

ROAD ASSET MANAGEMENT PLAN

Contents

		Page No.
1	Introduction	2
2	Asset Description	6
3	Community Requirements	9
4	Future Demands	10
5	Levels of Service	11
6	Lifecycle Planning	13
	Carriageway Lifecycle Plan Summary	16
	Footway Lifecycle Plan Summary	19
	Structures (Bridges & Culverts) Lifecycle Plan Summary	22
	Street Lighting Lifecycle Plan Summary	25
7	Financial Summary	28
8	Risk Management	31
9	Improvement Plan	35
10	Management and Control of the Plan	36
	Appendix 1 – Roads Risk Register	37

Road Asset Management Plan

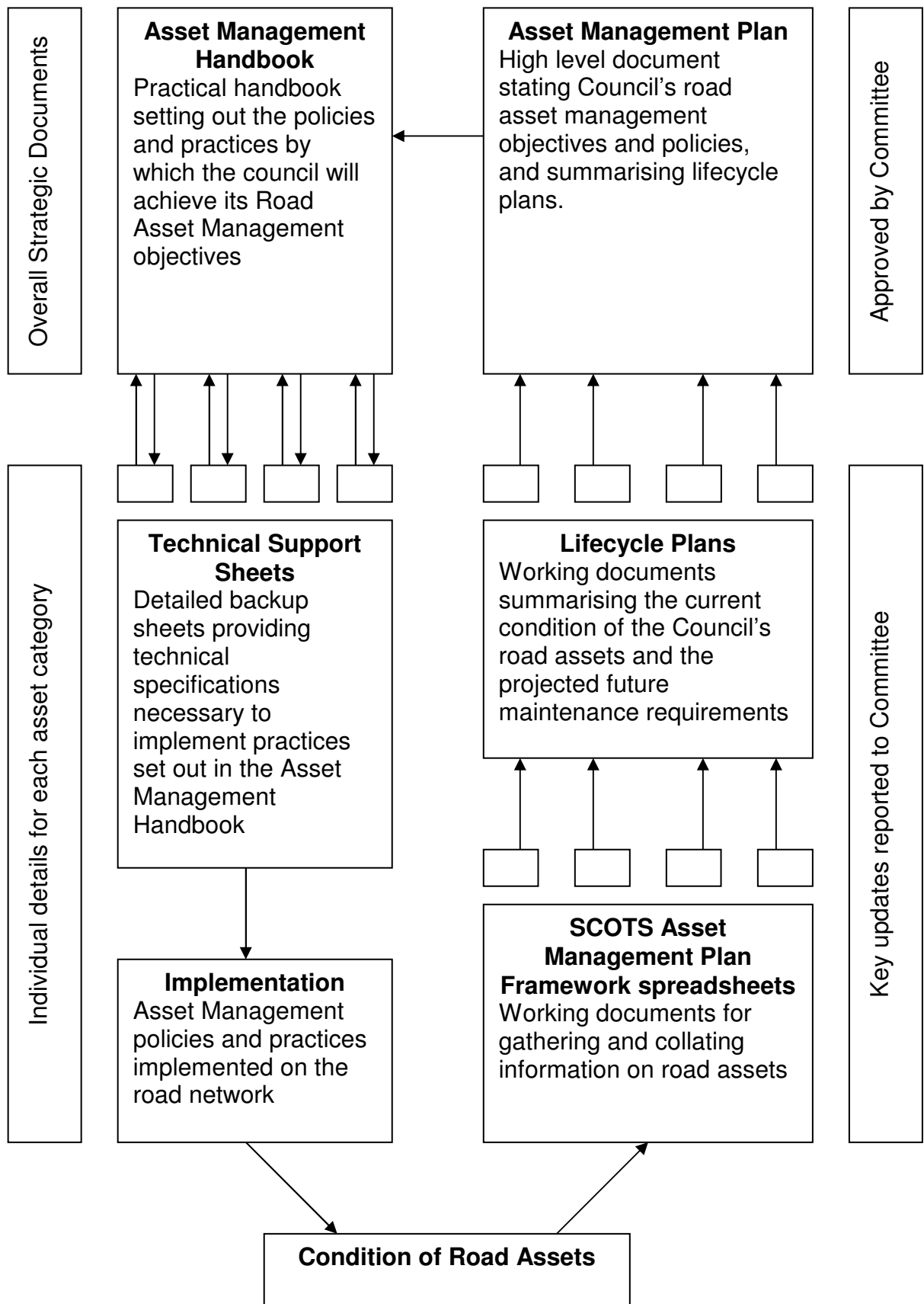
1 Introduction

- 1.1 Roads play a vital role without which our society simply could not function. Not only are they essential for the movement of people and goods, but they are also the conduit for the delivery of the basic utility infrastructure of water, sewage, electricity, gas and telecommunications. Any major disruption to road or utility infrastructure causes serious breakdown in the day to day functioning of a modern society.
- 1.2 Aberdeenshire has just over 10% of the total council-maintained road network in Scotland. With over 5,400 kilometres (3,400 miles) of roads, Aberdeenshire is second only to Highland Council, which has approximately 6,700 kilometres (4,200 miles) of roads. The annual number of vehicle-kilometres travelled on Aberdeenshire's roads is 2.8 billion. Our roads are of major importance to business and commerce in the region, with 81% of freight tonnage being moved by road, compared to 18% by sea and just 1% by rail. Around 30 million tonnes of goods (excluding oil and gas) are moved to, from or within North East Scotland each year. In a rural area like Aberdeenshire, the road network provides a particularly vital link for communities, for users of both private and public transport. Aberdeenshire has the highest rate of car ownership in Scotland, with around 87% of households having access to at least one vehicle.
- 1.3 The general powers and duties of the Council in relation to its road assets are set out in section 1 of the Roads (Scotland) Act 1984: "*... a local roads authority shall manage and maintain all such roads in their area as are for the time being entered in a list (in this Act referred to as their "list of public roads") prepared and kept by them under this section ...*". It should be noted that although the Council exercises full control over its roads this does not necessarily mean that it owns or could sell them as assets. Section 9 of the Act covers this: "*... every road which is entered in the list of public roads kept by a local roads authority shall vest in the authority for the purpose of their functions as roads authority: but such vesting shall not confer on an authority any heritable right in relation to a road.*". Roads are different from most other Council assets in this respect. The asset value cannot be realised by a sale; if a road is stopped up then the solum will normally revert to the adjacent frontager. However, their value to the community is very high and a depreciated replacement cost approach, as adopted by the Chartered Institute of Public Finance & Accountancy in their Transport Infrastructure Assets Code, would value the Aberdeenshire Council road network at some £4.5 billion, as at April 2012.

- 1.4 The ownership status of bridges is rather different to that of the rest of the roads estate. Under the Roads (Scotland) Act 1984, the Council is only liable to maintain those bridges to which it has heritable title. The Council does not hold heritable title to its “older” bridge stock which has been maintained by the public purse for so long that the Council is deemed to own them and be responsible for maintenance rather than holding heritable title. The majority of bridges on the public road network are therefore maintained by the Council but a significant minority are owned and maintained by Network Rail or Rail Property. Ownership does not mean in practice that the Council or other bridge authorities can realise a capital asset when they close a road or railway. What it does mean is that the owner continues to be liable for the maintenance of a redundant bridge until such time as it is demolished or the ownership and liability is transferred to another party by sale or agreement.
- 1.5 Within Aberdeenshire, the road network is managed and maintained by Infrastructure Services. The Roads & Landscape Services branch of the Service exercises the general delegated powers of the Council as local roads authority.
- 1.6 The core activities of Infrastructure Services were summarised in the Transportation & Infrastructure Service Plan 2012-2015. Those most relevant to the management of the road infrastructure are listed below:
- Undertaking public service statutory duties to ensure we meet our statutory obligations as Road, Bridge and Street Lighting Authority.
 - Managing road safety initiatives to meet targets for the reduction of road casualties.
 - Managing and maintaining the road infrastructure to improve the condition of these assets for the benefit of the travelling public.
 - Providing a roads winter maintenance service to reduce as far as practicable the effects of adverse weather conditions on the movement of people and vehicles to provide safe transport in Aberdeenshire.
- 1.7 Asset management is a strategic approach that identifies the optimal allocation of resources for the management, operation, preservation and enhancement of the road infrastructure to meet the needs of current and future customers. It provides a sound evidence base for the Council’s investment decisions.
- 1.8 Asset management is important as a tool to assist with delivering better value. It is also a requirement of Central Government that councils adopt asset management.

- 1.9 Aberdeenshire Council has a Corporate Asset Management Plan covering all the Council's principal fixed asset groups including property and roads. This includes a corporate capital investment strategy and is supported by asset based service strategies. The Service Strategy for Roads and Bridges was produced in December 2007 and updated in September 2009, and will be subject to ongoing review. Each Service Strategy identifies investment priorities and these feed into the Council's Capital Plan.
- 1.10 The Council's key objectives, taken from the Corporate Asset Management Plan 2011, are to ensure that the road network and civil engineering infrastructure:
- facilitate the Council's Strategic Priorities, "Community Well-being", "Jobs and the Economy" & "Sustainable Environment"
 - contribute to achieving the Single Outcome Agreement
 - achieve the objectives of the Regional & Local Transport Strategy
 - continue to perform their function at minimum whole-life cost
- 1.11 The Council's Service Strategy for Roads and Bridges is a high level document outlining the asset management investment strategy necessary to support the objectives of the service. This needs to be supported by a more detailed document setting out lifecycle plans for each of the main asset groups. In order to achieve consistency and benefit from partnership working, all 32 Scottish Councils, under the auspices of SCOTS (The Society of Chief Officers of Transportation Scotland), are working together on the development of a common asset management framework.
- 1.12 This document is the first issue of Aberdeenshire Council's Road Asset Management Plan and covers the period from 2012 to 2015. Whilst the basic structure of the Plan will remain relevant into the future, the figures and tables will need to be updated annually to keep them current. Any significant changes will be reported to Infrastructure Services Committee.
- 1.13 By implementing the Road Asset Management Plan, Aberdeenshire Council seeks to maximise the impact of available resources in the delivery of our long term aims.
- 1.14 Aberdeenshire's Road Asset Management Process is illustrated in the diagram on the following page.

The Aberdeenshire Road Asset Management Process



2 Asset Description

2.1 Aberdeenshire's roads are spread throughout the area forming a network through which every property can be accessed and serviced. In addition, the A and B class roads form a strategic transport system through which longer journeys by people and goods can be made. The total carriageway lengths maintained by the Council on 1 April 2012 were as follows:

A Class Roads	687 Km	(427 miles)
B Class Roads	800 Km	(497 miles)
C Class Roads	1536 Km	(955 miles)
Unclassified Roads	2420 Km	(1,504 miles)
Total Maintained Roads	5444 Km	(3,383 miles)

2.2 Footways are provided on one or both sides of most roads in urban areas and on some roads in rural areas. There are also paths which are not at the side of roads, usually providing pedestrian links between adjacent roads. These are mainly within housing developments, and we call these remote footpaths.

The footway/footpath asset comprises the following:-

Footways beside roads	1,411 km	(877 miles)
Remote footpaths	117 km	(73 miles)

2.3 There are bridges on all parts of the road network, at locations where there are natural barriers to be crossed, particularly rivers. Many of these crossing places have strategic importance. If the road network is unavailable at these points, then diversions are often long, or in some places communities could be cut off completely.

The Council is responsible for maintenance of the following bridges:-

Bridges 1.5m to 5m span	955
Bridges 5m to 25m span	325
Bridges over 25m span	47

Total Maintained Bridges 1327

2.4 Street lighting is provided on roads and footpaths in urban areas and on some rural routes. At 1 April 2012, the Council street lighting network comprised the following:-

Street lights	41,029
Illuminated traffic signs	2,598
Illuminated bollards	747

2.5 The following are also part of the road asset:-

- Traffic signals at 11 junctions;
- Traffic signals at 29 pedestrian crossings;
- 222 solar-powered flashing or interactive signs;
- 670 bus shelters;
- 12 cattle grids;
- Road drainage;
- Vehicle and pedestrian safety barriers;
- Non-illuminated signs and road name plates;
- Items of street furniture.

2.6 The carriageway and footway network are defined in the Local Street Gazetteer and are mapped on the Council's Geographical Information System (GIS).

Comprehensive information on the Council's stock of bridges and full details of the street lighting network are held in the Council's Road Maintenance Management System (RMMS).

The locations of traffic signals, interactive signs and bus shelters are known and are held in the GIS and RMMS systems. There is a list of the cattle grid locations. There is no inventory of road drainage, barriers, non-illuminated signs or street furniture.

2.7 The Scottish Road Maintenance Condition Survey provides comprehensive information on the overall carriageway condition throughout the road network. This is supplemented by a programme of surveys to monitor the skid resistance of the more heavily trafficked roads where the surfaces are liable to become polished.

All this information can be viewed on screen against a map background using the Council's computerised Pavement Management System. This is available to all the Area Principal Engineers to assist in planning their programmes of work.

2.8 A condition survey of the entire footway and footpath network is carried out on a 3 yearly cycle. The most recent survey was carried out in 2011.

- 2.9 Regular bridge inspections are undertaken and programmes of maintenance are planned to rectify defects. Assessments have also been undertaken to establish the safe loading capacity of each bridge. When necessary, weight limits are applied or improvement works undertaken to increase capacity.
- 2.10 Street lighting defects, which are either discovered during inspections or reported by the public, are recorded in the RMMS, along with details and dates of repairs undertaken.
- 2.11 It is expected that the main increase in the local road network will be the infrastructure required to service new developments. The capital cost of this is funded by developers but so long as a new road is built in accordance with a valid road construction consent the Council is obliged to add it to the list of publicly maintained roads within a year of being requested to do so. Road construction consent is a technical approval which cannot be withheld for a road that meets the Council's reasonable published standards. Any new development in Aberdeenshire will, therefore, inevitably lead to an increase in the Council's road maintenance liabilities. New roads built by developers will occasionally include bridges. In order for these to be taken on by the Council for maintenance, the developer must obtain the necessary technical approvals and heritable title must be transferred to the Council.

3 Community Requirements

- 3.1 Roads have a major importance to the community and community well-being. Society as a whole relies on the road network for its very survival, with many of the basic essentials of daily life being dependent on travel and transport. Dispersed rural settlements bring specific transport challenges in terms of travel and road access. Roads have an importance as walking and cycling routes and are not just for cars and other motor vehicles.
- 3.2 General stakeholder views on road maintenance are obtained in each annual Aberdeenshire Residents Survey and more in depth Residents Research on Roads was undertaken in 2007. The full report on the 2007 Resident's Survey can be found on the Council's Web Site at the following location:
http://www.aberdeenshire.gov.uk/consultations/surveys/residents_research2007.pdf . Section 2 of the report covers the research on residents' views on the roads service. A number of issues were highlighted where the relative importance was rated as high and the relative performance as low. One significant outcome of the research is that residents place a very high importance rating on the fundamental road surfaces being in good condition. This ties in well with the key aims of the service asset policy.
- 3.3 The Council encourages people to report road or lighting defects to its customer contact centre. The operators at the contact centre ascertain the exact nature and location of the reported defect from the caller and input the details directly into the Council's Road Maintenance Management System (RMMS). Web-based and text messaging systems are also available to the public for fault reporting. Fault reports are directed to the local inspector who will assess the defect and place a works order through the system for any necessary remedial works. The RMMS holds a full audit trail for each defect report. Performance indicators showing response times are monitored by service managers.

4 Future Demands

- 4.1 If significant climate change were to occur in the future, there could be substantial implications for the management of the Council's road assets. The waterway capacity of modern bridges and road drainage systems is based on historic rainfall levels and intensity in north east Scotland. If rainfall were to increase significantly in the future, then it would be necessary to invest in increases in waterway and drainage capacity to deliver the same level of service and to protect the infrastructure from damage or destruction. It is also possible that climate change could change the level of resources required for winter maintenance and the scope of maintenance work required, particularly if increased storminess were to become the norm as predicted. One of the actions in Aberdeenshire's Climate Change Action Plan 2010/11 was to produce a Local Climate Impact Profile (LCLIP). This can be found on the Council's website. A key point made in the LCLIP, as far as roads asset management is concerned, is that the current predictions for climate change indicate that the amount of extreme weather is likely to increase in the future.
- 4.2 It might be considered that new technology may reduce the demand for or distribution of travel, if home working or virtual meetings were to be more widely adopted. However, the evidence indicates that despite the massive growth of computer technology over the past 20 years there has been a continuing increase in overall travel demand.
- 4.3 As and when the Aberdeen Western Peripheral Road is constructed then there is likely to be a reduction in the volume of HGV traffic using lightly constructed local roads as a bypass route. This should help to relieve the pressure on these routes.
- 4.4 It is not anticipated that there will be a substantial change in service level requirements for roads in Aberdeenshire in the foreseeable future. Although traffic levels have increased steadily for many decades, the Local Transport Strategy envisages that further significant growth can be contained by encouraging behaviour change. Improvements to the existing network are likely to be focused on specific targets such as accident reduction. If traffic growth is contained as envisaged, then the road network will have to be maintained at its current extent. If traffic growth is only partially contained, then some expansion of the network may be inevitable. Some flexibility in planning is therefore essential.

5 Levels of Service

5.1 The key aim of the service asset policy for roads is to provide the best possible public service as roads authority within the available budget. In achieving this, it is important to bear in mind that in addition to providing a good level of service now, we must pass on the assets in a condition that allows this service level to be continued in the future. This can involve a difficult balance in making investment decisions. Too little structural maintenance would jeopardise future service levels by allowing the deterioration of the asset. However, too much capital investment would also threaten service levels by reducing the future availability of revenue funding if too much were tied up in capital repayments.

5.2 The key to achieving the service aims is to ensure that the money spent on maintenance is allocated so as to achieve maximum benefit and to ensure that best value is achieved. An important element in achieving this is the written procedure for budget allocation for roads and street lighting, which is designed to ensure the optimum use of the available funds. It indicates that in dividing the budget between work categories, the following priority factors should be built in:

- Unavoidable expenditure must be fully budgeted e.g. Lighting Electricity.
- Programmes that will prevent future deterioration at low cost should be given priority in times of budget cuts e.g. Surface Dressing
- If planned works have to be reduced, demand for some categories of general maintenance may increase e.g. Patching

The procedure then indicates that the budget allocated to each category of work should be divided between the six Aberdeenshire areas in accordance with the best available indicators of relative need. These include demographics (e.g. population), quantity of assets (e.g. road length) and condition of assets. The Network Managers prepare detailed programmes of works within their allocations for each area which are presented to the Area Committees for approval.

The budget allocation for bridges is divided on a similar basis but also takes work packaging into account. For example: a lower priority item of work will be included in with high priority work on the same bridge; lower priority work on a bridge will be included in with high priority work on another bridge close by if it is estimated that all the work can be accomplished by one squad in the one day.

- 5.3 The headline performance indicator for the condition of carriageway assets is Statutory Performance Indicator No. 1 for Roads and Lighting “Overall percentage of Road Network that should be considered for maintenance treatment”. This is derived from the results of the Scottish Road Maintenance Condition Survey, a partnership project by all Scottish Councils to undertake a standard annual programme of machine based surveys to measure network condition. When compared to the other Councils in Scotland, Aberdeenshire has ranked in the top quartile each year that this indicator has been published starting in 2003/04.

6 Lifecycle Planning

- 6.1 In order to obtain the optimum level of service within the available budget, it is important that the Council's procurement and maintenance strategies should be based on minimising whole life cost. Investment decisions should not just be based on minimising initial capital cost but should take account of the anticipated service life and the maintenance programme necessary to achieve this service life. In this context it is vital that the concept of service life is properly distinguished from that of design life. Civil engineering design is necessarily based on conservative assumptions to achieve the desired factor of safety. For example, a bridge may have a design life of 120 years but this does not mean that it would be expected to collapse in year 121. So long as any necessary preventative maintenance is carried out and it is regularly inspected to detect any signs of deterioration, then it would normally give good service well beyond its design life. The same is true of road surfaces. So long as the surface is kept sealed and the drainage maintained to prevent the ingress of water into the road structure, it should be very rare for a road to require full reconstruction, even when well past its nominal 20 or 40 year design life.
- 6.2 One of the main areas of opportunity for the Council in achieving minimum whole life costs is in setting the specification for new and substantial replacement works. The Department for Transport publishes a national Specification for Roads and Bridges but this covers a wide range of materials and construction methods with differing whole life cost implications. Aberdeenshire Council has published its own Standards for Road Construction Consent and Adoption which can be found on the Council's Web Site at the following location:
<http://www.aberdeenshire.gov.uk/roads/developments/standards.asp#guidelines> . These incorporate those materials and techniques from the national specification felt most likely to prove most economical over the long term. For instance, following premature failures with other materials, aluminium is specified as the material for lighting columns and hot rolled asphalt as the wearing course for carriageways.
- 6.3 Once the procurement or substantial replacement is complete and the council has assumed maintenance responsibility for an infrastructure asset then its policies and procedures can have a considerable influence on the long term maintenance costs. Timely low cost actions to prevent substantial deterioration will generally be more cost effective than remedial works once the deterioration has occurred. This depends on an effective programme of inspections to detect the need for preventative works. It also depends on maintaining the budget levels for low cost preventative works, even through times of general constraint.

6.4 The lifecycle plans apply the principles outlined above in detail to each of our main road and bridge asset groups. The effectiveness of this Road Asset Management Plan in achieving its objectives will depend primarily on how well these lifecycle plans can be optimised and implemented.

6.5 Lifecycle plans are made up of the following sections:

Section	Answers	Contains
The Asset	What assets do the council own?	Inventory details (type size, etc) Asset growth statistics
Service Expectations	What is each asset group required to do?	Customer expectations Council objectives for transport Specific user requirements Safety considerations 3rd party use Environmental requirements Network availability Amenity considerations
Management Practices	How is this asset group managed?	Policies Inspection regime Condition assessment Asset acquisition standards Routine maintenance standards Operational/cyclic maintenance Planned maintenance standards Disposal standards
Investment	How much should be and is spent on this asset group?	Historical Investment Output from historical investment Forecast financial needs Valuation: GRC, DRC
Works Programme	How are works programmed for this asset group?	Existing forward works programme Works programme coordination Option Appraisal: treatment selection - at a project level - at a budget category level?
Risk	What are the risks associated with this asset group?	Risk identification Major asset risks
Works and Service Delivery	How are works delivered or procured on this asset group?	

Section	Answers	Contains
Performance Measurement	How is the performance of this asset group measured and managed?	Performance indicators Current performance figures Target performance figures
Strategies	What strategies exist for the future management of this asset group?	
Service Improvement actions	What improvement would improve the council's management of this asset group?	Asset specific improvement actions

6.9 Separate lifecycle plans are being produced for each of the following asset groups and are currently in the state of development noted.

Asset Group	Status	Actions
Carriageways	Complete	Service Improvements to be actioned
Footways	Complete	Service Improvements to be actioned
Structures (Bridges & Culverts)	Complete	Service Improvements to be actioned
Street lighting	Complete	Service Improvements to be actioned
Traffic signals	Not started	Lifecycle plan to be produced using data that is currently being collated

6.10 The contents of the lifecycle plans are summarised in the following pages for:

- Carriageways
- Footways
- Structures (Bridges & Culverts)
- Street Lighting

Carriageways Lifecycle Plan Summary

	Statistics	Commentary
The Asset	<p>Lengths by Road Classification:-</p> <p>A Roads 687 km B Roads 801 km C Roads 1,536 km U Roads 2,420 km Total 5,444 km</p> <p>Growth:- 1.1% (60 km) over the last 5 years</p>	
Customer Expectations	<p>Results of customer survey:- 36% identified condition of road surfaces as poor/very poor; 62% as good/very good. (2007 Residents Research)</p> <p>Customer queries (in 2011/12):- 295 under "Poor Surfacing"; 998 under "Potholes".</p> <p>Customer complaints (in 2011/12):- 38</p>	<p>Of the 38 complaints, only 6 related to the poor condition of specific roads or failure to carry out necessary maintenance.</p>
Condition	<p>Current condition:- % which should be considered for maintenance treatment (from 2011 and 2012 surveys):-</p> <p>A Roads 24.5% B Roads 23.7% C Roads 21.9% U Roads 26.8% All Roads 24.7%</p> <p>Change and trend:- Some fairly small changes, but nothing significant; no trend evident.</p> <p>Target condition:- Less than 32%</p>	<p>Aberdeenshire has been consistently among the 5 Scottish Councils with the lowest percentage figure.</p>
Age	<p>We do not have an age profile for our carriageways. Treating of around 5% of our carriageways means that our roads are being either resurfaced or surface dressed every 20 years on average.</p>	

Carriageways Lifecycle Plan Summary (continued)

	Statistics	Commentary												
Investment Historical	<p>Expenditure on maintenance (excluding winter maintenance):-</p> <table style="margin-left: 40px;"> <tr> <td>2006-07</td> <td>£10.12 million</td> </tr> <tr> <td>2007-08</td> <td>£10.43 million</td> </tr> <tr> <td>2008-09</td> <td>£11.66 million</td> </tr> <tr> <td>2009-10</td> <td>£12.37 million</td> </tr> <tr> <td>2010-11</td> <td>£13.15 million</td> </tr> <tr> <td>2011-12</td> <td>£13.26 million</td> </tr> </table>	2006-07	£10.12 million	2007-08	£10.43 million	2008-09	£11.66 million	2009-10	£12.37 million	2010-11	£13.15 million	2011-12	£13.26 million	The figures include reactive and routine maintenance expenditure on footways.
2006-07	£10.12 million													
2007-08	£10.43 million													
2008-09	£11.66 million													
2009-10	£12.37 million													
2010-11	£13.15 million													
2011-12	£13.26 million													
Valuation	<p>Gross replacement cost:- £4,682 million</p> <p>Depreciated replacement cost:- £4,189 million</p>													
Planned Future Investment	<p>Options for annual capital expenditure on resurfacing and surface dressing:-</p> <p>Maintain at current level of £9 million and expect some deterioration in condition.</p> <p>Increase expenditure so as to improve the condition level.</p>													
Forward Works Programme	<p>Each Area produces an annual programme of prioritised resurfacing and surface dressing schemes in February for the coming financial year. The budget allocation limits the schemes that can go in the main programme for the year, and the remainder constitute a reserve list. Most of the schemes on the reserve lists end up in the main programme the following year.</p>													
Level of Service	<p>Maintaining the carriageway in the best possible condition within the budget.</p>													

Carriageways Lifecycle Plan Summary (continued)

The current issues associated with carriageways and our plans to manage/address these issues are summarised below

Key Issues	Strategies
<p>Aberdeenshire's roads are generally maintained in a satisfactory condition through a combination of planned and reactive maintenance. However, less would have to be spent on patching if roads were not allowed to deteriorate for so long before being resurfaced.</p> <p>There is a problem with an increasing amount of edge damage on unkerbed narrow rural roads.</p> <p>Despite the reasonable condition of our roads, in the 2007 Resident Research, 36% said that the condition of road surfaces was poor/very poor, while 62% said that it was good/very good.</p>	<p>As the current strategy of resurfacing 1% and surface dressing 4% of the network each year has proved effective in keeping Aberdeenshire in the top 5 Scottish Councils (as identified by the Scottish Road Maintenance condition Survey), this strategy should be continued.</p>

Footways Lifecycle Plan Summary

	Statistics	Commentary
The Asset	<p>Quantities of asset by type:- Footways beside carriageway: 1,411 km Remote footways / footpaths: 117 km Growth:- 7% (100 km) over the last 5 years</p>	
Customer Expectations	<p>Results of customer survey:- 19% identified condition of footway surfaces as poor/very poor; 75% as good/very good. (2007 Residents Research) Customer queries (in 2011/12):- 91 under "Road Defects – Broken Slabs / Kerbs". Customer complaints (in 2011/12):- 10</p>	<p>Of the 10 complaints, only 4 related to the poor condition of specific footways or failure to carry out necessary maintenance.</p>
Condition	<p>Current condition (2011 Footway Survey):- Acceptable 27.5% Poor appearance 64.3% Minor deterioration 7.6% Major deterioration 0.6% Change and trend:- Not known. Target condition:- No target set.</p>	<p>The condition of all footways and paved areas is identified in a comprehensive survey carried out every 3 years. The most recent one was carried out in summer 2011.</p>
Age	<p>We do not have an age profile for our footways. Treating of around 2.5% of our footways each year means that our footways are being either resurfaced or slurry sealed every 40 years on average.</p>	

Footways Lifecycle Plan Summary (continued)

	Statistics	Commentary
Investment Historical	Expenditure on planned maintenance:- 2006-07 £1.13 million 2007-08 £1.13 million 2008-09 £1.02 million 2009-10 £0.95 million 2010-11 £0.94 million 2011-12 £0.88 million	
Valuation	Gross replacement cost:- £92 million Depreciated replacement cost:- £67 million	
Planned Future Investment	Continue with the level of expenditure on maintenance and renewals, so as to keep the assets in a good enough condition to meet performance requirements.	
Forward Works Programme	Each Area produces an annual programme of prioritised resurfacing and surface treatment schemes in February for the coming financial year. The budget allocation limits the schemes that can go in the main programme for the year, and the remainder constitute a reserve list. Most of the schemes on the reserve lists end up in the main programme the following year.	
Level of Service	Maintaining the footway network in the best possible condition within the available budget.	

Footways Lifecycle Plan Summary (continued)

The current issues associated with footways and our plans to manage/address these issues are summarised below

Key Issues	Strategies
<p>Aberdeenshire's footways are generally maintained in a satisfactory condition through a combination of planned and reactive maintenance.</p> <p>In the 2007 Resident Research, 19% of respondents said that the condition of footways was poor/very poor, while 75% said that it was good/very good. The main reason given for identifying condition as poor/very poor was uneven / dangerous pavements.</p>	<p>The strategy of having an allocation from the road maintenance budget each year for a programme of planned footway maintenance and treating sections of footway in greatest need of resurfacing is helping to keep the footway asset overall in fairly good condition. This strategy should therefore be continued.</p>

Structures (Bridges & Culverts) Lifecycle Plan Summary

	Statistics	Commentary
The Asset	<p>Numbers of Bridges and Culverts:-</p> <p>1.5 to 5 metre span: 955</p> <p>5 to 25 metre span: 325</p> <p>Over 25 metre span: 47</p> <p>Total: 1,327</p> <p>Growth:- Number the same as 6 years ago</p>	
Customer Expectations	<p>Customer surveys have never included comments on bridges and culverts. It is rare to receive queries or complaints from the public relating to structures.</p>	
Condition	<p>Condition is identified using Bridge Condition Indicator Scores and Red-Amber-Green Condition Bands.</p>	
Age	<p>This is known for many structures and has been estimated for others. A service life expectancy has been identified for each bridge family and construction period.</p>	

Structures (Bridges & Culverts) Lifecycle Plan Summary (continued)

	Statistics	Commentary
Investment Historical	Expenditure on maintenance and renewals:- 2007-08 £1,637,700 2008-09 £3,674,400 2009-10 £2,188,900 2010-11 £1,679,900 2011-12 £1,864,300	
Valuation	Gross replacement cost:- £274 million Depreciated replacement cost:- £233 million	
Planned Future Investment	Continue with the current level of expenditure on maintenance and renewals, so as to keep the assets in a good enough condition to meet performance requirements. Seek additional funding for response maintenance.	
Forward Works Programme	Once programmes have been approved, works on the main list can go ahead. Works are released in blocks to spend as close as possible to the total budget figure at year end. Works from the reserve lists are brought in to replace schemes on the main list which have to be dropped for some good reason or to make use of spare budget.	
Level of Service	To be safe for use and maintained in the best possible condition within the available budget.	

Structures (Bridges & Culverts) Lifecycle Plan Summary (continued)

The current issues associated with structures and our plans to manage/address these issues are summarised below

Key Issues	Strategies
<p>Aberdeenshire’s bridge stock is in reasonable condition overall. It still suffers from prolonged under-investment even although the level of maintenance budget has been increased in recent years. The current issues are:</p> <ul style="list-style-type: none"> • weak bridges under a monitoring regime • bridges which are susceptible to scour • bridges with weak parapets • bridges with vulnerable parapets • approval procedures for listed bridge maintenance • bridges which obstruct migratory fish • a backlog of non-structural maintenance 	<p>Looking Forward, Aberdeenshire Council will:</p> <ul style="list-style-type: none"> • ensure that all bridges are safe; • inspect, assess and maintain all structures generally in accordance with the Code of Practice for Bridge Management; • establish bespoke inspection regimes for selected bridges to make best use of inspection resources; • programme maintenance work and allocate financial resources using asset management principles; • give first priority to structurally critical work and to bridges on vital routes; • review the strategic maintenance programme after significant events and at no more than ten year intervals; • strengthen weak bridges up to the national loading standard to avoid the imposition of weight limits unless appropriate to local circumstances; • conserve those bridges which form a vital part of our built heritage unless such works would be prohibitively expensive or impractical; • ensure that new bridges are designed and constructed to complement their setting; • retain old superseded structures to preserve heritage and amenity, traffic-free where possible.

Street Lighting Lifecycle Plan Summary

	Statistics	Commentary
The Asset	<p>Quantities of asset by type:- Numbers of street lights:- Steel column: 30,343 Aluminium column: 8,285 Wooden pole: 1,240 Cast iron: 322 Other types: 839 Total: 41,029</p> <p>Growth:- 18% (6,400) over the last 10 years</p>	<p>As well as the street lights, we have:- 2,598 illuminated signs, 747 illuminated bollards and 1,185 feeder pillars.</p>
Customer Expectations	<p>Results of customer survey:- 4% said that service in carrying out repairs to street lighting was poor/very poor; 84% said that it was good/very good. (2007 Residents Research) Customer queries (in 2011/12):- 4,449 under various "Street Lighting" headings Customer complaints (in 2011/12):- 8</p>	<p>Of the 8 complaints received, 4 related to lights not being fixed.</p>
Condition	<p>Condition surveys are not undertaken for the street lighting asset. An annual programme of electrical testing is carried out.</p>	
Age	<p>Age profile for columns:- % of total number of columns in the following age categories:- Less than 10 years old 27.9% Between 10 and 20 28.5% Between 20 and 30 20.4% Between 30 and 40 20.0% More than 40 years old 3.2%</p> <p>The service life of columns is generally accepted as around 50 years.</p>	

Street Lighting Lifecycle Plan Summary (continued)

	Statistics	Commentary												
Investment Historical	<p>Expenditure on maintenance and renewals:-</p> <table style="margin-left: 20px;"> <tr><td>2006-07</td><td>£1,358,000</td></tr> <tr><td>2007-08</td><td>£1,426,000</td></tr> <tr><td>2008-09</td><td>£1,760,000</td></tr> <tr><td>2009-10</td><td>£1,813,000</td></tr> <tr><td>2010-11</td><td>£1,627,000</td></tr> <tr><td>2011-12</td><td>£1,985,000</td></tr> </table>	2006-07	£1,358,000	2007-08	£1,426,000	2008-09	£1,760,000	2009-10	£1,813,000	2010-11	£1,627,000	2011-12	£1,985,000	The figures do not include electricity charges.
2006-07	£1,358,000													
2007-08	£1,426,000													
2008-09	£1,760,000													
2009-10	£1,813,000													
2010-11	£1,627,000													
2011-12	£1,985,000													
Valuation	<p>Gross replacement cost:- £74.1 million</p> <p>Depreciated replacement cost:- £39.0 million</p>													
Planned Future Investment	<p>Future investment will be directed towards an upgrading of the lighting stock to increase the proportion of modern lower energy units.</p>													
Forward Works Programme	<p>Each Area produces an annual programme of prioritised column or lantern replacement schemes in February for the coming financial year. The budget allocation limits the schemes that can go in the main programme for the year, and the remainder constitute a reserve list. Most of the schemes on the reserve lists end up in the main programme the following year.</p>													
Level of Service	<p>The percentage of lighting fault repairs completed within 7 days in the last 6 years was:-</p> <table style="margin-left: 20px;"> <tr><td>2006/07</td><td>94.9%</td></tr> <tr><td>2007/08</td><td>94.4%</td></tr> <tr><td>2008/09</td><td>94.8%</td></tr> <tr><td>2009/10</td><td>97.8%</td></tr> <tr><td>2010/11</td><td>93.9%</td></tr> <tr><td>2011/12</td><td>86.3%</td></tr> </table> <p>The target is 96%.</p>	2006/07	94.9%	2007/08	94.4%	2008/09	94.8%	2009/10	97.8%	2010/11	93.9%	2011/12	86.3%	
2006/07	94.9%													
2007/08	94.4%													
2008/09	94.8%													
2009/10	97.8%													
2010/11	93.9%													
2011/12	86.3%													

Street Lighting Lifecycle Plan Summary (continued)

The current issues associated with street lighting and our plans to manage/address these issues are summarised below

Key Issues	Strategies
<p>Aberdeenshire's street lights are generally maintained in a satisfactory condition through a combination of planned and reactive maintenance. However, some of the equipment is old, unreliable or inefficient and is in need of replacement.</p> <p>There is considerable pressure to reduce the amount of electricity used, by changing to more energy-efficient equipment and only lighting to the minimum requirement.</p> <p>The public perception of street lighting maintenance is positive. In the 2007 Resident Research, only 4% said that the service in carrying out repairs to street lighting was poor/very poor, while 84% said that it was good/very good.</p>	<p>The level of spending on renewal of columns and electrical equipment is being maintained, concentrating on getting rid of old concrete columns and replacing with aluminium columns. As a result, the number of concrete columns still in use has reduced from 320 in 2006 to 10 currently.</p> <p>In order to reduce unnecessary energy consumption, there is a policy in place that signs should only be lit where it is a requirement of the regulations that they be lit. Consideration is being given to replacing unserviceable and inefficient lighting with modern low-energy lighting in appropriate situations.</p> <p>It is intended that all new lighting will have electronic control gear, so as to achieve energy savings.</p>

7 Financial Summary

- 7.1 The revenue budget for road maintenance and management is primarily channelled through two funds: the Road Maintenance Fund and the Winter Maintenance fund. In addition, there is capital funding for structural maintenance (e.g. resurfacing) and for bridges and structures. For 2012/13, the budget allocations are as follows:

Road Maintenance Fund Contribution	£17,189,000
Winter Maintenance Fund Contribution	£5,560,000
Capital Programme for Structural Maintenance	£8,591,000
Capital Programme for Bridges & Structures	£2,777,000
Capital Programme for Street Lighting	£1,477,000

- 7.2 Under the auspices of SCOTS, the Scottish Road Maintenance Condition Survey results have already been used to estimate a headline maintenance backlog for each Council and the annual programme of structural maintenance necessary to eliminate this and move to a steady state over a ten year period. In the case of Aberdeenshire, the output from the model showed a headline backlog figure of £84.4 million. This would represent the expenditure necessary to reach 0% defects in one year. There are many reasons why the elimination of all current defects in one year would not be the optimum asset management strategy. New defects will continue to arise each year and a healthy construction industry requires a steady programme of work rather than a feast and famine position. However, the backlog estimates are useful in evaluating the overall picture across the country and allowing comparisons to be made between councils on an equal basis.
- 7.3 The model has also been used to estimate the annual funding required for each council to maintain its roads in a steady state, with the overall condition remaining the same over a ten year period. In the case of Aberdeenshire Council, the steady state funding level is estimated to be £13.8 million per year. This is the amount that needs to be spent, according to the model, on carriageway structural maintenance. The 2012/13 budget for this item is £8.591 million. As with the backlog figures, it is valuable to have steady state funding estimates for each council that have been made on the same basis. However, these figures are calculated on the assumption that all councils will be operating a maintenance strategy of equal effectiveness. In reality, some councils will be operating a more effective maintenance strategy than others.

As Aberdeenshire has consistently been ranked among the top councils in the Scottish Road Maintenance Condition Survey, it would be reasonable to conclude that the Aberdeenshire maintenance strategy is more effective than average. Our road condition indicator has been fluctuating around the same level from year to year, with no apparent long term trend either upwards or downwards. It is, therefore, reasonable to conclude that our current spending level combined with our maintenance strategy is, in practice achieving a steady state road condition.

7.4 The SCOTS model uses costs estimated at a single point in time and assumes that each pound spent in future will be able to purchase the same amount of road maintenance work as it can today. Unfortunately, as indicated in the Audit Commission Report on Road Maintenance, road construction costs have been consistently rising above the rate of general inflation. Energy prices and oil prices have a significant effect on road construction costs, with bitumen prices being particularly important. Cement prices have also risen significantly, as have prices of most construction products, which are largely oil derived or require large amounts of energy in manufacture. It appears very likely that these costs will continue to rise above the level of inflation. In this event, road maintenance budgets will need to increase in real terms in future if they are to maintain their spending power at the level required to keep our road network in a steady state condition.

7.5 The level of funding available in the current year and predicted to be available for the next 3 years is as follows:

Figures in £ x 1,000

Budget heading	2012/13	2013/14	2014/15	2015/16
Road Maintenance (Revenue)	17,189	16,781	17,396	18,444
Roads Resurfacing (Capital)	8,591	8,750	8,750	8,750
Street Lighting (Capital)	1,477	1,400	1,400	1,400
Bridges & Structures (Capital)	2,777	1,700	1,700	1,700

This is the planned budget for known demands. Provision exists for bidding for additional funds when unforeseen needs arise, such as infrastructure damage caused by flooding.

7.6 The current value of the asset as of 2012 is as follows:-

Asset Type	Gross Replacement Cost	Depreciated Replacement Cost
Carriageway	£4,682,500,000	£4,188,800,000
Footways	£91,800,000	£66,800,000
Structures	£273,700,000	£232,600,000
Lighting	£74,100,000	£39,000,000
Total	£5,122,000,000	£4,527,100,000

These figures are updated annually and are included in our Whole of Government Accounting (WGA) returns.

8 Risk Management

8.1 Context: Corporate Risk Management Strategy

At the strategic level, Aberdeenshire Council risk management is focused on ensuring business continuity, planning for a Pandemic Flu emergency and planning for other civic emergencies. Under the corporate emergency plan, emergency response is controlled by the Chief Executive, the Area Manager, the Director of Infrastructure Services or the Functional Head of Service as seems appropriate to the scale of the emergency. Risk Registers are maintained by all council services using a corporate format with consistent probability and impact criteria. The Infrastructure Services Risk Register identifies risk mitigation measures under these strategic themes.

At the operational level, the Roads Risk Register identifies the risks associated with the Council's road network infrastructure together with practicable risk mitigation measures. It follows the format of the corporate risk register for consistency, using an Excel spreadsheet.

8.2 Risk Identification

Risks associated with the operation of the road network infrastructure are identified in a number of ways including:

- Professional judgement by experienced staff
- Study of accident statistics
- Complaints from road users
- Inspections
- Condition assessments & surveys
- Legal judgements

8.3 Risk Categorisation & Evaluation

Risk categories are predefined by corporate risk strategy as:

- Financial
- Legal or Legislative
- Personnel
- Physical
- Political
- Social
- Technological

Risk likelihood (or event probability) and impact (or event severity) are assessed using the following scales:

Likelihood					
5	Almost Certain	Will undoubtedly happen	Over 90%	Annual	Imminent / near miss
4	Likely	Will probably happen, but not a persistent issue	Up to 90%	3 year	Has happened in the past
3	Possible	May happen occasionally	Up to 65%	10 year	Has happened elsewhere
2	Unlikely	Not expected to happen: but is possible	Up to 20%	25 year	Not known in this activity
1	Remote	Very unlikely this will ever happen	Less than 5%	100 year	Force majeure

Impact						
		Impact on Service Objectives	Financial Impact	Impact on People	Duration of Impact	Impact on Reputation
5	Catastrophic	Unable to function, inability to fulfil obligations	Severe financial loss	Death	In excess of two years to recover pre-event position	Highly damaging Severe loss of public confidence
4	Major	Significant impact on service provision	Major financial loss	Extensive injury, major permanent harm	Between 1-2 years to recover pre-event position	Major adverse publicity Major loss of confidence
3	Moderate	Service objectives partially achievable	Significant financial loss	Medical treatment required, semi-permanent harm	Between six months to 1 year to recover pre-event position	Some adverse publicity Legal implications
2	Minor	Minor impact on service objectives	Moderate financial loss	First aid treatment, non-permanent harm up to 1 month	2 - 6 months to recover	Some public embarrassment No damage to reputation
1	Negligible	Minimal impact with no service disruption	Minimal financial loss	No obvious harm/injury	Minimal - up to 2 months to recover	No interest to the press Internal only

The overall risk score is obtained by multiplying the likelihood score by the impact score. The uncontrolled risk score is the risk score before the application of risk mitigating measures. The controlled risk score is the risk score with risk mitigating measures in place and fully effective.

Impact Classification is predefined by corporate risk strategy as:

- Affecting Customers or Citizens
- Financial
- Affecting Reputation
- Affecting Staff

Event Category is predefined by corporate risk strategy as:

- 3rd Party Supplier Failure
- Aberdeenshire Council System Failure
- Breach of Statutory Rules, Code of Conduct or Fiduciary Duty
- Health & Safety or Employee Relations
- Natural or Man Made Disasters
- Processing Errors
- Spurious Litigation
- External Unauthorised Activity
- Internal Unauthorised Activity

Risk Status is predefined by corporate risk strategy:

- New
- Stable
- Increasing
- Decreasing

8.4 **Risk Control**

Function Managers in Infrastructure Services will be responsible for ensuring that risk mitigation measures are embedded within normal work practice and for reviewing their effectiveness.

There are some risks for which no mitigation or control measures exist. They have to be tolerated and managed on a response basis. Examples include debris falling from vehicles onto carriageways, street lighting outages due to power supply failure and the deliberate disregard of weight restrictions imposed on bridges.

8.5 **Review & Reporting**

The Roads Risk Register will be reviewed from time to time as the RAMP is developed and thereafter annually. Hazards not already included will be included in response to contemporary conditions and topical concerns. Risk likelihood and impact will be updated. Weather patterns, traffic levels, available funding and public opinion for example may influence what is perceived to be significant.

The Roads Risk Register will be summarised in the annual Infrastructure Services Service Report, the strategic document intended for Elected Members, Service Management Team and key stakeholders and partners.

8.6 **Risk Register**

All perceived risks relating to the Council's road network infrastructure are recorded in the Roads Risk Register. There are separate sheets for Roads, Lighting and Bridges. The Register is part of the RAMP and is included at Appendix 1.

Any risk identified within the Roads Risk Register considered significant enough to be addressed at a strategic level will be input into the corporate risk register.

8.7 **Major Asset Risks**

On the basis of the current risk scores, the most significant risks associated with our Road Network Infrastructure in descending order are:

	controlled risk score	uncontrolled risk score
Street lighting power failure	12	12
Bridge scour failure	10	15
Extreme snowfall event > 200mm	9	16
Carriageway defects after severe weather	9	16
Bridge parapet failure	9	16
Embankment failure & landslides	9	9
Weight restrictions disregarded	9	9

9 Improvement Plan

- 9.1 Local service delivery is currently provided from local teams based in offices and depots in each of the six Aberdeenshire Areas. Functions not requiring a local presence are provided on a council-wide basis. Given the geographic spread of the Council combined with the need to provide best value on council-wide functions, it is likely that future service provision will continue to have both central and local elements.
- 9.2 Where efficiency savings can be made, opportunities are taken to work in partnership with other organisations. An example of this is the production of a standard set of annual maintenance contract documents by a consortium of Aberdeen City, Aberdeenshire and Moray Councils. This dilutes the overhead in preparing the documents and assists contractors by presenting them with a standard approach. We will make further use of this kind of arrangement where it makes sense to do so.
- 9.3 In order to increase the efficiency with which road defects are recorded and remedial works implemented, the Council has been developing the use of a computerised Road Maintenance Management System. All road inspection reports and defect reports from the Customer Contact Centre are now recorded directly into this system. Repair programmes can then be planned and prioritised using the system and the details and date of each repair logged. This both increases the efficiency of our operation and provides a full auditable record of the process that can be used in the event of a public liability claim against the Council. A programme is under way to roll out the system into other areas of work where efficiency savings can be made.
- 9.4 The recent modernisation review to examine the staff structure for the delivery of the Roads and Operational Road Maintenance service was implemented in November 2009. Review of staff structures will continue from time to time in line with the Council's corporate improvement strategy.
- 9.5 The Road Asset Management Handbook focuses on the identification of standard interventions which prevent deterioration and/or increase efficiency, together with thresholds for application of these treatments. The objective in making these interventions is to avoid higher costs being incurred in later years. Treatments will be kept under review for effectiveness, and new products and methods will be assessed and added as appropriate.

10 Management and Control of the Plan

- 10.1 The Council's Roads Policy and Asset Manager will be responsible to the Director of Infrastructure Services for the management and control of the plan.
- 10.2 This Asset Management Plan was formally adopted as Council Policy by the Council's Infrastructure Services Committee on 4 October 2012. Whilst the basic structure of the Plan will remain relevant into the future, the figures and tables will need to be updated annually to keep them current. Any significant changes will be reported to Infrastructure Services Committee.

Document prepared by David Armitage
13 September 2012

Appendix 1

Roads Risk Register

Aberdeenshire Council - Infrastructure Services
ROADS RISK REGISTER ROADS (Sheet 1 of 2)

Risk No	Risk	Risk Type	Potential Impact	Inherent Risk			Mitigants & Controls	Residual Risk			Key Risk Indicators	Impact Classification	Event Category	Risk Status	Action Plan Yes/No	Lead Officer	Date for Completion
				Likelihood	Impact	Risk Rating		Likelihood	Impact	Risk Rating							
RR01	Carriageway surface defects	Customer/Citizen	Damage to vehicles & risk of RTA	5	3	15	Inspection regime. Review SRMS data. Timely maintenance	3	2	6	Potholes, crazing, rutting, fretting, sunken ironwork etc & damage claims	Financial	Aberdeenshire Council System Failure	Stable			
RR02	Footway surface defects	Customer/Citizen	Trips & falls & risk of personal injury	5	2	10	Inspection regime & timely maintenance	3	2	6	Defects apparent Injury claims	Financial	Aberdeenshire Council System Failure	Stable			
RR03	Snow or ice on carriageway	Customer/Citizen	Skidding & risk of RTA	5	3	15	Winter Maintenance service	3	2	6	Closures or restrictions	Customer/Citizen	Natural/Man Made Disasters	Stable			
RR04	Snow or ice on footway	Customer/Citizen	Slips & falls & risk of personal injury	5	3	15	Winter Maintenance service	3	2	6	Closures or restrictions	Customer/Citizen	Natural/Man Made Disasters	Stable			
RR05	Ponding on carriageway	Customer/Citizen	Damage to vehicles & risk of RTA	4	2	8	Wet weather inspections & maintenance	3	2	6	Flooding	Customer/Citizen	Natural/Man Made Disasters	Increasing			
RR06	Debris on carriageway	Customer/Citizen	Damage to vehicles & risk of RTA	3	2	6	None	3	2	6	Defects apparent	Customer/Citizen	Natural/Man Made Disasters	Stable			
RR07	Carriageway defects after severe weather	Financial	Damage to vehicles & risk of RTA	4	4	16	Maintain surface dressing programme to ensure road surface sealed from water ingress	3	3	9	Potholes, crazing, rutting, fretting, etc & damage claims	Financial	Natural/Man Made Disasters	Increasing			
RR08	Faded white lines	Customer/Citizen	Risk of RTA especially in wet weather	3	3	9	Wet weather & night-time inspections & timely maintenance	2	1	2	Accidents	Customer/Citizen	Aberdeenshire Council System Failure	Stable			
RR09	Missing reflective studs	Customer/Citizen	Risk of RTA especially at night	3	3	9	Night-time inspections & timely maintenance	2	1	2	Accidents	Customer/Citizen	Aberdeenshire Council System Failure	Stable			

Aberdeenshire Council - Infrastructure Services
ROADS RISK REGISTER ROADS (Sheet 2 of 2)

Risk No	Risk	Risk Type	Potential Impact	Inherent Risk			Mitigants & Controls	Residual Risk			Key Risk Indicators	Impact Classification	Event Category	Risk Status	Action Plan Yes/No	Lead Officer	Date for Completion
				Likelihood	Impact	Risk Rating		Likelihood	Impact	Risk Rating							
RR10	Embankment failure & landslides	Financial	Disruption to network	3	3	9	None	3	3	9	Defects apparent	Financial	Natural/Man Made Disasters	Increasing			
RR11	Failure to carry out routine maintenance	Financial	Deterioration of carriageway leading to eventual need for urgent unplanned works	3	4	12	Inspection regime & adequate funding for timely maintenance	2	2	4	Potholes, crazing, rutting, fretting, sunken ironwork etc & damage claims	Financial	Aberdeenshire Council System Failure	Increasing			
RR12	Maintenance activities adjacent live traffic	Personnel	Vehicular traffic affecting road inspectors & maintenance operatives	3	4	12	Traffic management	2	3	6	Accidents & injuries	Staff	Aberdeenshire Council System Failure	Stable			
RR13	Failure of surface dressing works	Customer/Citizen	Claims for damage to vehicles	3	2	6	Use of best practice by skilled operatives	2	2	4	Defects apparent Damage claims	Financial	Aberdeenshire Council System Failure	Stable			
RR14	Extreme snowfall event > 200mm	Social	Disruption to network	4	4	16	Winter Maintenance service	3	3	9	Closures or restrictions	Financial	Natural/Man Made Disasters	Increasing			
RR15	Serious RTA	Customer/Citizen	Fatalities & multiple injuries Disruption to network	2	3	6	Emergency response plan	2	2	4	Defects apparent	Financial	Natural/Man Made Disasters	Stable			
RR16	Hazardous material spillage	Customer/Citizen	Disruption to network	2	2	4	Emergency response plan	2	1	2	Defects apparent	Financial	Natural/Man Made Disasters	Stable			
RR17	Vehicle on fire	Customer/Citizen	Disruption to network	1	2	2	Emergency response plan	1	1	1	Defects apparent	Financial	Natural/Man Made Disasters	Stable			

Aberdeenshire Council - Infrastructure Services
ROADS RISK REGISTER LIGHTING

Risk No	Risk	Risk Type	Potential Impact	Inherent Risk			Mitigants & Controls	Residual Risk			Key Risk Indicators	Impact Classification	Event Category	Risk Status	Action Plan Yes/No	Lead Officer	Date for Completion
				Likelihood	Impact	Risk Rating		Likelihood	Impact	Risk Rating							
RL01	Lamp failure	Customer/Citizen	Local lighting failure	4	2	8	Lighting inspections & customer contact centre	3	2	6	Defects apparent	Customer/Citizen	Aberdeenshire Council System Failure	Stable			
RL02	Power failure	Contractual	Area wide lighting failure	3	4	12	None	3	4	12	Defects apparent	Customer/Citizen	3rd Party Supplier Failure	Stable			
RL03	RTA impact on column	Customer/Citizen	Damage to column with risk of collapse & injury	3	3	9	Protect or relocate vulnerable columns	2	3	6	Defects apparent	Customer/Citizen	Natural/Man Made Disasters	New			
RL04	Light column failure	Physical	Fallen column with risk of pedestrian injury or RTA	2	3	6	Measure residual structural thickness and assess strength. Strengthen or replace	1	3	3	Column age from records	Financial	Aberdeenshire Council System Failure	Stable			
RL05	Vandalism	Social	Damage to street furniture	3	2	6	Tamper-proof fittings	1	2	2	Defects apparent	Customer/Citizen	Unauthorised Activity (External)	Stable			
RL06	Maintenance activities adjacent live traffic	Personnel	Vehicular traffic affecting bridge inspectors & maintenance operatives	3	4	12	Traffic management	2	3	6	Accidents & injuries	Staff	Aberdeenshire Council System Failure	Stable			

Aberdeenshire Council - Infrastructure Services

ROADS RISK REGISTER BRIDGES

Risk No	Risk	Risk Type	Potential Impact	Inherent Risk			Mitigants & Controls	Residual Risk			Key Risk Indicators	Impact Classification	Event Category	Risk Status	Action Plan Yes/No	Lead Officer	Date for Completion
				Likelihood	Impact	Risk Rating		Likelihood	Impact	Risk Rating							
RB01	Scour failure	Physical	Foundations undermined with risk of collapse	3	5	15	Scour risk assessment. Special inspections after river spates Preventative measures	2	5	10	Closures or restrictions	Financial	Natural/Man Made Disasters	Increasing			
RB02	Parapet failure	Customer/Citizen	Vehicle penetration with risk of fall into river	4	4	16	Inspection regime & timely maintenance. Warning signs where appropriate	3	3	9	Closures or restrictions	Customer/Citizen	Natural/Man Made Disasters	Increasing			
RB03	Blockage of watercourse	Physical	Silting up or trash accumulation reducing waterway capacity	4	3	12	Inspection regime & timely maintenance	3	2	6	Flooding	Financial	Natural/Man Made Disasters	Increasing			
RB04	Maintenance activities adjacent live traffic	Personnel	Vehicular traffic affecting bridge inspectors & maintenance operatives	3	4	12	Traffic management	2	3	6	Accidents & injuries	Staff	Aberdeenshire Council System Failure	Stable			
RB05	Failure to control Abnormal Loads	Physical	Overloading with risk of structural damage	3	3	9	All movements notified ESDAL in wider use	2	3	6	Defects apparent	Financial	Unauthorised Activity (External)	Stable			
RB06	Weight Restrictions ignored	Physical	Overloading with risk of structural damage & fatigue failure	3	3	9	None	3	3	9	Defects apparent	Financial	Unauthorised Activity (External)	Increasing			
RB07	RTA impact on bridge	Physical	Damage to structure with risk of damage to critical member & collapse	2	4	8	Clearances signed on low headroom bridges	2	3	6	Defects apparent	Financial	Natural/Man Made Disasters	Stable			
RB08	Vandalism	Social	Damage to bridge fabric & associated street furniture	3	2	6	Tamper-proof fittings	1	2	2	Defects apparent	Financial	Unauthorised Activity (External)	Stable			
RB09	Overloading of Weak Bridge	Physical	Overloading with risk of structural damage	2	3	6	Weak bridges under monitoring regime	1	3	3	Defects apparent	Financial	Aberdeenshire Council System Failure	Stable			
RB10	Unknown assets	Physical	Unrecorded assets including culverts & retaining walls at risk of overloading & collapse	2	3	6	None	2	3	6	Closures or restrictions	Financial	Aberdeenshire Council System Failure	Stable			
RB11	Failure to carry out routine maintenance	Financial	Deterioration of structure leading to eventual reduction in serviceability & need for urgent unplanned works	3	3	9	Inspection regime & adequate funding for timely maintenance	1	2	2	Defects apparent	Reputation	Aberdeenshire Council System Failure	Increasing			