sources of funding which the Council has access to such as developer contributions. Contributions are used for the purpose as stated in

the relevant Section 75 agreement of the Town and Country Planning (Scotland) Act 1997.

On occasion, improvements to the road network are undertaken at the cost of a developer to allow a development to be carried out. An example of this kind of project is the works that Scottish and Southern Energy (SSE) funded on the U3521 Bonar Bridge to Strathcarnoch road to allow them to upgrade power lines and install a substation. The project involved several different aspects of road improvements such as strengthening, widening, overlays, passing place enhancements and strengthening or replacing bridges and culverts. Approximately ten thousand tonnes of bituminous material was used and 30 small culverts replaced. The spend on the public road is estimated at £6.5M, resulting in an improved asset over 7.8km.

6.2. Historical Expenditure

Historical expenditure invested in works on the road asset is shown below (winter maintenance costs are excluded):

Asset	Works	Historical Expenditure £'000				
		11/12	12/13	13/14	14/15	15/16
Carriageways	Planned	7,295	9,142	9,292	6,274	12,913
	Reactive	4,092	4,613	3,973	3,065	2,884
	Routine	3,257	2,365	2,481	2,404	2,159
Footways	Planned	312	411	154	787	249
	Reactive	141	101	118	157	90
	Routine	60	43	51	68	39
Street Furniture & Other Assets	Planned	103	50	68	50	135
	Reactive	133	128	182	150	174
	Routine	200	193	274	225	261
Structures	Planned	3,520	1,812	1,654	923	1,904
	Reactive	1,009	1,221	637	455	537
	Routine	129	128	71	51	60
Street Lighting	Energy Costs	1,680	2,317	2,270	2,251	2,297
	Capital	887	571	543	862	2,445
	Revenue	1,270	1,204	1,323	1,309	814

Asset	Works	Historical Expenditure £'000				
		11/12	12/13	13/14	14/15	15/16
Traffic Management Systems	Planned	13	3	112	57	101
	Reactive	42	34	32	34	30
	Routine	64	51	49	52	46
Totals:		24,207	24,387	23,284	19,174	27,138

Table 6.2.1: Historical Expenditure

The planned expenditure shown for carriageways fluctuates as it is dependent on what capital projects are ongoing. These have included road realignments and improvements such as South Loch Ness, Slattadale and Kinnairdie Road. The significant increase in capital expenditure in 2015/16 for street lighting is due to the LED replacement project. Revenue budgets (reactive and routine) have tended to decrease in line with budget pressures.

Carriageway

The carriageway condition is measured by the Road Condition Indicator (RCI). This is a machine based Key Performance Indicator (KPI) which is undertaken on a National basis and co-ordinated by SCOTS. The results for Highland over the last five years are shown in Figure 6.2.1.

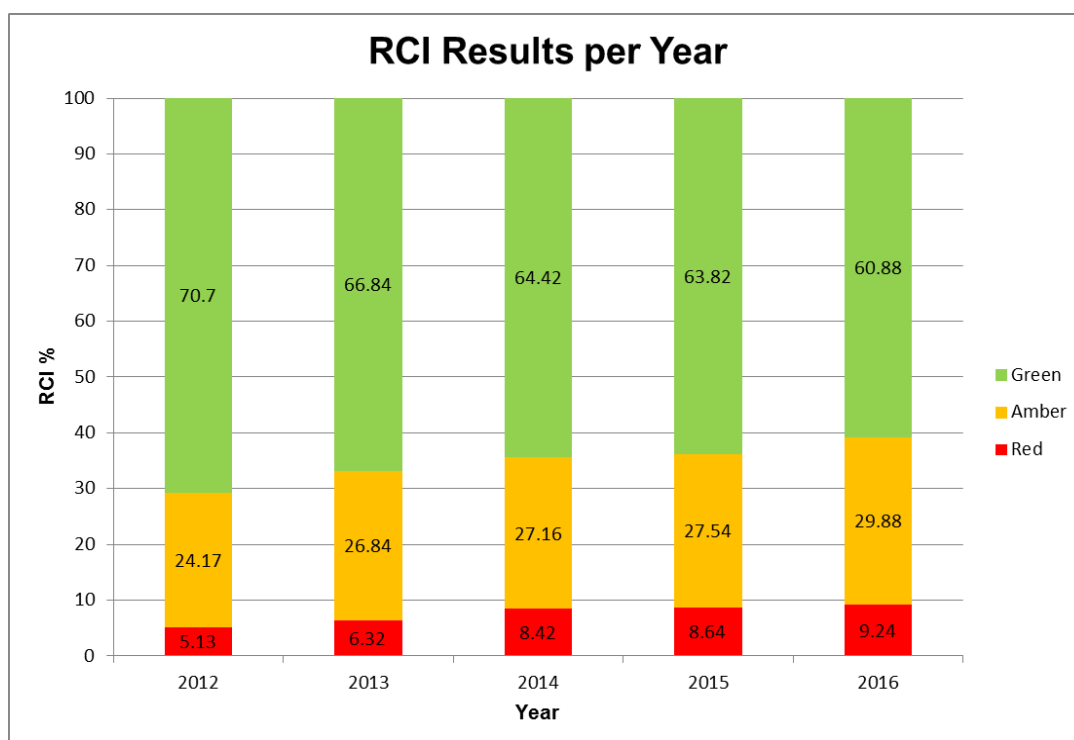


Figure 6.2.1: RCI Results per Year

To calculate the 'percentage of the road network that should be considered for maintenance treatment overall', the red and amber figures are added together. The annual results are shown in the table below.

Year	2012	2013	2014	2015	2016
RCI %	29.3	33.2	35.6	36.2	39.1

Table 6.2.2: RCI Annual Results

Highland is ranked 21st out of the 32 Scottish Councils. The National average for 2016 is 36.7%. As can be seen from the annual results, the percentage of roads in Highland requiring maintenance treatment is increasing. With the funding available, we can target maintenance to attempt to prevent roads from falling into the lower amber and red categories. This preferred method of preventative maintenance spend means intervening in roads which may not look like they require work to general members of the public.

The steady state figure from the SCOTS financial model for carriageways in Highland is £17,671,000. This means that we should be spending this amount of money annually to keep the road network in its current condition.

Structures

SCOTS methodology for annualised depreciation calculates Highland has Structures deteriorating at £3,160,000 per annum (see Table 6.3).

The Bridge Stock Condition Indicator (BSCI) is used as a measure to assess the overall condition. The BSCI average values for Highland are currently calculated for bridges over 5m in span which have had a Principle Inspection. The results for the last 5 years are shown below.



Figure 6.2.2: Example Structure

Year	2011/12	2012/13	2013/14	2014/15	2015/16
BSCI_{ave}	82.5	81.8	82.4	82	81

Table 6.2.3: Annual BSCI Results

As can be seen, the results are fairly stable with the overall result being in the 'Good' category (80-90). A report to the 5th November 2015 Community Services Committee on 'Bridges and Road Structures' highlighted the condition of the bridge stock, with only 39 assessed as being in a 'Poor' condition and 1 in a 'Very Poor' condition.

Street lighting

Investment in the LED replacement project will result in a reduction in associated maintenance costs. This is the subject of a review as part of the Council's current redesign programme. There is no specific column

replacement programme but these are undertaken on a needs basis along with other initiatives.

Traffic Signals

Annual inspection and testing reports are used to identify installations which are in need of replacement.

6.3. Asset Valuation

As at March 2016, the road asset is valued as follows:

Asset Type	Gross Replacement Cost (GRC) £'000	Depreciated Replacement Cost (DRC) £'000	Annualised Depreciation Cost (ADC) £'000
Carriageways	£4,631,801	£3,917,718	£60,057
Footways	£244,047	£182,558	£2,220
Structures	£647,854	£629,417	£3,160
Street Lighting	£156,928	£68,399	£4,365
Street Furniture	£45,243	£22,568	£2,203
Traffic Management	£3,549	£2,503	£167
Land	£377,190		
Total	£6,107,362	£4,823,164	£72,172

Table 6.3: Asset Valuation

Gross replacement cost is the monetary value of replacing an asset with a modern equivalent new one. DRC is the current value of the asset, calculated as the GRC minus depreciation and impairment. Annualised depreciation is the cost of an asset in one year of its expected service life.

7.0 Asset Investment Strategies

The strategies in this section will be developed using predictions of future condition over a 20 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 that will be developed for section 5 to be delivered.

As well as investment strategies, other priorities may be identified which require locally held budgets to be used. For example, the Road Safety Team may make recommendations after a fatal incident on our road network. Any recommendations are then assessed by the local Roads & Transport Area offices and budgets may require to be diverted to address issues.

Investment between Asset Types

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

- Carriageways: level of investment maintained at similar levels with additional capital funding for 9 years.
- Footways: level of investment maintained at similar levels.
- Structures: level of investment maintained at similar levels with additional capital funding for 9 years.
- Street lighting: level of investment maintained at similar levels, plus additional investment in “spend to save” LED project.
- Traffic signals: level of investment maintained at similar levels.

Carriageways

The overarching strategy for carriageways is to invest where possible in preventative maintenance in order to reduce the rate of deterioration of the asset. This includes using treatments such as surface dressing to seal the carriageway surface and prevent ingress of water.

The effect on the carriageway asset with the following strategies is the continuation of deterioration in condition. The current level of funding does not allow for improvement in carriageway condition but this is seen as a national issue with respect to difficult budget choices that Local Authorities



have to consider. However, the additional capital funding will allow for a slower deterioration of the road condition.

Routine and reactive repairs are assumed to continue at current levels and will require continued investment.

Category	Strategy	Comments
Routine and Reactive Repair	Repair of defects to current intervention standards and response times.	The strategy requires the deployment of available resources on emergency and non-emergency repairs such as patching and pothole repair.
Planned Maintenance Preventative	To catch roads in the initial stages of deterioration and prevent further deterioration.	The actual lengths of surface treatments have not yet been calculated using the SCOTS cost projection model. However, projects identified should follow the principles of the strategies.
Planned Maintenance Corrective	<p>Programme of resurfacing where the carriageway condition means a preventative treatment cannot be applied.</p> <p>Programme of strengthening where the carriageway condition requires a more substantial repair.</p>	

Table 7.0.1: Carriageway Strategy

Footways

The overarching strategy for footways is to invest where possible in preventative maintenance to reduce the rate of deterioration of the asset. However, there are various types of materials used in footway construction and replacement of slabbed/ blocked areas with bituminous materials can also reduce future maintenance costs.

Work requires to be undertaken to collate condition information in a format which can be easily queried to enable decisions to be made regarding detailed strategies. Currently, there are limited resources available to achieve this.



Routine and reactive repairs are assumed to continue at current levels and will require continued investment.

Category	Strategy	Comments
Routine and Reactive Repair	Repair of defects to current intervention standards and response times.	The strategy requires the deployment of available resources on emergency and non-emergency repairs such as slab replacement, patching, kerb replacement etc.
Planned Maintenance Preventative	A programme of preventative treatment of bituminous footways in the initial stages of deterioration.	The actual lengths of surface treatments cannot currently be calculated. However, projects identified should follow the principles of the strategy.
Planned Maintenance Corrective	Programme of resurfacing/renewal or strengthening of footways.	Areas of footway renewals cannot currently be identified until more condition information is available. To prevent further deterioration of the asset, renewals may not be undertaken in lieu of preventative maintenance required elsewhere.

Table 7.0.2: Footway Strategy

Street Lighting

The aim of the maintenance strategy for street lighting will be discussed after publication of the new Code of Practice. The night scouting process enables 'dark lamps' to be identified and repaired within a five working day response time.



Figure 7.1: Street Lighting

The structural testing programme enables columns in poor condition to be identified and replaced before an incident occurs.

Some rural locations have lighting switched off between midnight and 6am. Currently there are 213 units where this strategy is applied, reducing energy costs.

Category	Strategy	Comments
Routine and Reactive Repair	Repair of defects to current intervention standards and response times.	The strategy requires the deployment of available resources on emergency and other non-emergency repairs.
Planned Maintenance Preventative	Bulk lamp change.	No bulk lamp changes are undertaken due to the LED replacement programme.
Planned Maintenance Corrective	Programme of structural renewal.	Columns are renewed as resources and funding allows, there are no set targets.
Carbon / Energy Reduction	Programme of lantern replacement.	The LED replacement programme is expected to be substantially complete at the end of March 2019.

Table 7.0.3: Street Lighting Strategy

Structures

The general strategy for maintaining structures is to keep them in such a condition as to provide safe means of access for the travelling public.

Maintenance needs are different for each structure type. Works are prioritised and undertaken after being identified from inspections or reports of damage.

The Council has identified a programme of Capital works for structures that require replacement or major refurbishment works. Priorities can change depending on the outcome of inspection reports. The structure with a 'Very Poor' condition rating mentioned in section 6.2 has been given a high priority and a replacement scheme is currently being designed.

Various factors are taken into account when prioritising works. The factors considered are:

- Load carrying capacity

- Likelihood and consequence of structural failure
- Condition
- Parapet resilience
- Road alignment
- Traffic flows
- Public transport route
- Single route into a community
- Economic impact
- Cost
- Heritage/ listed status

Category	Strategy	Comments
Routine and Reactive Repair	Routine repair of defects.	The strategy requires the deployment of available resources on emergency and other non-emergency repairs.
Planned Maintenance Preventative	Upgrading elements to prevent deterioration.	Painting steelwork, replacing bearings, pointing, etc.
Planned Maintenance Corrective	Structure Replacement/ Strengthening Works.	A Capital programme exists which will be reviewed, as priorities change, as part of the Council's overall Capital allocation.

Table 7.0.4: Structures Strategy

Traffic Signals

The aim of the traffic signals maintenance strategy is to ensure that all equipment remains in a safe condition. Inspections of installations are undertaken annually which also includes an electrical inspection. Work is identified from these inspections and installations are replaced following recommendations in the reports. Individual lamp faults are repaired within 24 hours but a complete signal failure has a 3 hour response time.

Where possible, installations are replaced as a whole rather than replacing individual items of equipment.



Category	Strategy	Comments
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of available resources on emergency and non-emergency repairs.
Refurbishment of signalised junctions and crossings	Refurbishment of junctions/ crossings that have deteriorated or the equipment has become obsolete/unreliable.	Quantities of junctions/ crossings to be renewed are reviewed annually utilising inspection data.

Table 7.0.5: Traffic Signals Strategy



8.0 Risks to the Plan

The risks that could prevent achievement of the strategies specified in this plan are:

No.	Risk	Description	Action if Occurs
1	Budgets – Assumed to be at Current Levels	External pressures may result in a reduction in funding at a government level.	Revise strategies and standards to affordable levels. Reprioritise budgets if possible.
2	Budgets – Construction Inflation Increases	Works costs increase due to inflation affecting materials such as crude oil, which directly impacts the price of bitumen.	Revise strategies and standards to affordable levels.
3	Data – Incomplete Collation	Not all assets have the same level of data available to enable asset management practices to be applied, resulting in higher rates of deterioration than expected.	Revise the distribution between planned and reactive maintenance budgets.
3	Environmental Considerations – Adverse Weather Events	Adverse weather such as storm events and severe winters create higher levels of defects, resulting in increased deterioration.	Budgets may require to be managed and redistributed, with the plan updated if events are severe.
4	Reorganisation – Staff Reduction and Loss of Experience	Inability to deliver works resulting in stated benefits not being achieved.	Revise strategies and standards to achievable levels.

Table 8.0: Plan Risks

A road asset risk register which records the risks associated with each asset type is also maintained. A review of this register will be undertaken annually.

9.0 References

R1: Road Assets Data Management Plan, The Highland Council (under review)

R2: Well-maintained Highways, Code of Practice for Highway Maintenance Management, Roads Liaison Group, 2005