

Road Asset Management Planning

Road Asset Management
Plan 2017 - 2027

Falkirk Council



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Document History

Version	Status	Date	Author	Changes from Previous Version
1.0	Draft	Oct 2016	Ewan Hogg	<ul style="list-style-type: none"> • First draft of the document.
2.0	Draft	Nov 2016	Ewan Hogg	<ul style="list-style-type: none"> • Section 3 – Customer Expectations: bullet points under each of the graphs amended. • Section 4 – Customer Contacts: all paragraphs amended. • Section 7 – Financial Summary: paragraph under section 7.2 amended. • Section 8 – Asset Investment Strategies: paragraphs under carriageway section amended.
3.0	Final	April 17	Dot Reid	<ul style="list-style-type: none"> • Minor date changes throughout the document.

Document Control

Version	Status	Date	Authorised for Issue by Roads Services Asset Management Team

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Date: 17/7/17

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Falkirk Council

Road Asset Management Plan 2017 - 2027



Contents

	Pages
1. Introduction	1 – 3
2. Road Assets	3 – 4
3. Customer Expectations	4 – 6
4. Customer Contacts	6 – 8
5. Demands	8 – 9
6. Service Standards	10 – 14
7. Financial Summary	14 – 17
8. Asset Investment Strategies	17 – 23
9. Risks to the Plan	24
References	25

1. Introduction

Overview

This plan sets out the council's plans for the Council's road assets for the period 2017-2027. The Road Asset Management Plan (RAMP) records the Council's plans for the maintenance of the road asset. The "road asset" comprises of carriageways, footways, structures, street lighting, traffic management systems and street furniture.

This Plan is consistent with the Council's corporate approach to asset management as set out in the Corporate Asset Management Strategy 2011-2014.

The purpose of the RAMP is to:

- formalise strategies for investment in road asset groups
- define service standards
- devise an organised Plan which accounts for all the road assets and the money spent on them facilitating efficient and effective investment
- the Plan aims to improve how the road asset is managed and to enable a better value for money roads service to be delivered

It is essential to carry out RAMP as not only does this allow for an organised record of all the road assets to be kept, it also means that any deficiencies can be easily spotted. The Plan then sets out to correct any deficiencies to allow the Council to achieve better value for money presently and in the long run.

Corporate Asset Management

A Corporate Asset Management Strategy 2011-2014 was presented to the Policy & Resources Committee on the 6th September 2011. The Corporate Asset Management Strategy incorporates the following six assets managed by the Council:

- Property
- Roads Infrastructure
- Housing
- Open Space
- Vehicle Fleet
- Information and Communications Technology (ICT)

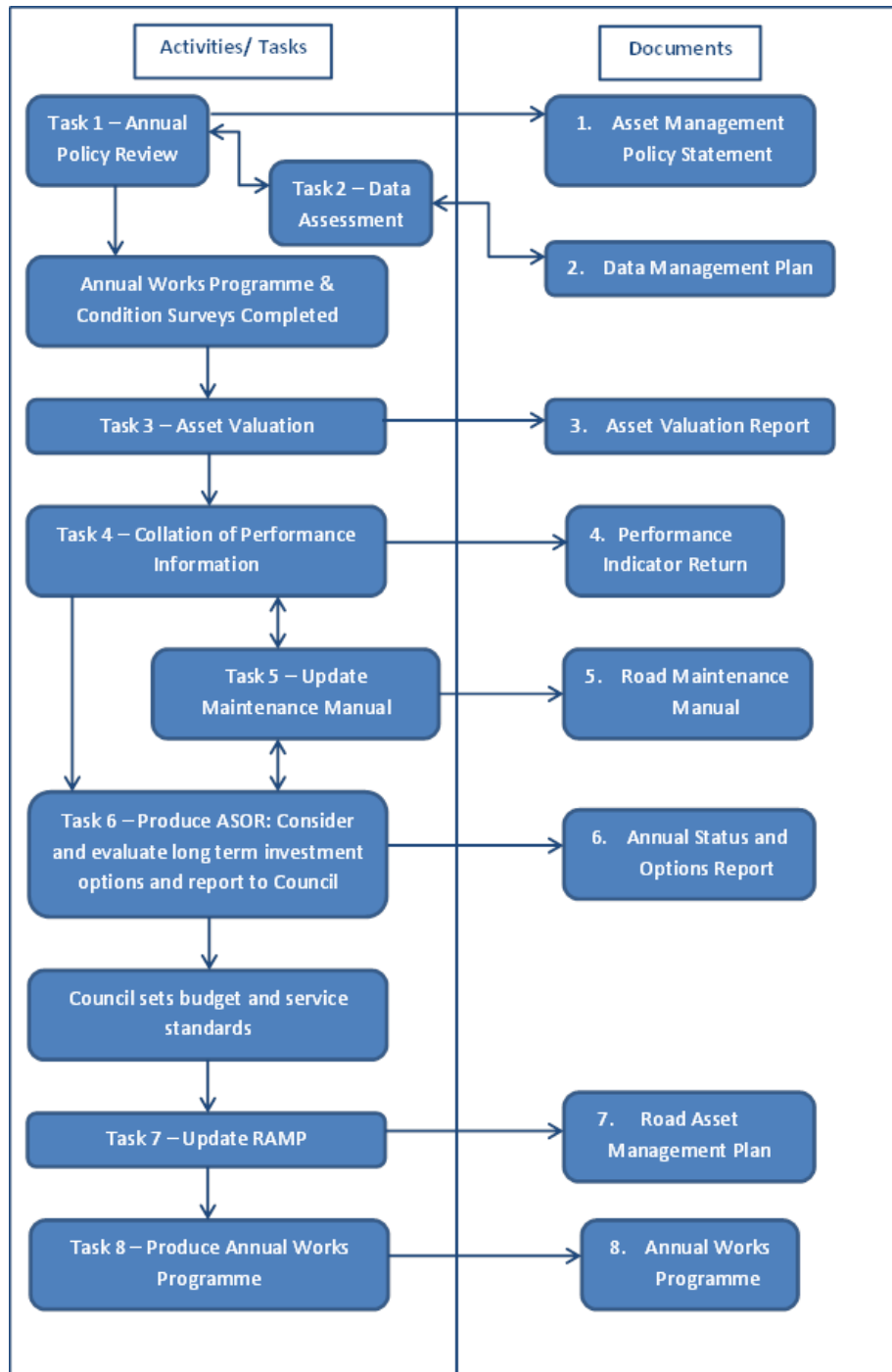
Falkirk Council

Road Asset Management Plan 2017 - 2027



Society of Chief Officers for Transportation in Scotland (SCOTS)

This plan has been developed in accordance with the SCOTS recommended asset management planning practices and is informed by the tasks and documents illustrated.

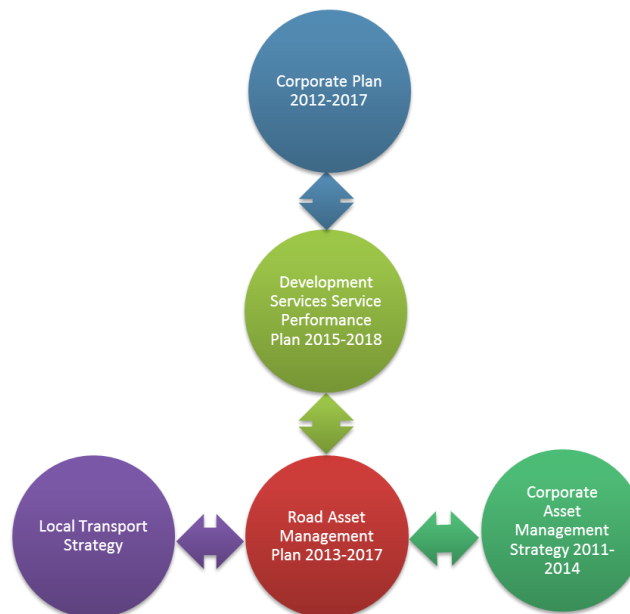


Falkirk Council

Road Asset Management Plan 2017 - 2027



The RAMP relates to other council plans and strategies as illustrated below:



The RAMP directly links to the Development Services Service Performance Plan 2015-2018, the Local Transport Strategy and the Corporate Asset Management Strategy 2011-2014. These all come under the umbrella of the Corporate Plan 2012-2017 and are related to it. Targets and strategies contained in the RAMP are used to develop annual works programmes based upon the Council's road budget allocation.

2. Road Assets

Road Assets

The council's Road Assets (measured at April 2016) covered by this plan are:

Carriageways (includes drainage)	974.22 km
Footways, footpaths & cycleways	1715.43 km
Structures	266 Bridges, 12,799m of Retaining Walls
Street Lighting	26,803 Lighting Columns
Traffic Management Systems	87 Traffic Signal Installations
Street Furniture	Approximately 21,310 no items

Assets Not Covered

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

- Other Traffic Management Systems – Information Systems, Safety Cameras, Variable Message Signs, Vehicle Activated Signs, Real Time Passenger Information.

Some related assets that Roads Services maintain are the responsibility of other council departments. The council owned road assets not covered in this RAMP are:

- Footpaths managed by Housing Association.
- Public Rights of Way (Core Paths).
- Footpath inventory data is still currently being captured in Roadnet (QGIS). Currently around 35% of footpaths have been captured.

Assets that have been specifically excluded from this plan are:

- private roads
- decorative, seasonal lighting (E.g. Christmas Lighting)
- water related infrastructure that does not form part of the road network

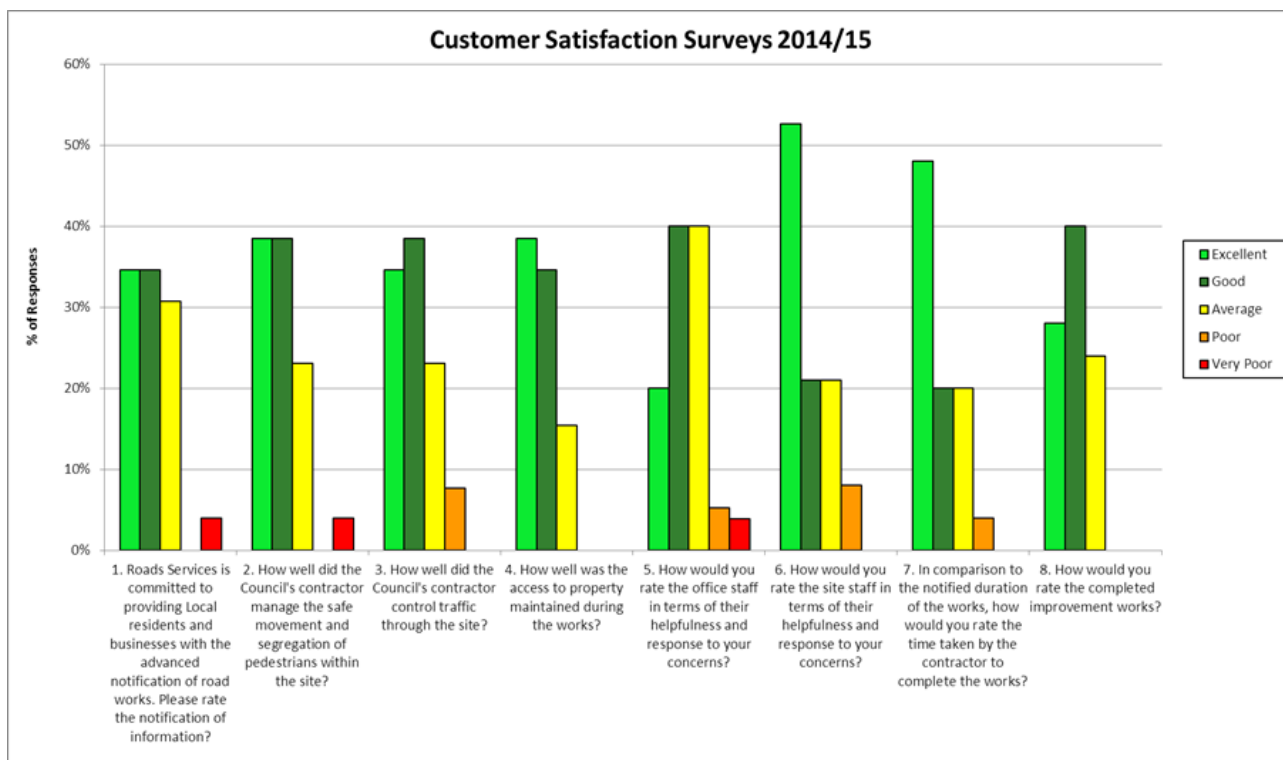
Inventory Data

This Plan is based upon currently available inventory data for road assets, i.e. carriageway, footway, structures, street lighting, traffic signals and street furniture. For some minor road assets inventory data is not currently held, however, an attempt has been made to incorporate these assets within this plan using local estimates and sample surveys. An example of this is street furniture assets, the majority of this inventory data has still to be collected. A plan to improve asset data held forms part of the council's Data Management Plan.

3. Customer Expectations

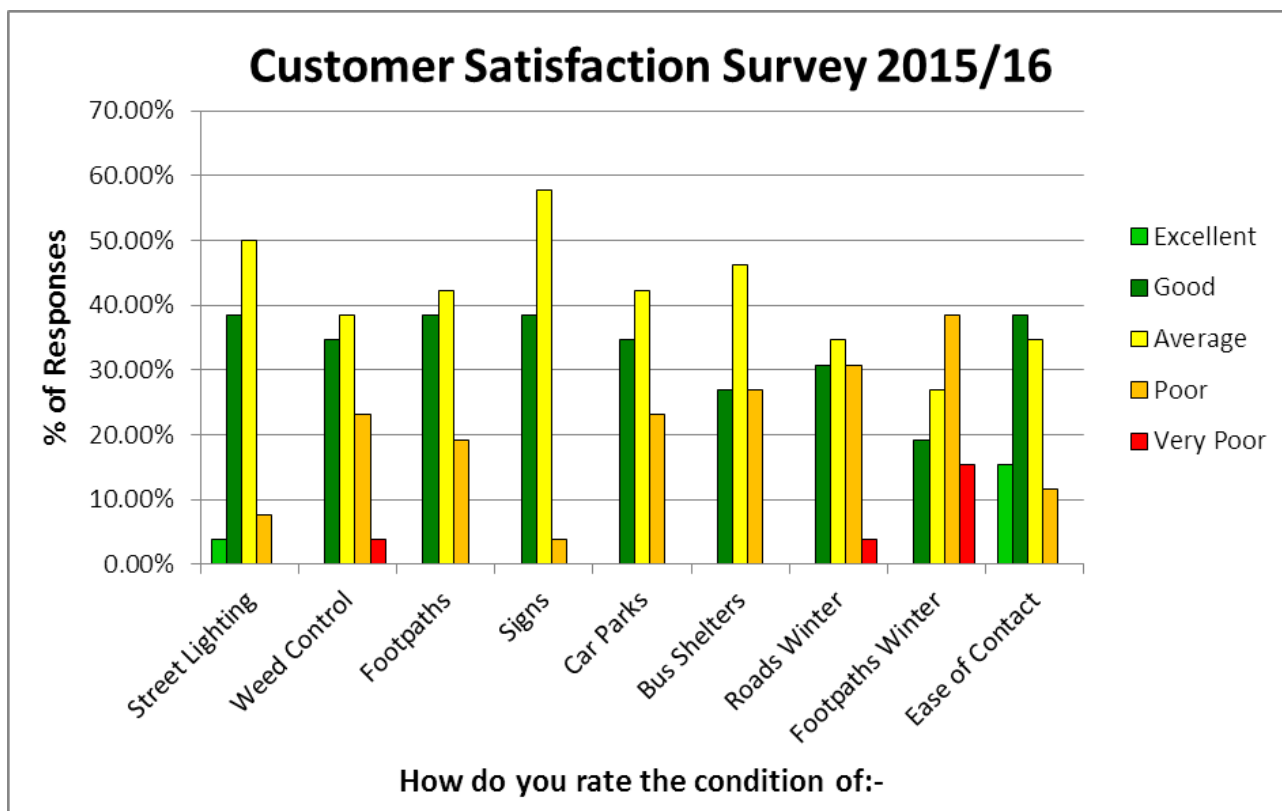
Customer Satisfaction Surveys

Falkirk Council's Roads Services undertake customer satisfaction surveys regularly to understand the level of public satisfaction towards road assets. The surveys are undertaken over the course of the financial year and relate to carriageway improvement works. Where possible, nearby residents are sent a customer satisfaction survey to complete. The results for 2015/16 are still being collated therefore 2014/15 results have then been used to create the graph below. This outlines customer satisfaction with work undertaken over the course of the year for the Council's road assets:



- The graph outlines customer satisfaction towards repair work carried out on carriageways and how customers rated the service provided to them (from all surveys undertaken over the year).
- Each of the 8 individual questions asked illustrates a majority of "excellent", "good" and "average" responses indicating that customers are generally satisfied with the service they are being provided with.
- There are some responses falling under the categories "poor" and "very poor" but the percentage of these responses are all under 10%.
- This means there is still room to improve the service Falkirk Council Roads Services provide.

Unfortunately the same type of survey is not undertaken for footways. Instead One Stop Shop surveys are undertaken each month in relation to footpaths. Customers are asked "How do you rate the condition of footpaths?" This covers footways as well. The graph below shows the combined responses for each month for 2015/16.

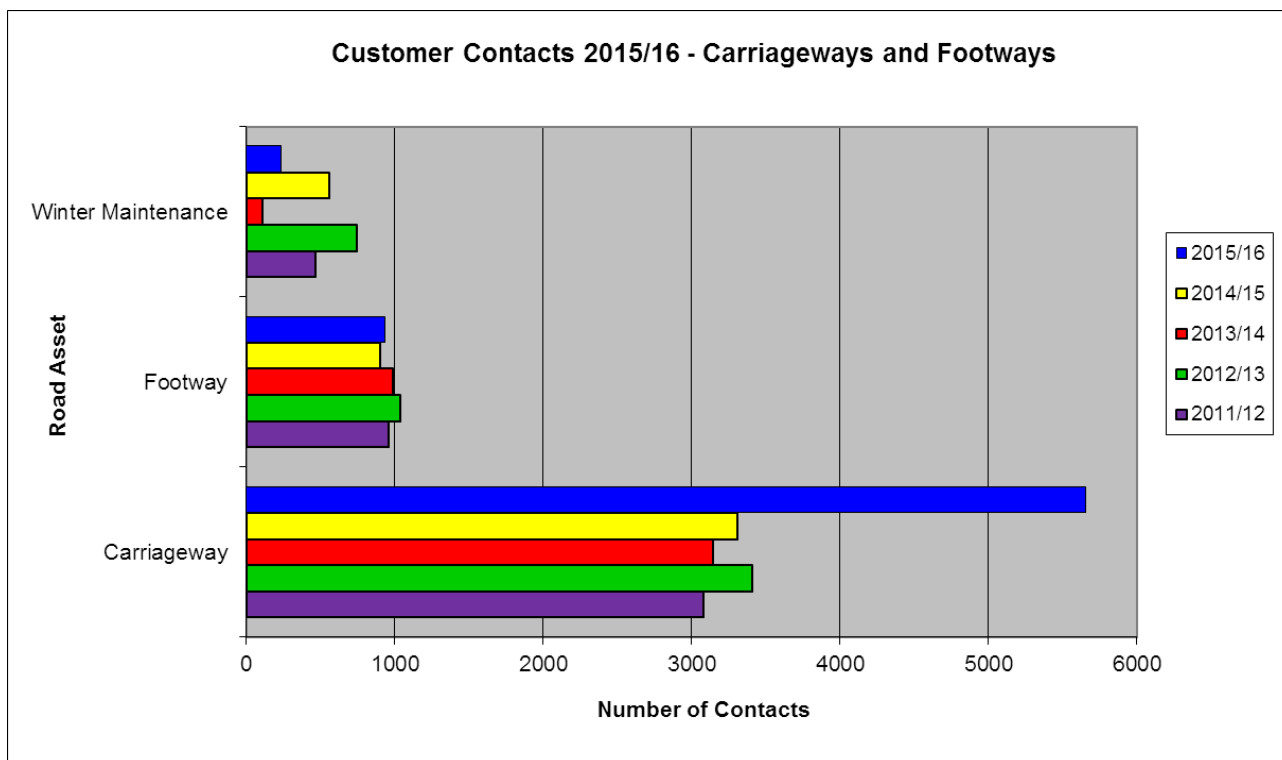


The results for each item show the percentage of responses for each rating from the total number of responses for that item. This covers items from street lighting to ease of contact. It can be seen that:

- All items show a high percentage of "good" responses. They are all above 25%.
- All items show a low percentage of "very poor" responses. All items are below 5% with the exception of footpaths winter.
- The percentage of "excellent" responses is positive for ease of contact. All other items would like to see an improvement in these responses.
- It is hoped the percentage of "average" responses drops with this then turning to "excellent" responses instead.

4. Customer Contacts

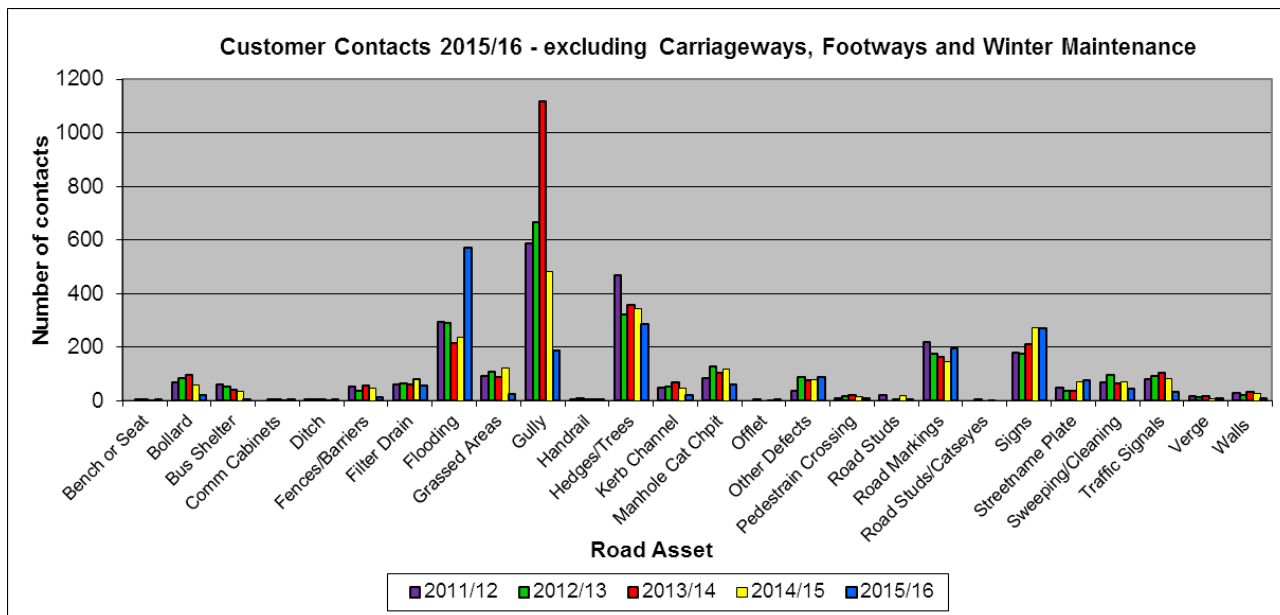
Customer contacts in relation to the road assets are recorded in the Roads Management Systems. Customers contact Road Services with a variety of issues ranging from potholes to bollards to signs. The most frequent customer contacts are in relation to carriageways and footways usually relating to potholes or ironwork defects. Below is a graph outlining the number of customer contacts for carriageways, footways and winter maintenance for the last five years:



Records show that customers are more inclined to contact the Council regarding a pothole rather than a bench or bus shelter. A large majority of carriageway customer contacts relate to potholes. This reflects the current condition of the carriageway and the damage caused by winter conditions. This is especially true in 2015/16 which saw over 2000 more contacts in relation to carriageways from 2014/15.

Customers were able to contact Falkirk Council regarding potholes and other defects through the easily accessible Online Reporting Tool which allows customers to go online a report a road defect. Defects not reported to the Council are generally identified on monthly, three monthly or annual inspections of the carriageway and footway. The number of contacts relating to the footway asset has remained steady over the last 5 years.

Winter maintenance also shows a high number of customer contacts for the last five years. This decreased in 2015/16 due better winter weather conditions compared to previous years. Customers are inclined to contact Falkirk Council regarding grit bin refills or icy carriageways/footways in poor winter conditions.



On top of carriageways, footways and winter maintenance, customers also contact Falkirk Council regarding other road assets including drainage problems, flooding and overgrown hedges/trees.. Signs and road markings are also popular contacts as road users will tend to report these as it concerns their safety when driving. Traffic signals and pedestrian crossings see a low number of contacts as there are limited numbers of these across the road network.

5. Demands

Asset Growth

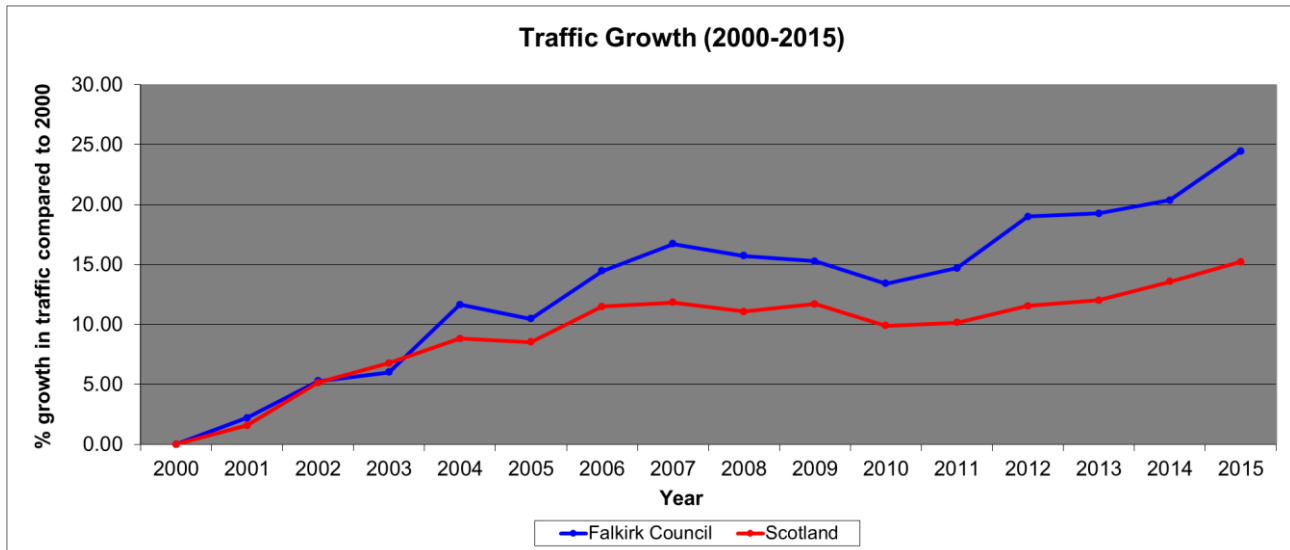
The asset grows each year due to the adoption of new roads and construction of new road links. Over the last 5 years the following additional assets have been adopted by the council:

- Carriageways, 30.42 km (3.22%)
- Footways, 66.87 km (3.82%)
- Street Lighting, 2116 columns (7.80%)
- Structures, 1 Culvert (0.30%)
- Traffic Management Systems, 21 traffic signal installations (32.00%)

New assets create the need for maintenance, management and associated funding in future years as these additional assets age. This is particularly relevant to street lighting as energy costs increase immediately exacerbating the effect of rising energy prices.

Traffic Growth

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 level of traffic. This creates a growing need for investment in maintenance.



Source: Gov.uk (2016)

In 2006 the Council set a Road Traffic Reduction Act target objective to reduce annual traffic growth to 5% by 2021 following sustained increases in traffic since 2001. The traffic figures show that from 2007 to 2010 the growth rate had been reducing, however it is thought that this is mainly due to economic issues such as fuel costs. It can then be seen that since 2010, the traffic volume has been steadily increasing. Both Falkirk Council and Scotland show similar trend figures although Falkirk Council's traffic volume growth is of a larger percentage.

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 resulting from freeze/thaw action.
- Flooding: areas are prone to flooding as they are located beside the river Forth and Firth of Forth.

6. Service Standards

This plan is based upon delivering the service standards below. The standards reflect the funding levels in section 7. They are the standards that customers can expect from the council's Road Assets during the plan period.

Service	Measured By	Target Standard		
		Current Standard	Current Performance	Target
Carriageways				
Safety	Undertake routine safety inspections on Category 2 Strategic Routes at intervals of	1 month	97.06%	100%
	Undertake routine safety inspections on Category 3(a) Main Distributors at intervals of	1 month	97.06%	100%
	Undertake routine safety inspections on Category 3(b) Secondary Distributors at intervals of	3 months	100%	100%
	Undertake routine safety inspections on Category 4(a) Link Road at intervals of	1 year	100%	100%
	Undertake routine safety inspections on Category 4(b) Local Access roads at intervals of	1 year	100%	100%
	Category 1 defects shall be rectified or made safe within	24 hours	96.15%	90%
	Category 2(H) defects shall be rectified or made safe within	5 working days	100%	100%
Condition	Maintain the condition of all 'A' roads such that the percentage in a RED condition remains below (*)	4.13%	2.71%	2.71%
	Maintain the condition of all 'A' roads such that the percentage in a RED and AMBER condition remains below (*)	29.00%	28.59%	28.59%
	Maintain the condition of all 'B' roads such that the percentage in a RED condition remains below (*)	5.94%	4.52%	4.52%

Falkirk Council

Road Asset Management Plan 2017 - 2027



	Maintain the condition of all 'B' roads such that the percentage in a RED and AMBER condition remains below (*)	34.80%	34.60%	34.60%
	Maintain the condition of all 'C' roads such that the percentage in a RED condition remains below (*)	6.25%	4.41%	4.41%
	Maintain the condition of all 'C' roads such that the percentage in a RED and AMBER condition remains below (*)	34.70%	34.92%	34.92%
	Maintain the condition of all 'U' roads such that the percentage in a RED condition remains below (*)	9.13%	4.92%	4.92%
	Maintain the condition of all 'U' roads such that the percentage in a RED and AMBER condition remains below (*)	40.20%	33.75%	33.75%

*Note: All Current Standard Condition figures are Scottish Average figures for road conditions.

Service	Measured By	Target Standard		
		Current Standard	Current Performance	Target
Footways				
Safety	Undertake routine safety inspections on Prestige Area footways at intervals as described	1 month	96.67%	100%
	Undertake routine safety inspections on Primary Walking Routes at intervals as described	3 months	90.38%	100%
	Undertake routine safety inspections on Secondary Walking Routes at intervals as described	Not currently undertaken	N/A	N/A
	Undertake routine safety inspections on Linking Footways at intervals as described	Not currently undertaken	N/A	N/A

Falkirk Council

Road Asset Management Plan 2017 - 2027



	Undertake routine safety inspections on Local Area Footways at intervals as described	Not currently undertaken	N/A	N/A
	Category 1 defects shall be rectified or made safe within	24 hours	80.00%	100%
	Category 2 defects shall be rectified or made safe within	28 Days	92.00%	100%

Service	Measured By	Target Standard		
		Current Standard	Current Performance	Target
Street Lighting				
Safety	Electrical testing of all equipment shall be undertaken at a frequency of	6 years	39%	100%
	Emergency faults shall be made safe or repaired within 2 hours of notification	2 hours	100%	100%
Condition	The percentage of street lights not working as planned at any one time should be no more than	2%	3%	1%
	The percentage of street light columns exceeding their ESL (Expected Service Lives) should be no more than	N/A	24%	N/A
	A non-emergency fault shall be rectified within 5 working days (Single Outage)	5	83%	95%
	A non-emergency fault shall be rectified within 5 working days (Section Fault 3 lights or more)	5	93%	95%
	All lighting columns over 25 years old shall be structurally tested	N/A	83%	100%
	Night time scouting of the whole of the asset shall be undertaken at intervals of 14 days(winter) and 28 days (summer)	Not currently undertaken	N/A	N/A

Falkirk Council

Road Asset Management Plan 2017 - 2027



	Average annual electricity consumption per street light (kwhrs)	N/A	380 kwhrs	350 kwhrs
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Service	Measured By	Target Standard		
		Current Standard	Current Performance	Target
Structures				
Safety	Carry out General Inspections.	2 years	100%	100%
	Carry out Principal Inspections.	6 years	100%	100%
Condition	Bridge Stock Indicator Average BSCLave	77	N/A	N/A
	Bridge Stock Indicator Average BSCLcrit	64	N/A	N/A
	Number of Council owned/maintained bridge that fail European standard assessment (prior to restriction)	6	N/A	N/A
	Number of Council owned/maintained bridges subject to monitoring/special inspection regimes	1	N/A	N/A

Service	Measured By	Target Standard		
		Current Standard	Current Performance	Target
Traffic Signals				
Safety	Attendance at Major faults shall be within 'X' hours	4	97%	100%
	Attendance at Minor faults shall be within 'X' hours	24	99%	100%
	Undertake electrical inspections for electrical assets at each installation every "X" years	3	100%	100%
Condition	Initial repair of major faults shall be within 'X' hours	12	98%	100%
	Initial repair of minor faults shall be within 'X' hours	N/A	N/A	N/A
	Complete repair all faults within 'X' hours/days	48	96%	100%
	Bulk lamp change of wait signals except amber every	N/A	N/A	N/A

	'X'months			
	Bulk lamp change of wait signals amber every 'X'months	N/A	N/A	N/A
	Bulk lamp change of regulatory signs every 'X'months	N/A	N/A	N/A
	The percentage of traffic signal installations exceeding their ESL should be no more than	20%	12.6%	20%
	Damage repair of major faults shall be within "X" days	N/A	N/A	N/A
	Damage repair of less urgent faults shall be within "X" days	N/A	N/A	N/A
	Failed lamps shall be replaced within "X" days	N/A	N/A	N/A

7. Financial Summary

7.1 Planned Funding

The targets shown in section 6 are based upon the following predicted funding levels. In future years the committee may decide upon the level of funding for each asset type, rather than allocate a capital "Structural Maintenance – Roads" budget taking into account the information and options supplied in the complimentary Annual Status and Options Reports (ASORs). Any updates required to the RAMP will then be made.

Section 7 of the RAMP provides the current funding levels for the next 2 years with predicted funding thereafter. At this point it is unknown what option will be selected from the Annual Status and Options Report. Therefore for the purposes of the predicted funding levels Option 3 has been implemented. This involves maintaining the current spending levels and basing future cost projections on these spending levels.

Asset	Works	Funding £k				Long Term Funding Assumed £k
		16/17	17/18	18/19	19/20	Y3-Y20 pa
Carriageways	Capital	2,036	3,227	3,727	3,377	3,370
	Revenue	1,720	620	620	620	620
Footways	Capital	418	743	715	731	731

Falkirk Council

Road Asset Management Plan 2017 - 2027



Falkirk Council

Asset	Works	Funding £k				Long Term Funding Assumed £k
		16/17	17/18	18/19	19/20	Y3-Y20 pa
	Revenue	253	53	53	53	53
Structures	Routine & Reactive	220	220	220	220	220
	Planned	670	680	810	740	740
Street Lighting	Energy Costs (*)	1,074	1,074	1,074	1,074	1,074
	Revenue	950	950	950	950	950
	Capital	560	570	670	600	600
Traffic Signals	Energy/Communication Costs	Included in Street Lighting Energy Costs				
	Routine & Reactive	50	50	50	50	50
	Planned	60	60	60	60	60
Street Furniture	Revenue	187	187	187	187	187

Note: Energy costs are shown at 2015/16 value although it is very likely that these will escalate if recent trends in prices continue as they are predicted to do. Energy costs for street lighting, traffic signals and, illuminated signs and bollards re all included under street lighting.

7.2 Historical Expenditure

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

Asset	Works	Historical Expenditure £				
		11/12	12/13	13/14	14/15	15/16
Carriageways	Capital	2,101,541	1,832,000	1,818,592	2,492,238	2,300,259
	Revenue	2,359,660	2,781,000	2,354,406	1,609,497	1,594,763
	Winter Maintenance	879,168	1,314,977	883,887	1,325,756	733,186
Footways	Capital	398,805	500,000	467,823	547,849	363,022
	Revenue	244,028	263,000	318,943	275,938	214,692
	Winter Maintenance	541,883	673,936	377,211	105,200	159,495
Structures	Planned	524,223	573,769	995,000	712,000	705,148

Falkirk Council

Road Asset Management Plan 2017 - 2027



Asset	Works	Historical Expenditure £				
		11/12	12/13	13/14	14/15	15/16
	Routine & Reactive	205,868	261,221	247,553	180,815	166,913
Street Lighting	Energy Costs (*)	846,872	1,037,283	1,064,847	1,061,505	1,074,770
	Capital	644,295	585,382	660,224	599,000	605,824
	Revenue	834,378	1,022,940	974,368	664,161	799,328
Traffic Signals	Energy/Communication Costs	Energy Costs included in Street Lighting (*)				
	Routine, Planned & Reactive	50,910	377,744	53,366	80,210	346,366
Street Furniture	Capital	0	0	0	122,000	0
	Revenue	180,566	97,000	130,455	134,801	121,580
Totals:		9,812,197	11,320,252	10,346,675	9,776,169	9,185,346

*Energy Costs under Street Lighting include street lighting, traffic signals and, illuminated signs and bollards.

The above information shows a drop in expenditure from 2012/13. The fluctuations in expenditure are down to high expenditure in winter maintenance costs for carriageways and footways in 2012/13. Expenditure in carriageways and footways is reducing as a result of the economic downturn and efficiency savings that the Council must make. Structures and traffic signals have each seen high expenditures once over the past 3 years and this is due to specific works requiring to be carried out entailing a higher expenditure.

7.3 Asset Valuation

As at April 2016 the Road Asset is valued as follows:

Asset Type	Gross Replacement Cost (GRC) £'000	Depreciated Replacement Cost (DRC) £'000	Annualised Depreciation Cost (ADC) £'000
Carriageways	£1,038,480	£831,039	£18,023
Footways	£258,579	£90,514	£8,550
Structures	£156,116	£149,656	£832
Street Lighting	£68,562	£35,150	£1,764
Street Furniture	£6,679	£3,180	£339

Asset Type	Gross Replacement Cost (GRC) £'000	Depreciated Replacement Cost (DRC) £'000	Annualised Depreciation Cost (ADC) £'000
Traffic Management	£6,238	£4,259	£278
Land	£641,733		
Total	£2,176,385	£1,113,798	£29,785

8. 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 reduced
- Footways: level of investment reduced
- Structures: level of investment reduced
- Street lighting; level of investment maintained at similar levels, plus additional investment in "spend to save" energy efficiency initiatives
- Traffic signals; level of investment maintained at similar levels

Falkirk Council

Road Asset Management Plan 2017 - 2027



Carriageways

Producing an Annual Status and Options Report with the aid of cost projections has allowed Falkirk Council to project potential spending patterns for 20 years to show the carriageway condition over this period of time. It has been stated in section 7 that it is currently unknown what option will be chosen and therefore, for the purposes of the RAMP, Option 3 has been implemented and projected. This means funding levels will remain similar to what they currently stand at. The aim is to maintain Road Condition Indicator (RCI) as close to steady state as possible. With the carriageway capital budget set for the next 2 years, this option will be implemented after these 2 years have elapsed.

The aim of implementing Option 3 as a spending pattern over the next 20 years will mean targeted treatments types in line with the Maintenance Strategy will be undertaken on each road classification. The aim of this is to keep a carriageway condition which is as close to steady state as is possible and to treat roads which are in the initial stages of deterioration.

Routine and reactive repairs will always be required, however there is a focus on reducing reactive spend and increasing planned works and associated spend.

Note the figures for 2016/17 will not be available until July 2017.

Category	Strategy	Comments				
Routine and Reactive Repair	Repair of defects to current intervention standards and response times.	The strategy requires the deployment of 3 works squads (2 Quick Response Teams (QRT) and 1 Nuphalt team) on emergency and non-emergency repairs such as patching.				
Planned Maintenance Preventative	To treat roads in the initial stages of deterioration and prevent further deterioration.	The strategy is predicted to require the following annual approximate lengths of surface treatment:				
		Road Class	2016/17	2017/18	2018/19	2019/20
		A Urban	N/A	987m	987m	987m
		A Rural	N/A	674m	674m	674m
		B Urban	N/A	503m	503m	503m
		B Rural	N/A	323m	323m	323m
		C Urban	N/A	951m	951m	951m
		C Rural	N/A	471m	471m	471m
U Urban	N/A	8740m	8740m	8740m		

Falkirk Council

Road Asset Management Plan 2017 - 2027



Falkirk Council

		U Rural	N/A	530m	530m	530m
Planned Maintenance Corrective	Programme of resurfacing where the carriageway condition means a preventative treatment cannot be applied	The strategy is predicted to require the following annual approximate lengths of resurfacing:				
		Road Class	2016/17	2017/18	2018/19	2019/20
		A Urban	N/A	337m	337m	337m
		A Rural	N/A	156m	156m	156m
		B Urban	N/A	162m	162m	162m
		B Rural	N/A	136m	136m	136m
		C Urban	N/A	138m	138m	138m
		C Rural	N/A	191m	191m	191m
		U Urban	N/A	1373m	1373m	1373m
	U Rural	N/A	152m	152m	152m	
	Programme of strengthening where the carriageway condition requires a more substantial repair	The strategy is predicted to require the following annual approximate lengths of strengthening:				
		Road Class	2016/17	2017/18	2018/19	2019/20
		A Urban	N/A	0m	0m	0m
		A Rural	N/A	0m	0m	0m
		B Urban	N/A	0m	0m	0m
		B Rural	N/A	0m	0m	0m
		C Urban	N/A	0m	0m	0m
		C Rural	N/A	0m	0m	0m
U Urban		N/A	0m	0m	0m	
U Rural	N/A	0m	0m	0m		

Footways

The overarching strategy for footways is to invest where possible in planned corrective maintenance of slabbed footways and planned preventative maintenance of bituminous footways in order to reduce the rate of deterioration of the asset.

Condition information is currently being captured through annual Footway Condition Surveys. The Annual Footway Condition Survey targets prestige walking zones, primary walking routes and secondary walking routes. There are four area Footway Condition Surveys which survey link footways and local access footways. One survey in each of the 4 areas will be undertaken each year. The target is therefore to have all footway condition information available every 4 years. This

Falkirk Council

Road Asset Management Plan 2017 - 2027



will allow cost projections for footways to be undertaken so it can be understood how best to allocate the footway budget available. As not all of the Footway Condition Surveys have been completed, predicted footway treatment lengths below are all estimates.

Bituminous footways will require an initial investment in resurfacing works in order to bring them up to the targeted standards prior to focussing on the preventative maintenance strategy. A small amount of strengthening work is required where constant overriding of the footway is causing severe damage and a higher standard of construction will reduce this.

Routine and reactive repairs are expected to continue at current levels and will require continued investment. Investment will be targeted towards prestige, primary and secondary walking routes which attract concentrated pedestrian movements.

Category	Strategy	Comments				
Routine and Reactive Repair	Repair of defects to current intervention standards and response times.	The strategy requires the deployment of one work squad on emergency and non-emergency repairs such as small areas of broken slab replacement and patching etc.				
Planned Maintenance Preventative	A programme of preventative treatment of bituminous footways in the initial stages of deterioration.	The strategy is predicted to require the following annual approximate lengths of footway surface treatments:				
		Footway Type	2016/17	2017/18	2018/19	2019/20
		All	N/A	1000m	1000m	1000m
Planned Maintenance Corrective	Programme of resurfacing/renewal of footways.	The strategy is predicted to require the following annual approximate areas of footway renewals:				
		Footway Material	2016/17	2017/18	2018/19	2019/20
		Slabbed	N/A	50m	50m	50m
	Bituminous	N/A	2450m	2450m	2450m	
	Programme of strengthening of footways.	The strategy is predicted to require the following annual approximate areas of footway strengthening:				
Footway Material		2016/17	2017/18	2018/19	2019/20	
Slabbed		N/A	0m	0m	0m	
	Bituminous	N/A	20m	20m	20m	

Street Lighting

The aim of the maintenance strategy is to ensure that all street lights are operating 93% of the time and all columns are in a safe condition. Night time inspections have not been carried out since April 2015 and we currently rely on the public to report "dark lamps" using the contact centre Freephone number or the Council's website via the street lighting fault reporting tool.

The structural testing programme enables columns in a deteriorated condition to be identified and replaced before an incident occurs. Approximately 24% of all street lighting columns are life expired and an increase in the capital budget to £930k per annum would be required to maintain the stock at this steady state level. At current funding levels there will be a continual decline with around 60% of the lighting stock exceeding their design life in year 20. Routine structural testing will ensure that columns are removed before reaching a dangerous condition however an increased budget will be required in order to halt a steady deterioration of the stock.

The Council has developed a Carbon Management / Energy Reduction Plan which has highlighted CO₂ emission savings available through improved street lighting management. A programme of lantern replacement with new energy efficient (LED) lanterns has been agreed and approximately 2500 existing lanterns have now been replaced and all new capital replacement and new housing developments are fitted with LED lanterns.

Category	Strategy	Comments				
Routine and Reactive Repair	Repair of defects to current intervention standards and response times.	The strategy requires the deployment of 4 electricians and 2 two man road squads on routine and emergency repairs.				
Planned Maintenance Corrective	Programme of structural renewal	The strategy is predicted to require the following approximate annual quantities of columns to be renewed:				
			2015/16	2016/17	2017/18	2018/19
		Columns Renewals	400	650	650	650
Carbon / Energy Reduction	Programme of lantern replacement	The strategy is predicted to require the following approximate annual quantities of lanterns to be replaced with LED units:				
			2015/16	2016/17	2017/18	2018/19
		Lantern Renewals	2900	1300	1300	1300

Structures

The aim of the Structures maintenance strategy is to monitor the deterioration and maintenance costs to ensure the asset is kept at the required service level. Bridge condition indicators are used to help predict the future condition of each element of each bridge and estimate the overall cost of bridge maintenance intervention or refurbishment projects. Combining the results of this element by element analysis makes it possible to predict the impact of different funding scenarios on the condition and risk profile of the stock at a network level. This requires confidence in the gathering, manipulation and entering of accurate inventory and condition data. In practice a degree of engineering judgement is applied to the priorities proposed by the automated analysis to produce a programme of structural/routine repairs. The quality of the inventory data is being assessed and augmented at present to provide accurate future predictions.

The retaining wall asset data is incomplete and has not been presented in this report. It is proposed to carry out survey of all roads associated retaining walls over the next two years to gather sufficient information to predict the future condition of each element of each wall and estimate the overall cost of retaining wall maintenance interventions or refurbishment projects.

Category	Strategy	Comments				
Routine and Reactive Repair	Routine repair of reported defects to required service level.	The strategy requires the development of a programme of routine repair work and other non-emergency repairs.				
Structure Type	Work Type	Works for 2014/15	Works for 2015/16	Works for 2016/17	Works for 2017/18	Works for 2018/19
Road Bridges	Structure Strengthening Works	1	5	6	6	N/A
	Parapet Upgrade Works	0	0	2	1	N/A
Pedestrian Bridges	Structure Strengthening Works	1	0	2	0	N/A
	Parapet Upgrade Works	1	0	0	0	N/A
	Support Upgrade Works	0	0	0	0	N/A
Culverts and	Structure Strengthening Works	1	2	0	0	N/A

Falkirk Council

Road Asset Management Plan 2017 - 2027



Subways	Parapet Upgrade	2	0	0	0	0
	Works					

Traffic Signals

The aim of the traffic signals maintenance strategy is to ensure that all traffic signals are operating 99% of the time and all equipment remains in a safe condition. Installations are replaced only following obsolescence due to life expiry or external damage.

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

Category	Strategy	Comments				
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of a traffic signals maintenance contractor on emergency repairs and other non-emergency repairs.				
Refurbishment of signalised junctions	Refurbishment in conjunction with other road safety/infrastructure improvements of junctions that have deteriorated or the equipment has become obsolete/unreliable	The strategy is predicted to require the approximate annual quantities of junctions to be renewed:				
			2016/17	2017/18	2018/19	2019/20
		Junction Renewals	0	0	1	0
Refurbishment of signalised crossings	Refurbishment of junction that have deteriorated or the equipment has become obsolete/unreliable	The strategy is predicted to require the approximate annual quantities of pedestrian crossings to be renewed:				
			2016/17	2017/18	2018/19	2019/20
		Pedestrian Crossing Renewals	1	1	0	1

Falkirk Council

Road Asset Management Plan 2017 - 2027



9. 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 defects and deterioration than have been anticipated.	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. Due to this Falkirk Council is unsure of the budget that will be given to 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/bitumen costs as they affect the cost of road surfacing materials).	Target service standards will be revised to affordable levels.
Levels of defect and deterioration 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.

Falkirk Council

Road Asset Management Plan 2017 - 2027



References

- 1) Local Transport Strategy
- 2) Corporate Asset Management Strategy 2011-2014
- 3) Development Services Service Performance Plan 2015-2018
- 4) Corporate Plan 2012-2017
- 5) Data Management Plan
- 6) Annual Status and Options Report (Carriageways)
- 7) Annual Status and Options Report (Street Lighting)