

Transport and Environment Committee

10.00am, Thursday, 6 December 2018

Transport Asset Management Plan (TAMP)

Item number	7.1
Report number	
Executive/routine	
Wards	All
Council Commitments	15 , 16 , 17 , 19

Executive Summary

All 32 Local Authorities in Scotland have agreed to support the Society of Chief Officers in Scotland (SCOTS) Road Asset Management Project to produce a common framework for Road Asset Management Plans (RAMP).

The tender process for the next phase of the project was completed in 2017. The City of Edinburgh Council will continue to participate, develop and review a formal RAMP document.

The City of Edinburgh Council has developed and extended its RAMP to include additional Transport asset groups to create a Transport Asset Management Plan (TAMP). The assets considered within a traditional RAMP comprises of carriageways, footways, structures, street lighting and traffic management systems. However Edinburgh's TAMP will also include cycling infrastructure and park and ride sites.

The purpose of the TAMP is to establish future maintenance and management of the overall road network and set out options considered to take forward the management of the Council's road assets.

Transport Asset Management Plan (TAMP)

1. Recommendations

- 1.1 It is recommended that the Transport and Environment Committee approves the Transport Asset Management Plan (TAMP), shown in Appendix 1.

2. Background

- 2.1 The transport network is the largest and most visible community asset that the Council is responsible for. It is used on a daily basis by a significant number of people and is fundamental to the economic, social and environmental well-being of our communities. It helps to shape the character and quality of the local areas that it serves and makes an important contribution towards the delivery of the Council's vision and commitments.
- 2.2 In order to meet the demands placed on it, it is crucial that the transport network is adequately maintained. This includes not just carriageways and footways, but also bridges, street lighting, drainage systems and traffic control systems, street furniture, cycling infrastructure and park and ride sites. Continuing growth in traffic has brought an increasingly widespread recognition of the importance of road maintenance, and the high value placed on it both by users and the wider community.
- 2.3 Conversely, public concern is increasing about the condition of our road network and the implications of this for safety and journey reliability. Inadequate maintenance only stores up even greater problems for the future.

3. Main report

- 3.1 This plan sets out the City of Edinburgh's Council's plans for its transport assets. The (TAMP) records the Council's plans for the maintenance of the road asset. The "road asset" comprises of carriageways, footways, structures, street lighting and traffic management systems. The powers and duties of road authorities are defined by the Roads (Scotland) Act 1984 and additional relevant legislation. Edinburgh is including cycling infrastructure and park and ride sites as part of the TAMP.

- 3.3 The plan is consistent with the Council's corporate approach to asset management. The purpose of the TAMP is to formalise strategies for investment in transport asset groups and to define service standards.
- 3.4 Adopting a proactive approach to inspection and maintenance will ensure that the road network is not compromised and will help to avoid excessively high costs associated with unplanned maintenance so enhancing economic wellbeing and promoting environmental stewardship.
- 3.5 The content of the TAMP has been produced using a framework common across all Scottish Councils, established by the Society of Chief Officers of Transportation in Scotland (SCOTS) and includes the production of the Code of Practice on Transport Infrastructure Assets published by the Chartered Institute of Public Finance and Accounts (CIPFA).
- 3.6 All Councils in Scotland receive support and participate in maintaining and developing their Transport Asset Management Plans through SCOTS. The most recent phase of the project started in 2017 and the anticipated duration of the project is three to four years.
- 3.7 This report considers options for long term expenditure. Transport assets deteriorate slowly so the impact of a level of investment cannot be shown by looking at the next couple of years. Therefore, report includes 20-year forecasts to enable decisions to be taken with an understanding of their long term implications.
- 3.8 Whilst the capital investment strategy forecasts over a 20-year period, continuous revenue repairs will continue to be carried out on small scale defects on the network, such as potholes.
- 3.9 The condition of Edinburgh's roads is assessed annually as part of the Scottish Roads Maintenance Condition Survey (SRMCS), an independent survey of road conditions in all 32 Scottish local authorities. The survey provides each local authority with a Road Condition Index (RCI) which identifies the percentage of roads in need of maintenance.
- 3.10 Edinburgh's Road Condition Index has improved from 42.3% in 2005/6 to 36.4% in 2017/19. The latest figure is a steady state from the previous 2016/18 figure of 36.4%. The TAMP looks at options that forecast an annual improvement in the RCI over a 20-year period. In previous years a large percentage of capital investment in roads has not been delivered due to a combination of lack of internal resources and conflicts with other priorities on the network ie utility works. In order to achieve the projected improvement in the RCI, sufficient resources will have to be in place to deliver the annual capital investment programmes.
- 3.11 It has taken longer to design several types of maintenance/renewal schemes when implementing the recently adopted Street Design Guidance. The guidance enhances place making and, in some instances, leads to wall-to-wall improvements. However, it requires greater consultation and engagement at the design stage and requires additional redetermination orders and TROs. In the long term the guidance will improve the overall environmental ambiance and quality of the streets/places in Edinburgh.

- 3.12 Prior to any capital programmes being presented for approval, consultation on the schemes selected for investment will take place with stakeholders ie Spokes, Living Streets, Edinburgh World Heritage, to ensure that the needs of all transport network users are considered prior to full design.
- 3.13 Work is already underway, as part of the Roads Improvement Plan, that will assist in improving Edinburgh's RCI. It is likely that consultants will have to be used to assist with the design process to ensure delivery of capital programmes.
- 3.14 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 funding is invested as wisely as possible. This plan forms an important part of the Council's commitment to apply good asset management to roads.
- 3.15 The plan will also take account of the infrastructure renewal programmes procured through historic, current and future Revenue and Capital budgets and assess to what extent these investments have arrested depreciation of the asset as a whole. On this basis future plans will be able to indicate; if funding is sufficient to arrest depreciation or what funding is required to enable this to happen or what funding is necessary to improve the asset year on year. The TAMP will also help prioritise infrastructure renewal projects to make the most efficient use of the funding available.

4. Measures of success

- 4.1 The assessment of the condition of the city's roads is measured annually by the Scottish Road Condition Measurement Survey (SRCMS). This survey shows the percentage of roads that should be considered for maintenance intervention. Edinburgh's Road Condition Index (RCI) is 36.4% in 2017/19. A continual gradual improvement in Edinburgh's RCI will be a measure of the success of the Roads Capital Programme.
- 4.2 The TAMP is being prepared which will, in time, result in a long-term strategy for the maintenance of all Council owned infrastructure assets. Now that funding has been made available, Principal Bridge Inspections are being undertaken which will ensure bridges are in a safe condition and that maintenance funding can be better directed.

5. Financial impact

- 5.1 There are no financial implications associated with this report. The capital requirements for the road network are detailed annually in a separate report to this Committee.

6. Risk, policy, compliance and governance impact

- 6.1 There are no significant compliance, governance or regulatory implications expected as a result of approving the recommendations in this report.

7. Equalities impact

- 7.1 A full impact assessment will be carried out on a scheme by scheme basis. The schemes recommended in this report for maintenance have been identified using the prioritisation method and will only require consultation with specific groups prior to the design being carried out.
- 7.2 The investment in the city's roads, footways, gullies and street lighting improves the accessibility and safety of the road and footway network and therefore has a positive impact for all users, particularly older people and those with a disability. All footway reconstruction schemes incorporate new dropped crossings at all junction points, if not already existing.

8. Sustainability impact

- 8.1 The TAMP highlights the current sustainability practices, policies and objectives within the management of the road network. Primarily focused on achieving best value from our existing resources, reducing carbon emissions and energy consumption, while increasing the use of recycled materials as appropriate.
- 8.2 Street Lighting capital will continue to implement agreed programmes for the implementation of energy efficient lamps to reduce energy consumption and carbon footprint. The continuing use of extruded aluminium lighting columns provides a more sustainable solution when compared to previously used materials (steel and concrete).

9. Consultation and engagement

- 9.1 The revised methodology for prioritising roads and footways for capital investment, agreed by the Transport, Infrastructure and Environment Committee in [November 2010](#), was the subject of extensive consultation with Neighbourhood Partnerships and interest groups. A review of these procedures was agreed by this Committee in [October 2013](#). A further review of these procedures was agreed by this Committee in [January 2016](#).

10. Background reading/external references

None.

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11. Appendices

Appendix 1 Transport Asset Management Plan (TAMP).



Transport Asset Management Plan

(TAMP)

December 2018

Foreword

This plan sets out the council's plans for the management of the council's Transport Asset. It has been produced in accordance with national guidance and recommended good practice developed through the SCOTS Road Asset Management Project.

It is widely recognised that the application of modern asset management practices can enable improved value for money. In these challenging times it is essential that the council embraces these methods and strives to ensure that 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 Transport 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.

This plan supports 4 of the Council's 52 Commitments:

- Commitment 15:** **Protect Edinburgh World Heritage Status and make sure developments maintain the vibrancy of our city in terms of placemaking, design and diversity of use.**

 - Commitment 16:** **Invest £100m in roads and pavements over the next 5 years. This will include road and pavement maintenance, installing more pedestrian crossings, increasing the number of dropped kerbs and dedicate safer foot and cycle paths as well as introducing more pedestrian zones.**

 - Commitment 17:** **Guarantee 10% of the transport budget on improving cycling in the city.**

 - Commitment 18:** **Keep the city moving by reducing congestion, improving public transport to rural west Edinburgh and managing roadworks to avoid unnecessary disruption to the public.**
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Document Control

Version Number	Amendments Made	Date
v1	Nil - Original	December 2018
Next Review Due		

Council Approval

Version Number	Council Committee	Date
v1	Transport and Environment Committee	6 December 2018

Responsibility for the Plan

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

Council Officer	Responsible for

1. Introduction

Overview

This plan sets out the council's plans for the council's Transport Assets for the period 2017-2020. The Transport Asset Management Plan (TAMP) records the council's plans for the maintenance of the Transport Asset. The "Road Asset" comprises of carriageways, footways, structures, street lighting, traffic management systems and street furniture. The "Transport Asset" also includes cycling infrastructure and park and ride sites.

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

The purpose of the TAMP is to:

- Formalise strategies for investment in Transport Asset groups
- Define service standards

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

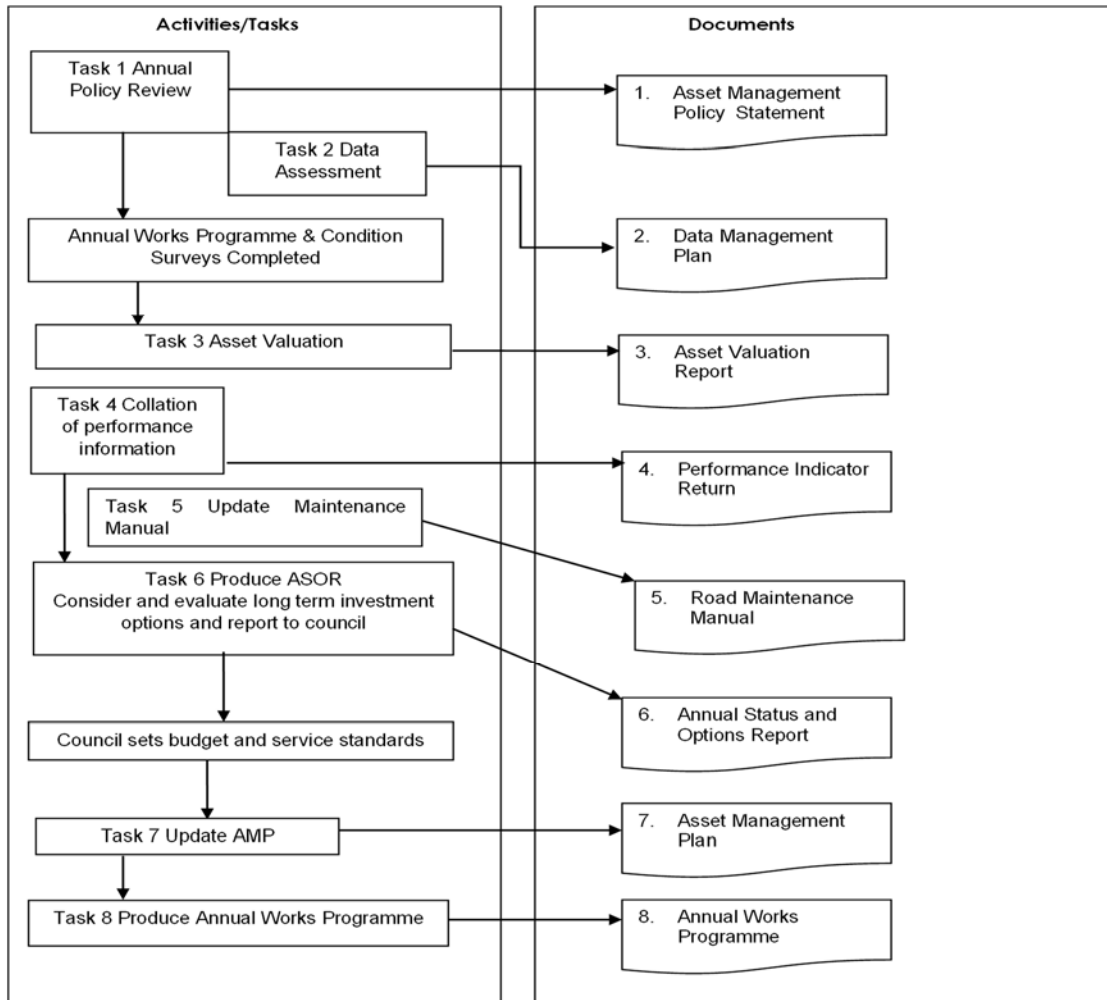
Corporate Asset Management

A Corporate Asset Management Strategy was presented to the Policy & Resources Committee on the 31 October 2013. The Corporate Asset Management Strategy incorporates the following six assets managed by the council:

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

Society of Chief Officers for Transportation in Scotland (SCOTS)

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



2. Transport Assets

Transport Assets

The council's Road Assets covered by this plan are:

- Carriageways 1,511 km
- Footways, footpaths & cycleways 2,121 km
- Structures 475 bridges/structures
- Street Lighting 58,077 street lighting columns
- Traffic Management Systems Approximately 600 Signalised Junctions and Pedestrian Crossings
- Cycle Network 308 km of cycle routes
- Park and Ride Sites 3 sites.

There are a further 16 bridges which are maintained by the Tram Operating Company.

Assets Not Covered

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

- Road Drainage Infrastructure
- Weather Stations
- Other Traffic Management Systems – Information Systems, Safety Cameras, Variable Message Signs, Vehicle Activated Signs, Real Time Passenger Information

Some related assets that the roads department maintain are the responsibility of other council departments. The council owned Road Assets not covered in this TAMP are:

- Pay and display car parks
- Footpaths managed by Housing Association
- Bus Shelters
- Public Rights of Way

Assets that have been specifically excluded from this plan are:

- Private Roads
- Private Bridges
- 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
- Assets relating to the other five key areas of Council asset ownership (e.g. Buildings and Property, Council Housing, Open Space, Vehicle Fleet and Information and Communications Technology)

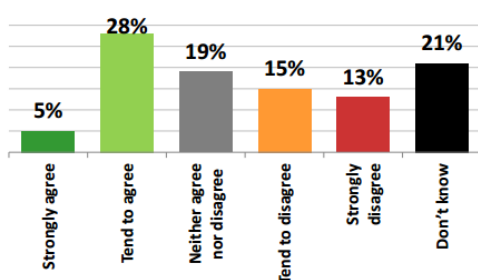
Inventory Data

This plan is based upon currently available inventory data for Road Assets, i.e. carriageway, footway, structures, street lighting and traffic signals. For some minor Road Assets inventory data is not currently held, however, an attempt has been made to incorporate these assets within this plan using local estimates and sample surveys. A plan to improve asset data forms part of the council's Transport Asset data management plan⁽⁴⁾.

3. Customer Satisfaction

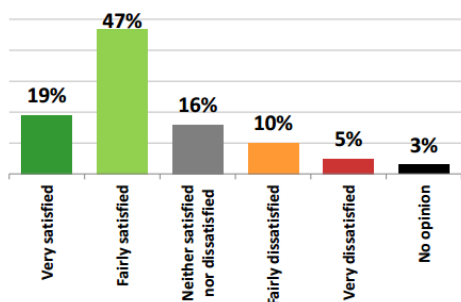
City of Edinburgh Council undertakes an annual Citizens Survey to understand the level of public satisfaction in regard to council services. These surveys were undertaken between 2007 and 2016. The source of each of the following graphs is the Edinburgh People Survey 2016.

33% agree that the Council displays sound financial management



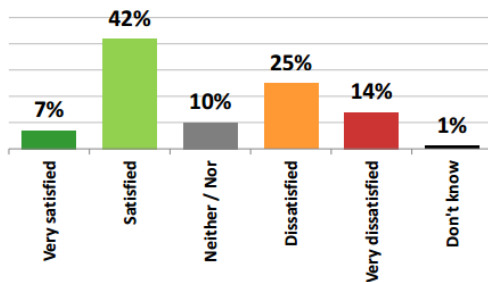
This shows an improvement from 2015 (29%), 2014 (24%) and 2013 (26%). Hopefully the implementation of the TAMP will improve this score even further.

66% are satisfied with the way the Council is managing the City



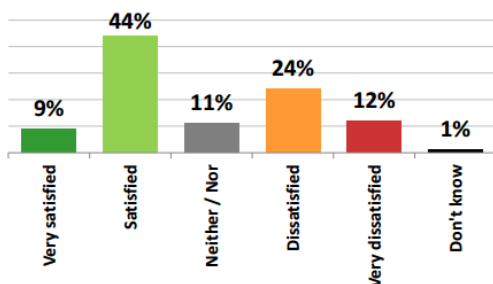
Satisfaction with how the Council is managing the city has dropped from 68% in 2015 and 67% in 2014. With the road network being a major asset of the Council in shaping public perception a more coordinated approach to maintenance outlined in the TAMP should see this score increase.

49% satisfied with maintenance of roads



Public satisfaction with road maintenance has declined since 2015 (51%) and is at a similar level to 2014 (48%). The approach the maintenance in the TAMP should see this rating improve year on year and the Road Condition Index (RCI) of the network decreases.

53% satisfied with maintenance of pavements and footpaths



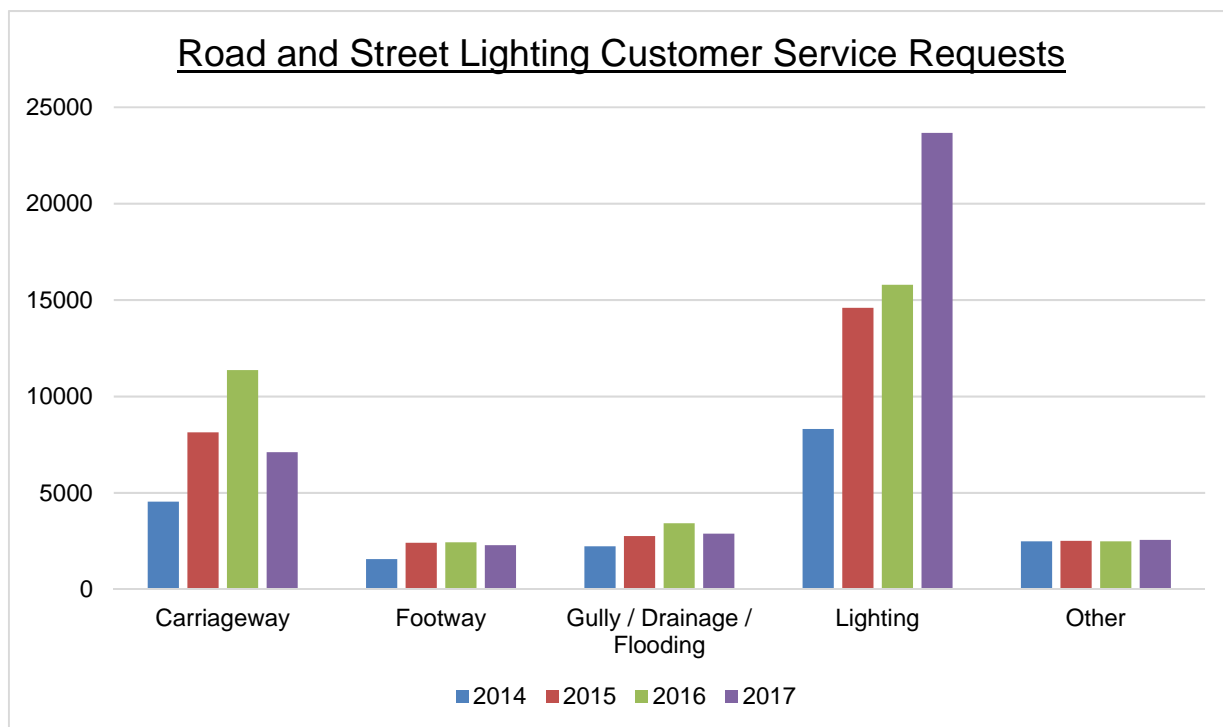
Satisfaction with the maintenance of pavements and footpaths remained the same as 2015, which was slightly higher than 2014 (50%) but lower than years previous to 2014. As with the roads maintenance, the approach given in the TAMP should see this score improve annually.

1. The results of the survey show that a lot of work is required to improve public satisfaction with how the road network is maintained.
2. The implementation of the TAMP should also lead to an increase in how the public perceive the Council with regards to sound financial management.
3. Satisfaction with how the Council manage the city as a whole should again improve if the measures suggested in the TAMP are implemented as the road assets are maintained.

Customer Contact

Customer contacts in relation to the highway assets are recorded in the council's customer relationship management system, Confirm.

A summary of the contacts received by category is shown below for 2014 to 2017.



The other column includes requests regarding cycling, parking, permits, street furniture, traffic signs, utilities and school crossings as well as traffic management, adoption information and events.

The results show that customer contacts to the council are predominantly in regards to street lighting issues (mainly lights being out). Service requests involving the carriageway are second to that, the majority of which are reporting defective or damaged sections, which is indicative of the current condition of the carriageway and the damage caused by severe winter conditions.

Also of note is the number of contacts in regards to drainage issues, nearly two thirds of which are reporting gullies that are blocked. This means that when carrying out carriageway improvements in any given area potential drainage improvements should also be taken into consideration.

4. 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:

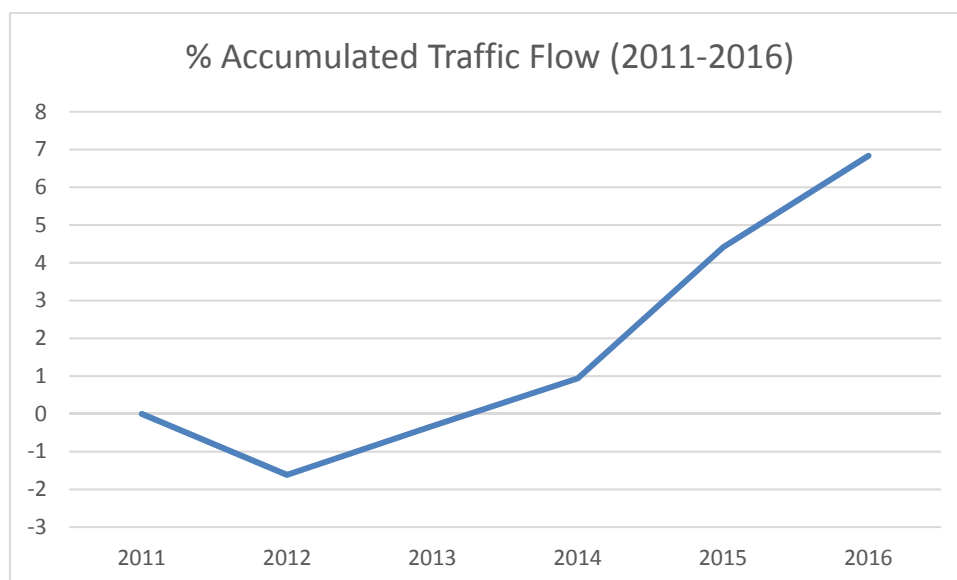
- Carriageways, 83 km
- Footways, 61 km
- Street Lighting, 816 columns.

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.

City of Edinburgh Council faces a significant challenge in balancing the requirement to enhance the quality of life for its residents and visitors against ensuring that growth takes place in a sustainable manner. The key transportation issue associated with this aim are increased congestion and its subsequent effect on the environment, the economy, integration, accessibility and safety that are on contributing factors to the perceived quality of life.



Data collected by the Department for Transport shows that the Annual Average Daily Flow (AADF) for all motor vehicles raised by 6.83% between 2011 and 2016. This is a cumulative total from counts taken at 84 separate count locations throughout Edinburgh. Apart from a slight downturn in 2012 the data shows that the number of vehicles on our network is increasing so it is essential that the maintenance of the road network is properly planned in order for the city's economic growth to continue.

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.
- Climate change: Current projections indicate, on average, warmer, wetter winters and warmer, drier, summers with what are currently considered to be exceptional heat and precipitation events becoming more common and severe events becoming more extreme. This has the potential to cause more rapid deterioration in the road network than currently forecast.

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 council's Road/Highway Assets during the plan period. Details of how the specific measures shown below are calculated are included in the road maintenance manual.

Service	Measured By	Target Standard	
		Standard	Compliance
Carriageways			
Safety	Undertake routine safety inspections on Category 2 Strategic Routes at intervals of	12 Months	100%
	Undertake routine safety inspections on Category 3(a) Main Distributors at intervals of	12 Months	100%
	Undertake routine safety inspections on Category 3(b) Secondary Distributors at intervals of	12 Months	100%
	Undertake routine safety inspections on Category 4(a) Link Road at intervals of	12 Months	100%
	Undertake routine safety inspections on Category 4(b) Local Access roads at intervals of	12 Months	100%
	Category 1 defects shall be rectified or made safe within	24 Hours	100%
	Category 2 defects shall be rectified or made safe within	5 Working Days	100%
Condition	Maintain the condition of all 'A' roads such that the percentage in a RED condition remains below	4%	90%
	Maintain the condition of all 'A' roads such that the percentage in a RED and AMBER condition remains below	27%	90%
	Maintain the condition of all 'B' roads such that the percentage in a RED condition remains below	2.5%	90%
	Maintain the condition of all 'B' roads such that the percentage in a RED and AMBER condition remains below	20%	90%
	Maintain the condition of all 'C' roads such that the percentage in a RED condition remains below	5%	90%
	Maintain the condition of all 'C' roads such that the percentage in a RED and AMBER condition remains below	30%	90%
	Maintain the condition of all 'U' roads such that the percentage in a RED condition remains below	7%	90%
	Maintain the condition of all 'U' roads such that the percentage in a RED and AMBER condition remains below	40%	90%

Service	Measured By	Target Standard	
		Standard	Compliance
Footways			
Safety	Undertake routine safety inspections on Prestige Area footways at intervals as described	2 Weeks	100%
	Undertake routine safety inspections on Primary Walking Routes at intervals as described	1 Month	100%
	Undertake routine safety inspections on Secondary Walking Routes at intervals as described	12-18 Months	100%
	Undertake routine safety inspections on Linking Footways at intervals as described	12-18 Months	100%
	Undertake routine safety inspections on Local Area Footways at intervals as described	12-18 Months	100%
	Category 1 defects shall be rectified or made safe within	24 Hours	100%
	Category 2 defects shall be rectified or made safe within	5 Working Days	100%

Service	Measured By	Target Standard	
		Standard	Compliance
Street Lighting			
Safety	Electrical testing of all equipment shall be undertaken at a frequency of	6 years	100%
	Emergency faults shall be made safe or repaired within 4 hours of notification	4	95%
Condition	Street Lighting Priority Repairs shall be completed within 24 hours of notification	24	75%
	Street Lighting 5-day Repairs shall be completed in time	5 days	70%
	Street Lighting 28-day Repairs shall be completed in time	28 days	95%

Service	Measured By	Target Standard	
		Standard	Compliance
Structures			
Safety	Carry out General Inspections on all bridges at a maximum frequency of 2 years.	2	100%
	Carry out Principal Bridge Inspections at a maximum frequency of 6 years. There are currently 136 bridges on the Risk Based Principal Bridge Inspection Programme.	6	100%
	Carry out General Inspections on all retaining with a retained height of over 1.5m at a maximum frequency of 2 years	2	100%
	To undertake programmed safety inspections on 4 bridges	4	100%
Condition	Maintain all Structures such that the BSC_{ave} for the Bridge Stock is above 80	80	100%
	Maintain all Structures such that there are no structures with a critical element with a BCI_{crit} indicating a poor condition (currently 62 bridges). It is intended to address 7 structures per year	0	11%
	The total number of Council owned weight restricted bridges (excluding environmental weight restrictions and acceptable permanent weight restriction) within the authority shall remain at or below One (off Dundee Street)	1	100%

Service	Measured By	Target Standard	
		Standard	Compliance
Traffic Signals			
Safety	Attendance at Major faults shall be within 'X' contract hours	2	100%
	Attendance at Minor faults shall be within 'X' contract hours	4	100%
	Undertake electrical inspections for electrical assets at each installation every "X" years	1	100%
Condition	Initial repair of major faults shall be within 'X' further contract hours	2	100%
	Initial repair of minor faults shall be within 'X' further contract hours	4	100%
	Complete repair all faults within 'X' contract hours	20	100%
	Bulk lamp change, (tungsten halogen and standard fluorescent tube regulatory box sign), all vehicle and pedestrian aspects (including wait lamps) every "X" months	6	100%
	Bulk lamp change, (2D fluorescent tubes) regulatory box signs every "X" months	24	100%
	The percentage of traffic signal installations exceeding their ESL (20 years) should be no more than	20%	
	Damage repair of major faults shall be within "X" days	5	100%
	Damage repair of less urgent faults shall be within "X" days	5	100%
	Failed lamps shall be replaced within "X" contract hours	20	100%

6. Financial Summary

6.1 Planned Funding

The service standard targets shown in section 5 are based upon the following predicted funding levels. In future years the cabinet will decide upon the level of funding for the road taking into account the information and options supplied in the complimentary Asset Strategy and Options Reports (ASORs). Any updates required to the TAMP will then be made.

Section 5 of this TAMP is based upon the assumption that the funding levels will be of the level shown in the table below.

Asset	Year 1 2017/18 £M	Year 2 2018/19 £M	Year 3 2019/20 £M
Carriageways, Footways & Cycle Network	8.737	6.735	8.737
Structures & Flood Prevention	0.600	1.600	0.600
Street Lighting & Traffic Signals	1.850	0.900	1.900
Footways Street Lighting	0.500	0.300	0.500
Dropped Crossings	0.180	0.180	0.180
Drainage	0.180	0.180	0.180
NEPs	0.600	0.600	0.600
Bus Stop Maintenance	0.180	0.240	0.240
Staff and delivery Costs	1.250	1.100	1.250
Contingencies	0.400	0.300	0.400

6.2 Historical Expenditure

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

Asset	Works	Historical Expenditure £M				
		11/12	12/13	13/14	14/15	15/16
Carriageways, Footways and Cycle Network	Capital	18.548	15.763	20.606	16.328	12.412
	Revenue	3.881	3.474	3.525	3.089	4.759
Structures	Planned	0.607	0.832	0.125	0.04	0.022
	Routine & Reactive	0.054	0.177	0.272	0.867	0.330
Street Lighting	Energy Costs	2.766	3.287	2.886	3.104	3.284
	Planned	1.530	1.686	1.815	1.052	1.276
Traffic Signals	Energy/Communication Costs	Energy Costs included in Street Lighting				
	Planned	0.182	0.137	0.139	0.111	0.325
Totals:		27.568	25.356	29.368	24.591	22.408

6.3 Asset Valuation

As at July 2018 the Road Asset is valued as follows:

Asset Type	Gross Replacement Cost (GRC)	Annualised Depreciation Cost (ADC)
Carriageways & On-Road Cycle Network	£1,867m	£204m
Footways & Off-Road Cycle Network	£416m	£185m
Structures	£1,340m	£1.2m
Street Lighting	£135m	£7m
Traffic Management	£11m	£1.9m
Total	£3,769m	£399.1m

Gross Replacement Cost (GRC): The amount that the Council would have to pay to replace the asset at the present time, according to its current worth.

Annualised Depreciation Cost (ADC): The value that the asset depreciates in one year.

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 increased.
- Footways: level of investment increased
- Structures: level of investment maintained at similar levels
- 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
- Cycling Infrastructure; level of investment increased.

Carriageways & On-Road Cycle Network.

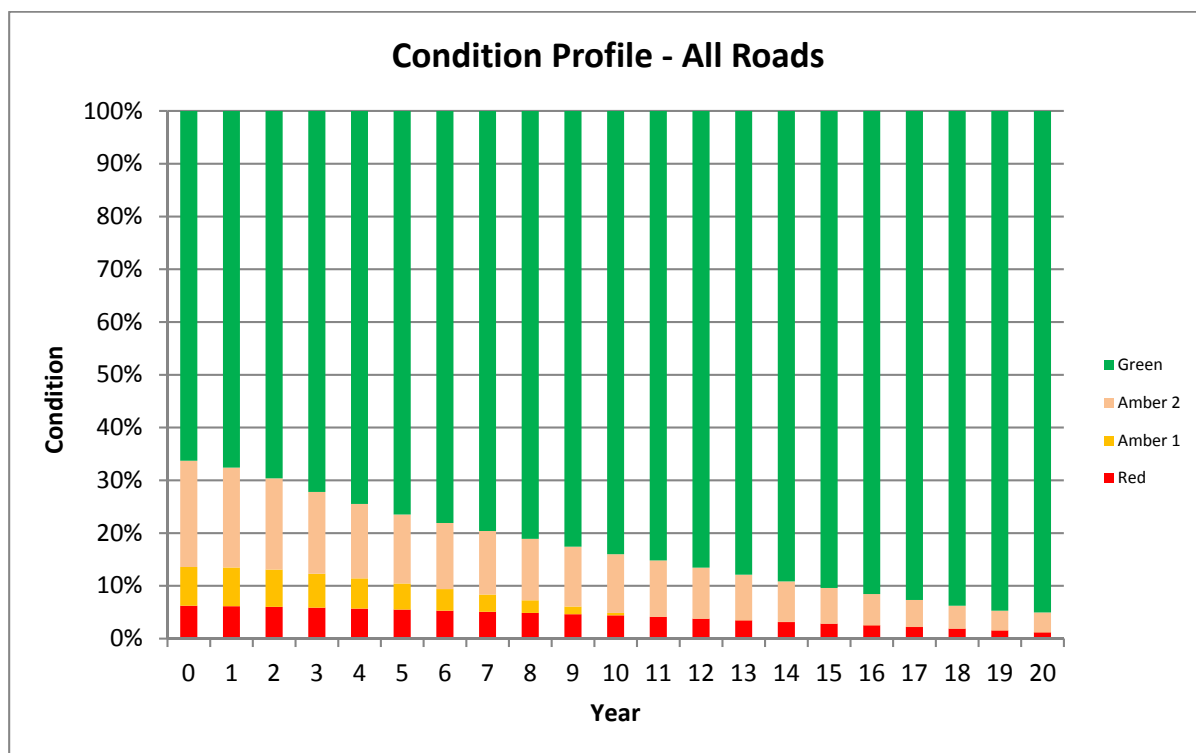
The overarching strategy for carriageways is to invest where possible in preventative maintenance in order to reduce the rate of deterioration of the asset.

The condition information indicates that the A, B, & C roads are generally in a good condition with little strengthening or resurfacing maintenance required. We will however continue to invest in carrying out these repairs in order to improve public perception of the condition of the road network given that these classes of road include the busier routes.

The unclassified roads will require larger investment across all level of works (over 61% of the budget in year 1) in order to bring them up to the target standards prior to focussing on the preventative maintenance strategy. It is anticipated that after 10 years however there will be no roads requiring resurfacing allowing the budget to be split between preventative measures and repairing the sections of the network which require strengthening.

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

This graph shows the predicted improvement of the Road Condition Index (RCI) for entire road network across the next 20 years if the investments levels remain as currently forecast.



Category	Strategy	Comments				
Routine and Reactive Repair	Repair of defects to current intervention standards and response times.	The strategy requires the deployment of works gangs on emergency and non-emergency repairs such as patching.				
Planned Maintenance Preventative	To catch 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	2018/19	2019/20	2020/21	2021/22
		A	£740k	£840k	£840k	£840k
		B	£187k	£187k	£187k	£187k
		C	£374k	£374	£374	£374
		U	£1,075k	£2,969	£2,969	£2,969
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 Type	2017/18	2018/19	2019/20	2020/21
		A	£394k	£394	£394	£394
		B	£32k	£32k	£32k	£32k
		C	£56k	£56k	£56k	£56k
		U	£421k	£592	£592	£592
	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 Type	2017/18	2018/19	2019/20	2020/21
		A	£60k	£60k	£60k	£60k
		B	£56k	£56k	£56k	£56k
		C	£40k	£40k	£40k	£40k
U		£630k	£630k	£630k	£630k	

Footways & Off-Road Cycle Network

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

The condition information indicates that the Flagged footways are generally in a good condition with only a small amount of resurfacing maintenance required in order to remain within the target standards.

The bituminous footways will require an initial investment in resurfacing works in order to bring them up to the target standards prior to focussing on the preventative maintenance strategy. A small amount of strengthening works 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.

Category	Strategy	Comments				
Routine and Reactive Repair	Repair of defects to current intervention standards and response times.	The strategy requires the deployment of 4 work gangs 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	2018/19	2019/20	2020/21	2021/22
		All	£200k	£200k	£200k	£200k
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	2018/19	2019/20	2020/21	2021/22
		All	£1,820k	£1,820k	£1,820k	£1,820k

Street Lighting

The aim of the maintenance strategy is to ensure that all street lights are operating 99% of the time and all columns are in a safe condition. The night time inspection process enables 'dark lamps' to be identified and repaired within a seven day response time.

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

The Council has developed a Carbon Management / Energy Reduction Plan which has highlighted major CO₂ emission savings available through improved street lighting management. All street lights which meet the appropriate criteria are turned off between midnight and 5am and a programme of lantern replacement with new energy efficient (LED) lanterns has been agreed where existing lanterns have become life expired.

Category	Strategy	Comments								
Routine and Reactive Repair	Repair of defects to current intervention standards and response times.	The strategy requires the deployment of 3 number works gangs on emergency and other non-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:								
		<table border="1"> <thead> <tr> <th></th> <th>2017/18</th> <th>2018/19</th> <th>2019/20</th> <th>2020/21</th> </tr> </thead> <tbody> <tr> <td>Columns Renewals</td> <td>£1.5m</td> <td>£0.5m</td> <td>£1.5m</td> <td>£1.5m</td> </tr> </tbody> </table>		2017/18	2018/19	2019/20	2020/21	Columns Renewals	£1.5m	£0.5m
	2017/18	2018/19	2019/20	2020/21						
Columns Renewals	£1.5m	£0.5m	£1.5m	£1.5m						
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: 3 year programme of full LED replacement lanterns.								

Structures

The Council has identified 62 structures that are in poor or very poor condition which require remedial works. The strategy developed is to undertake these works over a 10-year period focussing initially on those structures that are of high priority. The scale and cost of each project will vary. The nature of the schemes means that funding requirements will change each year and this has been allowed for in the funding allocation above.

There is 1,703 retaining walls (approximately 68km) with a retained height of over 1.5m associated with the road. Ownership of a wall is only established when repair work is required and notice is served on the owner to affect a repair if necessary.

It is intended to undertake the following capital works in 2018/9

Structure	Description	Estimated Cost
North Bridge (separate budget)	Major refurbishment which will continue to 2020	£22.3m
New Burnshot (separate budget)	Investigations and Design	£300k
Market Street Bridge	Strengthening	£1m
Belford Walkway	Replacement	£125k
Morrison Street (main span only) (further investigations when on site)	Refurbishment	£425k
Great Junction Street	Investigations to develop repair contract	£50k
St Mark's Bridge	Grouting to tendon, waterproofing, bearing and joint replacement	£500k
Total		£2.1m

Routine maintenance needs are different for each structure type which will be funded for the Bridge Revenue Budget. It should be noted that structures in poor and very poor condition may also be addressed through the Revenue Budget.

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 2 work gangs/other agencies on emergency repairs and other non-emergency repairs.				
Refurbishment of signalised junctions	Refurbishment of junction 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:				
			2017/18	2018/19	2019/20	2020/21
		Junction Renewals	£450k	£450k	£450k	£450k
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:				
			2017/18	2018/19	2019/20	2020/21
		Pedestrian Crossing Renewals	£150k	£150k	£150k	£150k

Cycling Infrastructure

Edinburgh has 308 km of cycle routes including 203 km of routes physically separated from vehicles. 52% of people on Edinburgh are familiar with the traffic-free routes in Edinburgh.

As part of the Edinburgh Street Design Guidance, new cycling infrastructure will be considered when any carriageway and footway renewal scheme is being carried out. This may result in existing infrastructure being upgraded or additional infrastructure being installed.

Once cycling infrastructure is in place the ongoing maintenance is the responsibility of the Locality Transport Teams. On-Road cycle lanes are prioritised for capital investment with carriageways. Off-Road cycleways are prioritised for capital investment with footways.

As part of the prioritisation procedures for capital carriageway investment, roads that are on the Council's Family Cycle Network or roads that have an existing cycle lane will have an additional 5% weighting applied. This results in accelerated renewal of these roads and, therefore, accelerated, improvements for cyclists.

Park and Ride Sites

There are 3 park and ride sites that are maintained by the Council: Hermiston Gate, Straiton and Ingliston.

Although the Council carries out the ongoing maintenance of the P&R car park facilities, they are not officially adopted. The rationale behind this is that once a car park is adopted, it is effectively subject to the same conditions as Council owned and maintained carriageways. Although, at this stage, no plans to charge for the facilities are in place, this does remain a possibility at some point in future. The most effective method for operating and administering car parks which are subject to a cost is through inclusion of retractable barriers at the access/egress points. If the car park was adopted it would not be legally possible deny public access, i.e. by installing retractable barriers. As such the decision has been taken not to adopt these areas at this stage.

External roads and footways are to be adopted by the Council (apart from Straiton where the external areas have been adopted by Midlothian Council); and car parks, internal roads and footways are to be maintained but not adopted (for the reasons set out previously). The lighting facilities in all three P&R sites are adopted and maintained, by the Council. Transport's Traffic Signals section, currently maintains the signals at Hermiston and Ingliston. Straiton's signals are maintained by Midlothian Council.

Ongoing maintenance for park and ride sites is the responsibility of the Locality Transport Teams. Carriageways within the park and ride sites are prioritised for capital investment with all carriageways. Footways within the park and ride sites are prioritised for capital investment with all footways.

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 historical weather patterns	Adverse weather will create higher levels of defects 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 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

The risk has been evaluated in accordance with the council's corporate risk management strategy⁽⁴⁾. In addition to the risks above a Road/Highway 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) Edinburgh People Survey 2016
- 2) Active Travel Action Plan
- 3) Local Transport Strategy
- 4) Public and Accessible Transport Action Plan