Road Asset Management Plan

2012/13

Glasgow
CITY COUNCIL

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Executive Summary

Introduction

Our roads infrastructure is vital to the economic and social wellbeing of Glasgow and represents a major asset owned by the Council. Transportation has a major impact on us all; it is one of the most vital services influencing our economy, our community, our health, our environment and our quality of life.

To allow Glasgow to grow, compete and continue to have long-term economic gain from businesses, residents, visitors and tourists, it is vital that our road assets are well maintained and are not allowed to deteriorate. The cost to replace them is unaffordable.

During the preparation of this Plan, serious issues in the current levels of investment in our assets have been identified. The plan aims to identify these issues and to inform the budget setting process.

Background

The Road Asset Management Planning Project was a 4-year programme, designed to assist the Scottish councils to develop plans to a nationally consistent framework for managing our road assets. The Road Asset Management Plan (RAMP) offers a strategic approach to identify the best allocation of resources for the management, operation and enhancement of our roads infrastructure. It provides definition of the standards applied to the management of each asset group, captures the knowledge of individuals and records this enabling it to be shared and developed.

The completed Plan will add to and support existing knowledge and will produce a comprehensive inventory of the size and condition of our assets. The output from financial tools is available for budget setting and helps to target spending effectively and efficiently and help predict the impact future funding levels may have on the condition of our road asset.

There is significant improvement in the breadth and quality of asset valuation and projected spend information in this second RAMP. This is mainly due to improvements in the quality of condition data and the introduction of simple valuation and cost projection tools provided by the SCOTS Asset Management Project.

The Scottish Asset Management Project is about to enter its second phase, in partnership with the 22 Welsh local authorities. A legal agreement is currently being drawn up between all Scottish and Welsh local authorities allowing them to enter into a joint contract for further development of a common asset management framework. This contract is expected to commence in April 2013. This partnership will:

- Spread and reduce the cost of the contract to all authorities;
- Increase the pool of expertise available for asset management development;
- Increase the influence of the Scottish and Welsh authorities on the development of asset management in the UK.

Glasgow City Council will continue its role as Lead Authority in this second phase.

Our Principal Assets

Asset	Quantity
Carriageways	**1825 kilometres**
Footways, Footpaths & Cycle Paths	**3606 kilometres**
Street Lighting	**70,203 lighting columns**
Bridges, Walls & Tunnels	**385 structures**
Traffic Signals	**830 signalised junctions**

Financial Summary

The table below presents Gross Replacement Costs and depreciated replacement valuations of Glasgow's key road assets for 2011/12. The data presented below complies with the CIPFA Transport Infrastructure Asset Code and the terms and abbreviations are those used in these codes.

The Annualised Depreciation Charge gives an indication of the average annual investment required to maintain our assets in a steady condition state, assuming that assets are allowed to deteriorate fully and are then wholly replaced.

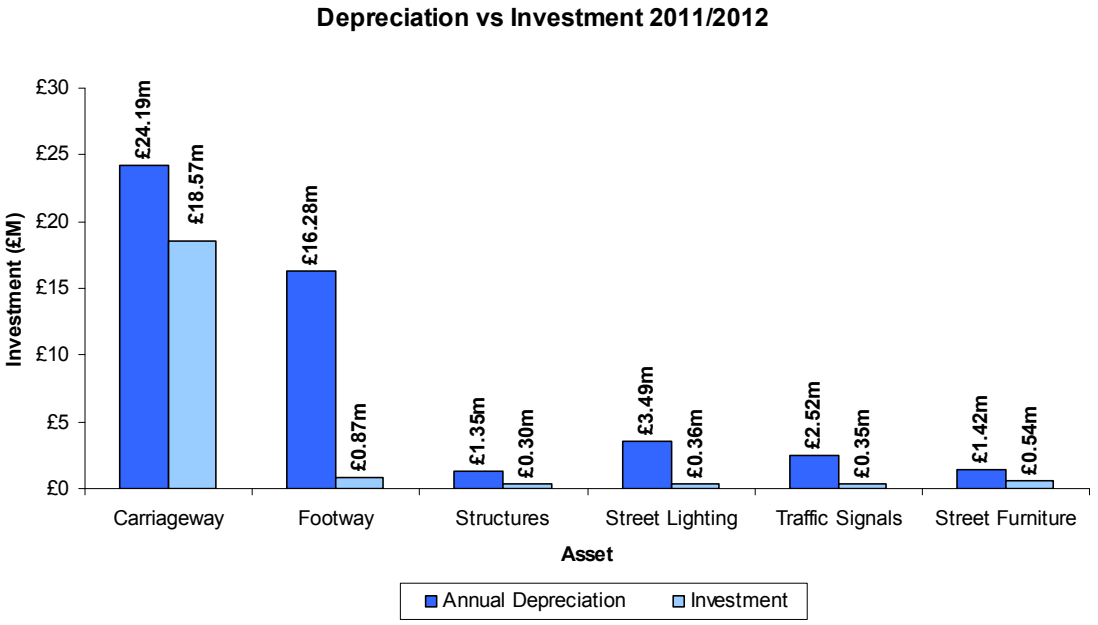
Asset Valuation and Depreciation

Asset Type	*Gross Replacement Cost	*Depreciated Replacement Cost	*Annualised Depreciation
Carriageway	**£2,775,027,002**	**£2,481,365,924**	**£24,189,715**
Pavements & Cycle Paths	**£650,364,388**	**£486,346,158**	**£16,275,893**
Structures	**£644,937,799**	**£634,361,110**	**£1,354,055**
Street Lighting	**£148,783,580**	**£54,902,446**	**£3,494,776**
Traffic Signals	**£54,314,486**	**£32,203,512**	**£2,519,864**
Street Furniture	**£33,573,223**	**£15,317,467**	**£1,423,931**
		Total	**£49,258,234**

***GRC: The total cost of replacing the asset with an equivalent new asset.**
***DRC: A method of valuation that provides the current cost of replacing the asset.**
***AD: The cost of all replacements / treatments needed to restore service potential over a life cycle, spread over number of years in the cycle.**

Financial Summary (cont'd)

The graph below presents annual depreciation against investment for our key road assets for 2011/12. It demonstrates that current investment levels are falling well short of that indicated by the Annualised Depreciation Charge, with the exception of the carriageway asset group.



For the carriageways and footway asset groups, an efficiency saving in the annual projected investment indicated by the Annualised Depreciation Cost has been identified. This can be achieved by managing the assets more efficiently, intervening earlier in the deterioration cycle and using better value early intervention treatments that extend the useful life of the assets.

Total ADC carriageways and footways	£40.47M
Total Projected Steady State investment (From SCOTS financial model tools)	£16.33M
The total efficiency savings	£24.14Million

These savings can only be realised if investment is properly targeted. If we fail to target investment to the right treatment types, in the right place, at the right time, it will cost more to rectify these faults in future.

LES has processes in place to target investment efficiently by;

- Projecting required budget spend per treatment type and class of road
- Selecting best value schemes

Financial Summary (cont'd)

Impact of Future Investment

Inventory and condition data has been used to predict the impact future funding levels may have on the condition of our road assets, using financial models developed for the RAMP project. The cost to repair assets, to maintain assets in their current condition and the impact that zero investment will have has been predicted for each of our key assets.

The table below presents the output from the financial prediction tools and indicates the impact various funding levels may have on the condition of our road assets.

Asset	Options	Investment	Impact on Asset Condition
Carriageways	No Investment	-	**Continued deterioration**, with 78% of the road network requiring treatment after 20 years.
	Steady State	£14m per year	The roads would be **maintained at current levels**, with 30.6% of the network requiring attention.
	Ideal	£95m backlog + £7.7m per year	All roads are **maintained in good condition.**
Pavements (Footways)	No Investment	-	**Continued deterioration**, with 59% of our pavements requiring treatment after 20 years.
	Steady State	£2.33m per year	The condition of the footways is **maintained at current levels,** with 8% of the network requiring treatment.
	Ideal	£34.3m backlog + £2.1m per year	All pavements are **maintained in good condition.**
Structures	No Investment	-	**Continued deterioration**
	Steady State	£1.35m per year	The condition of the overall asset group is **maintained at current levels.**
	Ideal	£80m backlog + £1.35m per year	All assets in **good condition.**
Street Lighting	No Investment	-	**Continued deterioration with 88.5% of the lighting columns exceeding their service life in 20 years time**
	Steady State	£3.49m per year	The condition of the asset is **maintained at current levels.**
	Ideal	£89.9million + £3.49m per year	All assets in **good condition.**

Financial Summary (cont'd)

Carriageways

It would cost an estimated **£95.0m** to repair the backlog of roads repairs. Maintaining the current condition of our carriageways is predicted to cost **£14.0m** per year; this compares to **£7.7m** for a network that is in good condition. With no capital investment, the deterioration of our roads would accelerate, with 78% of our network requiring attention in 20 years.

Pavements and Cycleways

It would cost an estimated **£34.3 million** to repair the backlog of footway repairs. Maintaining the current condition of our network is predicted to cost **£2.1m** per year. With no capital investment, the deterioration of our pavements would accelerate, with 7% of pavements having major defects and 59% with minor defects in twenty years, significantly increasing the risk of claims against the council.

Street Lighting

It would cost an estimated **£89.9m** to replace the backlog of old deteriorated street lights and provide a lighting network that is in good condition. Maintaining the current condition is predicted to cost **£3.49m** per year.

Road Structures

It has been estimated that it would cost **£80m** to repair the backlog of deteriorated structures. An *average* annual investment of **£1.35m** is required to maintain structures in current condition.

This is thought to be an underestimate as it is based on generic data. Detailed estimates will improve the accuracy in the future.

Extraordinary Investment Needs

In addition to the annual investment required to maintain our asset condition a number of extraordinary requirements have been identified.

1. Commonwealth Games

Carriageways: £12.8M has been spent on Games routes over the last three years and it is estimated that there is a remaining investment need of **£2.6M**

Footways: In order to showcase the City of Glasgow, City Centre footways and games venues/routes need to be upgraded. Remaining investment required **£1.5M**

2. Shieldhall Overpass

Shieldhall Overpass has been identified as the top priority bridge that poses the highest risk to service potential and will cause a significant adverse impact on road users.
Urgent investment is required to allow it to remain fully open to traffic. **£12M**

3. Clyde Tunnel

The Clyde Tunnel requires significant investment in safety communication systems and the installation of new energy efficient lighting as part of a strategy to spend to save in the future. Internal communications systems are required to ensure public safety in the event of a serious incident. Replacement of the existing lighting system with new, more energy efficient LED systems is a spend to save scheme with an estimated payback period of 5-8 years.

Cost **£7.5m**

4. Housing Transfer Infrastructure

After the housing stock transfer the City of Glasgow retained maintenance and third party liability for the ex housing roads infrastructure. No additional budget was allocated to allow LES to discharge this duty. Diversion of budget from public roads would adversely affect our ability to meet our statutory obligation to maintain them and would expose the council to increased risk. Only ad hoc emergency repairs are being undertaken on these roads and footways.
The annual investment required to maintain ex housing roads is estimated to be **£1.83M**

Asset Condition

Carriageways

Over the past four years, the condition of our carriageways has gradually deteriorated, reaching a low point of 33% requiring attention in 2010/11, compared to 25.1% four years ago. Road condition has started to recover due to the investment in carriageway resurfacing and has improved to 30.6% of roads needing attention in 2011/12.

The Scottish Local Authority average in 2011/12 was 36.4%. Glasgow City Council is in the top quartile of Scottish Authorities.

Pavements and Cycleways

A Footway Condition Survey which provides inventory data that allows for better long-term predictions of the cost of the management of this asset has been undertaken this year. The survey results indicate that 1% of the network has major defects; 7% minor defects and 30% of the pavements are safe with a poor appearance.

There is no historic data available yet for this asset group as this is the first year that we have carried out a footway condition survey and no comparable data from other authorities exists as few authorities gather condition data.

Lighting

51.4% of the lighting column stock in the city is over 30 years old. In recent years there has been structural failure of non-galvanised steel and aerial cabled transmission columns because of severe corrosion.
Glasgow city Council is in the bottom quartile for this indicator.

Structures

The average Bridge Stock Condition Index for the current two-year cycle will be known in December 2012. The value to date is **85;** this is in keeping with the last two cycle values of 85 and 83. This indicates that the bridge stock is in a **fair** condition. The stock's condition has not changed significantly in the last six years. A bridge stock in this condition shows that historical maintenance work may be underfunded. There is a potential for a rapid decrease in condition if sufficient maintenance funding is not provided.

Traffic Signals

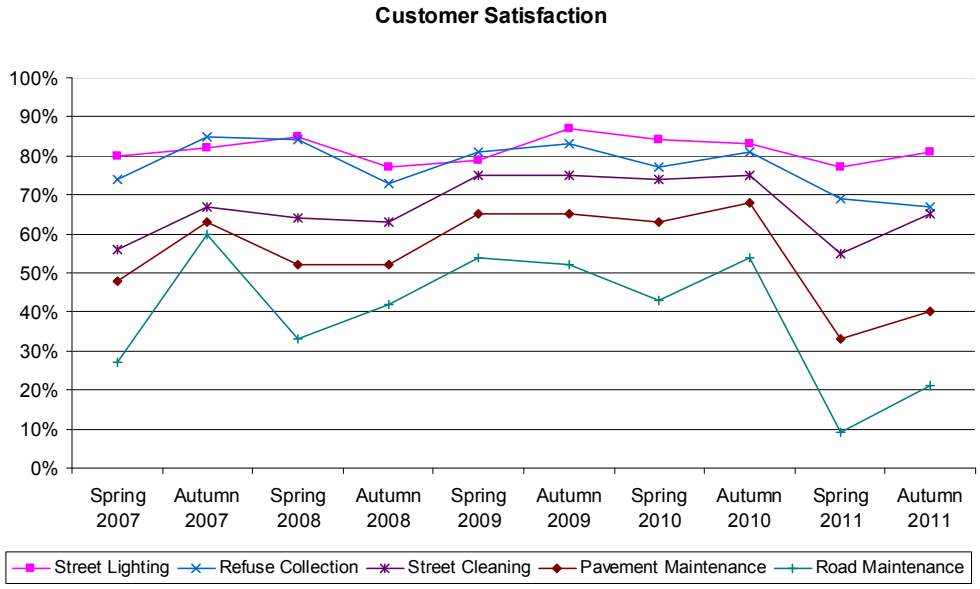
There is no reliable condition data for this asset group although the inventory register is accurate. Financial projections for this asset group have therefore been based on frequency of renewal.

Street Furniture

At present, there is low confidence in the accuracy of records relating to the condition and the asset quantities. A survey of City Centre seating was carried out this year. In the coming years, through the completion of sample surveys and the more detailed recording of new assets, the inventory and condition data will become more accurate.

Customer Satisfaction

Road and pavement maintenance is consistently the lowest rated service in Glasgow, with only 10 to 20% of those surveyed last year satisfied with the service provided for road maintenance in 2011. This is consistent with chronic underfunding of roads maintenance at a national level.



The significant dip in Customer Satisfaction in Spring 2011 was expected and is attributed to the impact the severe winters of 2010 and 2011 had on the structural integrity of our roads and in particular the huge rise in the number of potholes which appeared on the road network. Some recovery is evident but is slower than the decline.

Performance

The Association for Public Sector Excellence (APSE) co-ordinates performance networks for a wide range of local authorities across Scotland, England and Wales.
APSE have been working with The Society of Chief Officers for Transportation in Scotland (SCOTS) to develop a new joint suite of performance indicators which meet asset management needs.
The full results for 2011/12 are due to be returned in September 2012 but the main performance targets have already been done for 2012 and the results are summarised in the table below.

Asset	Indicator	2010/11 Target	2010/11 Results	2011/12 Target	2011/12 Results
Carriageways	Percentage of roads that should be considered for maintenance treatment	Top 8 *SLAs	33.9% 10th	Top 8 *SLAs	30.6% 8th
Pavements	Percentage of pavements that should be considered for maintenance treatment	Top 8 *SLAs	No Data No Data	Top 8 *SLAs	8% No Data
Traffic Signals	Traffic Signals repairs completed within 48 hours	97%	95.1%	97%	93.8%
	Traffic Light repairs completed within 7 days	95%	81.1%	95%	95.5%
Structures	Bridges which fail to meet the European standard of 40 tonnes	23.5%	22.4%	23.1%	21.4%
Street Lighting	Street lighting columns over 30 years old	45%	49.6%	45%	51.4%

***SLAs - Scottish Local Authorities**

Few Scottish local authorities are carrying out footway condition surveys at present. This is the first year that LES have carried out a sample survey of approximately 20% of the footway network. There is therefore no historic condition data and no comparable information from other authorities.

Traffic signal repairs completed within 24 hours are below target. This work is carried out by a private contractor on behalf of Glasgow City Council. This contractor was replaced at the start of the 2012/13 financial year.

1.0 Introduction

1.1 Definition of Roads Asset Management

Roads Asset Management is defined in the County Surveyors Framework for Highway Asset Management as;

'a strategic approach that identifies the optimal allocation of resources for the management, operation, preservation and enhancement of the highway infrastructure to meet the needs of current and future customers'.

A Strategic Approach

Adopting a strategic approach to maintain and renew the asset and make the best use of available resources for the long-term benefit of the asset.

Optimising the Allocation of Resources

Investment is allocated to prioritise the delivery of corporate objectives and to provide best value to the citizens of Glasgow. Asset management provides a framework for this process by identifying and prioritising needs on the network as a whole in a transparent and equitable way. The adoption of lifecycle planning to minimise whole life costs by making decisions based on risk and benefit to stakeholders is the best route to providing the greatest benefits in the long term.

Taking Account of Customer Needs

Taking into account the needs and aspirations of customers is an integral part of the Plan, by developing appropriate levels of service for each asset.

1.2 Drivers for Road Asset Management

The main drivers for road asset management are;

- The Roads Scotland Act
- The Code of Practice for Well Maintained Highways 2005
- Audit Scotland's report 'Maintaining Scotland's Roads 2004'
- Evidence of strategic and long term planning
- Clear evidence of how resources are allocated
- Whole Government Accounts, resource accounting and budgeting
- Single Outcome Agreement

1.3 Roads Asset Management Plan

The Road Asset Management Planning Project was a 4-year programme, designed to assist the Scottish councils to develop plans to a nationally consistent framework for managing our road assets. The Road Asset Management Plan (RAMP) offers a strategic approach to identify the best allocation of resources for the management, operation and enhancement of our roads infrastructure. It provides definition of the standards applied to the management of

each asset group, captures the knowledge of individuals and records this enabling it to be shared and developed.

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1.4 Goals and Objectives

Table 1.1 – Council Goals and Objectives

Council Objectives	How Objectives are Addressed
Improve Efficiency and Effectiveness	Monitor customer satisfaction levels and improve.
	Transparent option appraisal / scheme selection processes.
	Improve co-ordination with utility companies to reduce disruption to road users and improve the standard of reinstatements.
A Cleaner, Safer & Greener Place	Target budget to areas in most need.
	Improve overall road condition and number of potholes.
	Reduce the number of road accidents.
	Use of recycled materials.
Building a Prosperous City	Use of high quality materials to attract business to the City.
	Improve overall road condition and number of potholes.
	Encourage the adoption of sustainable construction methods.
Improving Health and Wellbeing	Improve road safety.
	Improve cycling facilities.
	Improve pedestrian facilities.
	Integrated transport.
Increasing Access to Life Long Learning	Apprentice Programme, • 11 Technical Roads Apprentices • 18 Road Worker Apprentices • 3 Technical Lighting and Electrical Apprentices • 9 Trade Lighting and Electrical Apprentices

1.5 Corporate Asset Management

Ultimately, asset management plans will be developed for all of the Council's assets and roads' plan will be contained within a Corporate Asset Management Plan. How the various assets' management plans will interface will be considered as the plans develops.

1.6 Strategic Document Framework

Glasgow City Council's strategic documents are related to each other as detailed in the framework from the Council Plan 2008/2011 as shown below.

Figure 1.1 – Strategic Document Framework

2.0 Asset Description

2.1 Our Assets

Table 2.1 – Our Assets

Asset	Elements
Carriageways	Including bus, taxi, cycle lanes, pedestrian precincts, lay-bys, bus gates, bus stops and parking bays.
Footways & Footpaths	Footways adjacent to carriageways, pedestrian refuges, footpaths: remote from carriageways, shared cycle/footways.
Cycle Routes	Cycleway remote from carriageway.
Structures	Bridges, footbridges, tunnels, sign gantries, culverts, embankments, cuttings, retaining walls, basements, pedestrian underpasses and other related structures.
Lighting	Lighting columns, high mast lighting columns, lamps, floodlights, cabling, service ducts, distribution units, illuminated signs and posts, illuminated bollards, illuminated bus shelters, wall mounted lights.
Traffic Signals	Signalised junctions, emergency signals: wig wag, zebra crossings, signalised pedestrian crossings: pelican, puffin, toucan, etc, control cabinets, detection equipment, cabling, ducts.
Road Restraint Systems	Vehicle safety fences: Armco and barriers, pedestrian barriers.
Signs	Warning, regulatory, informatory: national direction, local direction.
Traffic Communications	Signs & cameras.
Bus Information and Signalling	Control cabinets, detection equipment, cabling, ducts.
Drainage	River embankments/retaining walls, Clyde weir, gullies, linear drainage, pipes, road ditches, sidings, swales; sustainable urban drainage systems.
Traffic Calming	Speed tables, firepaths, chicanes, cushions, surface treatments at school.
Road Markings	Lane lines, Stop and Give Way, direction arrows, symbols and text, mini roundabouts, waiting and loading restrictions, yellow box junctions, studs, disabled bays.
Verges and Planted Areas	Hard landscaping, central reserves, planted areas, planters, trees (on adopted areas), soft landscaped areas.
Street Furniture	Cycle stands, benches and seats, bollards, information posts, information boards, grit bins.

2.2 Asset Overview

Table 2.2 – Asset Overview

Asset Type	Amount	Confidence in Data
A Class Roads	132km	High
B Class Roads	64km	High
C Class Roads	210km	High
Unclassified Roads	1370km	High
Footways	3208km	Medium
Footpaths	150km	High
Cycle Routes	248km	High
Bridges and Other Structures	193	High
Footbridges	38	High
Tunnels	1	High
Sign Gantries	47	High
Retaining Walls	66	High
CCTV Masts	8	High
High Light Masts	31	High
Lightings columns	70,203	High
Illuminated signs	9,075	High
Bollards	1,562	High
Distribution units	2,854	High
Floodlighting	844	High
Traffic Signals	809	High
Signs		
Road Gullies	74,544	Medium

2.3 Assets not Covered by this Plan

- Roads, footways and lanes that are not publicly adopted.
- Rights of Ways that are not publicly adopted.
- Non - council bridges (although reference is made to their number and location).
- Drainage related infrastructure that does not form part of the road infrastructure.
- Watercourses.
- Festive lighting.

2.4 Asset Growth

Asset growth is generally due to the construction of new housing roads. It is expected that the average historical growth, approximately 0.29% per year, will more typically be 0.2% for the coming years due to the downturn in the housing market. The increasing length of our road network is summarised below along with 2011/2012 growth for all assets;

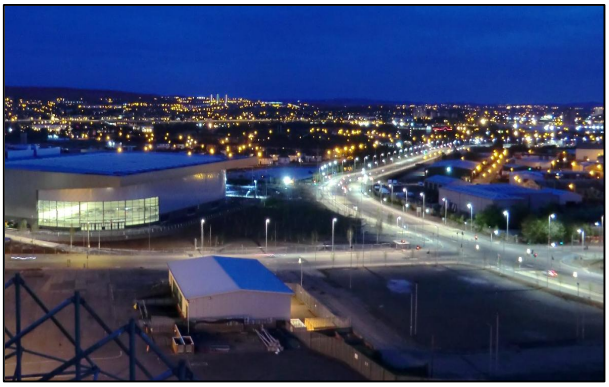
Table 2.3 – Historical Carriageway Asset Growth

Year	Length	Increase	Percentage Growth
2004/05	1730.4km	5.5km	0.32%
2005/06	1736.1km	5.7km	0.33%
2006/07	1746.7km	10.6km	0.61%
2007/08	1751.3km	4.6km	0.26%
2008/09	1754.6km	3.3km	0.19%
2009/10	1817.3km	3.3km	0.18%
2010/11	1820.9km	3.6km	0.20%
2011/12	1825.1km	4.2km	0.23%

Table 2.4 – 2011/2012 Asset Growth

Road Assets Growth 2011/2012				
Asset Type	**Quantity**	**Unit**	**Additional Quantity**	**Unit**
Carriageways	1825.1	km	4.2	km
Footways	3194.141	km	8.4	km
Off-Road Cycle Tracks	99.5	km	0	km
Structures: Bridges & culverts	220	no.	3	no.
Structures: Retaining Walls	65	no.	2	no.
Highway Lighting	70344.2	no.	3159	no.
Street Furniture (approx)	67880	no.	0	no.
Traffic Signals (junctions)	474	no.	29	no.
Pedestrian Crossings	356	no.	26	no.
Other Traffic Management Systems	395	no.	0	no.
Land	2351.5	ha.	n/a	ha.

2.5 New Assets



The East End Regeneration Route has resulted in the asset growth of all roads assets through the construction the new major link route between the South of the city and the Commonwealth Games area in the East. In the future, the route may be extended to link the new asset to the M8 in the North

Figure 2.1 – East End Regeneration Route (Phase 1& 2)

Within the city various locations have been selected for upgrading and alteration as public realm areas. With the replacement of traditional materials with more aesthetic and higher quality paving and street furniture details.

Figure 2.2 – Public Realm Areas

Figure 2.3 – The Riverside Museum

The Riverside Museum development will lead to the addition of new assets through the adoption of new footpaths, carriageway and parking areas.

New developments within the authority have contributed to an increase in the carriageway and footpath asset. With both increasing at an average of 0.2% each year based on the past four years.

Figure 2.4 – New Residential Development

As well as the above new assets, new traffic signal and pedestrian crossing assets have been added through junction improvements, as well as new structural assets being gained through the continued completion of works associated with The East End Regeneration Route and M74. The main structural asset gained during this year has been the Camlachie Burn Overflow and its outlet structure.

3.0 Community Requirements

3.1 Customer Consultation

Customers are consulted directly via household surveys, frontagers surveys, taxi and bus driver surveys and can report faults with the road and lighting faults.

3.11 Household Survey

The household surveys consist of a sample of around 1,000 people being interviewed in their own homes. A new group is selected for each bi-annual survey and an independent report is published on the Council's website.

A core list of services is included within each survey and residents are asked to rate how satisfied or dissatisfied they are with each service. The list includes road maintenance, pavement maintenance and street lighting.

The results allow trends to be tracked over time and for comparisons to be made with satisfaction levels for other Council services. Further details on the Glasgow Household Survey are available on the Council website at http://www.glasgow.gov.uk/en/YourCouncil/CustomerInvolvement/Corporate/GlasgowHouseholdSurvey/.

3.12 Frontagers Survey

The 'Frontagers Survey' targets households and businesses adjacent to road, lighting and footway resurfacing works. Respondents have the opportunity to comment on advance notification, courtesy and co-operation of LES staff, arrangements for pedestrian and traffic control, quality of work and time taken for completion. Freepost reply questionnaires are delivered, with 300 - 500 forms completed. A 2012 survey is currently in progress.

3.13 Taxi and Bus Survey

Glasgow City Council, in conjunction with local bus and taxi companies, has carried out an annual survey of bus and taxi drivers in Glasgow in each of the last 4 years. These surveys are aimed at identifying the scale of the problem of potholes and other road defects in roads across the city. Bus and taxi drivers are among the most regular travellers on the city's roads and have an acute awareness and knowledge of the condition of roads in Glasgow.

3.14 Roads and Lighting Faults (RALF)

RALF is a fault reporting system set up to enable you to quickly and easily report defects and hazards affecting the following roads, pavements, street lighting, cycleways, traffic signals, pedestrian crossings, road drains and gullies, bridges, railings and safety barriers, road signs, street furniture, road markings and manhole covers

Road users are able to faults through the RALF by using a freephone number or reporting the fault online.

3.15 My Glasgow Phone Application

My Glasgow is a pilot mobile phone application, available from the App. Store; that enables members of the public to report numerous issues to the authority. It is possible to attach photos, video or any other contextual information to a report and pinpoint the exact location via integration within Google Maps. Once a report is submitted and processed it is allocated to the relevant service delivery team. Issues that can be reported include;

- Potholes
- Illegal fly posting
- Defective street lighting
- Graffiti

3.2 Results of Consultations

3.21 Satisfaction with Council Services

The results from the most recent Glasgow Household Surveys are shown on the graph below;

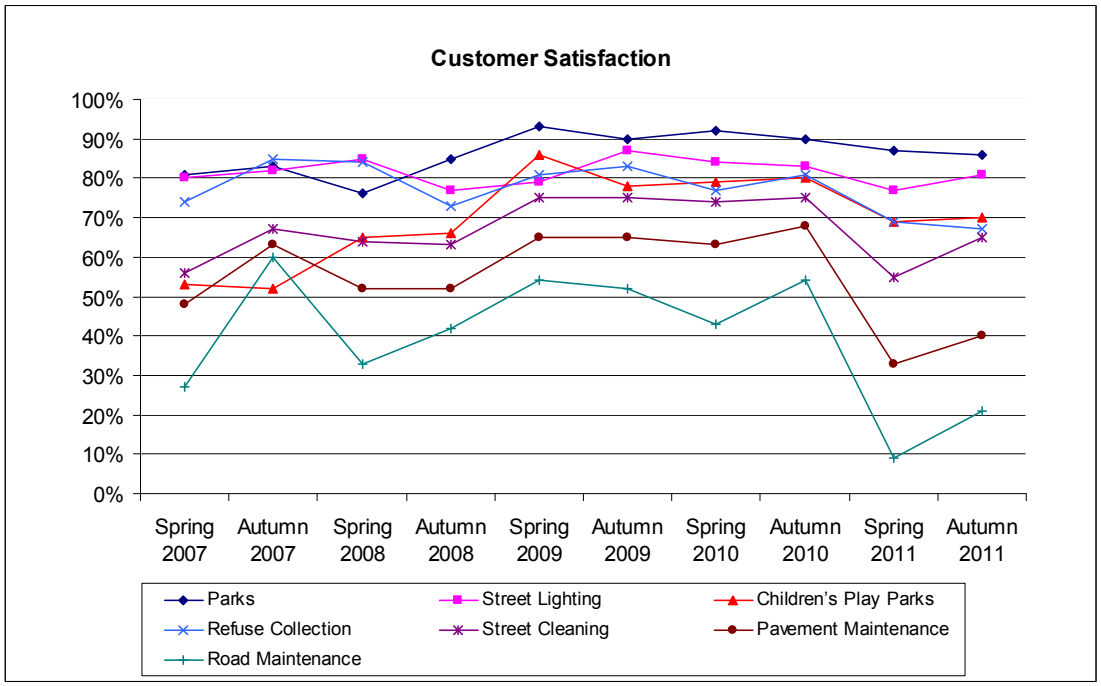


Figure 3.1 – Customer Satisfaction Between Spring 2007 and Autumn 2011

Pavement and road maintenance are consistently the lowest rated service in Glasgow, with only 10 to 20% of those surveyed satisfied with the service provided for road maintenance.

The recent low ratings are attributed to the impact the severe winters of 2010 and 2011 had on the structural integrity of our roads.

The household survey results can be broken down into the 10 Community Planning Partnership areas within the city to help identify any particular local issues of dissatisfaction which stand out from the city average. The major area of dissatisfaction is uneven surfaces and potholes, with 93% of people dissatisfied with the road surfaces and 91% dissatisfied with the footway surfaces, as shown in Table 3.1, below.

Table 3.1 – Areas of Dissatisfaction

Levels of Dissatisfaction	Roads	Footways
Uneven surfaces and potholes	93%	91%
Poor quality of workmanship	46%	35%
Patchwork appearance	30%	28%
Repeated road works in the same area	24%	22%
Inconvenience caused by pavement works	-	14%
Takes too long for repairs to be completed	23%	-
Slow response (takes too long to start repairs)	20%	-
Traffic delays	17%	-
Lack of notification about local works	5%	5%
Local flooding problems	5%	3%
Other	2%	8%

3.22 Frontagers Survey

Levels of satisfaction were generally good with positive responses ranging from 66% for advance notification to 87% for staff courtesy and co-operation.

Levels of satisfaction have been good with positive responses ranging;

- 66% satisfied with advance notification
- 87% satisfied with staff courtesy and co-operation
- 89% satisfied with quality of finished works and time taken to complete the work.

The area where residents are least satisfied were insufficient notice is given prior to work starting.

3.23 Taxi and Bus Survey

In the 2012 survey the majority of responses were from bus drivers. To date there has been a total of almost 600 on-line and paper responses across the 4 surveys. These road condition surveys have helped to identify key locations, junctions and streets for repair, which have then been included in ongoing repair and resurfacing works.

The results of the road condition surveys from the 2009 and 2010 surveys combined (230 responses), the 2011 survey (249 responses) and the 2012 survey (103 responses) are outlined in the tables below.

Q. For each of the types of roads listed below, how frequently do you encounter potholes that you believe could potentially cause damage to your vehicle or discomfort to your passengers?

Table 3.2 - Pothole Frequency

	Survey	Frequently	Occasionally	Rarely	Never	Returns
City Centre	**2012**	**49.50%**	**36.80%**	**13.70%**	**0%**	**95**
	2011	71.80%	22.90%	5.20%	0%	249
	2009/2010	84.50%	14.10%	1.30%	0%	227
Main Roads	**2012**	**54.70%**	**43.20%**	**2.10%**	**0%**	**95**
	2011	73.90%	22.10%	4%	0%	249
	2009/2010	79.50%	19.60%	0.90%	0%	224
Local Roads	**2012**	**61.10%**	**31.10%**	**6.70%**	**1.10%**	**90**
	2011	73.50%	21.30%	4%	0.40%	247
	2009/2010	78.20%	21.30%	0.40%	0%	225

Most drivers on local roads and main roads say that they frequently encounter potholes that are a problem although this drops to half of all drivers for city centre roads. These figures are improving from previous surveys when around 80% of respondents in 2009/2010 said they frequently encountered such problems.

Q. How much of a problem do you think potholes are on the following sections of roads?

Table 3.3 - Pothole Problem Areas

	Major Problem	Minor Problem	Not A Problem	Don't Know/No Opinion	Total Responses
Dumbarton Road (Queen Victoria Dr to Burnham Rd)	23.50%	58.80%	13.20%	4.40%	100% (68)
Great Western Road (Anniesland Cross to Byres Road)	28.30%	45.30%	24.50%	1.90%	100% (53)
Helen Street	28.60%	46.90%	18.40%	6.10%	100% (49)
Dalmarnock Road (Dunn Street to Springfield Road)	34.50%	51.70%	6.90%	6.90%	100% (58)
Union Street	35.80%	50.70%	10.40%	3.00%	100% (67)
Bath Street (Hope Street to Charing Cross)	32.80%	51.60%	15.60%	0%	100% (64)

The majority of drivers still consider that potholes are a problem on these 6 roads, however there is an increasing proportion who consider potholes not to be a problem, most notably on Dumbarton Road where a quarter of drivers said potholes were not a problem.

Q. How much of a problem do you think potholes are on the types of road listed below?

Table 3.4 – Pothole Problem

Potholes problem	Survey	Major problem	Minor problem	Not a problem	Total responses
City centre	**2012**	**37.10%**	**57.30%**	**5.60%**	**100% (89)**
	2011	79.60%	20%	0.40%	100% (250)
	2009/2010	89.30%	10.20%	0.40%	100% (225)
Main roads	**2012**	**54.50%**	**43.20%**	**2.30%**	**100% (88)**
	2011	79.50%	20.50%	0%	100% (253)
	2009/2010	86.60%	13.40%	0%	100% (224)
Local roads	**2012**	**49.40%**	**47.10%**	**3.40%**	**100% (87)**
	2011	69.80%	26.20%	4%	100% (248)
	2009/2010	72.80%	25.80%	1.40%	100% (221)

When asked how much of a problem potholes were on different types of roads, approximately half thought that potholes were not a problem or only a minor problem. This increased to almost two thirds in relation to city centre roads.

Q. Are there any particular locations in the city, where there are regular, serious problems with potholes, sunken manholes or other road defects?

49 people responded to this question suggesting **54** different streets have serious defects. Faults and locations that have been identified have been passed to roads operation staff.

In 2011 the answers to this question highlighted that the 4 streets with the most problems were Maryhill Road, Great Western Road, Hope Street and Lochend Road. One year later (2012), the streets identified, as having the most problems, are Dumbarton Road, Hope Street, Commerce Street and Renfrew Street. This suggests that there has been a notable reduction in the number of road defects on Maryhill Road, Great Western Road and Lochend Road.

Q. How would you rate the quality of pothole repairs carried out on the types of road listed below?

Table 3.5 – Quality of Pothole Repairs

Quality of repairs	Survey	Very Good	Fairly Good	Fairly Poor	Very Poor	Don't Know/No Opinion	Total Responses
City centre	**2012**	**14.60%**	**48.30%**	**25.80%**	**10.10%**	**1.10%**	**100% (89)**
	2011	17.20%	32.40%	33.20%	17.20%	-	100% (250)
	2009/10	2.60%	19.90%	43.40%	34.10%	-	100% (226)
Main roads	**2012**	**5.70%**	**55.70%**	**27.30%**	**10.20%**	**1.10%**	**100% (90)**
	2011	9.50%	31.60%	39.90%	19%	-	100% (253)
	2009/10	7.60%	16.90%	45.30%	34.70%	-	100% (225)
Local roads	**2012**	**7%**	**46%**	**29%**	**17%**	**1.10%**	**100% (91)**
	2011	8%	25.90%	42.60%	23.50%	-	100% (251)
	2009/10	1.80%	16.10%	43.50%	38.60%	-	100% (223)

Over 60% of respondents felt City Centre and main road pothole repairs were either very or fairly good with just over half stating similar for local roads. This is a significant improvement from 2009/10 when less than 25% rated potholes repairs on city centre and main roads as very or fairly good.

Q. Where do you think the Council should prioritise its road repair and patching programme?

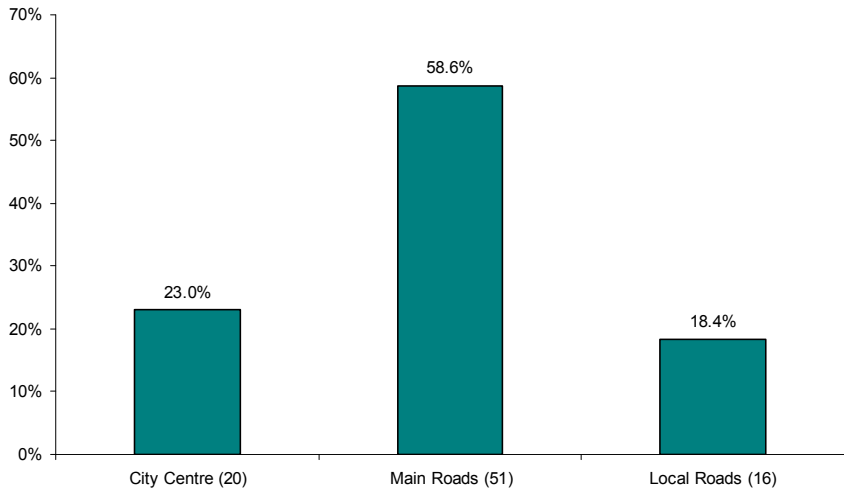


Figure 3.2 – Priority of Repair and Patch Programme

Over half of respondents (58.6%) think that the priority for road repairs should be main roads. Since 2009/10 there has been a decrease in respondents prioritising the city centre (32% down to 23%) and an increase in those prioritising local roads (11% up to 18%). These changes would appear to reflect the greatly reduced number of respondents who consider potholes to be a major problem in the city centre (Questions 3 and 5).

Q. Over the last year, do you think that the condition of the city's roads has got better or worse?

Table 3.6 – Road Condition

Road Condition Better or Worse	A Lot Better	A Little Better	About the Same	A Little Worse	A Lot Worse
City Centre	7%	40%	29%	9%	17%
Main Roads	8%	26%	36%	15%	16%
Local Roads	2%	26%	34%	21%	17%

Nearly half (47%) of respondents think the condition of the city centre roads has got better compared to around a quarter (26%) who think they have got worse. Views are more balanced for main roads while a higher proportion (38%) think local roads have got worse with just 28% considering them to have got better.

3.24 Roads and Lighting Faults (RALF)

A summary of the types of reported faults received for the last two years are shown in Table 3.2.

Table 3.2 – RALF Faults

Fault Reported	2010	2011
Lighting columns	17260	15095
Roads	25556	17827
Winter maintenance	9480	2894
Lighting distribution units	5319	5769
Traffic lights	1404	1682
Footways	2986	3121
Road signs	2000	440
Pedestrian crossings	332	428
Gullies and blocked gullies	2697	3662
Lighting wall fittings	271	294
Bollards	899	220
Oil spills	288	342
Others	160	16
Total	68652	51790

3.3 Use of Consultation Results

3.31 Household Survey

The survey gives a broad indicator of performance over time and a general overview of customer satisfaction. The results are fed back to asset teams, enabling specific local problems to be identified and followed up by the Service.

3.32 Frontagers Survey

The results from the Frontager Surveys are used to identify under performing areas within the operational workforce and managers have the opportunity to address them. The individual questionnaire returns are also a useful means of identifying any snagging issues arising from specific projects which can then be followed up and addressed.

The questionnaire also enables specific local problems identified by residents to be followed up by the Service.

3.33 Taxi and Bus Survey

The results from the Survey are used to indicate the satisfaction levels of the City's taxi and bus companies and to identify locations that should be targeted in future resurfacing programmes.

Following the implementation of these surveys, an unprecedented programme of permanent patching repairs has been carried, with over 4,500 permanent patches completed on strategic roads; concentrated on major bus routes.

3.34 Roads and Lighting Faults (RALF)

The RALF system identifies specific defects and allocates these to the maintenance depots for action as appropriate. Analysis of the trends in the faults reported highlights the need for changes to the way we respond to particular types of faults. The types and numbers of faults reported can be analysed to build up a picture of those problems that occur most frequently.

4.0 Future Demands

4.1 Traffic Growth and Composition

Demand for transport is the product of a complex set of relationships which evolve over time. Over the long-term, the primary determinants of transport demand are change in; population, household size and its distribution. In addition economic change in; household income, economic structure and business formation also affect transport demand. Changes in the supply of transport will in turn affect individual's travel choices.

The private car is overwhelmingly the dominant mode of travel in Scotland. The estimated total volume of traffic on major roads has grown by about 16% since 1990. This growth has not been evenly distributed, but has instead been concentrated on Scotland's trunk roads and in the Central Belt and the major urban areas. Road traffic throughout Scotland is currently predicted to grow by a further 27% over the next two decades.

Almost 80% of the predicted 27% increase in road traffic by 2021 is projected to be in and around the 4 major cities, with traffic projected to grow by 24% in Glasgow.

Traffic growth within Glasgow City is projected to increase slower than in the surrounding city region. This reflects the more diverse pattern of employment and residential development in their respective city regions and is probably a consequence of and a contributor to the difficulty of serving suburban and rural areas by public transport. Public transport services are best placed to serve radial trips to and from the city centre.

Increased use of roads within the city boundary by public transport has caused severe degradation of parts of the carriageway asset as it was not designed for the loadings currently experienced. There has been severe degradation of bus stop areas, due to; leaking oils and fuels onto the road surface, lower vehicles causing heat damage to the surface and repetitive loadings upon the same area.

4.2 Utility Activity

Works carried out by Statutory Undertakers (Utility Companies) can have significant effect on the maintenance and management of our road assets. Public utility repairs often lead to a weakness at the joint between new and existing surfacing, and damage to the area outwith the utility repair. Water leaks, which often go unnoticed for some time, can cause damage to the sub-structure some considerable distance from the initial source. In addition, as well as short term damage; utility repairs also have a long term impact on carriageway condition. Continual heavy loadings on utility repairs leads to a ‘ripple effect’ to the main structure of the road, therefore in time causing overall damage to the road. This results in additional repairs being required and hence further disruption to members of the public.

The Scottish Road Works Commissioner was appointed in 2007 to ensure that roads authorities are complying with the requirement to co-ordinate all works carried out on the public road network. Co-ordination of all street works in the authorities’ network is carried out using the Scottish Road Works Register (SRWR) in accordance with the New Road and Street Works Act. The SRWR is managed by Land and Environmental Services Road Works Control Unit (RCU) and externally audited by the Scottish Road Works Commissioner. SRWR allows all street works to be plotted on a single register, allowing co-ordination of works and highlighting programming conflicts at an early stage. This allows works to be organised in a manner that provides the best possible service.

Under current legislation, the RCU has limited powers that it can impose with respect to street works. Statutory Undertakers work programmes can be influenced by RCU using the SRWR and its required permissions, as well as fines levied for non-conformance with SRWR guidelines and legislation.

A National Coring Programme, where inspections are carried out on sample sections of works, is undertaken biennially. For the latest programme the failure rate in Glasgow was 40%.

The Statutory Undertakers are trying to improve performance, prompted by the Commissioner issuing fines to various utility companies. Most have improvement plans in place and are now completing their own additional coring exercises. The latest results of these exercises displayed an improved condition pass rate. The next National Coring Programme, for reinstatements completed in 2012, has an agreed 90% target.

The percentage of repairs passing or failing has an impact on the future need of the asset. The higher the percentages of failures, the increased quantities and frequency of future repairs required. In general, in view of the age of the city's infrastructure, Glasgow will continue to have an above average rate of replacement of utilities. Within the city centre, the increasing development of Public Realm streetscape projects with high amenity surfaces, demanding specialist maintenance techniques and quality control, exacerbates the implications of utility activities.

4.3 Climate Change

The Climate Change Strategy and Action Plan aims to address the causes and effects of climate change and encourage behavioural changes, including a reduction in the single-occupancy use of private cars.

The Council is part of the Metropolitan Glasgow Strategic Drainage Partnership helping to reduce the risk of flooding. This will require the use of more Sustainable Urban Drainage Systems which may be more expensive for the roads' authority to maintain.

Since the introduction of the Water Environment (Controlled Activities) Regulations (Scotland) 2005 all new roads must be drained by the appropriate sustainable drainage system. The introduction of these systems places an increased maintenance burden on roads' authorities.

In order to manage the possible increases in surface water effectively and in accordance with environmental policy many new developments have adopted the use of Sustainable Urban Drainage Systems (SUDS) in order to increase the time it takes for water to enter the drainage system as well as removing pollutants were possible. Due to the inclusion of these systems in greater numbers, their management has been outlined in an agreement between authorities and Scottish Water that is still at the discussion stage.

The agreement states that the authority is responsible for the management and maintenance of drainage systems up until their connection to the sewer network which shall be maintained by Scottish Water. In addition, the agreement is being developed to create a streamlined approach to prevent doubling up of assets where not required.

4.4 Changes in Legislation

4.41 Flood Risk Management

The recent introduction of the Flood Risk Management (Scotland) Bill sets out the roles and responsibilities of the various stakeholders associated with the provision of the sustainable management of flood risk.

This will create a comprehensive mapping system of flood risk along with associated actions required to mitigate any threats of serious flooding which would be detrimental to health, the environment, cultural heritage and economic activity.

This places financial burdens on the various stakeholders along with the associated costs of collecting and producing information, maps and maintaining and updating the information for scheduled reviews.

The document states that it expects local authorities to make a contribution to the development of the strategy, its associated maps and documentation by the following key dates;

- Preparation of a national flood risk assessment by 2011
- Flood risk and hazard maps by 2013
- National flood risk management plans by 2015

The total estimated cost to all 32 local authorities of implementing the directive for the first planning cycle up to 2015 is £36.48 m along with £8.15 m associated running costs.

This equates to an average cost of £1.14 m per local authority plus running costs of £250,000 per annum.

As can be seen from the above figures, the input expected from local authorities in resources and finance is substantial, adding additional pressure to an already stretched maintenance budget.

4.42 Disabled Bays

The introduction of the Disabled Persons' Parking Places (Scotland) Bill sets out to provide a socially inclusive system by providing enforceable disabled persons' parking bays.

This would require a Traffic Regulation Order to be promoted and road markings signed at considerable cost to the Council. Year one estimates for on-street bays is currently set at £2.1 m with annual running costs of £120,000.

4.5 Local and Regional Transport Strategies

The Local Transport Strategy (LTS) (published 2007) establishes the authorities aspirations for taking forward transport policy and infrastructure within Glasgow. As well as communicating the Council's transport strategy, it also details the development of the statutory Regional Transport Strategy (RTS) and outlines the framework for delivering the relevant objectives.

There is limited investment in roads infrastructure to tackle key congestion points, provide essential links to development areas and to enable public transport to provide effective circumferential services. Through the LTS, the Council concentrates on promoting and enhancing sustainable transport modes such as walking, cycling and public transport.

Additional roads infrastructure introduced includes provision for road based public transport with particular consideration given to development that improves opportunities for public transport services to link communities.

Infrastructure maintenance and development will be focused on;

- Maintaining the hierarchy of road users.
- Encouraging the use of public transport.
- Encouraging the use of car clubs and car sharing.
- Encouraging people to walk and cycle by maintaining the safe networks.
- Recognising the important role that taxis and private hire cars play.
- Facilitating freight movement and access throughout the city.
- Encouraging the movement of goods by sustainable methods.

The Regional Transport Strategy (RTS) (2008-21) has been developed by numerous organisations for the West of Scotland. The strategic outcomes of the RTS are;

- Improved connectivity on transport networks.
- Access for all.
- Reduced emissions.
- Attractive, seamless, reliable travel.

4.6 Future Additional Assets

At present we have data regarding the historical adoptions for the carriageway asset for the previous seven years. Through using this data, it is possible to calculate the average asset growth over this period and use this to predict the future growth. Due to a significant change in the financial and economic sectors, it has been decided to limit the historical data used to the past four years. This shall remove any spike in adoptions prior to this time. From the asset growth data it has been calculated that the carriageway asset has grown by an average of 3.93km per year from 2008 to 2012. In the current economic climate, it is predicted that future growth shall follow a similar trend in growth. At this rate, the asset is growing at approximately 0.2% per year.

4.61 Further Public Realm Areas

The number of proposed new Public Realm schemes will upgrade approximately 25,750 m^2 of footways and carriageways at an estimated cost of £4.76 million and consequently add significantly to the annual maintenance budget of LES.

At the end of 2012, the area of public realm requiring maintenance commitments is to total approximately 153,410 m^2 that is expected to increase by approximately 25,750 m^2 by 2016.

A 36 month Public Realm maintenance programme is currently in the process of being devised. An external contractor is to be appointed for a 2012/2013 12 month contract to carry out preventative measures such as grouting as well as more major refurbishment to improve the condition of public realm areas where required.

Figure 4.1 – City Centre Public Realm

4.7 Extraordinary Investment Demands

4.7.1 Estimated Backlog of Ex-Housing Infrastructure Repairs

The transfer of Glasgow's housing stock in 2003 involved the sale of over 80,000 houses and encompassed not only the footprint of the houses but the "estates" within which the houses are located.

After the housing stock transfer the City of Glasgow retained maintenance and third party liability for the ex housing roads infrastructure. No additional budget was allocated to allow LES to discharge this duty. Diversion of budget from public roads would adversely affect our ability to meet our statutory obligation to maintain them and would expose the council to increased risk.

Only ad hoc emergency repairs are being undertaken on these roads and footways, as was the practice at the time of transfer as far as known.

No inspection regime could be instigated as LES has insufficient inspection staff to resource the additional routes which would be required. These practices are still current in 2012.

There is no accurate record of the actual infrastructure within the transferred land however we were able to obtain some reasonable information on the areas of amenity land, roads and footways.

Table 4.1 – Ex-Housing Infrastructure Quantities

Asset type	Quantity
Carriageway	160km
Footway/footpath	900km
Structures	Unknown
Lighting	Unknown

It is estimated that the inclusion of ex housing roads infrastructure represented an increase in our network of;

- 9.04% additional carriageway area to be maintained
- 24.2% additional footway area to be maintained

- There is no record of the number of structures transferred.
- There is no data for additional lighting

Backlog Figures

LES attempted to quantify the road and footway maintenance backlog in 2003 using a sample survey of approximately 10% of the GHA network.

These figures have been updated to more accurately reflect the backlog in 2012 and are detailed more fully in Appendix D

Table 4.1 – Estimated Backlog Figures

Asset	Value	Notes
Estimated Carriageway Backlog	£4,725,000	*1
Estimated Footway Backlog	£16,233,797	
Estimated Structures and Lighting Backlog	Unknown	

*1 See note 1 Appendix D

This infrastructure will continue to age and deteriorate and there is a clear need for planned investment in order to maintain it.

Staff Resources

LES has produced an indication of the level of investment required to start to address the issue however additional staff as well as financial resources are required to develop and improve the quality of information.

The commencement of safety inspections on an annual basis should be considered a priority and additional technical staff will be required to assess, organise, supervise and control the additional workload and liaise with housing associations.

The additional staff required are:

- 0.5 safety inspectors
- 1 additional technical officer
- 0.5 additional roads inspector

It is considered that much of the work now required is improvement work rather than maintenance as much of the infrastructure has exceeded it's useful life. Discussion regarding joint or full funding should therefore be entered into with housing associations as the Agreement does not commit the Council to improvement work.

4.7.2 Clyde Tunnel

The Clyde Tunnel carries Glasgow City Council's busiest road with 25 million users every year. The high risk associated with operating road tunnels due in the main to the extremely serious potential consequences resulting from a fire in the tunnel, require the provision of safety systems and equipment to ensure their safety.

Installation of a means of communicating with drivers and their passengers in the tunnel in the event of an incident, and provision of radio systems to support emergency services underground communication is required to conform with industry best practice and ensure an adequate level of safety. The required investment is estimated at £2.5 million.

The carriageway lighting in both bores of the Tunnel was installed in 1980. It is now in a condition that is proving difficult to maintain an acceptable level of lighting due to the condition of the electrical installation and non-availability of spare parts. The lighting is supported overhead by an aluminium structure that is now 50 years old. This structure is physically deteriorating and will collapse in the event of a fire, with serious consequences for tunnel users and emergency rescue teams. The temporary exhaust/smoke extraction duct installed in 2006 also needs replaced.

The renewal of this infrastructure with modern dimmable low energy long life LED lighting is recommended. Investment now will provide savings for the Council in future years. Pay back periods are currently being investigated but are thought to be around 5 to 8 years. The investment required including the provision of new support structure and exhaust duct is estimated at £5 million.

4.7.3 Shieldhall Overpass

The 13 span viaduct on the A739 Clyde Tunnel Expressway has deteriorated significantly. Traffic from the M8 wishing to access the north west of the city and the Clydeside Expressway with all its new attractions use this structure as do the increasing numbers of people going to the adjacent Southern General Hospital soon to be the main NHS facility for the south of the city.

The main supporting piers all need replaced and preventative improvements to the road deck to remove the need for movement joints are now urgently required. The joints allow water laden with road salt through which chemically attacks the reinforced concrete below causing it to eventually fail.

A weight restriction of 7.5 tonnes is being implemented, with significant disruptive consequences for the local road network and residents to ensure safety. This will have to remain in place until the estimated £12 million of upgrading works are carried out.

4.7.4 Commonwealth Games

4.7.4.1 Carriageways

A Commonwealth Games (CWG) route condition survey was carried out in 2010 and identified a need to invest £15.4m on the roads infrastructure prior to 2014 to deliver a fit road infrastructure. Approximately £10.8 million of this investment has been delivered in the last two years; the outstanding investment, required to provide a network fit for purpose, is therefore, estimated to be £4.6 million. Subject to funding allocation, approximately £2 million

of Games related work is planned for 2012/13, with a remaining £2.6 million of Games work to be completed prior to the event.

4.7.4.2 Footways

Many of the games venues are under development and we will not be able to undertake footway improvements in those areas until late 2012 or 2013. Footway investment to meet the needs of the Commonwealth Games comprises £1.5 million of City Centre, major tourist destination and Commonwealth Games venue Footway reconstruction.

5.0 Levels of Service

This section provides a description of target levels of service provided by each asset, how these standards are established, measured, reported and reviewed.

5.1 Establishment of Levels of Service

There are a number of ways to determine a level of service and ensure that money invested is allocated in a manner to achieve maximum benefit and ensure best value.

- The Roads Scotland Act
- Customer Satisfaction Levels
- Corporate Objectives
- Government Targets
- New Legislative Requirements
- Historical Performance
- Single Outcome Agreement
- The Local Transport Strategy
- The Annual Service Plan and Improvement Report (ASPIR)
- Risk Registers

5.2 Performance Measurement

Our performance is measured using Performance Indicators (PIs) and are key to the Council's aim of continuous improvement. The PIs are used to compare year on year progress and compares our performance with other authorities. They also allow stakeholders to assess our performance against a set of targets. The current PIs are included in Section 5.5.

5.3 Reporting

LES produces reports internally. This allows senior management to monitor performance at any time. Monthly reports are provided to the Executive Director on key issues, such as absence figures, emergency response times. Monthly meetings are held with senior managers to monitor the budget and works programmes.

The following National PIs are also reported;

- Scottish Road Maintenance Condition Survey (SRMCS) results are reported annually to Audit Scotland and published annually.
- Association for Public Service Excellence (APSE) results are reported annually to allow all authorities to be benchmarked against each other. For this years results, APSE are working in partnership with SCOTS to collate all the relevant PI's that are then published in one joint report.
- Statutory Performance Indicators (SPI's) are reported to ROSDA at their monthly meetings.

5.4 Performance Review

The Annual Service Plan and Improvement Report (ASPIR) combines the previous functions of the budget and service plan and the annual performance report into a single document. It reviews the targets that were set for the previous year and sets out service delivery targets for the year ahead.

The Annual Service Plan and Improvement Report is structured in 4 sections as follows;

- A broad picture of LES services, priorities and objectives and the financial and staffing resources involved in providing them.
- The significant issues and risks which LES will face over the next 12 months. These include financial pressures, service reform programmes, major projects and the demands of maintaining service delivery and performance.
- Performance against the key targets set as well as a range of other indicators covering the full scope of LES service provision. This section also includes targets which have been set for the year ahead.
- Financial performance and budget information. This covers significant budget changes proposed and savings achieved.
- The works' programme and budget is monitored at monthly meetings with senior managers. This allows any overspends or slippages to be reported and managed at an early stage.

5.5 Current Levels of Service

The current standards of service as measured by the current PIs are shown in Appendix E. A summary of the main PIs for each asset are shown in Table 5.1 below.

Table 5.1 – National Performance Indicators

Asset	Indicator	2009/10 Target	2009/10 Results	2010/11 Target	2010/11 Results	2011/12 Target	2011/12 Results
Carriageways	Percentage of roads that should be considered for maintenance treatment	Top 8 SLAs	29.70% (6^{th})	Top 8 SLAs	33.90% (10^{th})	Top 8 SLAs	30.90% (8^{th})
Traffic Signals	Traffic Signals repairs completed within 48 hours	97%	97.31%	97%	95.10%	97%	93.83%
	Traffic Light repairs completed within 7 days	95%	76.92%	95%	81.15%	95%	95.45%
Structures	Bridges which fail to meet the European standard of 40 tonnes	20%	20.40%	23.50%	22.40%	23.10%	21.40%
Street Lighting	Street lighting columns over 30 years old	45%	46.51%	45%	49.62%	45%	51.4%

There are currently no national SPI's applicable to the footway, footpath and cycleway asset. However, figures are submitted to the Association for Public Service Excellence (APSE) including;

- The percentage of adopted footways that were resurfaced during the financial year (0.68% for 2011/2012).
- The percentage of adopted footways where surface treatment processes were utilised (0.68% for 2011/2012).

At present, footway performance indicators are being developed for local authorities by the SCOTS Performance Measurement Group.

5.6 Target Levels of Service

A number of targets have been set for future performance of LES and some are shown in the table below.

Table 5.2 – Target Levels of Service

Target Level of Service	2009/10 Target	2009/10 Results	2010/11 Target	2010/11 Results	2011/12 Target	2011/12 Results
Percentage of **repairs** carried out within **1 day on traffic sensitive roads**	95%	100%	95%	75.82%	95%	91.4%
Percentage of **repairs** carried out within **5 days on non-sensitive roads**	95%	100%	95%	71.23%	95%	94.8%
Percentage of **traffic light repairs** completed within **48 hours**	97%	97.31%	97%	95.10%	97%	93.83%
Percentage of **lighting repairs** completed within **4 days**	95%	92%	95%	86.28%	95%	96.52%
Percentage of **bridges** failing to meet **40 tonne standard**	20%	20.40%	23.50%	22.40%	23.10%	21.40%
People killed or seriously injured in road accidents (target is a percentage calendar year reduction from the 1994/98 average of 594)	60%	63%	60%	66%	Reduce to no more than 241	182
Children killed or seriously injured in road accidents. (target is a percentage calendar year reduction from the 1994/98 average of 149)	70%	79%	70%	73%	Reduce to no more than 43	34

6.0 Lifecycle Planning

6.1 Purpose of Lifecycle Planning

Lifecycle Plans have been developed to document how each of asset group is managed. They are live documents that provide definition of the standards applied to the management of each asset group, details the processes used to deliver services and capture the knowledge of individuals, to record this and enable it to be shared and developed.

6.2 Output from Lifecycle Planning

The output from the Lifecycle Plan is long-term prediction of the cost of the management, maintenance and operation of each asset group in the form of financial projections linked to target levels of service.

6.3 Importance of Lifecycle Plans

Lifecycle Plans contain the detail that enables asset management practices, such as long-term cost projection, performance management and risk management to be applied across all asset groups.

6.4 Lifecycle Plan Contents

Table 6.1 – Lifecycle Plan Contents

Section		Content
The Asset	What does the Council own?	Inventory details
Service Expectations	What is each asset group required to do?	Customer requirements and expectations; Council objectives; Safety Considerations; Environmental requirements; Network Availability; Amenity Considerations.
Management practices	How is this asset group managed?	Policies; Inspections; Condition assessment; Acquisition; Maintenance; Disposal.
Investment	How much should be and is spent?	Historical investment; Forecasts; Valuations.
Works Programme	How are works programmed?	Works programme; Option appraisals; treatment selection
Risk	What are the risks?	Risk identification.
Works and Service Delivery	How are works delivered or procured on this asset group?	In house service delivery, construction trades framework contract procurement.
Performance Measurement	How is the performance of this asset group measured and managed?	Performance indicators; Current performance figures; Target performance figures.
Strategies	What strategies are there for the future management of this group?	Maintaining inventory and condition data; utilising financial prediction tools for budget setting strategies to predict the impact of funding levels.
Service Improvement Actions	What improvement would improve the Council's management of this asset group?	Asset specific improvement actions.

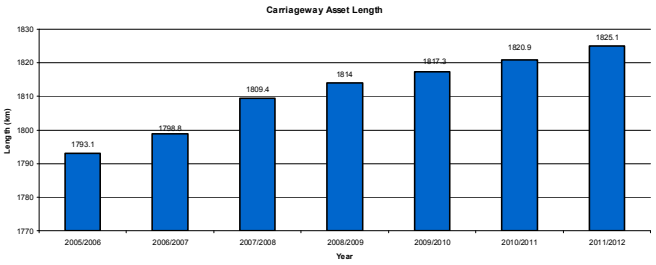
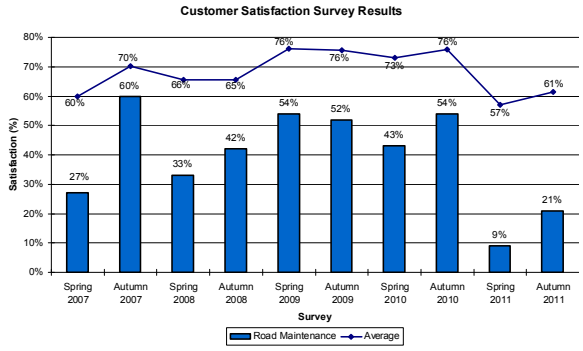
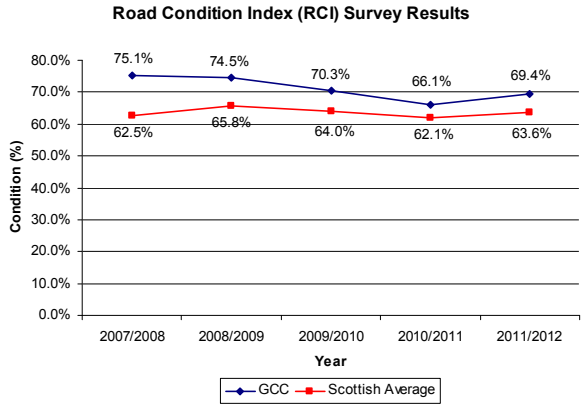
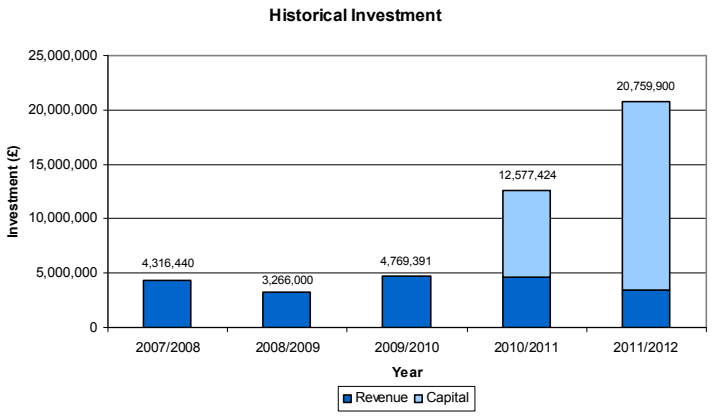
6.5 Status of Lifecycle Plans

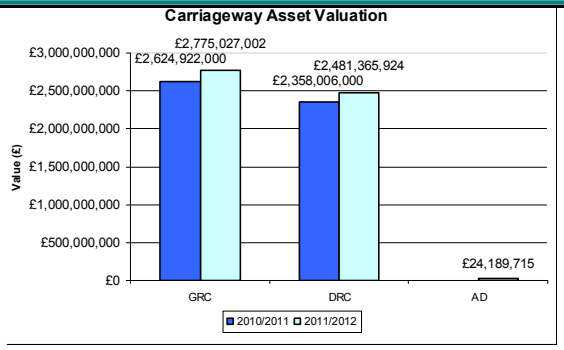
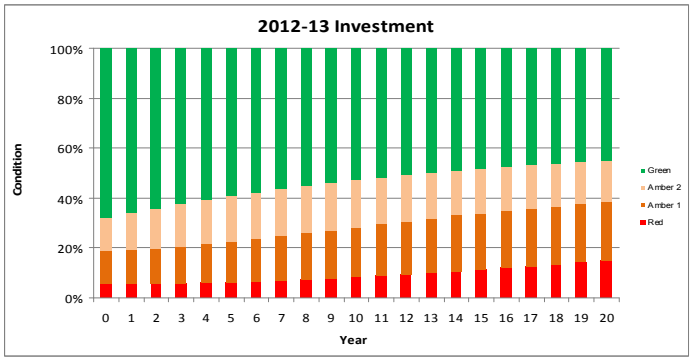
Lifecycle plans have been developed for each of the asset groups noted in Table 6.2 below.

Asset Groups	Status	Comments
Carriageways	Complete	
Footways & Footpaths	Complete	Includes cycleways.
Structures	Complete	Including high mast lights
Street Lighting	Complete	
Drainage	Complete	
Traffic Signals	Complete	
Street Furniture	Complete	

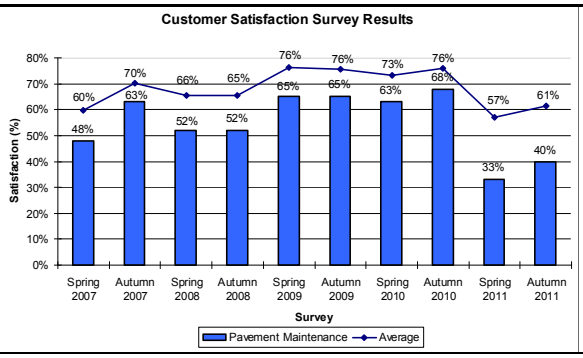
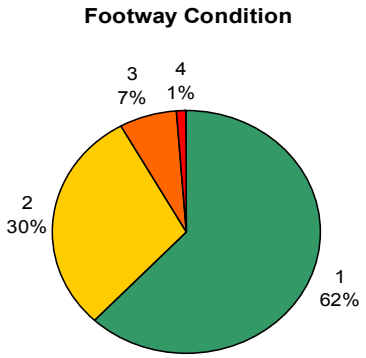
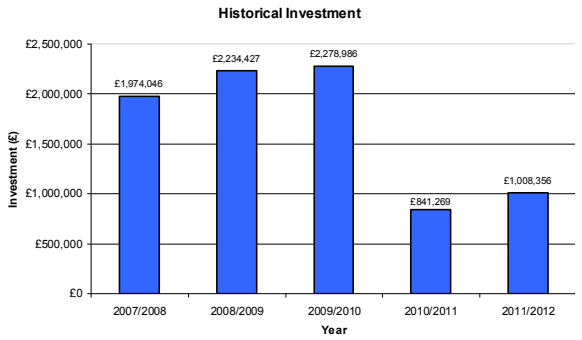
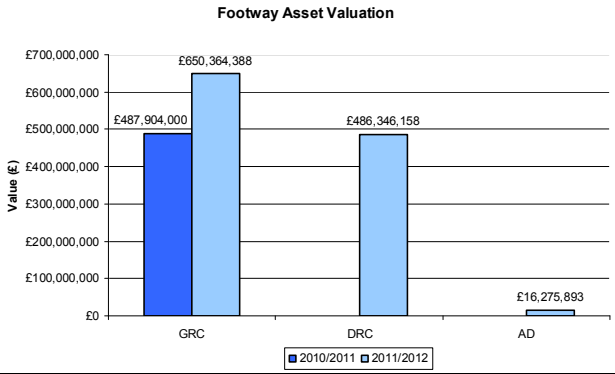
6.6 Asset Status Report

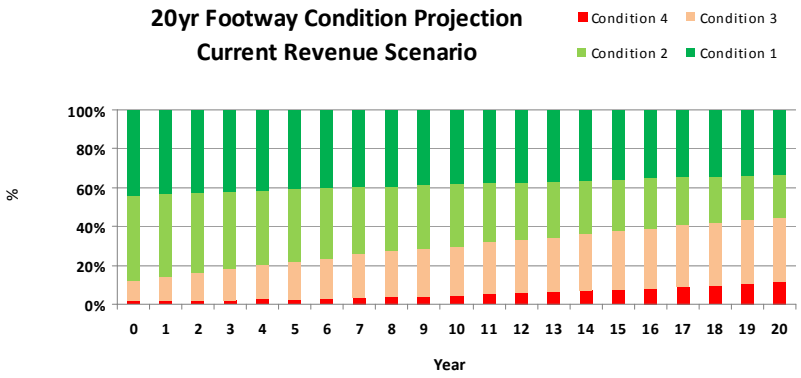
6.61 Asset Group: Carriageways

	STATISTICS	COMMENTARY
The Asset		The total length of our road network is 1825.1km. This figure was obtained from GIS records. In the last 5 years this has grown by 26.3km.
Customer		The chart shows levels of customer satisfaction within Road Maintenance and the average satisfaction for all Council Services. The recent survey results highlight the unacceptable low levels of satisfaction, in the main due to the poor winter weather experienced in 2010/2011.
Condition		A 6% decrease in the carriageway condition has occurred over the past five years. This is partly attributable to a UK wide due to lack of historical investment in road maintenance and to successive extreme Winters. .
Historical Investment		There has been a recent increase in the level of Capital Investment allocated to the carriageway asset. An additional £8 million of Capital Investment is agreed for 2012/2013 financial year.

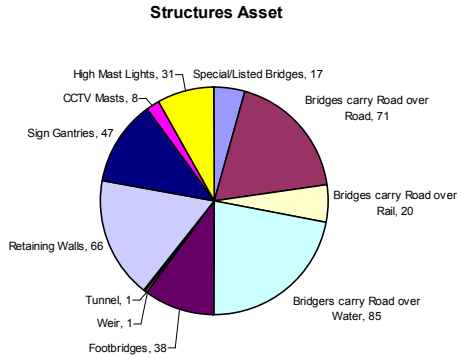
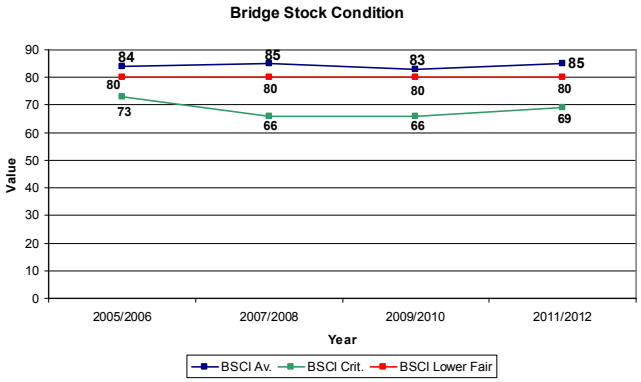
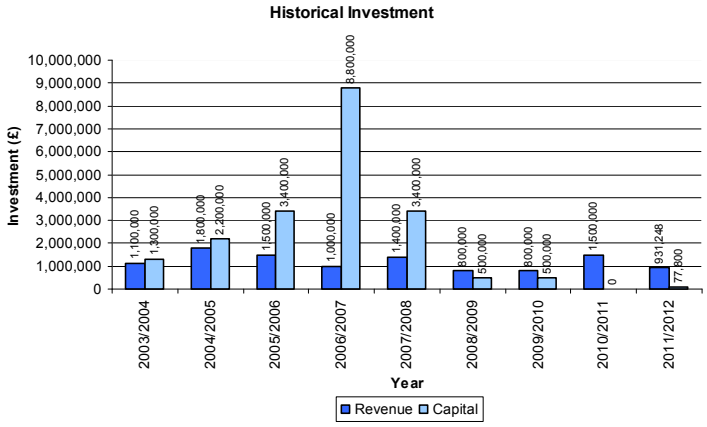
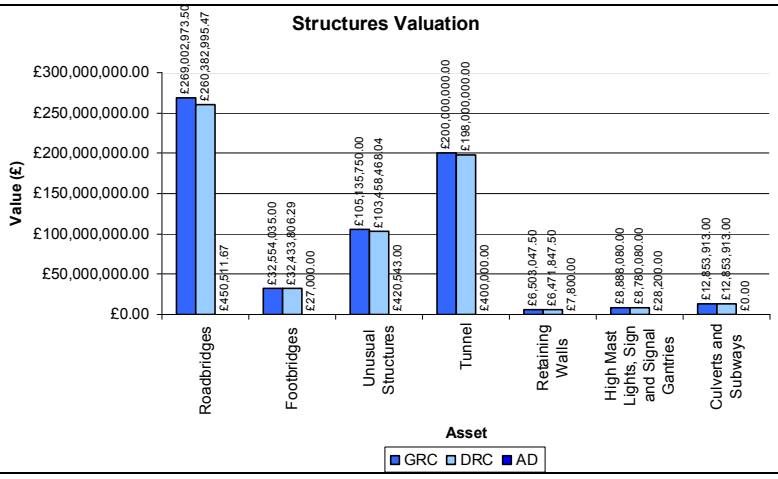
	STATISTICS	COMMENTARY
Valuation		Gross replacement cost and direct replacement cost have increased due to asset growth and new treatment rates. This is the first year annual depreciation has been calculated.
Future Investment		Maintaining the current condition of our carriageways is predicted to cost £14.0m per year It would cost an estimated £95.0m to repair the backlog of roads repairs. Continuance of the current capital investment of £8M per annum will result in a decline in road condition index from 30.9% of roads needing attention currently, to 54.7% in 20 years. Graph opposite illustrates.
Works Programmes	A forward works programme is being prepared for the carriageway asset that would include; • Resurfacing/overlay • Early Intervention Treatments • Minor Works • Patching • Recycled Surfaces	Works programmes are developed primarily on a needs basis and in relation to the available budget. Targeted programmes are also created based upon; hierarchy, condition and cost. The programme is based on the existing information regarding the condition of the asset.
Level of Service	Determined level of service is to ensure that the Road Condition Index (RCI) results for the authority are within the top quartile of Scottish Local Authorities.	SPI's relating to the condition of the network, as measured by SRMCS, detail the percentage of road network that should be considered for maintenance.
Current Issues	**Investment** shortfall, UK wide issue. **Age/Capacity of Existing Network –** Ageing network, older parts of network not designed to accommodate modern traffic loadings. **Bus Route Management –** Roads were not designed for the loadings now experienced and oil and fuel deposits onto the surface is causing enhanced degradation. **Safety Defects – Increasing volume of pothole and other safety defects, leading to an increase in claims.** **Maintenance Responsibility for Ex-Housing Association Assets**	There has been an increase in funding received for carriageway works as the poor condition of carriageway asset has been highlighted. Patching and resurfacing strategy targeted to improve the main bus corridors and strategic routes. Safety defect categorisation has been developed to allow a more targeted response. Additional funding required for ex housing infrastructure

6.62 Asset Group: Footways, Footpaths and Cycleways

	STATISTICS	COMMENTARY
The Asset	The length of the footway network within Glasgow City Council is estimated to be 3208km. The length of the adopted footpath network is 149.4km. Length of cycleways is assumed to be 248km.	Length of the footway asset is obtained by dividing the known total area (8020km^2) by an assumed average width of 2.5m. Footpath and cycleway length was obtained from GIS records.
Customer		The chart shows levels of customer satisfaction within Pavement (Footway) Maintenance and the average satisfaction for all Council Services. The recent survey results highlight the unacceptable low levels of satisfaction, in the main due to the poor winter weather experienced in 2010/2011.
Condition		The year one results of the Footway Condition Survey are shown opposite and display the percentage of the footway network for each condition category. The following condition categories are utilised to determine the required works; • 1 – No work required • 2 – Safe, but poor appearance • 3 – Minor defects • 4 – Major defects Despite condition 4 consisting of only 1% of the network, this still represents 32km of footway.
Historical Investment		All historical investment consists of revenue investment only as there has been no capital investment in the footway, footpath and cycleway asset for the last five years.
Valuation		Gross replacement cost has increased significantly in the last year. This is due to more accurate treatment rates and inventory data being available as progress has been made with on the Footway Condition Survey. This is the first year depreciated replacement cost and annual depreciation have been calculated for this asset.

	STATISTICS	COMMENTARY
Future Investment		At current investment levels, footway condition will continue to deteriorate as shown opposite. Maintaining the current condition of our network is predicted to cost £2.1m per year. It would cost an estimated £34.3 million to repair the backlog of footway repairs.
Works Programmes	A forward works programme is being prepared for the footway asset that would include; • Resurfacing • Early Intervention Treatments • Minor Works • Patching	Works programmes are developed primarily on a needs basis and in relation to the available budget. Targeted programmes are also created based upon; hierarchy, condition and cost.
Level of Service	At present there are no national PIs applicable to footways.	It is the intention of the Council to utilise the footway performance indicators that are being developed for local authorities by the SCOTS Performance Measurement Group.
Current Issues	**Investment** shortfall, UK wide issue. **Inventory collection required to assist** future financial planning. **Pedestrian Access** – The lack of dropped kerbs at every carriageway crossing point limits access to the asset **Public Realm** - The increase in public realm areas has resulted in increased maintenance costs. **Maintenance Responsibility for Ex-Housing Association Assets** –	An annual budget of £2.1 million is required to maintain steady condition of the footway asset. The Footway Condition Survey currently underway will provide inventory data that will allow for better long-term predictions of the cost of the management of the asset. It is the policy to install dropped kerbs as major resurfacing schemes are being completed. Requests for specific dropped kerbs will also be installed if the location is suitable. Programme of preventative treatment implemented in public realm 2012/13. Additional funding required for housing infrastructure.

6.63 Asset Group: Structures

	STATISTICS	COMMENTARY
The Asset		The total number of structures owned by GCC is 385. The Clyde Tunnel is worth approximately a third of the total asset group value.
Condition		The average bridge condition ($BSCI_{Av}$) shows that the asset is in a fair condition. The score has remained in the fair banding over the last three inspection cycles. The critical bridge condition ($BSCI_{Crit}$) shows a significant 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. The score has remained in the poor banding over the last four cycles.
Historical Investment		There has been a decrease in the level of Capital Investment allocated to the structures asset since 2006/2007, leading to a maintenance backlog.
Valuation		Total gross replacement cost is calculated at £644.9 million. Total depreciated replacement cost is calculated at £634.4 million. Total annualised depreciation is calculated at £1.35 million. Retaining walls, CCTV masts and lighting masts are included for the first time.

<table>
<tr><th></th><th>STATISTICS</th><th>COMMENTARY</th></tr>
<tr><td>Future Investment</td><td>
<table>
<tr><th>Bridge Project</th><th>Estimated cost to GCC (£M)</th></tr>
<tr><td>Shieldhall Overpass Refurbishment</td><td>12</td></tr>
<tr><td>Shields Rd Bridge Replacement</td><td>6</td></tr>
<tr><td>Clyde Tunnel Improvements</td><td>5.6</td></tr>
<tr><td>Argyle St Tunnel Strengthening</td><td>5</td></tr>
<tr><td>Kelso St Bridge Strengthening</td><td>5</td></tr>
<tr><td>Clyde Tunnel, Safety & Lighting Improvements</td><td>3.5</td></tr>
<tr><td>Albert Bridge, Refurbishmnent</td><td>2.6</td></tr>
<tr><td>Finnieston Overpass, Refurbishment</td><td>2</td></tr>
<tr><td>Cathedral St Bridge Strengthening</td><td>2</td></tr>
<tr><td>Albert Dr Bridge, Strengthening</td><td>1</td></tr>
</table>
</td><td>The top ten schemes, prioritised utilising the SCOTS financial tool, requiring maintenance attention are shown on the left.

The backlog amount for known major and high impact schemes is £50 million.

The backlog for other refurbishment and strengthening work is £30 million.

The current annual budget is £0.6 million.</td></tr>
<tr><td>Works Programmes</td><td>At present, a 12 month forward works programme is being prepared for the structures asset. Potential capital works are put forward for consideration by a capital programme board on a scheme by scheme basis.

A long-term programme of works will be developed as part of the asset management process.</td><td>Works programmes are developed primarily on a needs basis and in relation to the available budget, subject to change.</td></tr>
<tr><td>Level of Service</td><td>Levels of service have not yet been developed for this asset group. The performance is measured and maintained against a set of National Performance Indicators.</td><td>It is the intention of the Council to develop its own relevant performance indicators that provide an indication of the condition of the authority's highway network.</td></tr>
<tr><td>Current Issues</td><td>Maintenance Backlog - Currently only urgent maintenance tasks are being progressed.

Retaining Walls Lack of Records – There is a lack of inventory data regarding retaining walls. Retaining walls affected by public roads are beginning to be routinely inspected.

Bridge Assessment Programme Incomplete - The bridge assessment programme is not complete in Glasgow.

Inspection Backlog - There is backlog in the inspection programme. The general inspection programme will be to schedule when resources become available.

Bridge Strengthening Lack of Progress - Currently there are traffic restrictions on weak bridges as a measure to reduce loadings. The effect is disruption to traffic flow and increased maintenance costs. Funding is required to strengthen those bridges.

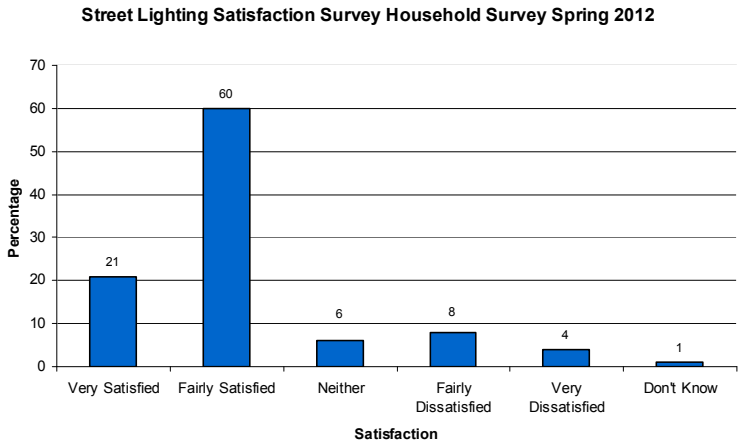
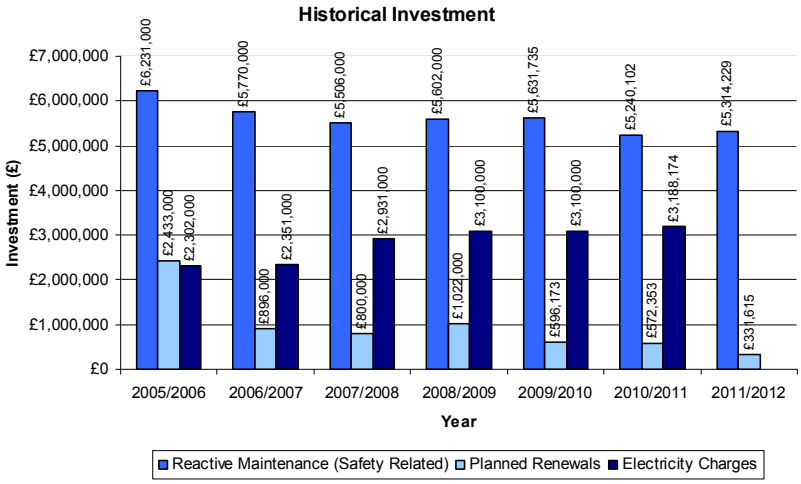
Investment Shortfall - Major capital investment is required for large projects such as Shieldhall Overpass refurbishment. Investment is required to improve communication between the control room and users of the Clyde Tunnel. Also the existing lighting is life expired and needs replaced.</td><td>The use of a structures database (SMS, by WDM) to hold inventory data and inspection information/records for all of the structures asset.

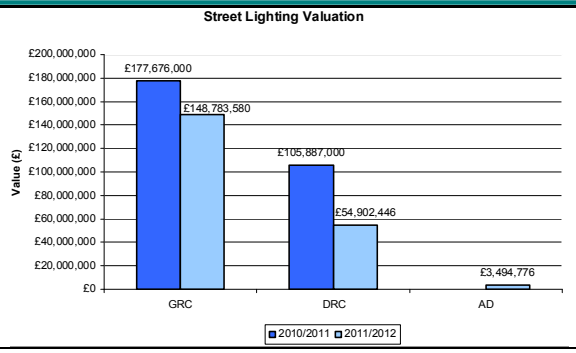
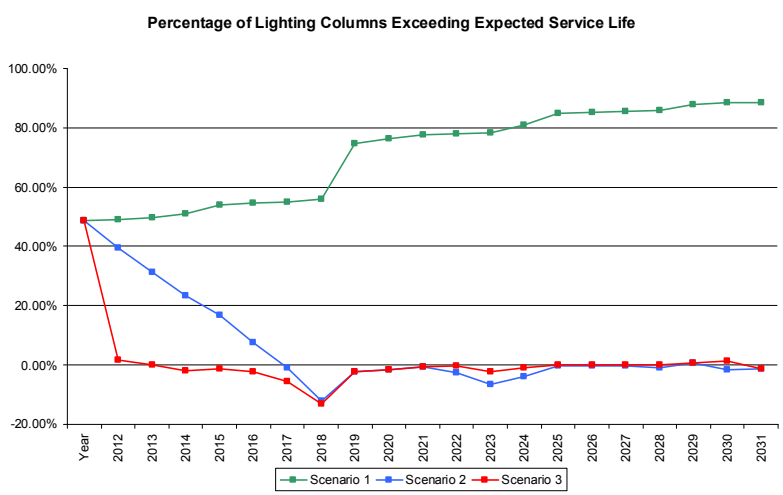
Inspection programme in accordance with the Bridge Condition Indicator regime developed by the County Surveyors Society. Programme accelerated to bring the general and principal inspections to the standard frequency.

Strengthening and replacement of weak or structures beyond economic repair, through a Capital Programme.

The programme of strength assessment of bridges that carry Council roads (both Council owned, and privately owned) is planned to be complete by March 2013</td></tr>
</table>

6.64 Asset Group: Street Lighting

	STATISTICS	COMMENTARY
The Asset	The street lighting asset comprises; • Columns (underground cabled) - 48061 • Columns (aerial cabled) - 22142 • Wall Lights - 1850 • Lit Signs and Bollards - 7804 • Underpass and Clyde Tunnel - 1687 • High Mast Lights - 33 • Control Pillars - 2300	Asset growth has slowed down in line with building trends with respect to development work.
Customer		The majority of the public surveyed are satisfied with the street lighting asset. Customers are generally concerned with whether lights are working and safe rather than with their condition.
Condition	51.4% of lighting column stock in the city is over 30 years old. Two column types, non-galvanised steel and aerial cabled transmission columns, have in recent years failed structurally due to severe corrosion. These make up an estimated 50% of the total column stock with approximately half of these needing renewed.	The lack of structural inspections makes assessment of the current condition of the asset extremely difficult to report accurately, as up to date condition information is not readily available.
Historical Investment		Reactive maintenance costs are expected to increase significantly in line with the increase in lighting fault reports. This is due to the ageing and deteriorating condition of the asset. Capital investment must be pursued to arrest the deteriorating condition of the network and prevent catastrophic failures which would have severe health and safety implications. Electricity charges are not yet known for 2011/2012. They are expected to continue to rise in future years in excess of inflation rate.

	STATISTICS	COMMENTARY
Valuation		Gross replacement cost and direct replacement cost have both significantly decreased in the last year. This is due to errors made in last years calculations which resulted in double counting of certain assets. This is the first year annual depreciation has been calculated for this asset.
Future Investment		If no investment occurs (Scenario 1) the deterioration of our lighting infrastructure would accelerate, with approximately 85% of columns exceeding expected service life by 2025. Scenario 2 represents a progressive spend, with a cost of £5m per year for the first 11 years, followed by a cost of £3.5m per year to maintain the asset condition. Scenario 3 has substantial short term investment. It would cost an estimated £25m to replace the backlog followed by a cost of £3m per year.
Works Programmes	A £5.3 million Lighting Network Renewal programme is substantially complete. This programme is allied to the Council's strategy of changing from sodium lights to white light sources. In view of no significant funds being available, future replacement is to be based on risk assessments and public safety.	Continuing underinvestment will lead to further deteriorating plant with increased maintenance costs and reduced operating performance.
Level of Service	The current level of service is to achieve 98% of lamps lit.	Previously, dark lamp inspections, provided the data utilised to analyse the performance of the lighting asset. These inspections were halted in Autumn 2011, therefore removing this service performance information. Future performance indicators, such as using the reported number of dark lamps; are being developed to provide an accurate indication of performance of the lighting asset.
Current Issues	**Investment** – Lack of funding over a sustained period, UK wide problem. **Energy Targets** – Energy and carbon reduction requirements. **Lack of Inventory** – Poor or inaccurate recorded inventories, including inadequate record sets. **Lighting Strategy** – The existing strategy is in need of replacement (in co-operation with DRS).	The use of a report driven response system with accompanying response targets to prioritise repairs. Introduction of a pilot project intended to investigate the possibility of 'spend to save' via reduced light and energy levels. Continuous development of the inventory management system and consideration to employ a specialized lighting maintenance management system to improve inventory details.

6.65 Further Asset Groups

6.651 Street Furniture

At present, there are a number of assumptions that have been made with regard to this asset group, as there are minimal records relating to the condition and the asset quantities. It is perceived that in the coming years through the completion of sample surveys and the more detailed recording of new assets that the data that follows will become more accurate.

At present within this asset group the key issues that have been raised are;

- Lack of asset registers
- Insufficient funding
- Insufficient maintenance resources
- Lack of performance monitoring

Through the combination of these issues, it has lead to the asset group being under funded resulting in a backlog of maintenance and insufficient renewal programmes being implemented to ensure the asset is as up to date as possible.

Table 6.3 below shows the estimated gross replacement cost for the asset group as well as its depreciated replacement cost and annual depreciation. These figures have been calculated through the completion of the annual Whole Government Accounts return.

Table 6.3 – Street Furniture Replacement Costs

Gross Replacement Cost (GRC)	£33,573,223
Depreciated Replacement Cost (DRC)	£15,317,467
Annual Depreciation (AD)	£1,423,931

In the past five years, it is estimated that the asset group has grown by approximately 2%, it is expected that this increase will remain steady in the near future.

6.652 Traffic Management Systems

At present the below key issues for the asset group have been identified;

- Lack of funding
- Asset register
- Network Capacity
- Climate Change

The current asset register is reasonably up to date and accurate with regard to its quantities but at present there are no actual condition data held. With the condition used to calculate replacements costs being an estimate from the limited data available. Due to a lack of funding

there is a significant proportion of the network requiring replacement, which will allow the council to make progress with the replacement of the assets with more modern LED systems, reducing the carbon footprint of the asset. Due to under investment many of the control systems are working with minimal expansion capacity. Significant investment is required to upgrade these systems. Greater knowledge of the asset condition is required to improve the accuracy of future investment needs. The Annual Depreciation (AD) gives an indication of the investment needed to maintain our traffic signals in their current condition.

Table 6.4 – Traffic Signals Replacement Costs and Annual Depreciation

Gross Replacement Cost (GRC)	£54,314,486
Depreciated Replacement Cost (DRC)	£32,203,512
Annual Depreciation (AD)	£2,519,846

6.653 Drainage

With the current asset data available, it has been estimated that the Gross Replacement Cost of the drainage asset would be £110 million. At present the following key issues with the asset have been identified;

- Lack of funding
- Maintenance
- No performance monitoring
- Age/Capacity of network
- Climate Change
- Thefts

Recently the asset data quality held has started to be increased with GPS to log the location of drainage during the cyclic and reactive maintenance programmes in place. At present, the authority only carries out limited cyclic maintenance and reactive maintenance and repairs as budget constraints does not allow for the provision of pre-emptive upgrade works. However if drainage is constructed properly it can have an infinite life span with adequate maintenance.

Due to the current economic situation, the asset has had a significant increase in the number of thefts of gully covers. This increase has affected maintenance budgets, as more has had to be allocated to the replacement of covers reducing the level of funding available for maintenance.

In the past five years, the asset has grown by approximately 5% with this trend expected to continue in the coming years.

For all full Lifecycle Plan documents please refer to Appendix F at the end of this document and held electronically.

7.0 Financial Summary

7.1 Sources of Funding and Budget Allocation

7.11 Revenue

Revenue expenditure is the day to day running costs incurred in providing services. This includes employee costs, other running costs, payment for repair and maintenance of assets and debt repayment.

Revenue expenditure is funded from the following sources;

- Aggregate External Finance (AEF) – the total grant provided by central government to local authorities. It comprises of Revenue Support Grant (RSG), Non Domestic Rate Income (NDRI), and Ring Fenced Grants (RFG), provided for a specific service area or initiative.
- Fees and Charges – charges levied in respect of services such as building control warrants, construction consents etc.
- Balances, Reserves and Trading Operation surpluses – funds generated from operations in previous years, including parking revenues in excess of that budgeted.
- Local Taxation – Revenues generated from Council Tax, a tax levied on individual properties.

The City Council determines its budget and service plan strategy reflecting key priorities incorporating the views of stakeholders.

The annual budget of LES is then allocated to budget holders. The budget for any year is incrementally based, whilst taking cognisance of any specific savings, efficiencies and budget pressures.

The budget holder is responsible for allocating resources to each activity within their service area.

7.12 Capital

Capital expenditure is investment in the authority's assets such as land, buildings and infrastructure. The City Council's investment in the infrastructure of the city and its services contributes to the Council Key priorities of Education, Regeneration, and Social Inclusion.

The Local Government (Scotland) Act 2003 introduced the prudential code for capital finance, allowing local authorities greater freedom to determine the scale of their capital investment plans, as long as they can demonstrate the plan is affordable, prudent and sustainable.

7.13 Income

Capital Income is often received for specific investment programme schemes. This includes grants from the Scottish government and UK government departments, grants from the National Lottery, Local Enterprise companies, European Regional Development Fund and other public and private sector contributors. The residual net cost to the Council may be funded from borrowing, receipts from asset sales, the use of fund balances, and the use of revenue funds, known as capital from current revenue (CFCR).

Council has approved capital schemes that reflect the key priority areas, particularly, Education, Social Work, Regeneration and Social inclusion. For 2011/12 the Council approved £18 million in roads' infrastructure.

7.2 Historic Expenditure

Table 7.1 below gives an extract of the historic revenue investment for some of the major assets over the last 4 years. More detailed figures are contained within the LCP for each asset in the appendices to the RAMP.

Table 7.1 – Historic Revenue Investment Summary

Asset	2008/2009	2009/2010	2010/2011	2011/2012
Carriageway	£3,266,000	£4,769,391	£4,595,300	£3,459,900
Footways	£2,234,427	£2,278,986	£841,269	£1,008,356
Lighting	£5,236,796	£5,494,823	£5,341,988	£5,244,084
Structures	£800,000	£800,000	£1,500,000	£900,000
Total	£11,537,223	£13,343,200	£12,278,557	£10,612,340

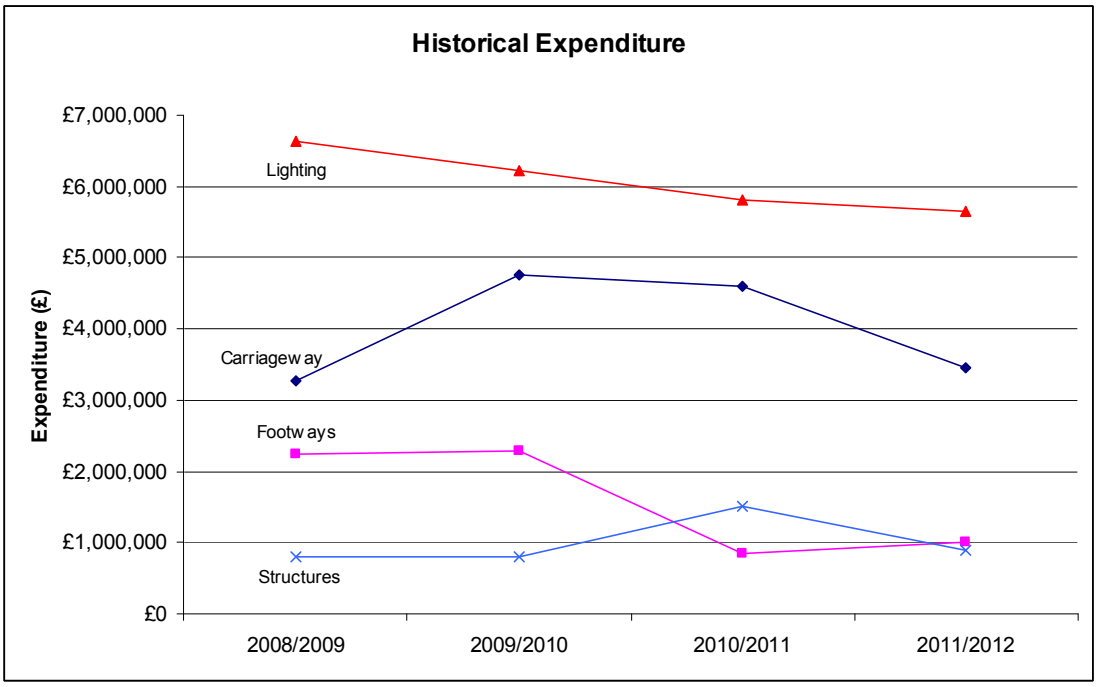


Figure 7.1 – Historic Expenditure

7.3 Carriageway Investment Strategy 2012/13

A total of **£9.86M** is being spent on carriageway strengthening this financial year. The remainder of the total budget (**£11.98M)** is required to provide services such as; emergency responses, temporary patching, reactive repairs and routine maintenance such as, drainage repairs, sweeping and delittering. This element of spend does not contribute to restoring the carriageway to new condition and is therefore not considered in the condition modelling tools that we use to inform our investment strategy.

2012/13 Carriageway Investment Strategy

Commonwealth and Olympic Games routes…….	£1.0M
Early Intervention Treatments (EIT)……..	£1.2M
Citywide Resurfacing……	£2.8M
Permanent Patching……	£3.0M
Capital funding contributing to carriageway strengthening	**£8.00M**

Resurfacing……	£0.6M
Planned Permanent Patching……..	£0.9M
Early Intervention Treatments……..	£0.36M
Revenue budget contributing to carriageway strengthening	**£1.86M**

The focus of investment will shift from targeting classified roads, to a more balanced mix of spend between classified and unclassified roads. Some deterioration in the road network is to be expected at this level of investment. A long-term commitment to invest a minimum of steady state levels of funding is essential to ensure continuing availability of the road network.

8.0 Risk Management

Risk Management requires the identification, evaluation and control of any action undertaken by the council, which can threaten its operations, assets and other responsibilities. Failure to acknowledge this can have serious consequences. These consequences are not necessarily restricted to financial and may result in health risks, disruption risks, reputational risks, regulatory risks and the like.

The Council Risk Management Strategy is intended to demonstrate a considered, practical and systematic approach to addressing risk.

8.1 Risk Aims and Objectives

The risk aims and objectives are as follows;

- To promote an awareness of risk and a responsibility for managing risk amongst all Council employees, members of the public and other parties who use the Council's services
- To initiate measures which will reduce the Council's exposure to risk and potential loss
- To initiate measures which will enhance the Council's ability to build on success and seize opportunities with greater confidence
- To improve the sharing of risk information through all areas of the Council to aid effective risk management and encourage best practice
- To establish standards and principles for the efficient management of risk including regular monitoring and review
- To optimise the use of risk financing and risk transfer mechanisms
- To encourage a continuous and ongoing development of the process of risk understanding, review and management throughout the Council
- To promote open reporting of risk

The Council has a four-step framework for identifying, assessing, managing and controlling and reviewing risk (see Figure 8.1). The framework involves a continuous process and can easily be integrated with performance management.

The Council has agreed criteria and processes by which to assess the likelihood and impact of risks, effectiveness of control measures and acceptance levels for management of residual risks.

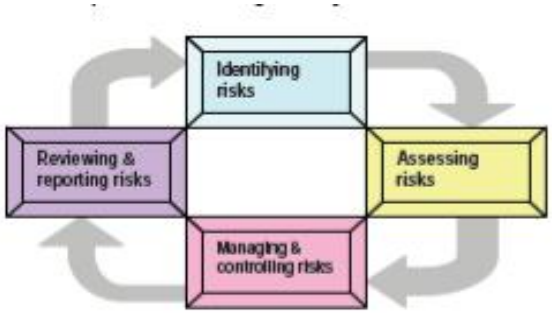


Figure 8.1 – Four-Step Risk Management Framework/Model

8.2 Risk Identification

The risk can therefore take a variety of forms, for example, financial risk, risks to projects and service delivery, corporate and departmental reputation, relationship with partner organisations or partner stakeholders, employees and Councillors and risks from missed opportunities.

With specific regard to road network considerations failure to maintain the whole or part of the road asset network to an acceptable standard of condition will potentially affect the risk impact on the Service and the Council.

Again with specific regard to the whole road network, comprising of carriageways, footways, drainage, street lighting and structures, there is therefore a continuous requirement to identify risk.

The normal activities/mechanisms used to identify risk to the road network involve all of the following processes;

- Scheduled safety inspections
- Customer notifications/complaints
- Condition assessment surveys
- Management review of performance
- Staff/employee notifications

8.3 Risk Categorisation

8.31 Safety Defect Risk Categorisation

Our safety defect risk matrix has been developed using the principles set out in;

Well maintained Highways
Code of Practice for Highway Maintenance Management
July 2005
(Hereafter referred to as the Code of Practice)

The 2005 Code of Practice was adopted in principle in May 2011 along with approval of the first RAMP. Local variations are permissible as long as the principles of the Code are adhered to. The risk matrix contained within Section 9, Table 5 of the Code of Practice was found in practice to be difficult to use and produced very variable assessments of risk.

A trial of a new 5x5 risk matrix which allows for finer definition of probability and impact was carried out and was found to produce much more consistent assessments of risk.

The risk matrix below, Table 8.1, replaces Section 9, Table 5 – Risk Matrix , in the Code of Practice and will be used to asses defects in Glasgow. This matrix operates on the same principle as the original matrix contained in the Code of Practice but allows for finer assessment of the level of probability and impact and results in more consistent assessment of risk.

Impact levels increase from level one ‘none’ through level three ‘moderate’ to level five ‘catastrophic’.

Probability levels increase from level one 'remote' through to level three 'possible' through to level five 'almost certain'.

The risks are then categorised as per Table 8.1.

Table 8.1 – The Risk Matrix (Probability x Impact)

The Risk Matrix							
PROBABILITY						**Score**	**Category**
Almost Certain	**5**	**10**	**15**	**20**	**25**	**25**	**Emergency**
Likely	**4**	**8**	**12**	**16**	**20**	**20**	**Cat 1**
Possible	**3**	**6**	**9**	**12**	**15**	**15-16**	**Cat 2 High**
Unlikely	**2**	**4**	**6**	**8**	**10**	**8-12**	**Cat 2 Medium**
Remote	**1**	**2**	**3**	**4**	**5**	**4-6**	**Cat 2 Low**
	None	Minor	Moderate	Major	Catastrophic	**1-3**	**Insignificant Risk**
	IMPACT						

8.4 Risk Control

Once the initial ranking of the perceived risk has been identified, ownership of the risk is allocated to the relevant manager (who owns management control of the risk). The controlling mechanism then involves a decision making process to mitigate, transfer or simply monitor the risk and risk level circumstances.

If temporary remedial actions are taken at this stage or not, it is best practice to summarise and document risk details, risk rankings and other associated details within a risk register.

Now that the risks and opportunities have been identified and assessed for likelihood and impact, there needs to be agreement on **who** will own the risk (and/or manage it) and **how** the risk will be managed, controlled or exploited.

Again there are four questions that will help here;

- Who will own and manage the risk?
- Can we reduce the likelihood of occurrence?
- Can we reduce the impact?
- Can we change the consequences of the risk?

There are four common approaches to treating risk;

- **Tolerating** the risk. An organisation that recognises the value of risk management accepts that sometimes it might be appropriate to place an activity 'at risk' (and continue with it) because this will open up greater opportunities for the future (but documenting the full reasoning behind it), or perhaps nothing can be done at reasonable cost to mitigate a risk in terms of potential benefit, or our ability to do anything about a risk might be very limited.

    - Where we set these levels of acceptance is known as our **risk tolerance or risk appetite.** We will tolerate risks that we consider to be acceptable, for example.

    - A risk that is effectively mitigated by an internal control – even if a very high risk.

    - A risk that cannot be mitigated cost effectively.

    - A risk that opens up greater benefits than dis-benefits.

    - These risks should continue to be monitored and contingency plans should be in place in the event of the risk occurring.

- **Treating** the risk. This is the most widely used approach. The purpose of treating a risk is to continue with the activity which gives rise to the risk but to bring the risk to an acceptable level by taking action to control it in some way through either;

    - **Containment actions** (lessen the likelihood or consequences and applied before the risk materialises) or;

    - **Contingent actions** (put into action after the risk has happened, ie reducing the impact. Must be pre-planned).

- **Terminating** the risk. Doing things differently and thus removing the risk. This is particularly important in terms of project risk but often severely limited in terms of the strategic risks of an organisation.

- **Transferring** the risk. Some aspects of the risk to a third party e.g. insurance, or paying a third party to take the risk in another way. This option is particularly good for mitigating financial risks or risks to assets e.g. the transfer of risks may be considered to either reduce the exposure of the Council or because another organisation is more capable of effectively managing the risk. However it is a limited option – very few strategic risks are insurable and only around 15-20% of operational risks can be insured against.

When the existing controls and action plans have been identified, the risks are reassessed for likelihood and impact. This gives a forecasted controlled score of the Risk Profile as a result of the mitigation action plans. That information is then recorded in the risk register.

8.5 Review and Reporting

The review process for the Corporate Risk Register and the LES Risk Register involves the appropriate management working groups reviewing the updated circumstances of each documented risk, and agreeing and setting ranking levels for any new risks under consideration. Following this progress, revised risk registers are produced. Review group meetings take place on a scheduled quarterly with the objective of negating or controlling risks.

8.6 Risk Register

LES has developed a risk register as reviewed in August 2009. The next review meeting was held in July 2010. Refer to Appendix H.

8.7 Major Asset Risks

Table 8.3 – Major Asset Risks

Risk Reference	Risk	Probability	Impact	Ranking	Control Actions	Residual Probability	Residual Impact	Residual Ranking
LESNS02	Flooding. Extreme weather and emergency conditions on LES' operations. Service disruption, local transport disruption, financial cost and resource allocation.	3	4	12	Emergency contingency plans for flooding, extreme weather and emergency conditions. Ensure control procedures and documentation kept up to date.	3	4	12
LESNS04	Failure of winter proactive measures, severe snowfall or extreme low temperatures. Traffic disruption, economic impact on city.	2	2	4	Ensure winter maintenance plans are maintained. Ensure adequate operatives are trained and continuous review of training. Plans reviewed every 13 weeks, October to March.	2	2	4
LESCORP06	Budget cuts and subsequent service disruption.	4	2	8	Preparation and regular monitoring against Budget and Service Plan of Capital and Revenue resources.	2	4	8

9.0 Improvement Plan

9.1 Milestones

An Improvement Action Plan (Appendix I) has been compiled to support this asset management plan. The key Improvement Action milestones for initial attention are listed below;

Table 9.1 – Key Improvement Actions

Year	No	Action	Priority	Statutory Non Statutory	Owner	Progress
Carried Forward From 2011	1	Collect data to ascertain lengths of footway by material type.	3	Non Statutory	Robert Walker	Ongoing as pert of the footway condition survey – year 1 survey approximately 60% complete.
	2	Collect data to ascertain functional hierarchy footway lengths.	3	Non Statutory	Robert Walker	To be done in 2012/13
	3	Complete the population of the SMS database with structures information.	3	Non Statutory	Sinclair Smith	Complete
	4	Develop a formalised process for establishing the ongoing, long term, budgetary requirements for the maintenance and management of the structures asset.	3	Non Statutory	Sinclair Smith	Complete
	5	Develop a long term structures programme of works required and link to the financial need projections. (IAS16)	3	Non Statutory	Sinclair Smith	Basic programme complete – further development 2012/13
	6	Develop a formal process within Glasgow for creating a co-ordinated structures' works programme made up of appropriate schemes from each of the individual asset groups.	3	Non Statutory	Sinclair Smith	Basic programme complete – further development 2012/13
	7	Develop a process to consider how maintenance options are identified and appraised for structures.	3	Non Statutory	Sinclair Smith	Basic programme complete – further development 2012/13
	8	Following the risk identification and appraisal exercise for the maintenance and management of the structures asset, develop a procedure for ensuring the significant risks are made known to senior management.	3	Non Statutory	Sinclair Smith	Bridge condition index previously reported at ROSDA meeting; new reporting mechanism being considered.
	9	Carry out sample inventory survey to collect data on non-illuminated signs.	3	Non Statutory	Frank McVeigh	No progress
	10	Carry out sample inventory survey to collect data on pedestrian barrier/safety fencing.	3	Non Statutory	Frank McVeigh	No progress
	11	Carry out sample inventory survey to collect data on road markings.	3	Non Statutory	Frank McVeigh	No progress
	12	Carry out sample inventory survey to collect data on street furniture.	3	Non Statutory	Frank McVeigh	Survey of City Centre seats completed.
	13	Develop workflow in WDM to record defects and associated response for traffic.	3	Non Statutory	Frank McVeigh	No progress
	14	Creation an Action Plan following the results of the Practice Assessment Questionnaire.	3	Non Statutory	Bruce Milne	Complete
	15	Develop processes to comply with CIPFA guidelines (Statutory and National)	3	Statutory	Bruce Milne	Complete
	16	Collect sample inventory data for remote footpaths.	3	Non Statutory	Bruce Milne	Not started – priority given to footway condition surveys.

	17	Develop an inspection regime for remote footpaths and off road cycleways.	3	Non Statutory	Bruce Milne	Annual inspection regime initiated 2011/12; unable to start in absence of inventory.
	18	Undertake electrical test inspection of street lighting to 6 year cycles.	4	Non Statutory	Ian Runciman	In progress; 20% complete.
	19	Undertake structural inspection of lighting plant to identify/record condition and prioritise areas for renewals.	4	Non Statutory	Ian Runciman	In progress; priority given to high risk columns; 30% complete.
	20	Improve reliability of inventory management system.	2	Non Statutory	Ian Runciman	Ongoing; improvement to cable network currently underway.
	21	Source energy efficient and environmentally friendly white light replacements for existing sodium light sources.	3	Non Statutory	Ian Runciman	LED trial ongoing in Knightswood; potential LED locations within the City Centre have been identified; GCC in partnership with SSE to trial energy/cost saving lighting solutions.
	22	Update the carriageway and footway inspection policy.	2	Non-Statutory	Ewan Shannon	Committee paper expected to be submitted December 2012.
New 2012	1	Development of greater working relationships between SPT and the authority and investigate joint solutions and funding to target bus routes.	1	Non-Statutory	Ross McKay	
	2	Development of a formal written process for the requisition and completion of condition assessments, along with the development of an assessment register allowing more efficient management of assessment history and scorings.	2	Non-Statutory	Ross McKay	
	3	Development of a new policy document with regard to the removal of temporary patching and implementation of selective permanent patching.	1	Non-Statutory	Ross McKay	In Progress
	4	Completion of the Footway Condition Sample Survey to provide detailed inventory.	4	Non-Statutory	Calum Stewart	In Progress
	5	The Public Realm Management and Maintenance Manual is to be reviewed and updated to reflect the current status of the Public Realm asset. It has to be more accessible and a digital version is to be created.	3	Non-Statutory	Calum Stewart	
	6	Collect information on retaining walls from the inspection programme.	4	Non-Statutory	Sinclair Smith	In Progress
	7	Liaise with Network Rail to progress a formal Technical Approval process.	1	Non-Statutory	Sinclair Smith	In Progress
	8	Ensure Gantry Inspection programme is carried out.	1	Non-Statutory	Sinclair Smith	In Progress
	9	Regularly inspect and maintain bridge traffic restrictions (interim measures). Prioritise maintenance tasks.	2	Non-Statutory	Sinclair Smith	In Progress
	10	Carry out sample inventory survey to collect data on road markings.	3	Non Statutory	Frank McVeigh	
	11	Asset Identification & Categorisation – Develop a Street Furniture Asset Register including every type of street furniture asset and a programme for updating from all the relevant operational departments within Technical Services	4	Non Statutory	Frank McVeigh	
	12	Update management system to LMS allowing more detailed data to be recorded to asset with future asset modelling.	4	Non Statutory	Ian Runciman	
	13	Introduce procedures to review and quantify Intelligent Transport Systems to establish and monitor asset condition linked to expenditure.	4	Non Statutory	Derek Barry	

	14	Review data management procedures to ensure updating of the asset register and notification of changes to all relevant parties.	4	Non Statutory	Derek Barry	
	15	Optimise safety inspection routes to maximise efficiency	3	Non Statutory	Iain Langlands	

Key

1 = within 3 months

2 = within 6 – 12 months

3 = within 12 – 24 months

4 = As soon as information becomes available

Other progress in 2011/12

1. Drainage Life Cycle Plan 90% complete.
2. Historical Investment data collated.
3. Performance Management and Management Data collated.
4. Carriageway prediction tool developed.
5. Affordable Service Standards developed – pilot.
6. Strategic Investment Plan for carriageway and footways.

9.2 Progress Reporting

There are regular meetings organised by Asset Managers and held with the asset owners to monitor and review progress against the milestones. An improvement action database will be maintained to ensure that suitable progress and appropriate follow up actions as required are carried out.

The following staff are the owners of the assets;

Roads Asset Manager: Norman Campbell

Lighting Asset Manager: Ian Runciman

Structures Asset Manager: Marco Bardelli

Data Asset Manager: Ian Langlands

Traffic Asset Manager: Jamie Rodden

10.0 Management and Control of the Plan

Issues and corresponding improvement actions have been identified in this RAMP, which require to be addressed to enable an asset management approach to be fully implemented.

10.1 Ownership of the RAMP

The plan is a controlled document stored within the Council's Road Management System with a named officer, Sandy Bennet, responsible for;

- Distribution to elected members, members of staff and the public.
- Monitoring of improvement actions and the implementation plan.
- Authorising and action implementation of updates to the plan.

The persons with responsibility for the delivery of this RAMP and their roles within the process are as detailed below;

Table 10.1 – RAMP Ownership Details

Position	Name	Role
Elected Members, Corporate Management Team, Executive and Council	-	Approval of RAMP (3 Yearly)
Executive Director of LES	Brian Devlin	Approval of the RAMP under delegated powers.
Assistant Director	George Gillespie	Champion of RAMP within LES.
Head of Roads and Neighbourhood Services	Andy Waddell	Responsibility for the implementation.
Technical Services Manager	George Vincent	Management of the plan.
Infrastructure Asset Manager	Christine Francis	Day to day implementation, monitoring improvement actions, informed decision making and ensuring updates are made to the documents.
Data Asset Manager	Ian Langlands	Developing data management systems for all assets and ensuring compatibility, ensuring data management procedures are followed, information is updated and providing requested information to others.
Roads Asset Manager	Norman Campbell	Day to day implementation of the Carriageway and Footway Lifecycle Plans ensuring updates are made to the document.
Lighting Asset Manager	Ian Runciman	Day to day implementation of the Lighting Lifecycle Plan ensuring updates are made to the document
Structures Asset Manager	Marco Bardelli	Day to day implementation of the Structures Lifecycle Plan ensuring updates are made to the document.
Asset Owner - Carriageways	Ross McKay	Updating Lifecycle Plans, ensuring implementation of improvement actions, identifying asset specific investment requirements and changes to procedures and documentation.
Asset Owner - Footways	Calum Stewart	
Asset Owner - Structures	Sinclair Smith	
Asset Owner - Lighting	Ian Runciman	
Asset Owner - Traffic Signals	Andy Torrance	
Asset Owner - Street Furniture, Signing and Lining	Scott Downie	

10.2 Updating the RAMP

The Asset Management Plan will be updated at the end of the implementation phase, as it is anticipated that the information it contains will alter during this period. Thereafter the Plan will be updated every 3 years to take account of ongoing improvements in inventory, practice and procedure.

The appendices to the Asset Management Plan will be updated on a continual basis as required by the content they contain. Updating will be undertaken by the processes introduced to manage the implementation of the plan, as detailed in Section 10.1.

11.0 Appendices