ABERDEEN CITY COUNCIL

COMMITTEE	Communities, Housing & Infrastructure
DATE	20 January 2016
DIRECTOR	Pete Leonard
TITLE OF REPORT	Roads Asset Management Plan
REPORT NUMBER	CH1/15/275
CHECKLIST COMPLETED	Yes

1. PURPOSE OF REPORT

This report presents the second version of an Asset Management Plan for the Roads Assets of the Council (RAMP) which has been prepared as part of a family of Asset Management Plans covering the corporate assets of the Council.

2. RECOMMENDATION(S)

It is recommended that the Committee:-

a) approves the Roads Asset Management Plan.

b) agrees to its continuing development as the basis for the stewardship of the Roads assets.

c) approves the continuing participation in a nationwide project to continue the development and implementation of such plans.

d) notes the financial implications of the Plan.

3. FINANCIAL IMPLICATIONS

The RAMP provides the basis for budgets for Roads Maintenance. The requirement for future funding of the road asset will be identified from within the Asset Plan. Future funding options are contained within Appendix B of this report

4. OTHER IMPLICATIONS

There are no legal, resource, personnel, property, equipment, sustainability and environmental, health and safety and/or policy implications and risks arising directly from the RAMP.

5. BACKGROUND/MAIN ISSUES

Asset management sets out the approach to be used in acquiring, maintaining, improving and disposing of an asset. It is a structured, long term approach to planning optimal maintenance and eventual renewal of infrastructure.

Background

The government encouraged the development of asset management plans to assist in the production of Whole of Government Accounts. This is to allow the introduction of financial reporting of current values of assets rather than historical ones.

In order to progress this requirement a project, involving all 32 Councils in Scotland, led by Society of Chief Officers for Transportation in Scotland (SCOTS), participated in the production of a common framework for a Road Asset Management Plan. The project commenced in 2008, originally for a four year period ending at the end of financial year 2011-12, Project 2 commenced in 2013 to look at further modifications to the RAMP Model and a closer alignment of the RAMP with the production of the Whole Government Accounts

The benefit of cross Council working has become well established during this project and will be continued on an informal basis beyond the end of this formal SCOTS project

6. IMPACT

Improving Customer Experience –

City Voice, the panel of Aberdeen residents who are contacted on a regular basis and asked for their views on a range of issues, is used to develop a statistically analysed pattern of response to basic aspects of asset management.

The views of affected residents and road users are sought on our performance on specific schemes. Records held in the Confirm (Roads Maintenance Management) System and records of Claims by road users against alleged defects can be analysed to indicate areas of concern. Specific surveys may be carried out from time to time to address specific areas of concern. Results of these various analyses can be used in conjunction with inspection data to establish customers' areas of concern and expectations of the maintenance of the roads network.

Improving Staff Experience
The Asset Management Plan will allow staff to control the budget spend on the asset and direct the available monies to the areas of most concern.

Improving our use of Resources –
The Asset Management Plan will assist in managing the spend over several years to continue to optimise our use of resources to continue to provide best value

Corporate –
The RAMP forms part of the Corporate Asset Management Plan and links to the Council's corporate aims via this process.

Public –
This report will be of interest to the public and the media

7. MANAGEMENT OF RISK

The project has a number of risks which will be managed through the normal risk management process. In particular the committee should note the following: The risks that could prevent achievement of the standards specified in this plan (section 6) are:

Plan Assumption	**Risk**	**Action If Risk Occurs**
The plan is based upon winters being normal	Adverse weather will create higher levels of detects and deterioration than have been allowed for.	Budgets and predictions will be revised and this plan updated if abnormally harsh winters occur.
Available budgets have been assumed as shown in section 7 of the RAMP	External pressures mean that government reduce the funding available for roads	Target service standards will be revised to affordable levels
Construction inflation will remain at level similar to the last 5 years.	Construction inflation will increase the cost of works (particularly oil costs as they affect the cost of road surfacing materials)	Target service standards will be revised to affordable levels.
Levels of defect and deteriorate are based on current data which is limited for some assets (e.g. footways)	Assets deteriorate more rapidly than predicted and the investment required to meet targets is insufficient.	Split between planned and reactive maintenance budgets will be revised.
Resources are available to deliver the improvement actions	Pressures on resources mean that staff are not allocated to service improvement tasks such that the predicted benefits cannot be fully achieved	Target dates will be revised and reported.

The risk has been evaluated in accordance with the councils corporate risk management strategy .In addition to the risks above, a road asset risk register is maintained, recording the risks associated with each asset type. A review of this register is used annually, when programmes of works are developed.

8. BACKGROUND PAPERS

None

9. REPORT AUTHOR DETAILS

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Appendix 1

Aberdeen City Council

Road Asset Management Plan 2

(RAMP 2)

2015 - 2019

Foreword

This plan sets out the council's plans for the management of the council's road asset for the next 3 years and beyond. It has been produced in accordance with national guidance and recommended good practices.

It is widely recognised that the application of modern asset management practices can enable improved value for money. In these challenging times is it essential that the council embraces these methods and strives to ensure that every penny spent 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 views of road users and residents and in particular the importance that is placed upon our road assets. Recent harsh winters have shown that our roads are susceptible to damage when bad weather occurs. It is essential that an appropriate level of investment is put into the road network to maintain and ultimately improve one of the main principles of the council, that of the economic wellbeing of the locality.

Councillor Signature

Convenor

Document Control & Council Approval

Version Number/Date	Approved by Council
V2	Approved by Council Communities, Housing & Infrastructure Committee on 20th January 2016
Next Review Due	March 2017

Responsibility for the Plan

The responsibility for the delivery of and updating of this plan are shown below

Council Officer	Responsible for
Mike Cheyne	Overview
Richard Blain Sharon Toseland	Carriageways
Richard Blain Bill Wilson	Footpaths
Brian Strachan George Collie	Street Lighting
Alan Robertson Julie Marsh	Structures
Doug Ritchie Neale Burrows	Traffic Lights

1. Introduction

Overview

This plan sets out the council's plans for the council's road assets for the period 2015-2019. 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 and street furniture.

Purpose

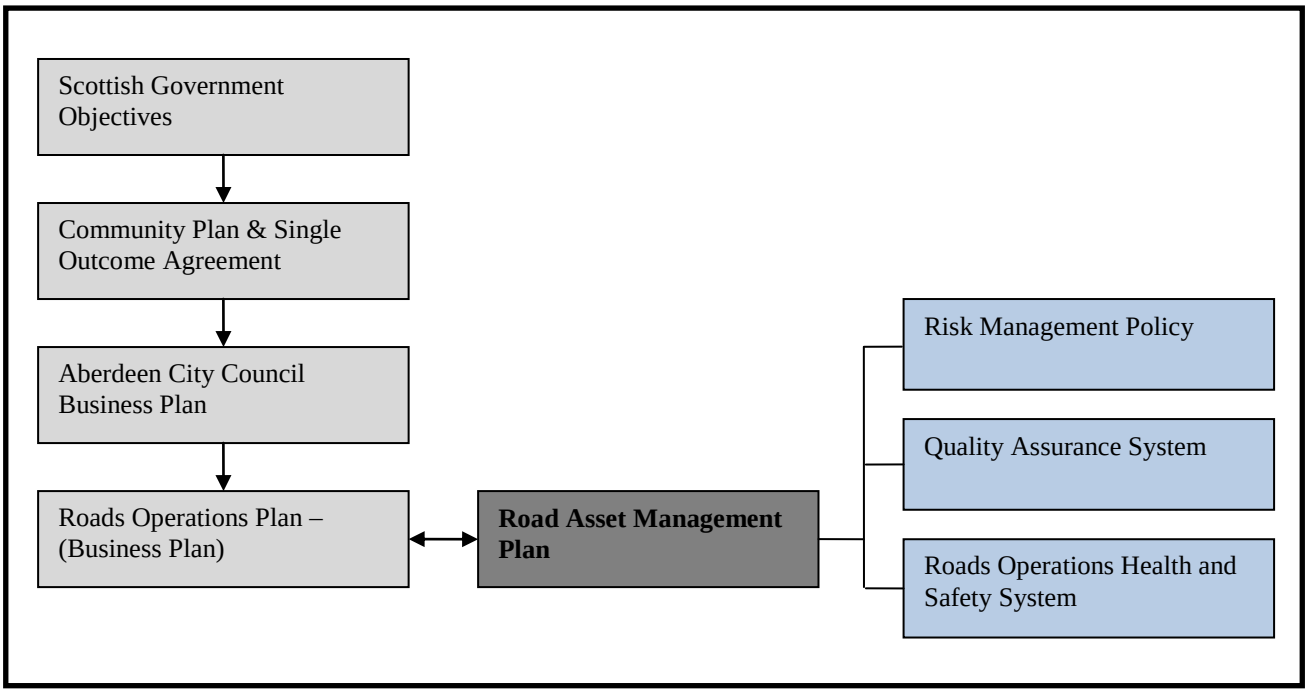
The purpose of the RAMP is to:

- 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 the roads service to be delivered with better value for money.

RAMP and Other Plans

The RAMP relates to other council plans as illustrated below:



2. Road Assets

The council's road assets covered by this plan are:

• Carriageways	856 km
• Footways	1,547 km
• Structures	174 Road Bridges 20 Network Rail Bridges 350 Retaining Walls
• Street Lighting	32,128 Lighting Columns
• Traffic Management Systems	249 Signalised Junctions and Pedestrian Crossings
• Road Drainage Infrastructure	Detailed on GIS
• Non-illuminated Signs & Bollards	11,500
• Road related verges, swales & other soft landscaped areas	2000km
• Trees	13,000
• Safety Fences	9,400 m
• Pedestrian Barriers	15,000 m
• Street Name Plates	10,000
• Grit Bins	900
• Verge Marker Posts	200
• Weather Stations	3
• Other Traffic Management Systems	16 Information Systems 8 Variable Message Signs

Assets Not Covered

The RAMP only looks at Council assets maintained by Roads Services

The council owned road assets not covered in this RAMP are:

- Seating
- Bus Shelters
- Communal and Public Waste Bins
- Roads assets managed by Housing, Grounds and Property Services

Assets that have been specifically excluded from this plan are:

- Private Roads – the Council may provide services in the advent of emergencies.
- Private Bridges
- Roads assets managed by Housing Associations
- Council owned bridges, not on or crossing the road network.
- Decorative, seasonal lighting
- Water related infrastructure that does not form part of the road network

Inventory Data

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

A 'Road Asset Data Management Plan' is being developed to ensure that gaps in the present inventories are filled and the current level of data accuracy is maintained. The plan includes a list of prioritised improvement actions to collect new data to help with the overall management of the asset.

3. Customer Expectations

City Voice, the panel of Aberdeen residents who are contacted on a regular basis and asked for their views on a range of issues, is used to develop a statistically analysed pattern of response to basic aspects of asset management.

The views of affected residents and road users are sought on our performance on specific schemes.

Records held in the Confirm (Roads Maintenance Management) System and records of Claims by road users against alleged defects can be analysed to indicate areas of concern.

Specific surveys may be carried out from time to time to address specific areas of concern. Results of these various analyses can be used in conjunction with inspection data to establish customers' areas of concern and expectations of the maintenance of the roads network.

4. Demands

Asset Growth

The asset grows due to the adoption of new roads, generally in development schemes, and construction of new road links by the Council. Assets may also occasionally be acquired by the de-trunking of former Trunk Roads where schemes are executed by Transport Scotland. Consideration must be given to budget levels to provide adequate resources for the resulting increased workload.

Assets may be disposed of if they become surplus to requirement following re-development, Traffic Management or if they are taken over by the trunk Road authority, but this is quite rare given the pressure on the network.

Traffic Growth and Composition

Traffic growth places increasing pressure on the road network due to the significant increase in the general volume of traffic and in particular, large commercial vehicles. Many of the council's roads were not designed to accommodate this volume or weight of traffic. This creates a growing need for investment in maintenance.

The Aberdeen City and Shire Strategic Development Plan states that 67,500 houses are planned to be built within the next 20 years and that the population is expected to increase by 35,000 in that same period. In spite of initiatives to reduce travel and use of private vehicles this is likely to increase the demand on the road assets.

Lack of adequate maintenance causes delays through increased journey times as drivers cope with defective surfaces and disruption due to faulty signs and traffic management systems.

The resulting congestion and inefficient use of vehicles will increase carbon emissions.

Environmental Conditions

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

- Harsh winters: recent unseasonably harsh winters have caused significant damage to road surfaces in the form of a mass of defects resulting from freeze/thaw action.
- Flooding: areas within Aberdeen are prone to flooding which causes damage to property and the road network.

These demands are causing pressures that are creating a need for additional funding.

5. Service Standards

This plan is based upon delivering the service standards below. The standards reflect the funding levels in section 6. They are the standards that users (customers) can expect from the city's Road assets during the plan period. This plan targets delivery of service standards shown below. Details of how the specific measures shown below are calculated are included in the road maintenance manual.

Service	Measured By	Target Standard	
		2016	2018
Carriageways			
Safety	Percentage of Cat 1 defects made safe within response times.	100%	TBA
	Percentage of safety inspections completed on time	100%	TBA
Condition	Percentage of principal roads network where structural maintenance should be considered	30%	TBA
	Percentage of "B" Class roads to be considered for maintenance treatment	30%	TBA
	Percentage of "C" Class roads to be considered for maintenance treatment	35%	TBA
	Percentage of unclassified, non-principal roads network where maintenance should be considered (CVI / DVI type surveys)	40%	TBA
	Percentage of carriageway length treated	TBA	TBA

Footways			
Safety	Percentage of Cat 1 defects made safe within response times.	100%	TBA
	Percentage of safety inspections completed on time	100%	TBA
Condition	Percentage of footway area to be considered for maintenance treatment	TBA	TBA

Street Lighting – Core Indicators			
Safety	Percentage of repairs carried out within 5 days	95%	TBA
	Average time to repair a fault	5 days	TBA
Environment	Average annual electricity consumption per streetlight (kWH)	15,696,954	9,976,334

Traffic Management – Core Indicators			
Safety	Percentage of repairs within 48 hours	97%	TBA
Environment	Average annual electricity consumption per traffic signal (kWH)	TBA	TBA

Structures			
Condition	Percentage of principal inspections carried out on time	100%	100%
	Percentage of general inspections carried out on time	100%	100%
	Bridge Stock Condition Indicator (BCIav)	87%	87%
	Bridge Stock Condition Index (BCIcrit)	82%	82%

6. Financial Summary

6.1 Asset Valuation

As at March 2015 the road asset is valued as follows:

Asset Type	Gross Replacement Cost (000's)	Depreciated Replacement Cost (000's)	Annualised Depreciation Cost (000's)	Comments
Carriageways	£1,018,159	£935,549	£7,244	
Footways & Cycleways	£109,463	£48,592	£2,523	
Structures	£266,091	£259,289	£847	
Street Lighting	£101,886	£45,251	£2,890	
Traffic Management	£12,565	£7,893	£631	
Street Furniture	£33,679	£16,327	£1,171	
Total	**£1,541,842**	**£1,312,901**	**£15,306**	

The valuation figures above indicate that the roads are the single most valuable asset under the Council's stewardship and emphasize the role of the roads in the effective functioning of a modern city.

These figures are reported to Scottish Government as part of the Whole of Government Account.

The asset values are calculated in accordance with methods agreed nationally through the SCOTS Roads Asset Management Project.

6.2 Historical Expenditure

Historical expenditure invested in works on the Road asset is shown below:

Asset	Works	Historical Expenditure £ 000				
		10/11	11/12	12/13	13/14	14/15
Carriageways	Planned		£2,211	£1,885	£2,363	£2,027
	Routine			£616	£266	£278
	Reactive			£534	£367	£639
Footways	Planned	£655	£400	£500	£600	£600
	Routine					
	Reactive			£187	£196	£175
Structures	Planned	200	200	200	200	200
	Routine & Reactive	100	100	100	100	100
Street Lighting	Energy Costs			£2,065		£2,200
	Planned			£501	£347	£600
	Routine & Reactive			£1,135	£685	£900
Traffic Signals	Energy/Communication Costs	Energy Costs included in Street Lighting				
	Planned	£317	£482	£435	£399	£480
	Routine & Reactive	£255	£267	£271	£281	£299
Totals:						

6.3 Planned Funding

The service standard targets shown in section 5 are based upon the following predicted funding levels. In future years the decision upon the level of funding for the Road will take into account the information and options supplied in the complementary ASOR. Any updates required to the RAMP will then be made.

Section 5 of this RAMP is based upon the assumption that the funding levels remain the same for the next 3 years.

Asset	Works	Funding assumed £k (at 2015 prices)				Long Term Funding Assumed £k
		16/17	17/18	18/19	19/20	Y5-Y20 pa
Carriageways	Planned	£2,027	£2,027	£2,027	£2,027	£2,027
	Routine	£278	£278	£278	£278	£278
	Reactive	£639	£639	£639	£639	£639
Footways	Planned	£600	£600	£600	£600	£600
	Routine					
	Reactive	£175	£175	£175	£175	£175
Structures	Planned	200	200	200	400	400
	Routine & Reactive	100	100	100	100	1000
Street Lighting	Energy Costs	£1,000	£1,000	£1,000	£1,000	£1,000
	Planned	£1,400	£2,300	£2,300	£2,300	£1,203
	Routine & Reactive					
Traffic Signals	Energy/Communication Costs	Included in Street Lighting Energy Costs				
	Planned	£970	£965	£970	£680	£298
	Routine & Reactive	298	302	307	311	£316
Totals:						

7. Asset Investment Strategies

The strategies in this section have been determined 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 in section 5 to be delivered.

Investment between Asset Types

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

- Carriageways: level of investment maintained at similar levels. Preventative treatments will be favoured over longer term alternatives. The strategy will apply a lower cost treatment to enable the life of the asset to be extended a further five to ten years before more expensive treatments are required. The level of investment is predicted to be sufficient over the next five years to prevent further deterioration. In the longer term the sections of carriageway will reach a condition state where the best whole life cost option will be the more expensive resurfacing treatment.

- Footways: level of investment maintained at similar levels. The strategy will target the worst condition footways and apply long life treatments to reduce 3rd party claims and improve customer satisfaction. The level of investment will not be sufficient to reduce the worst condition footways which will lead to a need for more funding to achieve the reactive repairs response.

- Structures: level of investment maintained at similar levels. The structures strategy targets the strengthening of those structures which are on high priority routes. In addition refurbishment of a number of structures that are in need of maintenance are included.

- Street lighting; level of investment maintained at similar levels, plus additional investment in “spend to save” energy efficiency initiatives. The strategy will:
  1. Reduce energy costs by over 50% and maintenance costs of lanterns through the installation of the LEDs.
  2. Reduce the risk of columns unexpectedly falling down through the column renewal programme

- Traffic signals; level of investment maintained at similar levels

Carriageways

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of operatives on emergency repairs and on other non emergency repairs such as patching.
Planned Maintenance Preventative	A programme of preventative treatment or roads in the initial stages of deterioration.	The strategy is predicted to require the following annual approximate lengths of surface dressing/micro asphalt:

Road Type	2016/17	2017/18	2018/19	2019/20
A	1km	1km	1km	1km
B & C	2km	2km	2km	2km
U	8km	8km	8km	8km

Category	Description	Basis of Strategy
Planned Maintenance Corrective	Programme of resurfacing where a preventative treatment cannot be applied	The strategy is predicted to require the following annual approximate lengths of resurfacing:

Road Type	2016/17	2017/18	2018/19	2019/20
A	1km	1km	1km	1km
B & C	2km	2km	2km	2km
U	8km	8km	8km	8km

Footways

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of works gangs on emergency repairs and on other non emergency repairs such as patching.
Planned Maintenance Corrective	Programme of resurfacing/renewal of footways.	The strategy is predicted to require the following annual approximate areas of footway renewals:

Footway	2016/17	2017/18	2018/19	2019/20
All	9.0km	9.0km	9.0km	9.0km

Structures

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of works gangs/other agencies on emergency repairs and on other non emergency repairs.
Strengthening (council structures)	Strengthening of bridges currently assessed as being weak.	The strategy involves: – Strengthening of bridges
Refurbishment	Refurbishment of structures that have deteriorated into a poor or very poor condition	The strategy involves: – Road bridges – Footbridges – Culverts – Retaining walls
Parapet works	Strengthening or replacement of weak parapets	The strategy targets replacement of parapets
Scour Protection	Scour protection works on structures susceptible to scour	This strategy targets structures which have been assessed as susceptible to scour in the annual inspection.
Other Specific		

Street Lighting

<table>
<tr><th>Category</th><th>Description</th><th colspan="5">Basis of Strategy</th></tr>
<tr><td>Routine and Reactive Repair</td><td>Repair of defect to current intervention standards and response times.</td><td colspan="5">The strategy requires the deployment of a number of works gangs on emergency and other non emergency repairs.</td></tr>
<tr><td rowspan="3">Planned Maintenance Corrective</td><td rowspan="3">Programme of structural renewal</td><td colspan="5">The strategy is predicted to require the approximate annual quantities of columns to be renewed:</td></tr>
<tr><td></td><td>2016/17</td><td>2017/18</td><td>2018/19</td><td>2019/20</td></tr>
<tr><td>Columns Renewals</td><td>1000</td><td>500</td><td>500</td><td>500</td></tr>
<tr><td rowspan="3">Invest to save</td><td rowspan="3">An Invest to Save initiative for energy efficiency has been approved to upgrade high wattage lanterns to LED over the next 7 years.</td><td colspan="5">The initiative is predicted to require the approximate annual quantities of lanterns to be upgraded to LEDs:</td></tr>
<tr><td></td><td>2016/17</td><td>2017/18</td><td>2018/19</td><td>2019/20</td></tr>
<tr><td>LED Upgrades</td><td>5000</td><td>5000</td><td>5000</td><td>5000</td></tr>
</table>

Traffic Signals

<table>
<tr><th>Category</th><th>Description</th><th colspan="5">Basis of Strategy</th></tr>
<tr><td>Routine and Reactive Repair</td><td>Repair of defect to current intervention standards and response times.</td><td colspan="5">The strategy is provided by a three plus two year contract to undertake all emergency repairs and on other non-emergency repairs.</td></tr>
<tr><td rowspan="3">Refurbishment of signalised junctions</td><td rowspan="3">Refurbishment of junction that have deteriorated or the equipment has become obsolete/unreliable due to higher maintenance costs.</td><td colspan="5">The strategy is predicted to require the approximate annual quantities of junctions to be renewed:</td></tr>
<tr><td></td><td>2015/16</td><td>2016/17</td><td>2017/18</td><td>2018/19</td></tr>
<tr><td>Junction Renewals</td><td>12</td><td>11</td><td>19</td><td>15</td></tr>
<tr><td rowspan="3">Refurbishment of signalised crossings</td><td rowspan="3">Refurbishment of junction that have deteriorated or the equipment has become obsolete/unreliable due to higher maintenance costs.</td><td colspan="5">The strategy is predicted to require the approximate annual quantities of pedestrian crossings to be renewed:</td></tr>
<tr><td></td><td>2015/16</td><td>2016/17</td><td>2017/18</td><td>2018/19</td></tr>
<tr><td>Pedestrian Crossing Renewals</td><td>7</td><td>6</td><td>7</td><td>14</td></tr>
</table>

8. Risks to the Plan

The risks that could prevent achievement of the standards specified in this plan (section 6) are:

Plan Assumption	Risk	Action If Risk Occurs
The plan is based upon winters being normal	Adverse weather will create higher levels of detects and deterioration than have been allowed for.	Budgets and predictions will be revised and this plan updated if abnormally harsh winters occur.
Available budgets have been assumed as shown in section 7	External pressures mean that government reduce the funding available for roads	Target service standards will be revised to affordable levels
Construction inflation will remain at level similar to the last 5 years.	Construction inflation will increase the cost of works (particularly oil costs as they affect the cost of road surfacing materials)	Target service standards will be revised to affordable levels.
Levels of defect and deteriorate are based on current data which is limited for some assets (e.g. footways)	Assets deteriorate more rapidly than predicted and the investment required to meet targets is insufficient.	Split between planned and reactive maintenance budgets will be revised.
Resources are available to deliver the improvement actions	Pressures on resources mean that staff are not allocated to service improvement tasks such that the predicted benefits cannot be fully achieved	Target dates will be revised and reported.

The risk has been evaluated in accordance with the councils corporate risk management strategy [4] .In addition to the risks above, a road asset risk register is maintained, recording the risks associated with each asset type. A review of this register is used annually, when programmes of works are developed.

References

1) Local Transport Plan
2) Asset Management Policy
3) Network Management Plan
4) Road Asset Management Manual
5) Annual Status and Options Report
6) Road Asset Data Management Plan
7) Service Improvement Action Plan

Appendix B

Road Asset
Annual Status & Options Reports

Road Asset
Annual Status & Options Report
Carriageways and Footways
2014/15

Aberdeen City Council

Introduction

This report presents a summary of the council's carriageway and footway assets as at March 2015. It

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

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

Status

The status of each asset group is provided in terms of current condition, the output that are delivered, the standards being achieved and, where possible an indication of customer satisfaction.

Options

The report considers the following options:

- A continuance of current funding levels
- The predicted cost of maintaining current standards
- Predicted effect of a preventative strategy
- The predicted cost of achieving desired standard in various timeframes

Long Term Forecasts

Road assets deteriorate slowly. The impact of a level of investment cannot be shown by looking at the next couple of years. The report includes 20 yr forecasts to enable decisions to be taken with an understanding of their long term implications.

Impacts Risk

To reflect continuing budgetary pressures the report contains an assessment of the impact for each option presented. In some instances however the level of detail of assessment is currently hindered by an absence of data.

Carriageways

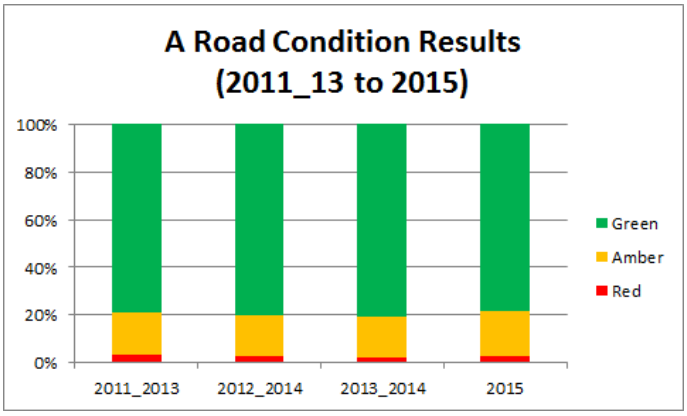
8.1 Status Report

<table>
<tr><th colspan="3">Asset Group: Carriageway</th></tr>
<tr><th></th><th>Statistics</th><th>Commentary</th></tr>
<tr><td>The Asset</td><td>
<table>
<tr><th>Road Class</th><th>Urban Length (m)</th><th>Rural Length (m)</th><th>Total Length (m)</th></tr>
<tr><td>A Road</td><td>51,000</td><td>7,900</td><td>58,900</td></tr>
<tr><td>B Road</td><td>36,100</td><td>6,100</td><td>42,200</td></tr>
<tr><td>C Road</td><td>79,000</td><td>13,500</td><td>92,500</td></tr>
<tr><td>Unclassified Road</td><td>618,300</td><td>101,100</td><td>719,400</td></tr>
<tr><td>Total Length (m)</td><td>784,400</td><td>128,600</td><td>913,000</td></tr>
</table>
</td><td>

There is a high level of confidence in the inventory.
Inventory is stored in the GIS Attribute Table
Significant future growth will occur through de-trunking roads and the continued increase in adopted assets as a result of new developments.

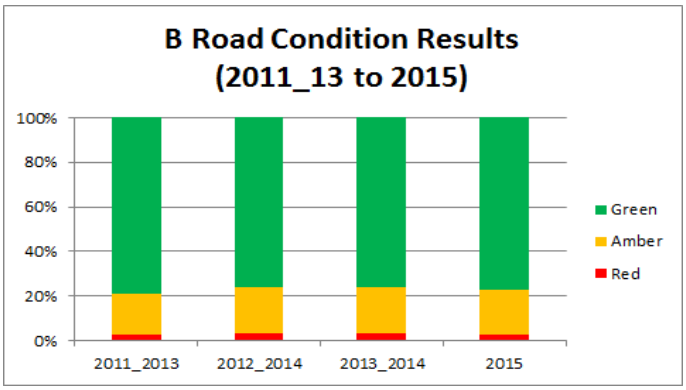
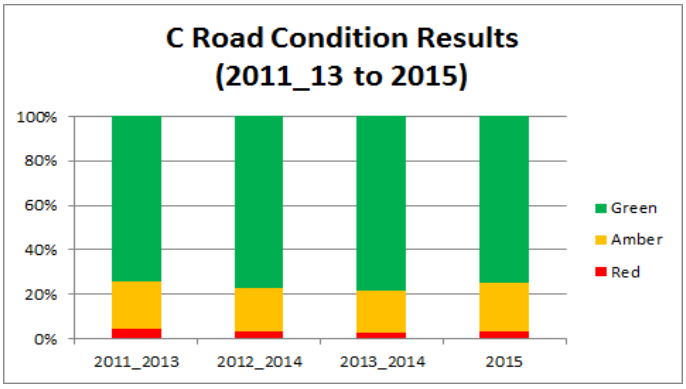
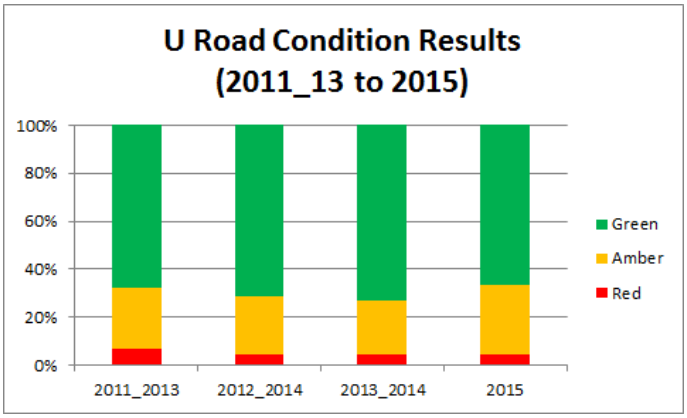
</td></tr>
<tr><td>Customer Expectations</td><td></td><td>

There is currently no information available to include in this report on what the customer thinks of the current standard of carriageway in Aberdeen.
An annual customer survey aimed at obtaining regular feedback was completed in the last financial year. Results are still to be analysed.

</td></tr>
<tr><td>A Road Condition</td><td> 
</td><td>

Measured by SRMCS
100% one side measured annually
The combined level of amber and red condition has averaged 20% over the last four years which is considered ‘Good’.
The future target is to maintain this level of red and amber condition between 20 and 25%.

</td></tr>
</table>

Asset Group: Carriageway		
	Statistics	**Commentary**
B Road Condition		• Measured by SRMCS • 50% one side measured annually • The level of condition has deteriorated a small amount over the last four years. • The current combined level of red and amber condition of 23% is considered 'Good'.
	• The future target is to maintain this level of red and amber condition between 20 and 25%.	
C Road Condition		• Measured by SRMCS • 50% one side measured annually • The level of condition has deteriorated in the last year. • The current combined level of red and amber condition of 25% is still considered 'Good'.
	• The future target is to maintain this level of red and amber condition between 25 and 30%.	
U Road Condition		• Measured by SRMCS • 10% one side measured annually • The level of red condition has improved in the last four years due to the planned maintenance treatments targeting the worst condition roads. • The level of amber condition has varied between 23 and 29% over

Asset Group: Carriageway

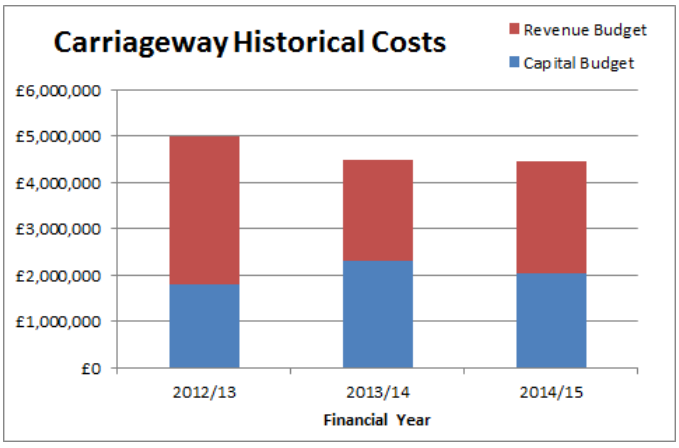
	Statistics	Commentary

the last four years. The two main reasons for this variation is that these roads are not priority for treatments and the annual survey result is only based on 10% of the unclassified roads.

- The future target is to maintain this level of red and amber condition between 30 and 35%.

Ref	Description	2014/15 Result
PI03a / (1.1.01)	% of Cat 1 defects made safe within response times	97.49%
Comments: Trending upwards – current level is considered a minimum standard.		
PI39 / (1.2.01)	% of safety inspections completed on time	96.17%
Comments: Maintained at a constant level over the last two financial years. 100% is the standard for this activity.		
PI40 / (2.1.01)	% of carriageway length to be considered for maintenance treatment (RCI)	26.00%
Comments: Trending downwards with an annual 2% improvement since 2012/13.		
PI41 / (2.1.02)	% of carriageway length treated	1.21%
Comments: In Aberdeen this is between 1.00 and 1.50%		

Historical Investment



- The capital budget is allocated to planned works which comprises of maintenance programmes which target renewing the asset.
- The annual capital budget in the last three years has been consistent at £2m.
- The revenue budget includes reactive works and winter maintenance.
- The revenue budget has reduced by from £3m to £2m in 2013/14. 50% of this reduction was in winter maintenance which reflected the improved winter conditions since 2012/13.

Investment

Cost Category	£4,465,651	Output
Planned Maintenance - Preventative	£112,364	– 36,036m^2 of surface dressing (£112,364)

Asset Group: Carriageway

	Statistics		Commentary
	Planned Maintenance - Corrective	£1,914,511	– 65,590m^2 of thin in-lay (up to 60mm) (£1,710,733) – 870m^2 of structural In-lay (>100mm) (£59,666) – 5,200m^2 of thin overlay (>25mm to 60mm) (£67,025) – 5,200m^2 of moderate overlay (>60mm to 100mm) (£77,087)
Investment and Output (2014/15)	**Cost Category**		**Output**
	Routine Cyclic Maintenance	£277,538	– 6,040 no. gullies emptied(£100,548) (including disposal costs) - 67,480 m yellow lines (£69,266) - 10,360 m white lines (£107,724)
	Routine - Reactive Repairs (emergency)	£0	
	Routine - Reactive Repairs (non-emergency)	£639,215	– 13,771 no carriageway defects (£485,459) – 4,150 no gully responses (£153,756)
	Routine - Inspection & Survey	£0	
	Operating Costs	£1,501,889	– See winter maintenance plan
	Loss#	£20,134	10 no 3rd party claims associated with carriageways
Valuation	Gross Replacement Cost: £1,018,159,132 Depreciated Replacement Cost: £935,548,973 Annualised Depreciation Charge: £7,244,380		The annualised depreciation (AD) was £7.2m which represents the average amount by which the asset will depreciate in one year if there is no investment in renewal of the asset.

Asset Group: Carriageway		
	Statistics	**Commentary**
Key Issues	The carriageway condition shows that the roads in Aberdeen are generally in 'Good' condition. This is a result of the current carriageway strategy of treating a higher proportion of roads with less expensive treatments which have a lower life. The 'Good' condition is likely to continue for the next five years with the current budget but it is likely that after this period these less expensive treatments actual life will reduce due to the underlying conditions of the pavement. At this time more expensive treatments will be deemed to be the best whole life cost solution which will require a higher level of funding.	
Current Strategies	Capital Corrective Strategy – Planned maintenance treatments are completed on the carriageways with the worst condition. Priority is given to road category in order of A, B, C and Unclassified. The majority of planned maintenance treatments only have an expected life of seven to ten years. Reactive Maintenance Strategy – the reactive budget is currently fixed and is only sufficient to allocate to repairing category one and two pavement defects. In the event of surplus budget, category three defects will be treated. Priority is given to the road categories with the highest traffic volumes.	
Current Status	As at 31 March 2015 – → annual budget remain constant – ↘ minor reduction (deterioration) of measured condition in C and Unclassified Roads. – ↗ increasing quantities of minor defects (pot holes and the like) – ↘ decrease in 3rd party claims – ↘ improved customer satisfaction as a result of decreasing reactive repairs.	

8.2 Carriageway Options

The current backlog value for carriageways is £52.8m

A breakdown of the backlog of each road category is shown in the following table

Road Category	Red Condition		Amber 1 Condition		Amber 2 Condition	
	Budget (£000's)	Treated Length (m)	Budget (£000's)	Treated Length (m)	Budget (£000's)	Treated Length (m)
A Road (Urban)	£397	475	£1,457	1,752	£321	1,752
A Road (Rural)	£30	60	£200	406	£35	406
B Road (Urban)	£938	1,527	£2,558	4,184	£563	4,184
B Road (Rural)	£222	241	£614	1,109	£143	1,109
C Road (Urban)	£1,601	2,462	£3,446	5,905	£788	5,905
C Road (Rural)	£566	1,524	£1,421	6,375	£332	6,375
U Road (Urban)	£9,941	26,043	£19,531	68,222	£5,859	68,222
U Road (Rural)	£526	1,487	£1,037	4,888	£242	4,888
All Roads	**£14,221**	**33,819**	**£30,264**	**92,841**	**£8,283**	**92,841**

The annual cost to maintain the carriageways if the backlog was removed is £2.7m which would entail completing approximately 42 kilometres of surface dressing or thin surfacing treatments.

Option C1: Maintain Current Budget

Budget

The first option comprises a continuance of current funding levels as shown below. The 2015/16 carriageway budget is shown below:

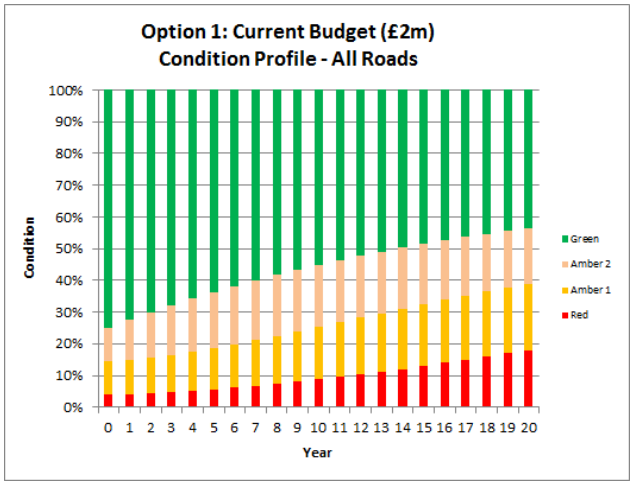
RAMP Cost Category	Expenditure (£000's)	%
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency) - Patching	£485	10.86%
Routine Cyclic Maintenance	£431	9.65%
Planned Maintenance - Preventative	£705	15.78%
Planned Maintenance - Corrective	£1,325	29.65%

RAMP Cost Category	Expenditure (£000's)	%
Inspections and survey (not covered under staff costs)	£0	0.00%
Operating Costs	£1,502	33.61%
TOTAL	**£4,448**	
Loss (3rd Party Claims associated with (c/ways)	£20	0.45%
TOTAL (including claims costs)	**£4,468**	

The current planned maintenance strategy prioritises treating the worst condition roads. A breakdown of the investment is shown in the table below. It shows that 11 kilometres were treated. 50% of the roads treated were on the Unclassified Urban network.

Road Category	Budget (£)	% of Budget by Road Category	Treated Length (m)	% of Road Category Length
A Road (Urban)	£370,000	18.23%	999 metres	5.21%
A Road (Rural)	£0	0.00%	0 metres	0.00%
B Road (Urban)	£275,000	13.55%	971 metres	2.42%
B Road (Rural)	£0	0.00%	0 metres	0.00%
C Road (Urban)	£19,000	9.36%	690 metres	0.91%
C Road (Rural)	£0	0.00%	0 metres	0.00%
U Road (Urban)	£1,030,000	50.74%	5,982 metres	1.01%
U Road (Rural)	£165,000	8.13%	2,030 metres	4.18%
All Roads	**£2,030,000**		**10,672 metres**	

Predicted Condition



The condition chart shows that this option will lead to continued deterioration of the carriageways over time resulting in the percentage of carriageway in need of maintenance (red + amber condition) increasing from the current 25% to 56% in 20 years. That equals an increase of approximately 265km.

Predicted Impacts

Aberdeen City Council currently has a fixed revenue budget allocation for repairing carriageway defects including potholes. The current strategy for this budget is to treat the highest priority defects ie. Category one and two defects until either a capital scheme or a permanent longer life patch.

The condition chart above shows that carriageways with red condition will increase which will lead to higher levels of category one defects. If the revenue budget remains constant category one defects may be the only ones treated.

Option Summary

The baseline option of a continuance of current funding levels is predicted to result in:

a. → annual budget will remain constant to comply with this specific Option.
b. ↘ deterioration of measured condition
c. ↗ increasing quantities of untreated defects
d. ↗ potential for increase in 3rd party claims
e. ↘ reduction in customer satisfaction as a result of increased pavement defects.

Total cost (over 20 years) estimated at **£102m.** Annual cost £5.1m. (No allowance has been made for construction inflation currently running at approximately 5% per annum)

Option C2: Maintain Current Condition Using a Preventative Strategy

Budget

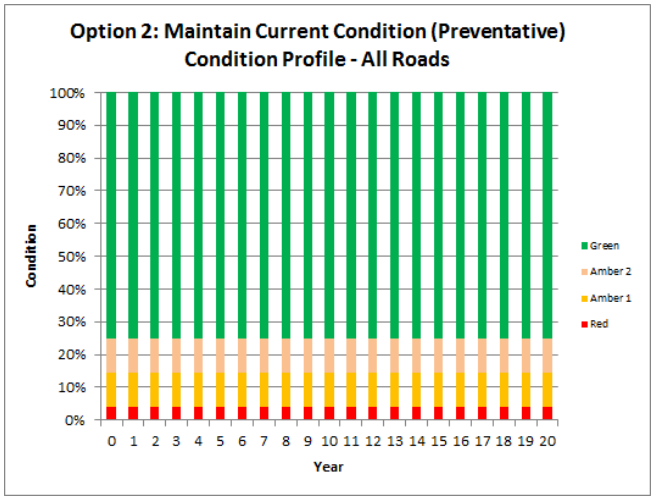
The second option comprises a continuance of current condition levels using a preventative strategy. Roads are treated with lower cost treatments to extend the life of the asset. The 2015/16 carriageway budget is shown below:

RAMP Cost Category	**Expenditure (£000's)**	**%**
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency) - Patching	£485	7.02%
Routine Cyclic Maintenance	£431	6.24%
Planned Maintenance - Preventative	£2,363	34.19%
Planned Maintenance - Corrective	£2,111	30.53%
Inspections and survey (not covered under staff costs)	£0	0.00%
Operating Costs	£1,502	21.73%
TOTAL	**£6,893**	
Loss (3rd Party Claims associated with (c/ways)	£20	0.29%
TOTAL (including claims costs)	**£6,913**	

The planned maintenance allocation of £4.4m would enable 31 kilometres of carriageway to be treated. The breakdown of the investment is shown in the table below.

Road Category	**Budget (£)**	**% of Budget by Road Category**	**Treated Length (m)**	**% of Road Category Length**
A Road (Urban)	£341,500	7.63%	1,090 metres	5.69%
A Road (Rural)	£64,000	1.43%	505 metres	6.39%
B Road (Urban)	£388,900	8.69%	1,750 metres	4.37%
B Road (Rural)	£101,800	2.27%	508 metres	4.53%
C Road (Urban)	£678,200	15.16%	3,552 metres	4.70%
C Road (Rural)	£223,800	5.00%	2,693 metres	4.44%
U Road (Urban)	£2,542,100	56.82%	19,650 metres	3.31%
U Road (Rural)	£134,000	2.99%	1,702 metres	3.50%
All Roads	**£4,474,300**		**31,450 metres**	

Predicted Condition



This shows the condition of the carriageways remaining the same over time.

Option Summary

The option of a continuance of current condition levels is predicted to result in:

a. ↗ increase in planned maintenance budget to enable the current condition to be maintained over the 20 year period.
b. → continuation of measured condition
c. → no increase in quantities of minor defects (potholes and the like)
d. → no increase in level of successful 3rd party claims
e. → no change in customer satisfaction

Total cost (over 20 years) estimated at **£148m.** Annual cost £7.4m initially, remaining the same over time. (No allowance has been made for construction inflation currently running at approximately 5% per annum)

Option C3: Maintain Current Budget Using a Preventative Strategy

Budget

The third option comprises investing 70% of the current budget in preventative treatments. The 2015/16 carriageway budget is shown below:

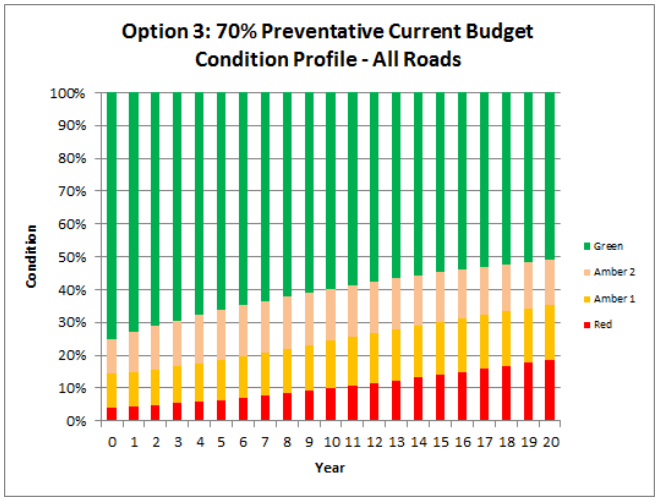
RAMP Cost Category	**Expenditure (£000's)** (2015/16 actual)	**%**
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency) - Patching	£485	10.86%
Routine Cyclic Maintenance	£431	9.65%
Planned Maintenance - Preventative	£1,277	28.56%

Planned Maintenance - Corrective	£754	16.86%
Inspections and survey (not covered under staff costs)	£0	0.00%
Operating Costs (included in carriageway operating costs)	£1,502	33.61%
TOTAL	**£4,449**	
Loss (3rd Party Claims associated with (c/ways)	£20	0.45%
TOTAL (including claims costs)	**£4,469**	

The planned maintenance allocation of £2.0m would enable 15 kilometres of carriageway to be treated. The breakdown of the investment is shown in the table below.

Road Category	**Budget (£)**	**% of Budget by Road Category**	**Treated Length (m)**	**% of Road Category Length**
A Road (Urban)	£370,000	18.23%	999 metres	5.21%
A Road (Rural)	£0	0.00%	0 metres	0.00%
B Road (Urban)	£275,000	13.55%	1,566 metres	3.91%
B Road (Rural)	£0	0.00%	0 metres	0.00%
C Road (Urban)	£19,000	9.36%	1,095 metres	1.45%
C Road (Rural)	£0	0.00%	0 metres	0.00%
U Road (Urban)	£1,030,000	50.74%	9,474 metres	1.60%
U Road (Rural)	£165,000	8.13%	2,289 metres	4.71%
All Roads	**£2,030,000**		**15,423 metres**	

Predicted Condition



The condition chart shows that this option will lead to continued deterioration of the carriageways over time resulting in the percentage of carriageway in need of maintenance (red + amber condition) increasing from the current 25% to 49% in 20 years. That equals an increase of approximately 203km.

Predicted Impacts

Aberdeen City Council currently has a fixed revenue budget allocation for repairing carriageway defects including potholes. The current strategy for this budget is to treat the highest priority defects ie. category one and two defects until either a capital scheme or a permanent longer life patch.

The condition chart above shows that carriageways with red condition will increase which will lead to higher levels of category one defects. If the revenue budget remains constant category one defects may be the only ones treated.

Option Summary

The option of using preventative maintenance treatments is predicted to result in:

a. → annual budget will remain constant to comply with this specific Option.
b. ↘ deterioration of measured condition
c. ↗ increasing quantities of untreated defects
d. ↗ potential for increase in 3rd party claims
e. ↘ reduction in customer satisfaction as a result of increased pavement defects.

Total cost (over 20 years) estimated at **£102m.** Annual cost £5.1m. (No allowance has been made for construction inflation currently running at approximately 5% per annum)

Option C4: Allow Deterioration to A/B Roads – 30%, C Roads – 40%, U Roads – 50%

Budget

The fourth option allows for continuous deterioration on all road types over the 20 year analysis period to achieve reduced condition levels. The maximum levels of deterioration at the end of 20 years for each road type are 30% for A Roads and B Roads, 40% for C Roads and 50% for U Roads.

The 2015/16 carriageway budget is shown below:

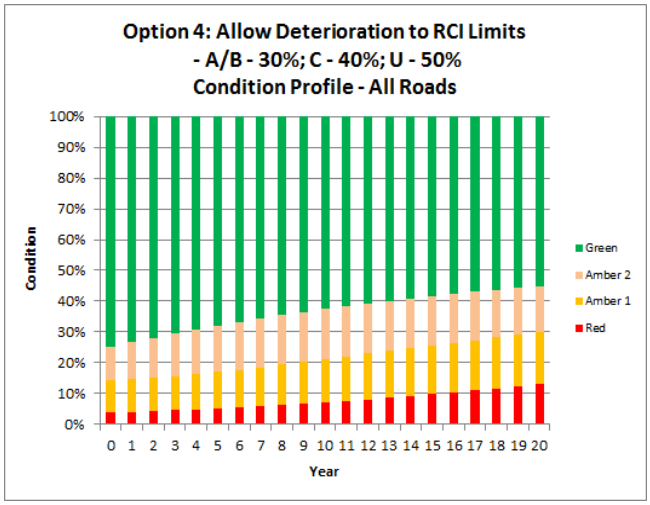
RAMP Cost Category	**Expenditure (£000's)**	**%**
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency) - Patching	£485	9.05%
Routine Cyclic Maintenance	£431	8.04%
Planned Maintenance - Preventative	£1,366	25.46%
Planned Maintenance - Corrective	£1,560	29.07%
Inspections and survey (not covered under staff costs)	£0	0.00%
Operating Costs (included in carriageway operating costs)	£1,502	28.00%
TOTAL	**£5,344**	
Loss (3rd Party Claims associated with (c/ways)	£20	0.38%
TOTAL (including claims costs)	**£5,364**	

The planned maintenance allocation of £2.9m would enable 18 kilometres of carriageway to be treated. The breakdown of the investment is shown in the table below.

Road Category	**Budget (£)**	**% of Budget by Road Category**	**Treated Length (m)**	**% of Road Category Length**
A Road (Urban)	£302,000	10.32%	926 metres	4.83%
A Road (Rural)	£61,000	2.09%	373 metres	4.73%
B Road (Urban)	£368,000	12.58%	1,576 metres	3.93%
B Road (Rural)	£97,500	3.33%	436 metres	3.89%
C Road (Urban)	£509,000	17.40%	2,242 metres	2.97%

Road Category	Budget (£)	% of Budget by Road Category	Treated Length (m)	% of Road Category Length
C Road (Rural)	£172,000	5.88%	1,895 metres	3.12%
U Road (Urban)	£1,350,000	46.15%	9,708 metres	1.64%
U Road (Rural)	£66,000	2.26%	726 metres	1.49%
All Roads	**£2,925,000**		**17,882 metres**	

Predicted Condition



The condition chart shows the overall percentage of carriageway in need of maintenance (red + amber condition) increasing from the current 25% to 45% over 20 years. That equals an increase of approximately 171km.

Option Summary

The option of allowing this level of deterioration is predicted to result in:

a. ↗ annual budget will increase due to a higher level of planned maintenance .
b. ↘ deterioration of measured condition
c. ↗ increasing quantities of untreated defects
d. ↗ potential for increase in 3rd party claims
e. ↘ reduction in customer satisfaction as a result of increased pavement defects.

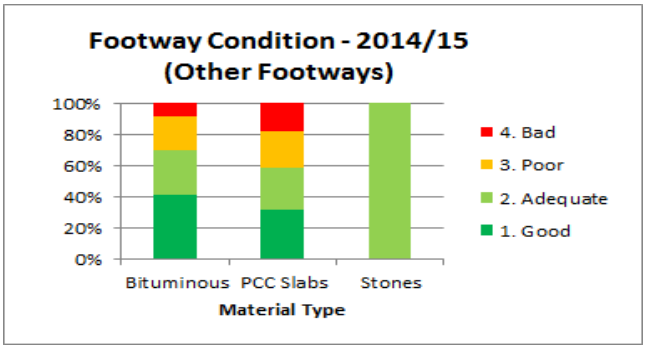
Total cost (over 20 years) estimated at **£119m.** Annual cost £5.9m. (No allowance has been made for construction inflation currently running at approximately 5% per annum)

Recommendation

It is recommended that Option C2 should be considered for maintenance of the carriageways

Footways

3.1 Status Report

<table>
<tr><th colspan="3">Asset Group: Footways</th></tr>
<tr><th></th><th>Statistics</th><th>Commentary</th></tr>
<tr><td>The Asset</td><td>
<table>
<tr><th colspan="4">Footway Material Quantities (‘000m^2)</th></tr>
<tr><th>Material Type</th><th>Higher Amenity</th><th>Other</th><th>Total</th></tr>
<tr><td>Bituminous</td><td>0</td><td>2,168</td><td>2,168</td></tr>
<tr><td>PCC Slabs</td><td>0</td><td>598</td><td>598</td></tr>
<tr><td>Stone</td><td>19</td><td>0</td><td>19</td></tr>
<tr><td>Total</td><td>19</td><td>2,766</td><td>2,785</td></tr>
</table>
• The footway asset continues to grow each year through adopting assets as a result of new developments.
• The Roads Department annually adopt approximately one kilometre of footway from the Housing Department.
</td><td>
• High confidence in inventory
• Inventory is stored in the GIS Attribute Table
• Annual adopted asset from housing – 1.0km per year
</td></tr>
<tr><td>Customer Expectations</td><td></td><td>
• There is currently no information available to include in this report on what the customer thinks of the current standard of footway in Aberdeen.
• An annual customer survey aimed at obtaining regular feedback was completed in the last financial year. Results are still to be analysed.
</td></tr>
<tr><td>Condition</td><td>


</td><td>
• All footways constructed with ‘Stones’ are in the higher amenity areas. (Caithness Slabs, granite etc)
• The condition results are based on the last footway survey undertaken in 2006. These results have been updated using a pro rata process. The adjusted values are stored in a Microsoft Excel spreadsheet.
</td></tr>
</table>

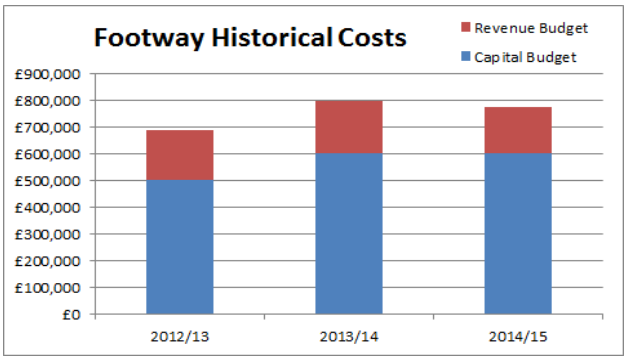
Asset Group: Footways

	Statistics	Commentary

Performance Indicators

Ref	Description	2014/15 Result	Comments
PI45a / (11.1.01)	% of Cat 1 defects made safe within response times	97.62%	
PI46 / (11.2.01)	% of safety inspections completed on time	0.00%	
PI113 / (11.4.01)	% of footway subject to precautionary salting treatment	0.22%	
PI47 / (12.1.01)	% of footway length to be considered for maintenance treatment	32.58%	Based on the condition information from 2006
PI48 / (12.1.02)	% of footway length treated	0.12%	

Historical Investment



- The capital budget is allocated to planned works which comprises of maintenance programmes which target renewing the asset.
- The annual capital budget in the last three years has been consistent between £500k and £600k.
- The revenue budget is allocated to reactive maintenance consisting of both emergency and non-emergency defects.
- Over the last three years the revenue budget has averaged £185,000.

Investment and Output

Cost Category	£1,141,630	Output
Improvements	£19,000	- New Footways (CWSS) (2 sites - 235m^2)
Planned Maintenance - preventative	£209,000	- 1,983 m^2 Replace old trees and upgrade bitmac footway (£151,000) - 531 m^2 Replace old trees and replace slabs footway (£58,000)
Planned Maintenance - Corrective	£678,000	- 1,545 m^2 of replace slabs (£226,000) - 1,857 m2 of resurfacing bitmac (£452,000)

Asset Group: Footways

	Statistics		Commentary
	Routine Cyclic Maintenance	£0	
	Routine - Reactive Repairs (emergency)	£0	
	Routine - Reactive Repairs (non-emergency)	£174,937	– 2,314 no. Footway Defects (£174,937)
Invest & Output	**Cost Category**		**Output**
	Routine Inspection & Survey	£0	
	Loss#	£60,693	– 6 No. Third Party claims
	Operating Costs	£0k	– Included in Carriageway costs
Valuation	Gross Replacement Cost	£109,463,000	The annualised depreciation (AD) was £2,523m which represents the average amount by which the asset will depreciate in one year if there is no investment in renewal of the asset.
	Depreciated Replacement Cost	£48,592,000	
	Annualised Depreciation Charge	£2,523,000	
Key	The most recent footway condition survey results are almost ten years old. A process is being set up to carry out a Course Visual Survey (CVS) of all footways by the Roads Inspectors		
Current Strategies	**Capital Corrective Strategy** – only footways with condition levels of 'bad' are renewed under the planned maintenance budget. The objective is to improve the condition and safety for users. **Capital Preventative Strategy** – mature trees with roots causing damage to the footway are removed. The surrounding footway is repaired and young trees are replanted. The objective of these schemes is to remove the safety hazard caused by the tree roots. The trees are replaced as required by the Street Tree Management Plan. **Revenue Strategy** – the objective is to ensure the footway remains safe for all users. All footways are inspected at intervals documented in the Safety Inspection Manual. The safety inspector assigns a risk rating which indicates what level of treatment is required.		

Asset Group: Footways		
	Statistics	**Commentary**
Current Status	As at 31 March 2015 – → continuance of annual budget – ↘ reduction (deterioration) of measured ↗increasing quantities of minor defects (pot holes and the like) – ↗ increase in 3rd party claims – ↘ decreasing customer satisfaction as a result of increasing reactive repairs	

8.3 Footways Options

Note: No Options are included for the stone surfaces in the Higher Amenity Area. These footways are maintained to the highest level due to their location in the Aberdeen City Centre. All defects are treated as high priority which ensures that the condition is consistently at the highest level. The stones are still relatively new and are not programmed for renewal in the foreseeable future.

The current backlog value for footways is £46.7m

A breakdown of the backlog for higher amenity footways and other footways is shown in the following table

Footway Category	Condition 2		Condition 3		Condition 4	
	Budget (£000's)	Treated Length (m)	Budget (£000's)	Treated Length (m)	Budget (£000's)	Treated Length (m)
Higher Amenity	£1,929	10,715	£0	0	£0	0
Others	£10,797	438,720	£22,380	335,269	£11,628	168,799
All Roads	**£12,726**	**449,435**	**£22,380**	**335,269**	**£11,628**	**168,799**

The annual cost to maintain the footways if the backlog was removed is £1.9m which would entail completing approximately 57 kilometres of slurry seal or slab relaying.

Option F1: Maintain Current Investment

Budget

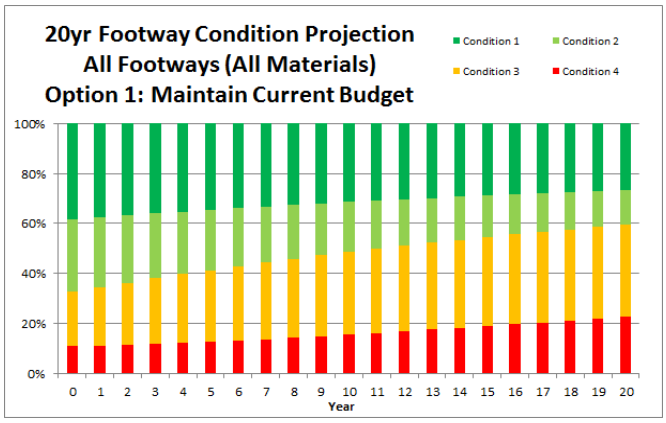
The first option comprises a continuance of current funding levels. The 2015/16 footway budget is shown below:

RAMP Cost Category	Anticipated Budget (£000's)	%
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency), - Patching and Paving	£175	20.93%
Routine Cyclic Maintenance (weeding)	£0	0.00%
Planned Maintenance - Preventative	£0	0.00%
Planned Maintenance - Corrective	£600	71.80%
Inspections and survey (covered under staff costs)	£0	0.00%

RAMP Cost Category	Anticipated Budget (£000's)	%
Operating Costs	£0	0.00%
TOTAL	**£775**	
Loss (3rd Party Claims associated with (footways))	£61	7.26%
TOTAL (including claims costs)	**£836**	

The planned maintenance allocation of £0.6m would enable 9 kilometres of footway to be treated.

Predicted Condition



This shows the level of condition three and four footways increasing from the current 33% to 59% in 20 years. That equals approximately 910 kilometres of footway.

Impacts

Aberdeen City Council currently have a fixed revenue budget allocation for repairing footway defects including potholes. The current strategy for this budget is to treat the highest priority defects ie. category one and two defects until a permanent scheme is completed.

If all the budgets remain fixed a significant impact will be an increase in untreated defects. The condition chart above shows that condition 4 footways will increase which is due to insufficient investment in planned maintenance. The revenue budget will therefore have to be used for keeping the category one and two defects in a safe condition until the planned maintenance schemes are completed. It is likely that in the future the revenue budget may only be sufficient to repair the category one defects if they were to continue to increase.

Option Summary

The baseline option of a continuance of current funding levels is predicted to result in:

a. → annual budget will remain constant to comply with this specific Option.
b. ↘ deterioration of measured condition
c. ↗ increasing quantities of untreated defects
d. ↗ potential for increase in 3rd party claims
e. ↘ reduction in customer satisfaction as a result of increased footway defects.

Total cost (over 20 years) estimated at **£18m.** Annual cost £910k. (No allowance has been made for construction inflation currently running at approximately 5% per annum)

Option F2: Maintain Current Condition

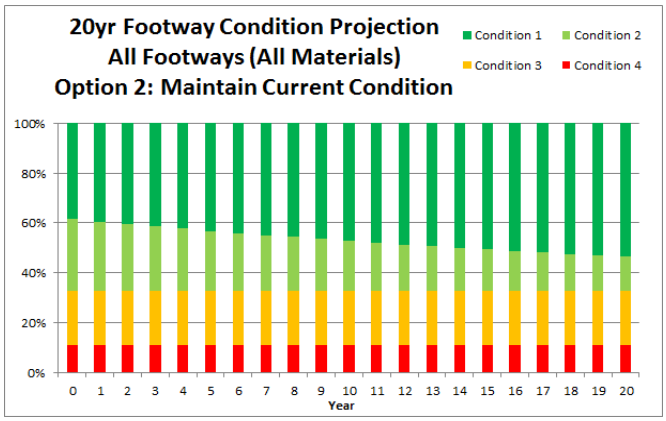
Budget

The second option comprises a continuance of current condition levels. The 2015/16 footway budget is shown below:

RAMP Cost Category	**Anticipated Budget**	**%**
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency), - Patching and Paving	£175	6.30%
Routine Cyclic Maintenance (weeding)	£0	0.00%
Planned Maintenance - Preventative	£0	0.00%
Planned Maintenance - Corrective	£2,540	91.51%
Inspections and survey (covered under staff costs)	£0	0.00%
Operating Costs	£0	0.00%
TOTAL	**£2,715**	
Loss (3rd Party Claims associated with (footways))	£61	2.19%
TOTAL (including claims costs)	**£2,776**	

The planned maintenance allocation of £2.5m would enable 38 kilometres of footway to be treated.

Predicted Condition



This shows the condition of the condition 3 and 4 footways remaining the same over time.
Note: it is not possible to model when footways change from condition 1 (as new) to condition 2 (aesthetically unpleasing). Therefore in this option they are not maintained at the same level over the 20 year analysis period.

Option Summary

The option of a continuance of current condition levels is predicted to result in:

a. ↗ increase in planned maintenance budget to enable the current condition to be maintained over the 20 year period.
b. → continuation of measured condition
c. → no increase in quantities of minor defects (potholes and the like)
d. → no increase in level of successful 3rd party claims
e. → no change in customer satisfaction

Total cost (over 20 years) estimated at **£56m.** Annual cost £2.8m initially, remaining the same over time. (No allowance has been made for construction inflation currently running at approximately 5% per annum)

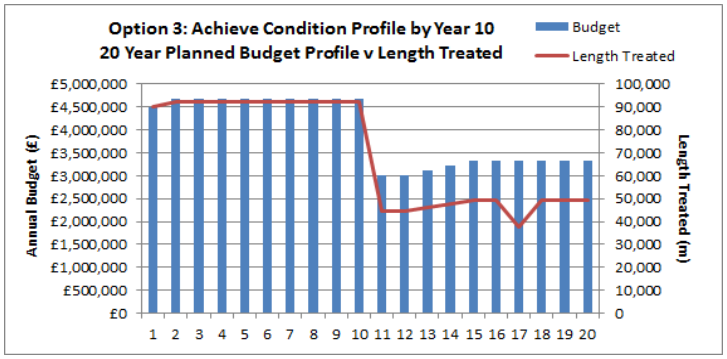
Option F3: Achieve Desired Condition Profile by Year 10

Budget

The third option comprises achieving the following condition profile by Year 10 and then maintaining at that level for the remainder of the 20 year analysis period. The condition profile is Red – 5%, Amber 1 – 10% and Amber 2 -10%. This condition profile is to be achieved on all road categories.

The 2015/16 budget footway is shown below:

RAMP Cost Category	Expenditure (£000's)	%
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency), - Patching and Paving	£175	3.69%
Routine Cyclic Maintenance (weeding)	£0	0.00%
Planned Maintenance - Preventative	£375	7.91%
Planned Maintenance - Corrective	£4,130	87.12%
Inspections and survey (covered under staff costs)	£0	0.00%
Operating Costs	£0	0.00%
TOTAL	**£4,680**	
Loss (3rd Party Claims associated with (footways))	£61	1.28%
TOTAL (including claims costs)	**£4,741**	



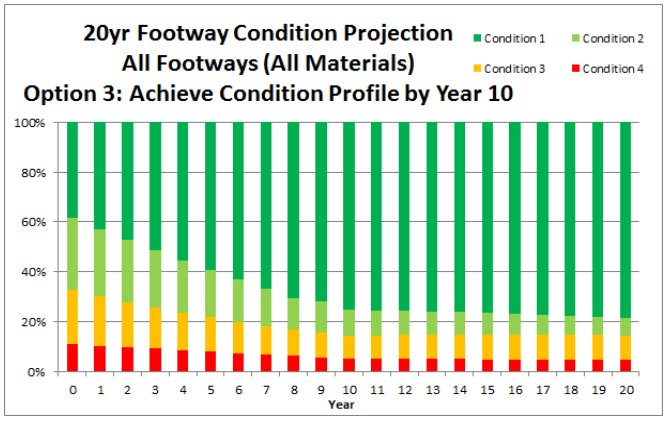
The chart to the left shows the annual planned maintenance budget and output lengths over the 20 year analysis period.

The 20 year period can be split into two:

In the first ten years the objective is to achieve the desired profile. The annual budget in this period is £4.7m which provides 92 kilometres of treatment.

In the remaining ten years the objective is to maintain the achieved profile. The annual budget in this period is £3.2m which provides 47 kilometres of treatment.

Predicted Condition



The condition chart shows the percentage of footways in need of maintenance (red + amber condition) reducing from the current 33% to 15% over 20 years. That equals approximately 232 kilometres of footway.

Option Summary

The option of achieving this condition profile in five years and continuing to maintain is predicted to result in:

a. ↗ annual budget will increase due to the additional investment in planned maintenance
b. ↗ improvement of measured condition
c. ↘ reduction in footway defects
d. ↘ decrease in level of successful 3rd party claims
e. ↗ increase in customer satisfaction due to the improvement in footway surface and the reduction in trip hazards.

Total cost (over 20 years) estimated at **£83m.** Annual cost £4.2m. (No allowance has been made for construction inflation currently running at approximately 5% per annum)

Recommendations

Option F2: Maintain Current Condition

Road Asset

Annual Status & Options Report

Highway Structures

2014/15

Aberdeen City Council

Introduction

This report presents a summary of the council's structures assets as at March 2015. The report complements the Road Asset Management Plan (RAMP). It provides information to enable choices about future levels of investment in the structures asset.

Status

The status of the structures asset is reported in terms of condition, the outputs delivered, the standards achieved and an indication of customer satisfaction.

Options

The report considers the following options:

- A continuance of current funding levels
- Decrease current levels of funding and only complete reactive (safety related) works only

Long Term Forecasts

Structures assets deteriorate slowly. The impact of a level of investment cannot be fully understood by solely by looking at the predicted impact over the next couple of years. Methods of predicting deterioration are not well developed yet. The report therefore includes some initial assessment of long term funding needs in the appendices.

Impacts Risk

It may not be possible to provide budgets capable of delivering an ideal service standard. Some compromises may need to be made. To aid with these decision each option presented is accompanied by an assessment of its impact and the associated risks.

Status Report

Asset Group: Highway Structures

The Asset

Statistics

Aberdeen City Council Highway Structures Inventory by Road Type

Structure Type	Total No.	Road Type			
		A	B	C	U/C
Road Bridge	183	50	50	50	33
Footbridge	2		1		1
Culvert	102	33	33	33	3
Subway	6		2		4
Total	293	**83**	**86**	**83**	**41**

Commentary

- Bridge inventory is stored in the Bridgman Asset Management System
- There is a high confidence in the inventory data held within Bridgman.
- The level of growth in the structures asset has been minimal in the last five years.

- The following two new structures will be added to the network within the next year – Third Don Crossing Bridge and Mill Lade Bridge (Imminent)
- Several older structures will return to the bridge stock on completion of the AWPR.

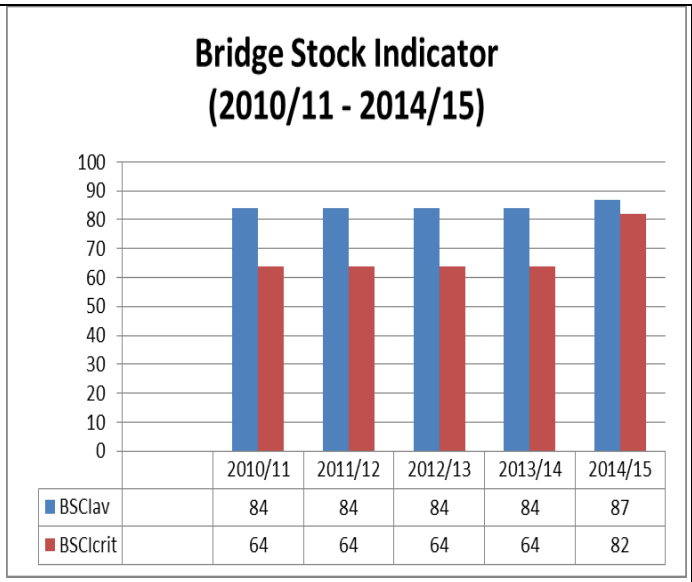
Customer Expectations

2014/15 – 3 customers contacted the council about specific structures.

- Some form of action was taken for each contact as follows:

1. There was loose jointing material on King George (V) Bridge which was removed and the joints will be replaced as a part of re-surfacing.
2. Brig of Balgownie – vandalism was removed
3. Deeside Railway Line – loose masonry was removed

Bridge Condition Indicators



The Bridge Condition Stock Indicator (BCSI) values have been stationary for a few years. In 14/15 we re-calculated it from only the bridges that are part of the adopted road network and it changed to:

BCSIav: 87

BCSIcrit: 82

These are both 'Good'.

Asset Group: Highway Structures

	Statistics	**Commentary**

Highway Structure BCI_{crit} by Structure Type

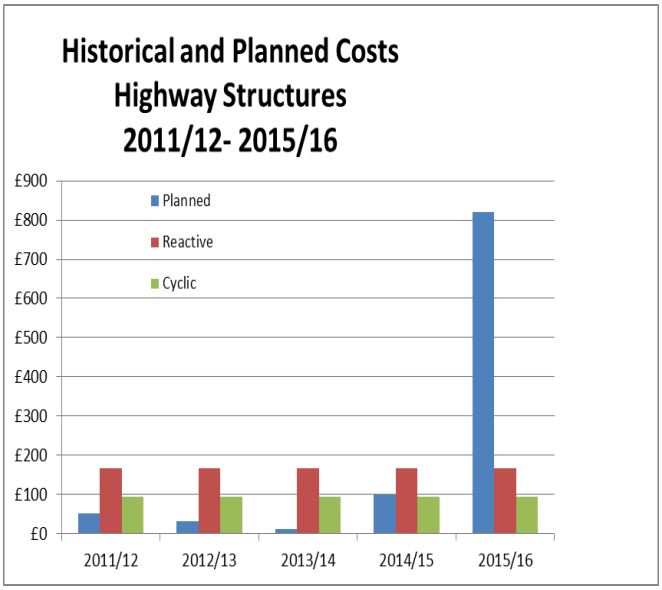
Structure Type	Very Poor (0-39)		Poor (40-64)		Fair (65-79)		Good (80-89)		Very Good (90-100)		Risk Assessed Not Inspected	
Bridge	3	1%	29	16%	47	26%	53	29%	34	19%	17	9%
Footbridge	0		0		0		0		2	100%	0	
Culvert	0		5	5%	6	6%	25	24%	48	47%	18	18%
Subway	0		0		1	17%	4	66%	1	17%	0	
Total	**3**		**34**		**54**		**82**		**85**		**35**	

- Structures in Very Poor condition are all known and are annually monitored through the Principal Inspection process. Rob Roy Bridge with a BCI(crit) of 28 is on the programme for replacement in 2015/16.

Performance Indicators

Ref	Description	2014/15 Result	Comments
PI300 / (31.1.01)	% of Principal Inspections carried out on time	63.89%	Staffing issues now resolved and on track to complete 15/16.
PI301 / (31.1.02)	% of General Inspections carried out on time	100%	
PI302 / (32.1.01)	Bridge Stock Condition Indicator – average $BSCI_{av}$	87	See above
PI303 / (32.1.02)	Bridge Stock Condition Indicator – average $BSCI_{crit}$	82	See above
PI304 / (34.1.01)	% of Council owned bridges failing European standards	0.00	
PI305 / (34.2.01)	% of Council road bridges with unacceptable weight or width or height restriction	3.50	Two structures: 1. Milton of Drum 2. Rosebank Terrace

Asset Group: Highway Structures

	Statistics	Commentary
Historical Investment		• The spending on the Highway Structures has been steady for several years. This has maintained the condition of the bridge stock but not allowed any major improvement. • The investment in 2015/16 to replace part of Rob Roy will improve the BCI of the bridge. • Acoustic Emission monitoring to check condition of post tensioned strands in Queen Elizabeth Bridge.
Investment and Output (2014/15)		
Valuation		The annualised depreciation (AD) was £802,747 which represents the average amount by which the asset will depreciate in one year if there is no investment in renewal of the asset.

Investment and Output (2014/15)

Cost Category	£k	Output
Routine-Reactive (Safety Related)	£39k	– Wester Ord: Repair following RTA £10,800 – Brig of Balgownie: Masonry repairs following RTA £10,700 – Victoria Bridge: Parapet damage repaired and re-set £17,500
Routine-Reactive (Non-Safety Related)	£20k	– Various vegetation clearance and safety repairs: fences, loose masonry. Undertaken by in-house team
Routine-Planned Maintenance	£90k incl fees	– Various vegetation clearance and safety repairs: fences, loose masonry. – Burnside Bridge £2,000 – Mill of Brotherfield: Masonry repair £8,500 – Guild St Railway Bridge: Setts replaced £2,000

Valuation

Gross Replacement Cost	£150,573,832
Depreciated Replacement Cost	£145,107,680
Annualised Depreciation Charge	£802,747

Asset Group: Highway Structures		
	Statistics	**Commentary**
	Note: Figures include structures associated with the adopted road network: Bridges, culverts and 2 footbridges	
Key Issues	• The City has spent about £300,000 pa for a few years and is confident that this has been sufficient to maintain the structures in a satisfactory condition. • There are a few projects which will be proposed for the future capital programme. These may include work on Cults Square, Milton of Drum, Maryculter Bridge and Union Terrace Widening. These are required in order to maintain security of the network. • On completion of the AWPR we will gain several structures, some of which may require expenditure initially and in the future. These will be added into future programmes.	
Current Strategies	The aim of the maintenance strategy is to ensure that our highway structures are maintained in a safe condition and are available for use. Priority criteria include safety and network significance. Bridge Condition Indicators (BCIs) that are a measure of the condition of the structure are identified through the completion of Principal and General Inspections. The annual maintenance programme is developed from these inspections. The Capital strategy is to maintain and strengthen structures in order to maintain the safety and integrity of the adopted road network.	

Prioritisation of Overall Funding Needs

Using the 6ST Structures Cost Projection Spreadsheet the following overall needs have been identified:

Strengthening

No Structures have currently been identified for strengthening improvements. This is because the the 6ST spreadsheet prioritises those structures with weight limits and are of network importance and ACC do not have any structures that fall into both categories. However, over the next 20 years there will be a requirement to strengthen both Cults Square Bridge and Union Terrace Widening. These projects will be developed and added into the capital programme and information is included in Appendix A.

Parapet Upgrading

No structures have currently been identified for parapet upgrading; again this is due to the input and algorithms behind the 6ST.

Maintenance Needs

For the purposes of evaluating an overall prioritised funding need the SCOTS/CSS Wales funding need assessment spreadsheet for structures combines the BCi_{crit} values with network criticality. This method is designed to ensure that the priority for funding takes into account the condition of the structure and its relative importance in terms of the network. Network criticality is used to ensure that roads of particular importance locally can be ascribed a suitable level of criticality regardless of their classification. Prioritised overall needs are:

MAINTENANCE NEEDS		Timescale not specified since this will depend on availability of funding			
	Reactive Repairs	**Priority 1**	**Priority 2**	**Priority 3**	**Priority 4**
Road Bridges	£0	£750,000	£160,266	£246,082	£302,441
Footbridges	£0	£0	£0	£0	£20,678
Unusual Structures	£0	£0	£0	£0	£0
Culverts and Subways	£0	£0	£1,820	£2,785	£40,624
TOTALS	**£0**	**£0**	**£162,086**	**£248,867**	**£363,743**

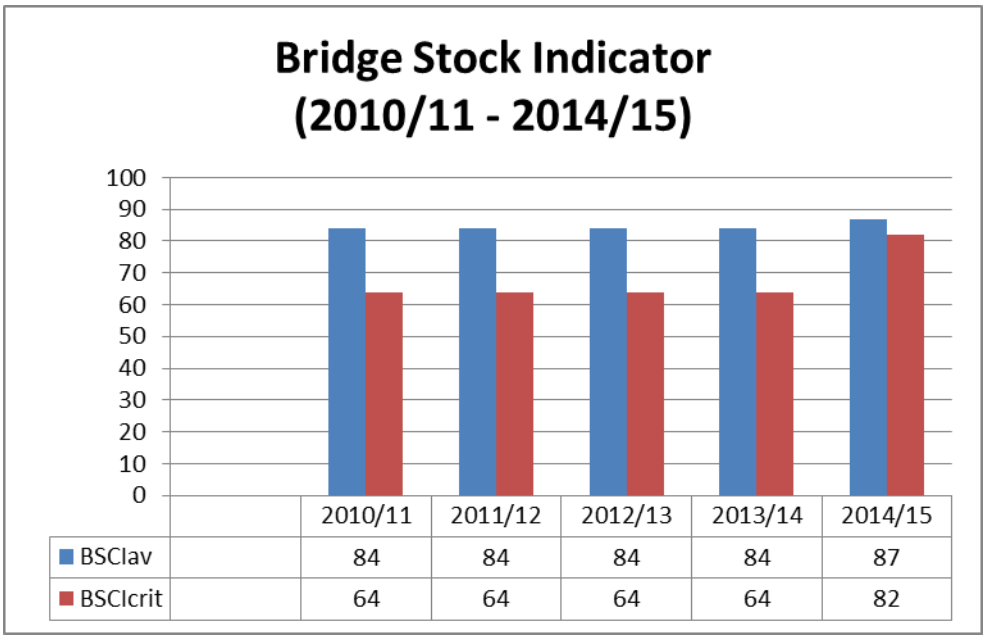
A list of structures is included in appendices B and C.

Investment Options

Option B1 – Current Level of Funding - Steady State Maintenance Regime

The bridge stock has displayed a very stable level in terms of the Condition Performance Indicators and has just now changed due to a revision to separate out the structures which are a part of the adopted road network. This is now a reliable indication of the condition of the road structures.

It is considered that as a consequence of the planned maintenance works to be undertaken on the structure as part of the Capital programme, together with sustaining the current level of revenue funding, the overall condition performance indicators will remain at least at the current level which means that the structure stock would then be classed as in 'Good Condition'. If funding is then continued at its current level it is estimated that the bridge stock will be maintained in a 'Good' condition as measured by the Condition Performance Indicators.



Option B2 – Decrease levels of Funding - Reactive (Safety Related) Works Only

If a steady state maintenance regime is not adopted, or the current level of funding was reduced, the overall condition of the structure stock will deteriorate, resulting in decreasing Condition Performance Indicator scores and a decrease in DRC. The rate of deterioration will depend on the reduction in funding. The implications of this is the deterioration of the bridge stock from 'Good' to 'Fair' condition, and the issues as highlighted in the following table:

Score	Average Stock	Critical Stock	Additional Comments

	Condition	**Condition**	
Very Good 90 ≤ 100	The structure stock is in a very good condition. Very few structures may be in a moderate to severe condition.	A few critical load bearing elements may be in a moderate to severe condition. Represents very low risk to public safety.	As Example City has a mature stock continuing with the same level of funding is likely to sustain a high condition score and an effective preventative maintenance regime.
Good 80 < 90	Structure stock is in a good condition. Some structures are in a poor condition but are being managed appropriately.	Some critical load bearing elements are in a severe condition. Some structures would represent a moderate risk to public safety if mitigation measures were not in place.	There is the potential for rapid decrease in condition if sufficient maintenance funding is not provided. Minor to Moderate backlog of maintenance work.
Fair 65 < 80	Structure stock is in a fair condition. A number of structures may be in a severe condition.	A number of critical load bearing elements may be in a severe condition. Some structures may represent a significant risk to public safety unless mitigation measures are in place.	Historical maintenance work under funded and structures not managed in accordance with Asset Management. Moderate to large backlog of maintenance work, essential work dominates spending.

Option Summary

The baseline option of a reduction in current funding levels is predicted to result in:

f. ↗ annual budget demands growing over time to accommodate increasing reactive repairs and future reconstruction costs
g. ↘ reduction (deterioration) of measured condition and DRC
h. ↗ increasing quantities of minor defects and reactive repairs
i. ↗ potential for increase in 3rd party claims
j. ↘ likelihood of decreased customer satisfaction as a result of weight restrictions and road closures due to deterioration of the bridge stock.

Option Summary

It is therefore recommended that Investment Option B1 is adopted for the management of the Bridges & Highway Structures as it delivers a level of service equivalent to "steady state."

Appendix A: Future potential Strengthening Schemes

Ref.	Structure Name	Current Status	Location / Route	Estimated cost of strengthening/ replacement work	Work Required
30Db	Cults Square	Acceptable	A93	£500,000	Prevent further deterioration of carbonated concrete or strengthen with a small culvert and backfill.
048Dx	Milton of Drum	Weight Restricted	U Road	£250,000	Strengthen arch either with cover slab or by anchor rods through the barrel.
295Dx	Union Terrace Widenining	Annual Special Inspection	Union Terrace (city street)	£650,000	Strengthen existing concrete jack arches. Does not include works to ballistrades
242Dx 243Dx	Farburn Terrace Culvert No.1 & 2.	Not weight Restricted. Confined space.	U Road	£250,000	Strengthen Structure with a cover slab.

Appendix B: Specific Maintenance Requirements

Structure Name	Location / Route	Estimated cost of maintenance works	Work Required / Proposals
Maryculter Bridge 001Dx	B9077	£200,000	Painting of the whole steel support structure is required. The bridge spans over the River Dee so size of structure and watercourse increases difficulty and cost for the work.
Queen Elizabeth 007Dx	Priority City centre route	£150,000	Undertake Acoustic Emission monitoring to check condition of post tensioned strands. Proposal includes 12 months monitoring and confined space Principal Inspection. Work carried out 2015/16.

Appendix C: Structures in Very Poor Condition (BCIcrit)

Structure Name	BCIcrit	Location / Route	Estimated cost of repair works	Work Required / Proposals
Rob Roy 029Dx	28	A93	£750,000 (priority 1)	Reconstruction of reinforced concrete part of the bridge. The work is planned for 2015/16
Sunnybank Farm 173Dx	55		£30,000??	Rebuild damaged head walls of culvert?? Planned for 2016/17.
Howes Road Bridge No. 1 247Dx	28	Howes Road	£40,000	Pointing to Arch

Road Asset
Annual Status & Options Report
Street Lighting
2014/15

Aberdeen City Council

Introduction

This report presents a summary of the council's lighting assets as at March 2015. The report complements the Road Asset Management Plan (RAMP). It provides information to enable choices about future levels of investment in the lighting asset.

Status

The status of the lighting asset is reported in terms of condition, the outputs delivered, the standards achieved and an indication of customer satisfaction.

Options

The report considers the following options:

- The effects of continuing with the current investment levels
- The predicted cost of maintaining current standards

Long Term Forecasts

Lighting assets deteriorate slowly. The impact of a level of investment cannot be fully understood by solely by looking at the predicted impact over the next couple of years. The report includes forecasts covering 20years to enable decisions to be taken with an understanding of the long term implications.

Impacts Risk

It may not be possible to provide budgets capable of delivering an ideal service standard. Some compromises may need to be made. To aid with these decisions each option presented is accompanied by an assessment of its impact and the associated risks.

Status Report

Asset Group: Street Lighting

The Asset

Statistics

Material Type	Total No.
Non Galvanised Steel	7,928
Galvanised Steel	10,214
Concrete	1,956
Aluminium (pre 2000)	5
Aluminium (post 2000)	11,534
Cast Iron	364
Total	**32,001**

Lantern Types	Total No.
CDMT	577
COSMOPOLIS	2,122
LED	462
MBI-T	432
MBFU	280
Other	1,160
PL-L/PL-T	10,781
SON	16,921
SOX	836
Total	**33,571**

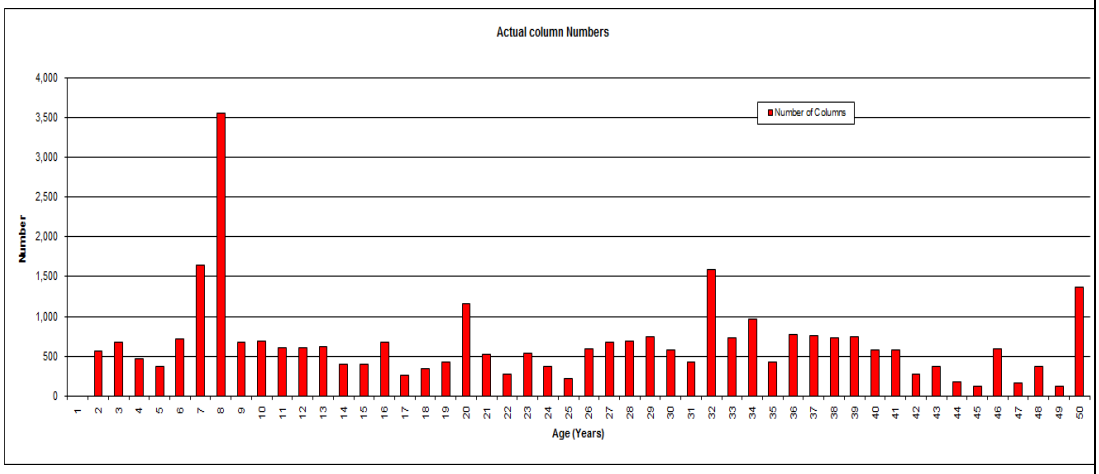
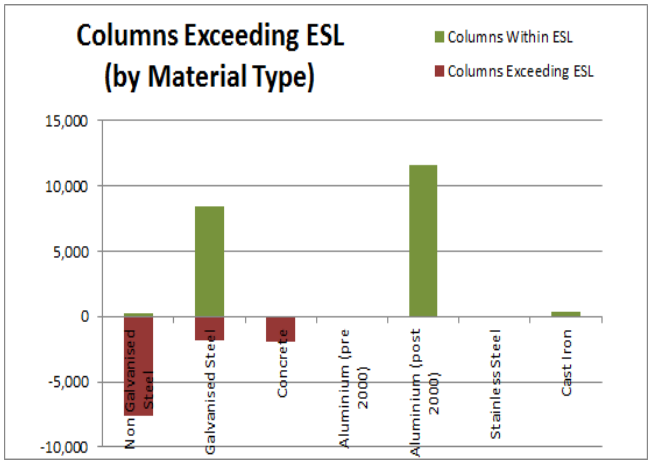
Cable Location	Total (m)
Carriageway	14,000
Footway	700,000
Verge	5,000
Total	**719,000**

Commentary

- The level of street lighting inventory is high. It is stored in the Confirm Asset Management System.
- Over the last 5 years there has been an increase of 1% which is expected to continue in the future through the RCC process.

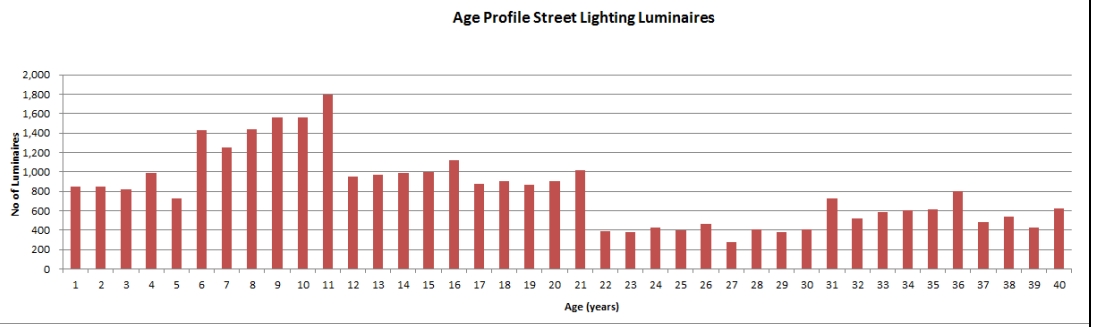
Customer Consultation

- There is currently no information available to include in this report on what the customer thinks of the current standard of street lighting in Aberdeen.
- An annual customer survey aimed at obtaining regular feedback was completed in the last financial year. Results are still to be

Asset Group: Street Lighting		
	Statistics	**Commentary**
		analysed.
Age (Columns)		
Columns Exceeding ESL (by Material)		• In 2014/15 35.27% of columns exceeded their ESL. • 67% of these columns were made of non-galvanised steel. A structural inspection programme is currently underway to identify the true remaining life of these columns. The columns with the lowest remaining life will be programmed to be replaced in the upcoming financial years.
Age		

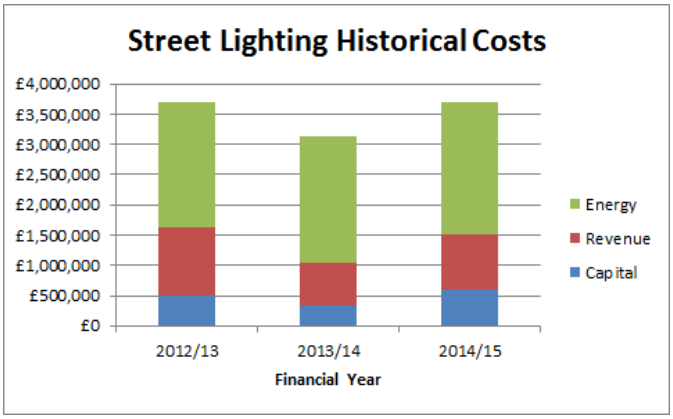
Asset Group: Street Lighting

Statistics



- In 2014/15 32.42% of columns exceeded their ESL.
- The majority of these luminaires will be replaced in the upcoming LED upgrade to be undertaken in the next five years.

Historical Investment



- The capital budget is invested in planned works comprising of column renewals.
- The value is historically between £500,000 and £600,000. Notably it was only £350,000 in 2013/14.
- Revenue works are most commonly faults raised by the night inspectors and the public
- Energy costs are £2.2m per year.

2014/15 Investment and Output

Cost Category	£3,057,725	Output
Improvements	£0	
Planned Maintenance - Preventative	£0	
Planned Maintenance - Corrective (Renewals)	£600,000	415 No. Columns (£600,000)
Routine Cyclic Maintenance	£0	
Reactive Maintenance (Emergency)	£37,765	- 272 No. Emergency Attendance (£37,765)
Reactive Maintenance (non-safety related)	£348,717	- 8,662 No. Faults (£199,058) - 6,795 No. Lamps Replaced (£35,703) - 2,296 No. Gear Replacements (£13,386) - 317 No. Defective / Obsolete Lanterns (£87,181) - 110 No. Defective / Obsolete Columns

Asset Group: Street Lighting			
	Statistics		**Commentary**
			(£13,389)
	Inspections & Survey	£35,513	- 1,676 No. Electrical Test (£32,733) - 18 No. Night Inspections (£2,840)
	Operating Costs	£2,035,730	- 18,623,502 kWhrs Electricity Consumption (£2,035,730)
	Overheads*		-
	Losses		

8.4 Asset Performance

Asset performance is measured using a suitable suite APSE (Association for Public Service Excellence) Performance Indicators (PIs). These PIs grouped under applicable categories are shown in the table below with our council's results over the last four years.

- Core: A Mandatory Indicator; - all authorities should provide this data
- Secondary: Desirable Indicator; - authorities should progressively collect this data
- Statistic: Other Important asset performance data that authorities should also consider collecting

Table 3.1 APSE/SCOTS Performance Indicators Yearly Trend Comparison

	PI Ref:	SCOTS / APSE PI Description	Council Results		
			2012/13	2013/14	2014/15
Safety	Stat	Total number of street lights	32,109	32,257	32,287
	Stat	Total number of street lighting columns	30,761	30,830	30,860
	39	Percentage of columns with a valid Structural Test Certificate	0.00%	14.01%	0.00%
	40	Percentage of street lights with a valid Electrical Test Certificate	22.28%	26.81%	27.02%
Condition and Asset Preservation	29a	Faults as a percentage of street lighting stock	25.50%	29.76%	20.97%
	Stat	Percentage of columns which have exceeded their Expected Service Life	31.09%	30.11%	0.00%
	Stat	Percentage of lanterns which have exceeded their Expected Service Life	43.03%	47.07%	40.47%
	29b	Mean time between failures (MTBF) in years	15.7	0.3	4.8
	Stat	Percentage of columns replaced	1.32%	0.84%	1.29%
	Stat	Percentage of lanterns replaced	2.50%	1.22%	5.05%
Customer Service	3	Percentage of repairs within 7 days	85.86%	71.19%	67.24%
	20	Average time taken to repair (elapsed days)	5.06	6.26	12.78
	27	Public calls as a percentage of faults	0.00%	41.90%	57.70%
	28	Public calls as a percentage of street lights	0.00%	12.47%	12.10%
	Stat	Percentage of street lights modern white light	37.56%	38.59%	46.11%
Availability	2b	Percentage of street lights not working as planned on any one evening	1.06%	1.34%	1.32%
	Stat	Number of night inspections annually	18	18	18
Financial	35	Actual capital investment as a percentage of annual depreciation (from AMP)	32.91%		
	36	Depreciated Replacement Cost (DRC) as a percentage of Gross Replacement Cost (GRC)	39.76%		

Table 3.1 APSE/SCOTS Performance Indicators Yearly Trend Comparison					
	PI Ref:	SCOTS / APSE PI Description	Council Results		
			2012/13	2013/14	2014/15
	33	Average cost (client) of repairing routine faults (eg. component replacement)	£30.14	£42.28	
	34b	Individual cost of night inspecting a street light per light	$0.064	£0.06	
	42	Revenue allocation per street light excluding electricity costs	£35.36	£21.25	
	43	Capital allocation per street light - replacement	£15.59	£10.76	
	1a	Total investment in infrastructure per street light	£50.95	£32.01	
	Stat	Percentage Capital allocated to previously unlit areas	0.00%	0.00%	
Environmental	18b	Average annual electricity consumption per street light (kWhrs))	545.29		
	Stat	Average annual CO_2 emissions per street light (kg)	292.82		
	Stat	Percentage of street lights Dimmable or Part Night Operation	0.00%	0.56%	4.70%

Investment Options

The options for future investment are presented in terms of the following:

1. **Structural Condition:** the replacement of columns that are structurally unsound or approaching that condition
2. **Lanterns/Equipment Age and Obsolescence:** replacement of equipment that is either reaching its end of service life or there is merit in replacing it with more modern equipment for the purposes of obtaining better lighting levels.
3. **Routine and Reactive Maintenance Standard:** potential changes to the standards applied to reactive and routine repairs
4. **Inspection and Testing:** potential changes to inspection and testing regimes.

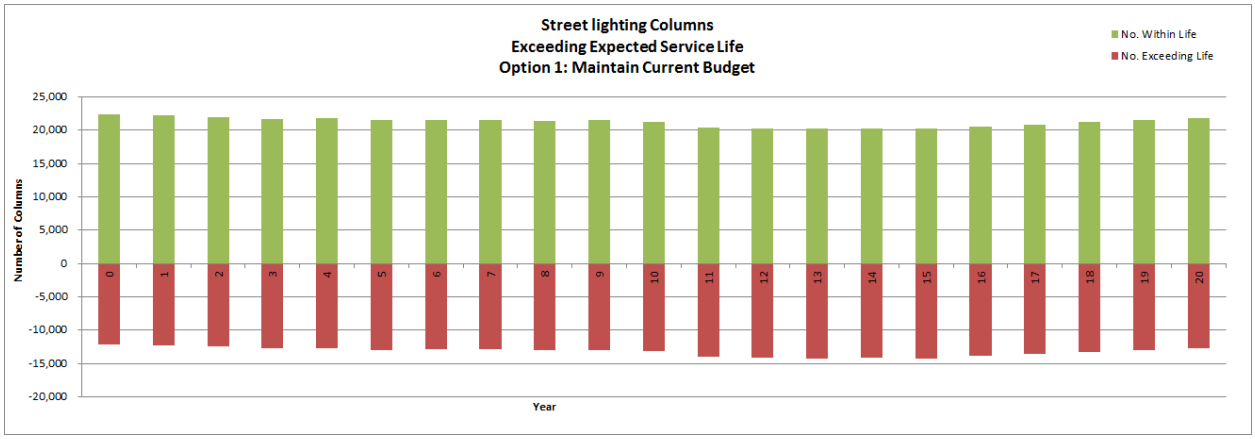
8.5 Structural Condition

Note: An additional £5m over the next five years has been approved for replacing corroded columns. This has been included in Option A and C below.

(a) Predicted Condition of Columns with Continued Level of Funding (including approved additional funding over next five years)

The graph below represents those street lighting columns which are presently within their expected design life (highlighted in green) and those which have exceeded their expected design life (highlighted in red). It is estimated that **35%** of columns currently exceed the expected service life and that this amounts to a financial backlog situation in the region of **£20,000,000** as shown by the graph below.

After five years of additional funding the percentage exceeding the expected service life rises to 37%. If from year six onwards the 2014/15 level of investment was continued then the percentage exceeding the expected service life would decrease back to **35%** at Year 20. This indicates that the additional funding followed by the current level of funding results in a steady state at year 20.



(b) The predicted cost of maintaining current standards

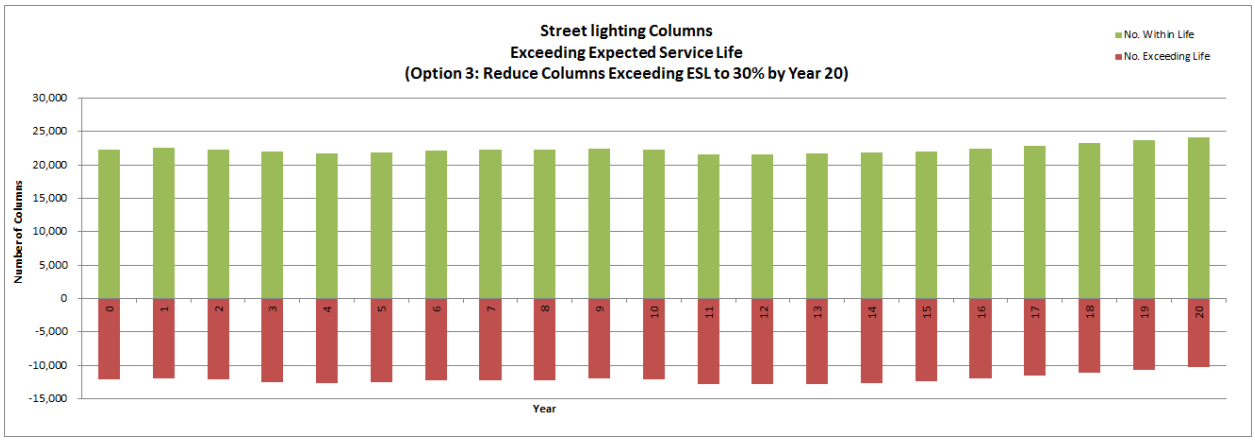
Maintaining the lighting columns at the current age profile ("steady state" condition) with 30% of the stock "life expired" will require an annual investment of approx. **£700,000.**

(c) Reduce Columns Exceeding Expected Service Life to 30% Over Next 20 Years

The aim of this option is to reduce the quantity of columns exceeding the expected service life down to 30% by year 20. As above, an additional £5m has already been approved for the next five years for corroded columns. At the end of this investment the quantity exceeding the expected service life actually increases to 37% due to the large amount of

columns which are nearing the end of their lives. To achieve a level of 30% would require an annual investment of **£850,000** for the remainder of the 20 year period.

The following expected service life chart shows that due to the age profile the quantity exceeding the expected service life only starts to decrease at year 13 when investing £850,000 per annum.



8.6 Luminaires and Equipment

(a) The predicted cost of maintaining current standards

Currently 32% of the luminaires are “life expired”. This option predicts that it would require an annual investment of approximately £400,000 to maintain the lighting luminaires at the current age profile.

(b) 7 Year Investment in LED’s

As with the columns an additional £10m has been approved to insert LED’s with the primary target of reducing the energy costs. A secondary benefit of this investment will be to replace all the “life expired” assets which will reduce ‘dark lamps’.

8.7 Routine and Reactive Maintenance

Street lighting routine and reactive maintenance comprises:

- Routine Cyclic Maintenance; Bulk lamp changing and cleaning
- Reactive Maintenance (Emergency); High priority repairs
- Reactive Maintenance (non-safety related); lower priority repairs

This part of the service currently costs the council in the region of £390,000 per annum, and this is expected to continue in the future.

8.8 Inspection and Testing:

Inspection and testing activities for street lighting comprise:

- 6 yearly electrical safety inspection and testing
- Structural testing – Period between tests is determined by the results of the inspection

These activities currently cost the council £33,000 per annum and this is expected to continue in the future.

Road Asset

Annual Status & Options Report

Traffic Management Assets

2014/15

Aberdeen City Council

Introduction

This report presents a summary of the council's traffic management assets as at March 2015. It

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

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

Status

The status of the asset is provided in terms of current condition, the output that are delivered, the standards being achieved and, where possible, an indication of customer satisfaction.

Options

The report considers the following options:

- A continuance of current funding levels
- The predicted cost of maintaining current standards
- Predicted cost of achieving all assets within the expected service life at all times

Long Term Forecasts

Traffic management assets consist of components with known expected service lives. The impact of a level of investment cannot be shown by looking at the next couple of years. The report includes 20 yr forecasts to enable decisions to be taken with an understanding of their long term implications.

Impacts Risk

To reflect continuing budgetary pressures the report contains an assessment of the impact for each option presented. In some instances however the level of detail of assessment is currently hindered by an absence of data.

Traffic Management Assets

8.9 Status Report

The Asset

The council's traffic management assets are made up of:

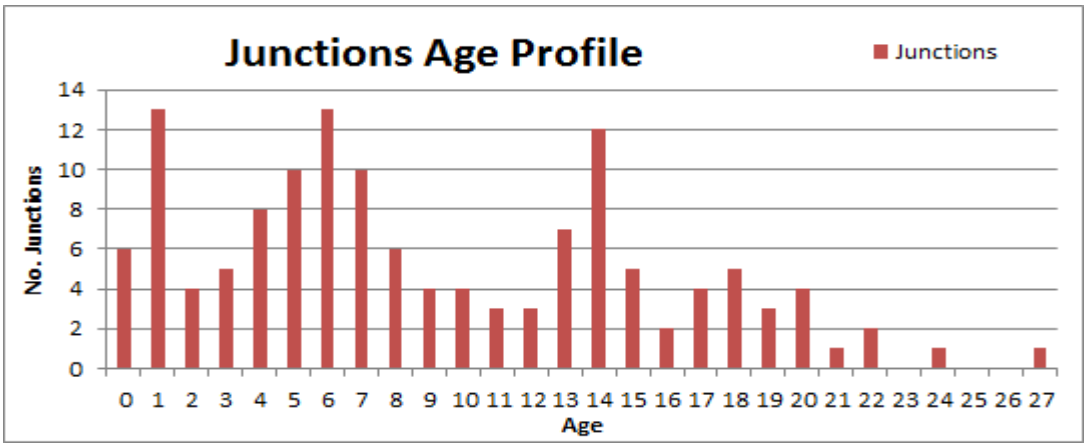
Asset Group: Traffic Signal Assets

	Statistics	Commentary
The Asset		• The level of traffic signals inventory is high. • Inventory is stored in a Microsoft Excel Spreadsheet.

Asset Type	Quantity
Junctions	137
Pedestrian Crossings	136
Total	**273**

- The quantity of assets continues to grow due to new developments.

Customer Expectations		• There is currently no information available to include in this report on what the customer thinks of the current standard of traffic signals in Aberdeen. • An annual customer survey aimed at obtaining regular feedback was completed in the last financial year. Results are still to be analysed.



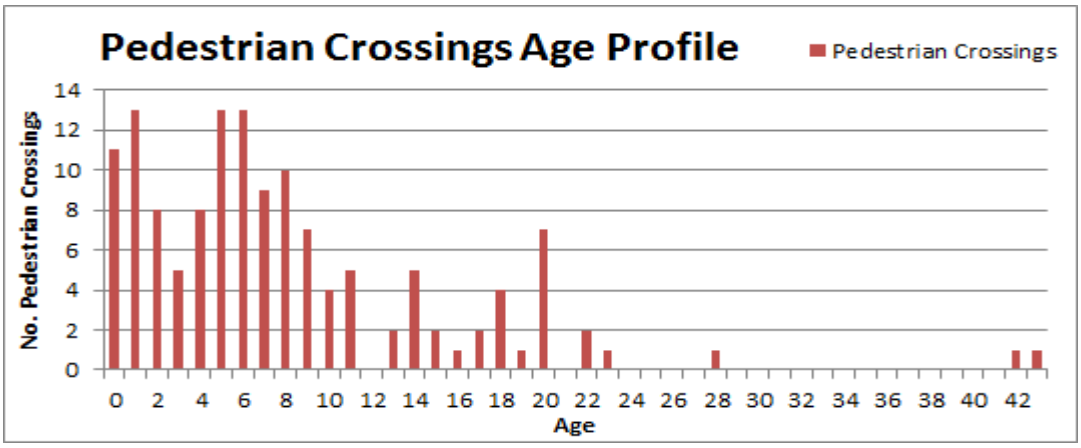
- The average age of the traffic signals at junctions in Aberdeen is 9 years.
- The expected service life of traffic signals at junctions is 15 years for equipment

Asset Group: Traffic Signal Assets

	Statistics	Commentary

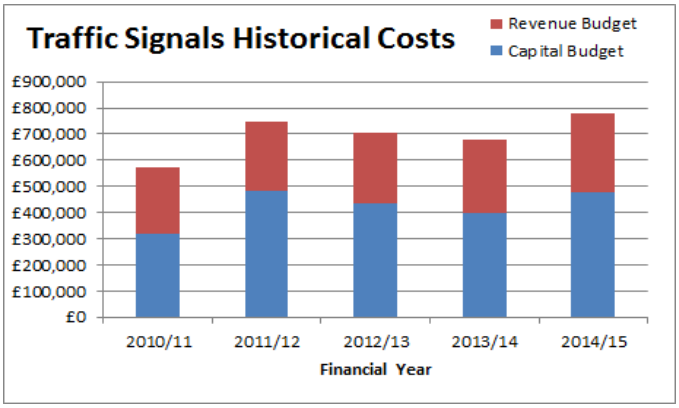
and 30 years for civils.

- Currently 23 junctions exceed the expected service life. These are programmed for renewal within the next five years.



- The average age of traffic signals at pedestrian crossings in Aberdeen is 8 years.
- The expected service life of traffic signals at pedestrian crossings is 15 years for equipment and 30 years for civils.
- Currently 21 junctions exceed the expected service life. These are programmed for renewal within the next five years.

Historical Investment



- The capital budget is allocated to planned works which consist of asset renewals.
- The annual capital budget varies from year to year as there aren't always assets in need of renewal.
- The revenue budget includes reactive works and annual inspections.
- In Aberdeen revenue funded works are undertaken by a contractor as part of a multi-year maintenance contract.

Investment and Output (2014/15)

Cost Category	£779,000	Output
Planned Maintenance	£480,000	– 3 no. junctions – 9 no. pedestrian crossings
Routine Cyclic Maintenance	£0	
Routine – Reactive Repairs (emergency)	£0	–

Asset Group: Traffic Signal Assets

	Statistics		Commentary
	Routine - Reactive Repairs (non-emergency)	£299,000	− 888 no. faults

Investment and Output (2014/15)

Cost Category	£779,000	Output
Routine - Inspection & Survey	£0	
Operating Costs	£0	
Overhead	£0	
Loss	£0	

Valuation

Gross Replacement Cost	£12,565,000
Depreciated Replacement Cost	£7,893,000
Annualised Depreciation Charge	£631,000

The annualised depreciation (AD) was £631,000 which represents the average amount by which the asset will depreciate in one year if there is no investment in renewal of the asset.

Key Issues

- The assets currently exceeding the expected service life are programmed for renewal in the next five years. There is a higher probability of defects occurring on these assets which will cause disruption to the travelling public.
- There are an increasing number of assets being adopted by the council. This places pressure on the current revenue budget if they should require maintenance.

Current Strategies

Capital Renewal Strategy – the main strategy is to renew assets once they have reached the expected service life as parts become more difficult to purchase. All assets are annually inspected and these results are used to prioritise the assets requiring renewal.

In the current cycle of renewals all underground apparatus is being replaced with intention sockets to streamline future renewals.

Routine Maintenance Strategy – the Contractor shall respond to all faults and repair within 48 hours.

Asset Group: Traffic Signal Assets		
	Statistics	**Commentary**
Current Status	As at 31 March 2015 – ↗ annual budget increasing over time – ↘ reduction in quantity exceeding the expected service life – ↘ decreasing quantities of minor defects – → limited 3rd party claims – ↗ increasing customer satisfaction as a result of decreasing reactive repairs.	

8.10 Traffic Management Assets Options

Note:

In the options below:

- all assets more than 15 years of age will have both the equipment and the civils replaced.
- all assets 15 years of age or less will only have the equipment replaced.

Option 1: Maintain Current Budget - £480,000 per annum

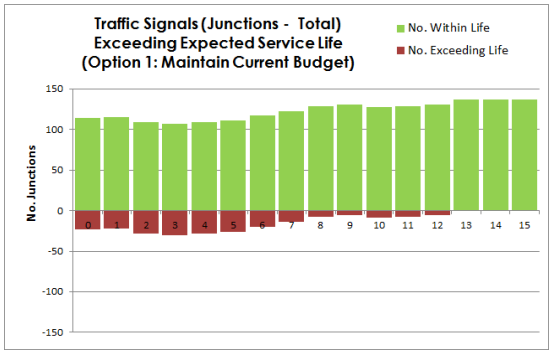
Budget

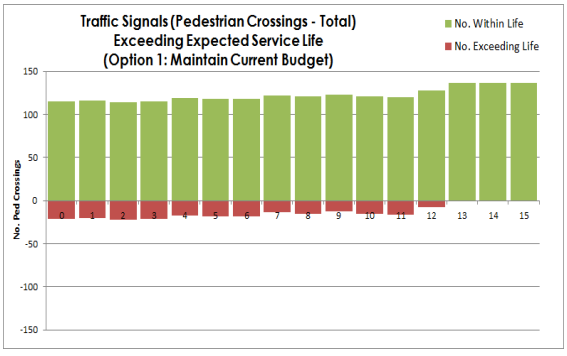
The first option comprises a continuance of current funding levels of £480,000 per annum.

The 2015/16 traffic management asset budget is shown below:

RAMP Cost Category	**Expenditure (£000's)** (2015/16 actual)	**%**
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency)	£299	40.00%
Routine Cyclic Maintenance	£0	0.00%
Planned Maintenance	£480	60.00%
Inspections and survey (not covered under staff costs)	£0	0.00%
Operating Costs	£0	0.00%
TOTAL	**£799**	
Loss (3rd Party Claims associated with (c/ways)	£0	0.00%
TOTAL (including claims costs)	**£799**	

Predicted Condition





Comments: The above charts show that by Year 13 all junction and pedestrian crossing assets will be within the expected service life by investing with the current level of funding.

Option Summary

The baseline option of a continuance of current funding levels is predicted to result in:

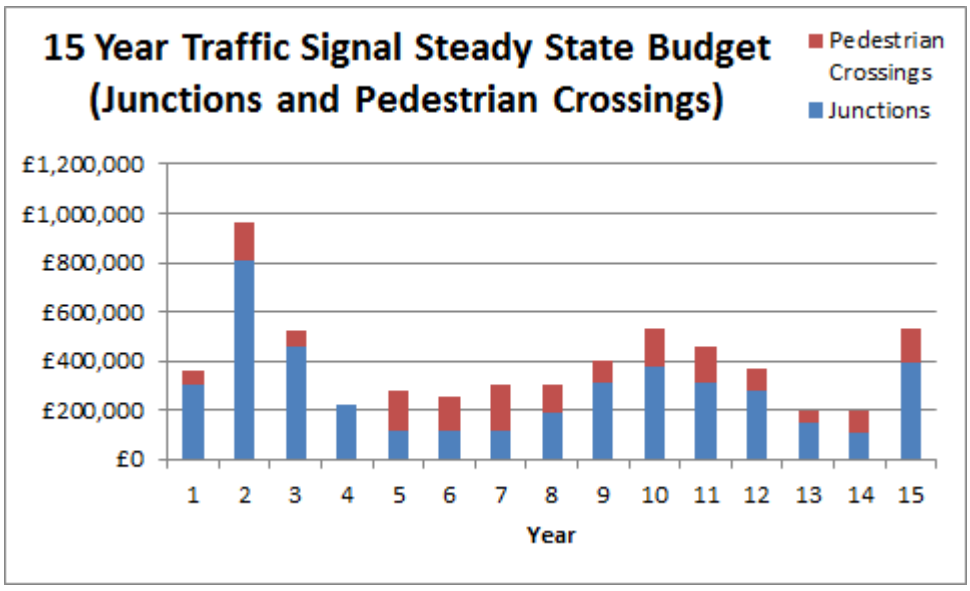
k. ↘annual budget reducing over time as older assets susceptible to reactive repairs are replaced.
l. ↘ reduction in quantity of assets outside the expected service life.
m. ↘ reduction in quantities of minor defects
n. → limited 3rd party claims
o. ↗ likelihood of improved customer satisfaction as a result of new equipment with low levels of minor defects causing traffic disruption.

Option 2: Maintain Current Condition

Budget

The second option comprises a continuance of current condition levels.

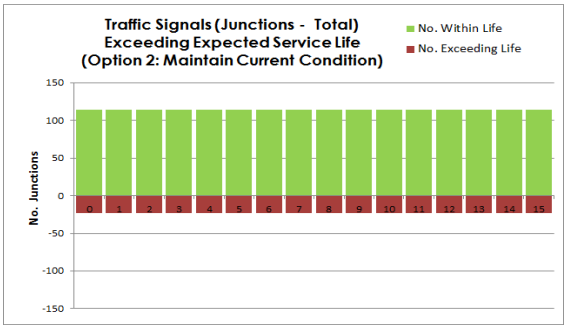
The following charts show the fifteen year budget profile for both sets of traffic signal assets. It shows that the budget required for the majority of the years is under £400,000 which is less than the current budget. In Year 2 the budget required is almost £1,000,000 which is due to a high level of assets been upgraded in the same year fifteen years ago. Assets in the first four years include equipment and civils.

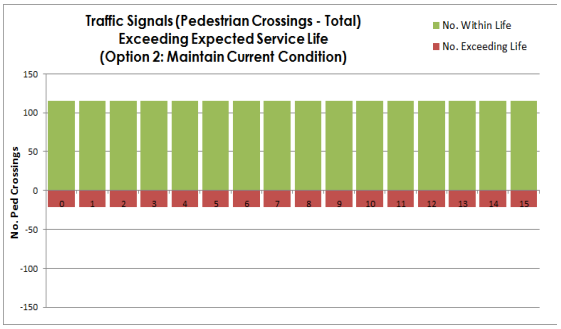


The remainder of the annual traffic management asset budget is shown below:

RAMP Cost Category	Expenditure (£000's)	%
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency)	£299	100.00%
Routine Cyclic Maintenance	£0	0.00%
Inspections and survey (not covered under staff costs)	£0	0.00%
Operating Costs	£0	0.00%
TOTAL	**£299**	
Loss (3rd Party Claims associated with (c/ways)	£0	0.00%
TOTAL (including claims costs)	**£299**	

Predicted Condition





Comments: This shows the condition of the traffic signals remaining the same over time.

Option Summary

The option of a continuance of current condition levels is predicted to result in:

a. →Annual reactive budget remaining the same over time
b. →continuance of measured condition
c. →no increase in quantities of minor defects
d. → limited 3rd party claims
e. → likelihood of improved customer satisfaction remaining the same

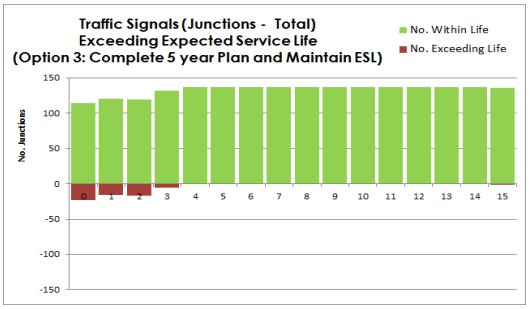
Option 3: Complete Current 5 year Programme and Maintain within ESL

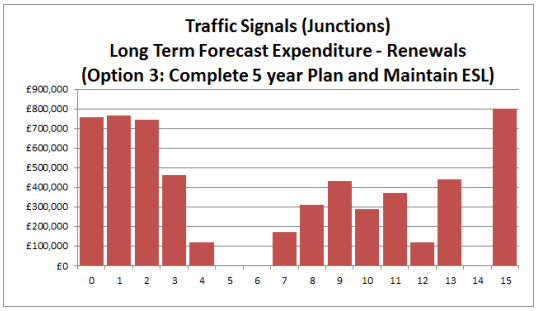
Budget

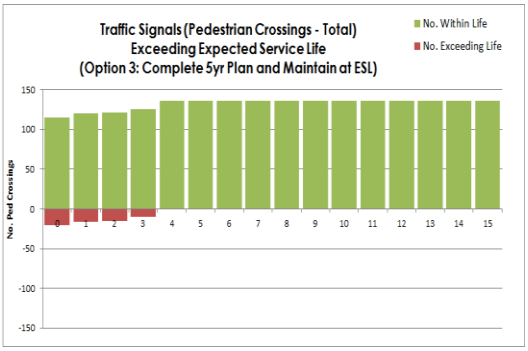
This option comprises completing the current 5 year programme which aims to complete the latest renewal cycle which will see all assets equipment and civils renewed. From year 6 on

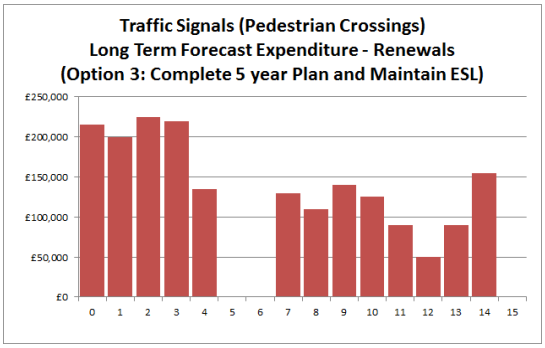
the objective is to maintain the age profile so all assets are always within the expected service life of 15 years.

The resulting condition charts and planned maintenance budgets for each traffic signal type are shown below. It shows that apart from the first four years and year 15 that the average renewal budget required is lower than the current budget. There are also several years where no renewals are required. Renewals could be brought forward to flatten out the higher levels of budget.









The remainder of the annual traffic management asset budget is shown below:

RAMP Cost Category	**Expenditure (£000's)**	**%**
Routine - Reactive Repairs (emergency)	£0	0.00%
Routine - Reactive Repairs (non-emergency)	£299	100.00%
Routine Cyclic Maintenance	£0	0.00%
Inspections and survey (not covered under staff costs)	£0	0.00%
Operating Costs	£0	0.00%
TOTAL	**£299**	
Loss (3rd Party Claims associated with (c/ways)	£0	0.00%
TOTAL (including claims costs)	**£299**	

Option Summary

The baseline option of a continuance of current funding levels is predicted to result in:

a. ↘ annual budget reduces over time due to reduced defects in the newer equipment
b. ↗ improvement of measured condition
c. ↘ reducing quantities of minor defects
d. → limited 3rd party claims
e. ↗ likelihood of improved customer satisfaction as a result of new equipment with low levels of minor defects causing traffic disruption.

Recommendation

Option 3: Complete Current 5 year Programme and Maintain within ESL