

Leicester's Local Transport Plan 2011-2026

Leicester City Council Transport Asset Management Plan 2011-2015



Leicester's Local Transport Plan 2011-2026

Leicester City Council Transport Asset Management Plan 2011 to 2015

2011-2015

**Regeneration, Highways and Transportation Division
Leicester City Council
New Walk Centre
Welford Place
Leicester
LE1 6ZG**

Welcome

Welcome to Leicester City Council's Transport Asset Management Plan 2011 to 2015. The Plan has been prepared by the Transport Strategy Team in the Regeneration, Highways and Transportation Division with input support from the relevant transport asset managers. It sets out how the Council's transport assets are managed to help achieve the Council's corporate objectives and specifically the Council's transport objectives as stated in Leicester's Local Transport Plan 2011 to 2026. The Plan sets out our asset management and maintenance goals, policies and strategies and how we will improve our asset management practices.

The Transport Asset Management Plan (TAMP) includes:

- Chapter 1: Transport Asset Management at Leicester
Gives an overview of Leicester's transport assets and explains our approach to asset management planning at Leicester City Council.
- Chapter 2: Levels of Service
Defines the levels of service that are proposed, sets out how services are delivered and arrangements for monitoring performance.
- Chapter 3: Lifecycle Management Planning
Explains the lifecycle management planning approach encompassing the entire transport asset and sets the scene for the specific asset groupings life cycle management plans.
- Chapters 4 – 11: Lifecycle Management Plans
Explains how the specific asset grouping is managed and actions to improve the service provided.
- Chapter 12: Drainage Asset Management Plan
- Chapter 13: Financial Management
Describes the existing asset management accounting and financial systems, and provides details on the asset valuation
- Chapter 14: Forward Works Programme
Explains how the forward works programme is included in Leicester's Local Transport Plan - Part B, the Implementation Plan.

Leicester's Local Transport Plan contains the Transport Strategy in Part A and the Implementation Plan in Part B. This Transport Asset Management Plan is one of the five key operational plans that facilitate the provision of and continuous improvement of highway and transport services in Leicester. It should be read in conjunction with the other key documents namely:

The operational plans:

- Leicester City's Rights of Way Improvement Plan 2011-2021
- Leicester's Air Quality Action Plan 2011-2021
- Leicester's Network Management Plan 2011-2015
- Leicester's Surface Water Management Plan (under development)

(All available at www.leicester.gov.uk)

This new edition provides an update on policies and procedures, improvement actions presented in the previous edition. It includes some new changes based on LTP-3 objectives and new topics on asset management plan initiated by Department for Transport. This TAMP will cover the next four years period from 2011-2015. The TAMP is a live document and so

- 1) The Improvement Action Plan will be reviewed every six months
- 2) The Implementation Plan will be reviewed every year to suit the budget
- 3) Any new policy changes will be added to the TAMP as a revision

The Key changes in this Transport Asset Management Plan 2011-2015 are summarised below:

- 1) **Period:** The new TAMP will cover the next 4 year period (2011-2015)
- 2) **Objectives:** The TAMP is updated in line with the new LTP-3 objectives and "One Leicester" Priorities.
- 3) **Carriageways & footways** - In the past , priority was given to carry out maintenance on the Principal carriageway network, but now the new strategy will emphasis more importance on the unclassified road network and footways.
- 4) **Highway Structures** - We will continue to carry out strengthening and major maintenance works to highway structures like bridges.
- 5) **Car Parks & Bus Station** - Our maintenance strategy would be to continue regular condition inspections by our building surveyors, appropriate routine maintenance and then occasional major refurbishment.
- 6) **Street Lighting** - We aim to use more Cosmopolis or Light Emitting Diodes (LED) lamps to save energy consumption and reduce CO2 emissions
- 7) **Traffic Signals** - We aim to use more Extra Low Voltage or Light Emitting Diodes (LED) lamps to save energy consumption and reduce CO2 emissions.
- 8) **Trees and Landscaping** - The aim of the maintenance strategy is to maintain the trees stock and landscaped areas in good condition and to replace trees with

appropriate species where necessary. We will improve the landscape and biodiversity at every opportunity

9) **Winter Service** - We intend to increase the effectiveness of our winter maintenance service by continuing the gritter replacement programme and introducing GPRS technology.

10) **Street Furniture** - Our strategy is to keep the street furniture in a 'fit for purpose' condition and ensure it contributes positively to the street scene.

New inclusions in the TAMP are:

11) **Drainage Asset Management Plan (DAMP)** - The specific aim of our Drainage Maintenance Strategy is to maintain the system in a safe and efficient manner. We will adopt more Sustainable Urban Drainage (SUDS) methods in the new Developer schemes.

12) **Whole Government Accounting (WGA)** – we aim to finish the inventory collection of all transport assets and calculate the asset valuation. The Chartered Institute of Public Finance and Accountancy (CIPFA) has given strict deadlines to submit the WGA full financial statements by 2012-13.

13) **Implementation Plan** - shows the proposed forward works programme.

There are 5 appendices attached with the TAMP and following alterations have been made to them:

1. Appendix B1 – Leicester City Council Street Naming Policy 2011
 - In the old policy approval of the Cabinet is needed for naming a street after a living person, but now it has been delegated to the Cabinet Lead member.
 - The policy regarding suffixes is amended to be less perspective.
 - The procedure for naming the street has been removed from the policy, since there is a specific team's procedure available for naming and renaming streets (RHT-WT-09-P)
2. Appendix B2 – 6C's Regional Design Guide
 - This guide was formerly called as "Highways, Transport and Development Guide" and now renamed as 6C's Regional Design Guide.
3. Appendix B3 – Leicester City Council Tree Policy September 2007
 - No alteration
4. Appendix B4 – Leicester City Council Vehicular Crossing Policy 2011
 - Minor amendments made to reflect management changes
 - Procedure removed since it will be covered by team's specific procedure
5. Appendix B5 – Leicester City Council Gating Order Policy 2008
 - No alteration

**ANY VIEWS OR COMMENTS?
PLEASE CONTACT US:**

Ravi Mohankumar
Leicester City Council
Block A, New Walk centre
Leicester, LE1 6ZG
Tel: 0116 252 8633
e-mail: ravi.mohankumar@leicester.gov.uk

PHOTO

Where can I get a free copy?

The Customer Services centre
New Walk centre, Welford Place, Leicester,
Telephone 0116 252 7000

PHOTO

Where can I see a copy?

The Reference and Information Library
Bishop Street, Leicester

PHOTO

Where can I see it on-line?

At www.leicester.gov.uk

PHOTO

Is there a summary?

A summary leaflet of the Local Transport Plan will be available from May 2011 and will be available on-line

Where can I get a copy in other languages?

Telephone 0116 252 7026 for a summary leaflet available in Gujarati, Punjabi, Bengali, Urdu and Somali

Where can I get audio tapes, large print and easy read versions?

Telephone Ravi Mohankumar on 0116 252 8633

Executive summary

Chapter 1 - Transport Asset Management at Leicester

Transport assets maintainable at public expense include:

- 838 km roads, 1300 km footways, 65 km rights of way
- 294 highway structures
- 8 car parks accommodating 1900 parking spaces and 1 bus station
- 43,000 street lights and illuminated sign units
- 356 traffic signal sets
- 21,000 highway trees and 138 hectares of highway verges
- Winter Service depot and 6 gritters
- Variety of street furniture

The approximate replacement cost of these assets, excluding land, is £1,100 million at April 2007. The approximate total annual budget available to spend on improving, operating and maintaining these assets is £2.1 million.

Leicester's Transport Asset Management Plan Objectives are:

- To optimise the **safety** of the network – by complying with statutory obligations & meeting users' need for safety
- To optimise network **serviceability** – by ensuring availability, achieving integrity, maintaining reliability & enhancing condition
- To optimise **sustainability** – by minimising cost over time, maximising value to the community & the environment
- To focus on the user – **customer service**, an overarching objective

During the preparation of this plan we have reviewed our maintenance strategy, identified the need to modify our current strategy and have identified areas for improvement in our asset management practices. Our strategy for 2011 onwards is to continue to improve our network management procedures and to continue to focus on improving the condition of the unclassified roads and footway network whilst preventing deterioration in the condition of the Principal and Non-Principal classified road (carriageway) network. We plan to spend proportionally more money replacing traffic signal installations to reduce the number of installations beyond their design life but will reduce the rate of replacing street lighting as the lighting stock is in relatively very good condition. We will continue to carry out bridge maintenance works spending monies allocated by the Department for Transport for bridges. Operation and maintenance of our car parks and St Margaret's Bus Station will continue to follow a robust business management approach which is seeing the continual improvement of services provided using these assets. We will continue to follow the appropriate codes of practice relating to asset management and maintenance, to implement the improvement actions in each asset chapter to improve our asset management practices and hence further implement best practice recommended in the codes. We will report any significant proposed deviations from these codes to our executive officers.

Chapter 2 - Levels of Service

The City Council's highway infrastructure assets are in a varying state of condition. The Principal and Non-Principal Classified roads are in fair condition but the unclassified roads and footway networks are in poor condition. The overall condition of the bridge stock is considered fair. About eight percent of our street lighting stock is above desired maximum age of 40 years and whilst the average age of our traffic signal equipment is 7 to 8 years we have in excess of 50 installations above their design life of 15 years.

The demands on the infrastructure over the next five years have been thoroughly researched and analysed during the preparation of the Leicester's Local Transport Plan 2011 to 2026 (LTP). The LTP explains in detail how the Council plans to cater for these demands.

The general messages from consultation with highway users can be summarised as:

- Improve the general condition of carriageway surfaces
- Improve the general condition of footway surfaces
- Improve the general condition of the footpaths
- Improve the general condition of bridleways
- Improve facilities for cyclists and overall improve the cycle track network
- There is a much higher satisfaction with street lighting compared to roads, footways and cycle networks

The role of the Highway Authority as asset manager is governed by an extensive range of legislation. The Highways Act 1980 is the key piece of legislation that sets out our main duties. In particular, Section 41 imposes a duty to maintain highways maintainable at the public expense.

Level of service performance for the overall transport asset is measured using Performance Indicators. The specific strategic indicators and targets are detailed in Chapter 9 of the LTP. These indicators are supplemented by the Transport Asset Management Plan "operational" performance indicators included at the end of each asset grouping chapter.

Chapter 3 – Lifecycle Management Planning

The primary purpose of a lifecycle management plan is to document how a particular asset is managed and as an output identify current and future needs, and hence determine "performance gaps", to be addressed through delivering forward works programmes and improvements in management practices. The secondary purpose is to record the institutional knowledge for the enhancement of the future service delivery and to take on board specific requirements of the users. In the lifecycle management plans (Chapters 4 to 11) we outline asset grouping objectives, asset performance, inventory information and what is planned for the asset group or individual asset.

Risk management is a key part of the Council's strategic management and performance management process and underpins our asset management approach at all levels. Formal and informal risk assessment and management have been carried out over many years leading to the current routine maintenance standards and maintenance policies and procedures we have today. Our strategic risk register and operational asset

grouping risk registers, which are reviewed annually and after a significant event, are included at Appendix A.

The two residual high risk areas identified through our risk management process are:

- Severe weather leading snow or ice on highway, fallen trees blocking highway, flooding blocking highway causing disruption to highway users and damage to property - further actions are to prepare strategy to deal with increasing likelihood of local flooding and to review trees routine maintenance standards
- Difficulty in attracting and retaining technical staff leading to scheme delays – further action is to revive graduate and technician training scheme and to develop framework contract for consultancy services

The desired levels of service, as defined by our targets, are set out in Chapter 9 of the Leicester's Local Transport Plan 2011 to 2026 onwards and the lifecycle management chapters in this document. Risks to achieving these targets may occur at corporate, programme or project level. These risks are managed using appropriate works programme and project management arrangements and quality management processes and procedures.

Improvement, operation and maintenance services are provided by in-house service providers and by external consultants and contractors through either long-term contracts and/or one-off contracts.

Chapter 4 – Carriageways and Footways Lifecycle Management Plan

Carriageways and footways (part of the highway network) form the largest part of the transport asset with an estimated Gross Replacement Cost (GRC) of £962,900,739 (valued in 2010). The cycle track network is an expansion of the highway network aimed at encouraging people to cycle and is one of the key aims of improvement of our transport strategy. The number of traffic calming features provided on the road network is increasing to improve road safety in line with one of the key objectives of the transport strategy.

The highway network asset grouping is managed and maintained predominantly in accordance with the Well-maintained Highways: Code of Practice for Highway Maintenance Management, July 2005 - UK Roads Board.

The specific aim of the highway network maintenance strategy is to halt the rate of deterioration and maintain the current condition of the carriageways whilst to improve the condition of the unclassified road network, footways and footpaths. We are focusing on improving the condition of the unclassified road network, footways and footpaths to maximise the contribution of this network to help achieve our overall aim of encouraging more journeys to be made by bus, cycling and walking. Our UKpms and highway user consultation feedback analysis shows the condition of our footway and footpath network to be poor. Improving the condition of this network should continue to help reduce the number of claims for trips and falls against the Authority.

Chapter 5 – Highway Structures Lifecycle Management Plan

The Highway Structures asset grouping includes road bridges, footbridges, disused rail bridges, retaining walls, embankments, cuttings, gantries, tee posts, high mast lighting and a listed disused tunnel. Highway structures are generally designed to provide a safe means of access for the travelling public, either commercial or private. We have placed particular emphasis on routes that are significant for public transport or where bridges lead to existing or potential commercial areas where all structures should be capable of carrying the appropriate bus or HGV loading. Highway structures are provided to support the highway or the land surrounding the highway, to protect the highway user and to carry services over rivers and to deal with rainwater and land drainage safely i.e. maintaining culverts

The aim of our Highway Structures maintenance strategy is to maximise the benefits of the funding available to keep all bridges fit for purpose and safe for use. The strategy includes a mixture of bridge strengthening and major maintenance on bridges on both the Primary and Non-Primary Route Network. It also includes the on-going implementation of the Management of Highway Structures Code of Practice. We plan to improve the overall condition of our bridge stock from Fair to Good in the course of the next LTP.

Chapter 6 – Car Parks, Bus Station and Bike Park Lifecycle Management Plan

The car parks and off-street parking are provided mainly for people accessing essential services, shops and leisure services. Parking charges are set so as to discourage commuter parking and hence ensure that there are sufficient spaces available for non-commuters. Surplus income generated from the operation of the on-street parking operation is re-invested in transport services such as subsidising non-profitable bus services.

St Margaret's bus station provides a facility for members of the public wishing to use public transport. It acts as an important interchange for passengers travelling across the county as well as being a departure and arrival point for many coach companies travelling throughout the country and abroad.

The Bike Park located in the Town Hall provides a range of facilities to support cyclists such as sales and repairs, secure bike parking and showers.

The aim of our strategy is to maintain the car parks, bus station and bike park in a safe and welcoming (good) condition thus providing the user with a pleasant experience when using the facility. Our maintenance strategy consists of regular condition inspections by our building surveyors, appropriate routine maintenance and then occasional major refurbishment. Facilities at the car parks and bus station are upgraded as new technology becomes available, such as the real time information provided at the bus station.

Chapter 7 - Street Lighting Lifecycle Management Plan

Public lighting is to allow people to see, be seen and observe others (community safety) whether travelling on foot, by cycle or by motorised modes. Improving the quality of lighting is key to reducing crime and the fear of crime, thus encouraging more walking and cycling after dark, which then increases natural surveillance of routes.

The aim of our street lighting maintenance strategy is to create and maintain a public highway network that is safe and attractive for the community to use at night by providing efficient and effective street lighting and illuminated traffic signs and bollards. We use a robust method of targeting expenditure on lighting column replacements to maintain our stock in good condition.

The street lighting asset grouping is managed and maintained predominantly in accordance with the Well-lit Highways: Code of Practice for Highway Lighting Maintenance, November 2004 – UK Lighting Board. We consider the street lighting stock to be in good condition with only 9% of street lighting columns older than the design life guide of 40 years. We aim to use more Cosmopolis or Light Emitting Diodes (LED) lamps to save energy consumption and reduce CO2 emissions. Our forward works programme will aim to replace the remaining concrete columns and cast iron columns over the next several years and continuing to replace defective steel columns subject to availability of funding.

Chapter 8 - Traffic Signals and Associated Equipment Lifecycle Management Plan

The Urban Traffic Management Centre linked together with “on-street” equipment such as traffic signals, real-time information signs for bus services and car parks provides us with the opportunity to maximise journey-time savings both for buses (through selective vehicle detection software) and all traffic (through SCOOT). The improved real time in-journey information that our systems provide is a key element of both our congestion and accessibility strategies.

The aim of our strategy is to improve, maintain and operate the traffic control equipment, which includes 356 traffic signal installations, to a safe and efficient standard thus optimising the capacity of the network and ensuring that the benefits gained from the recent significant investments continue to be realised. We aim to use more Extra Low Voltage or Light Emitting Diodes (LED) lamps to save energy consumption and reduce CO2 emissions.

Our proposed renewal programme is based on replacing sites which become life-expired or develop an excessive fault rate. It is proposed to carry out the routine maintenance and aim to increase expenditure on signal renewals to tackle the increasing backlog of traffic signal renewals subject to improvement in the funding situation.

Chapter 9 - Trees and Landscaping Lifecycle Management Plan

The trees and landscaping asset grouping includes street trees and shrub borders, grass and landscaped verges (the last three referred to as “soft” verges). Maintenance of the tree population enhances amenity and imparts benefits such as visual enhancement of the landscape, boundary demarcation and the provision of shelter and screening.

Grass verges and areas are a particular problem in the urban areas due to the parking of vehicles on them and the subsequent damage. The Council’s policy is to replace grass verges, subject to funding available, with verge hardening if a verge is very badly damaged and constitutes a safety and environmental problem. However, the work is to be designed in such a way that it does not increase the amount of runoff it generates. Porous surfacing is to be used and materials other than ‘blacktop’ are to be used to maintain a green environment and create a more sustainable solution.

The aim of the maintenance strategy is to maintain the trees stock and landscaped areas in good condition and to replace trees with appropriate species where necessary. This is complimentary to the Council’s Eco Management Audit System (EMAS) commitment to sustain the trees and landscaping resource.

Our maintenance strategy for trees and landscaping consists of default observations by our highway inspectors as part of the highway safety inspections and arboricultural inspections every 2 years. Routine maintenance to the trees is a balance of pruning and cutting back with removal of trees in poor condition or causing significant problems.

Chapter 10 - Winter Service Lifecycle Management Plan

The particular highway network management requirements during the winter period are not “maintenance”, in the traditional sense, but specialist operational services. Hence, we have adopted the terminology of “Winter Service”. For planning and operational purposes the Winter Service operates from 1st October to 30th April every year.

It is the Council’s Policy, as the Highway Authority, to comply with the requirement of the Highways Act 1980 Section 41(1A) including Section 111 of the Railways and Transport Act 2003, to clear snow and ice from the highway in times of significant snowfall so far as is reasonably practicable, so that safe passage along the highway is not endangered by snow or ice. This does not mean that all roads and footways in the City have to be treated as soon as ice forms or snow falls.

The aim of our winter service strategy is to provide a service that, as far as reasonably possible, permits the safe movement of traffic including buses (and pedestrian access to bus stops) and keeps delays and accidents caused by adverse weather conditions to a minimum on roads within Leicester. This will be achieved by providing a consistent and well co-ordinated service in the City area and by deploying resources in an efficient manner. This will be achieved by:

- Preventative Measures i.e. precautionary salting/gritting.
- Salting/gritting following the formation of snow and/or ice.
- Clearance of snow and/or ice.
- Provision of salt bins in appropriate locations.

Over the next 5 years we intend to increase the effectiveness of our winter service by continuing the gritter replacement programme and introducing GPRS technology into each of the gritters to target the gritting more precisely to whether it is most needed. We will also be taking on any of the many initiatives that are being developed for winter service nationally that are appropriate for our authority.

Full details of the routes and priority footway/pedestrian areas to be treated are contained in the Winter Service Operational Plan (www.leicester.gov.uk).

Chapter 11 - Street Furniture Lifecycle Management Plan

Street Furniture is provided to enhance the street scene, to provide information and to give a general amenity to users.

The main aim of the maintenance strategy is to keep the street furniture in a fit for purpose condition and ensure it contributes positively to the street scene. Our maintenance strategy generally consists of regular inspections by our highway inspectors and repairs or replacement by our maintenance service providers.

Chapter 12 - Drainage Asset Management Plan

Highway drainage is an essential part of any highway which provides a route for rainwater falling on the footway or carriageway to drain away in a safe manner and is designed to prevent water from remaining on the surface and causing a danger to drivers and passengers. So it is vital that we maintain our highway drainage assets.

Our Maintenance Strategy covers the three areas of safety, serviceability and sustainability. The specific aim of our Drainage Maintenance Strategy is to maintain the system in a safe and efficient manner. The safety of our drainage assets are covered by visual inspection as part of our highway safety inspections. In case of developer designed schemes, we would want to use more Sustainable Urban Drainage Systems(SUDS).

Chapter 13 - Forward Works Programme

The Council makes asset management investments using finances from a variety of sources. Different assets attract finances from different sources. The indicative total budget available to improve, operate and maintain Leicester City's transport assets per annum are £2.1 million Capital Maintenance Budget and £2.480 K in Revenue budget.

The Asset Inventory will continue be developed in accordance with the County Surveyors Society Framework for Highway Asset Management, covering the needs of the Asset Valuation. In order to support the asset valuation, the asset inventory includes the **Asset Register** that lists the assets in our ownership and **Valuation Data** recording features that influence the asset values. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the CIPFA's Guidance published in 2010 a '*Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting*'.

The following are key drivers for the Highways Asset Valuation.

- To emphasise the need to preserve the highway infrastructure
- To support improved asset management
- To support the Whole of Government Accounts

In the main all asset management related transactions are ultimately captured by the Financial Management Software called 'Agresso' Resource Management System (RMS). The asset managing sections are responsible for maintaining the assets and respective finance teams are responsible for making the payments.

Assets created during the year are recorded in the Corporate Asset Register through the Agresso transactions. At the year end asset managers report assets under construction to the Corporate Finance Team reporting the asset valuation for the accounting purposes.

The transport assets of the Council have been valued at £1,100 million at April 2007. We are in the process of collecting all the asset inventories and work out the asset valuation for the purpose of Whole Government Accounting (WGA). A stringent timetable is set for inventory information by CIPFA for asset valuations. The key dates being:

- 2009-10 provide Gross Replacement Cost (GRC) figures
- 2010-11 provide Depreciated Replacement Costs (DRC) figures
- 2011-12 provide full dry run GRC and DRC balances.
- 2012-13 provide WGA full financial statements
- The vast majority of the GRC value is based on Carriageway and Footway areas
- Existing model allows for default widths and no footway information (but not from 2011/12)
- It will be essential to have reliable length and width information for carriageway and footways from 2011/12.

Chapter 14 - Implementation Plan (Forward Works Programme)

Transport Asset management Plan's forward works programme is part of the Leicester's Local Transport Plan (LTP) Part B – Leicester's First Implementation Plan 2011 to 2015. The plan details the next four years of our transport projects and initiatives, key milestones and risk management. The programmes in the Implementation Plan have been developed to maximise value for money and efficient delivery.

Appendix A - Strategic and Operational Risk Registers

Appendix A contains the Transport Asset Management Strategic level risk register, each asset grouping risk register and the forward works programme risk register.

Appendix B - Specific Asset Management Policies

1. Street Naming Policy 2011
2. 6C's Regional Design Guide – available at www.leicester.gov.uk

3. Leicester City Council Tree Policy September 2007
4. Leicester City Council Vehicular Crossings Policy 2011
5. Leicester City Council Gating Order Policy 2008

Contents

Page		
	Introduction	(xiv)
	Chapter 1. Transport Asset Management at Leicester	1
	1.1	Leicester City's Transport Assets
	1.2	Management Arrangements
	1.3	What is Asset Management?
	1.4	Why do it?
	1.5	Leicester's Transport Asset Management Plan Objectives
	1.6	The Transport and Highway Maintenance Strategy
	Chapter 2. Levels of Service	13
	2.1	Introduction
	2.2	Condition of the Transport Network
	2.3	Future Demands on the Network
	2.4	Customer Expectations
	2.5	Organisational Objectives
	2.6	Legislative Requirements
	2.7	Codes of Practice
	2.8	Desired Levels of Service
	2.9	Service Level Performance Monitoring
	Chapter 3. Lifecycle Management Planning	24
	3.1	Introduction
	3.2	Purpose of Life Cycle Management Plans
	3.3.	Inventory – The Asset Register
	3.4.	Asset Valuation
	3.5	Asset Lifecycle Options and Asset Life
	3.6	Performance Gaps
	3.7	Option Identification
	3.8	Budget Optimisation
	3.9	Risk Management
	3.10	Service Delivery
	3.11	Improvement Plans
	Chapter 4. Carriageways and Footways Lifecycle Management Plan	32
	4.1	Introduction
	4.2	Maintenance Strategy
	4.3	Inventory
	4.4	Current Asset Condition
	4.5	Asset Valuation
	4.6	Asset Lifecycle Options and Asset Life
	4.7	Performance Gaps
	4.8	Optimisation and Maintenance Budget Considerations
	4.9	Risk Management
	4.10	Forward Works Programme
	4.11	Service Delivery
	4.12	Asset Management Practices

4.13	Service Level Performance Monitoring	
4.14	Improvement Plan	
Chapter 5.	Highway Structures Lifecycle Management Plan	68
	Contents as per Chapter 4	
Chapter 6.	Car Parks, Bus Station and Bike Park Lifecycle Management Plan	93
	Contents as per Chapter 4	
Chapter 7.	Street Lighting Lifecycle Management Plan	110
	Contents as per Chapter 4	
Chapter 8.	Traffic Signals and associated equipment Lifecycle Management Plan	126
	Contents as per Chapter 4	
Chapter 9.	Trees & Landscaping Lifecycle Management Plan	141
	Contents as per Chapter 4	
Chapter 10.	Winter Service Lifecycle Management Plan	150
	Contents as per Chapter 4	
Chapter 11.	Street Furniture Lifecycle Management Plan	157
	Contents as per Chapter 4	
Chapter 12.	Drainage Asset Management Plan	169
	12.1 to 12.6 contents as per chapter 4	
12.7	Surface Water Management Plan	
12.8	Performance Gaps	
12.9	Optimisation and Maintenance Budgets Considerations	
12.10	Risk Management	
12.11	Forward Works Programme	
12.12	Service Delivery	
12.13	Asset Management Process	
12.14	Service Level Performance Monitoring	
12.15	Implementation Plan	
Chapter 13.	Financial Management	174
13.1	Asset Management Finances	
13.2	Financial Statement and Projections	
13.3	Asset Valuation	
13.4	Accounting and Financial System	
13.5	Improvement Plan for Asset Valuation	
Chapter 14.	Forward Works Programme	182
14.1	Introduction	
14.2	Funding Leicester's Local Transport Plan	
14.3	Governance and Reporting Arrangements	
14.4	The Programmes, Projects, Measures & Services	
14.5	The Highway Maintenance Revenue Programme	

Appendix A – Strategic and Operational Level Risk Registers and the Forward Works Programme Risk Register

Appendix B - Specific Asset Management Policies

1. Street Naming Policy March 2011
2. 6C's Regional Design Guide (Htd)
3. Leicester City Council Tree Policy September 2007
4. Leicester City Council Vehicular Crossings Policy 2008
5. Leicester City Council Gating Order Policy 2008

Introduction

This is Leicester City Council's Transport Asset Management Plan 2011-15 (TAMP). The purpose of the plan is to set out how the transport assets are managed by the Council. It draws together the objectives, strategies and standards used in managing the assets and explains how the asset management practices work in Leicester. It sets out our priorities, and a programme of works and activities and an improvement plan to enable the Council to meet its strategic goals in respect of the asset ownership in the most cost effective way, within the framework of statutory requirements, customer expectations and sustained investment.

This plan is an operational plan of Leicester's Local Transport Plan 2011 -2026 (LTP3) and the Council's Corporate Asset Management Plan. It is a tactical plan that details how asset management supports the delivery of the objectives and strategies set out in LTP3. In developing the plan a lifecycle management planning approach is adopted. In doing so, for each of the asset groupings, options are identified and levels of service are stipulated. These are expressions of the outcomes of asset management practices that can be closely monitored through the introduction and use of an appropriate performance management system, explained at the end of each asset grouping chapter.

The Plan has been updated in parallel with the third Local Transport Plan. The plan will be subject to annual review and further editions issued as appropriate.

The document is controlled in accordance with the Division's Quality Management System. The Transport Asset Management team comprises of:

Mark Wills,	Transport Strategy	Project Director
Ravi Mohankumar,	Transport Strategy	Project Manager
Garry Scott	Transport Strategy (Local Transport Plan and Strategic Direction)	
Alan Adcock	Highway Maintenance (Trees, Landscaping, Street Furniture)	
Martin Fletcher	Highway Maintenance (Carriageways, Footways, Winter Maintenance and Drainage)	
Abul Tarafder	Design & Project Management (Highway Structures)	
Sangita Pattni	Traffic Management (Traffic Signals)	
Manjeet Virdee	Highway Maintenance (Street Lighting)	
Nigel Clarke	Traffic Management (Car Parks)	
John Dowson	Transport Strategy (Bus Station and Bike Park)	

Chapter 1 Transport Asset Management at Leicester

1.1 Leicester City's Transport Assets

1.1.1 Transport assets owned and operated by the Council include:

- 838 km of roads, 1300 km of footways
- 65 km of recorded rights of way
- 294 highway structures
- 8 car parks accommodating 1,900 parking spaces and 1 bus station
- 43,000 street lights and illuminated sign units
- 356 traffic signal sets
- 21,000 highway trees and 138 hectares of highway verges
- Winter Service depot and 6 gritter vehicles
- Variety of street furniture

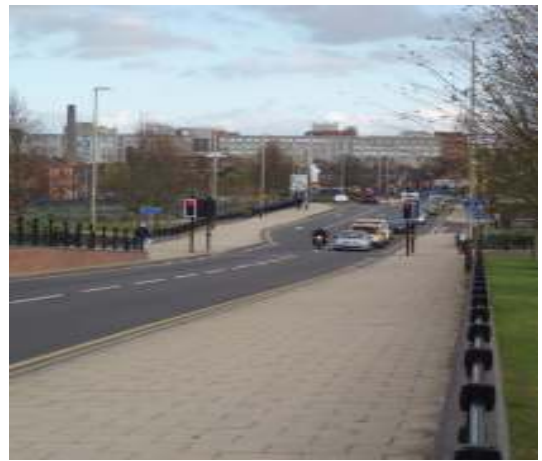
1.1.2 The replacement cost of the above assets, excluding land, was valued at approximately £1,100 million in April 2007. The approximate total annual budget available to spend on improving, operating and maintaining these assets is £2.1 million.

1.2 Management Arrangements

1.2.1 The Team Leader Transport Strategy is Leicester City's Transport Asset Manager, responsible for ensuring all assets are appropriately managed to support corporate, Local Transport Plan and asset management objectives. The Asset Manager is supported by the Senior Engineer, Transport Strategy Team with input from the relevant asset managers in the various sections and teams of the Division. Assets covered by the Plan and the lead asset managers are detailed in Table 1.1 "Scope of Plan and Lead Asset Managers".



Pre scheme photo looking towards the elevation "Upperton Road"



Post scheme photo along "Upperton Road"

Upperton Road Viaduct Scheme (£19million) – replacement of a life expired bridge asset was carried out in 2008/2009.

Table 1.1 Scope of Plan and Lead Asset Managers			
Asset Grouping	Assets in grouping	Asset Manager(s)	Section
Carriageways & Footways	Carriageways Footways Cycleways Public Rights of Way Highway gulleys, drains & chambers Road humps Road markings & studs Road markings Pumping Stations	Group Manager Highway Maintenance	Highway Maintenance
Highway Structures	Bridges (including footbridges) Retaining Walls Boundary Walls Gantries Culverts Embankments	Team Leader Bridges	Design and Project Management
Street Lighting	Street Lighting Columns Street Lighting Units Illuminated and Non-illuminated Traffic Signs Festive Decorations Subway Units Reflector Posts Illuminated Bollards Feeder Pillars Network Cabling High Masts	Street Lighting Maintenance Manager	Highway Maintenance
Traffic Signals & Associated Equipment	Traffic Signals CCTV cameras/Equipment Variable Message Signs Traffic Counters Star Trak Signs Urban Traffic Management Centre Computers	Team Leader Network Maintenance System Support Traffic Operations	Traffic Management
Car Parks & Bus Station	Car Parks Parking Meters St. Margaret's Bus Station	Team Leader Parking Team Leader Sustainable Transport	Traffic Management Transport Strategy
Trees & Landscaping	Trees Soft Verges	Head of Highway Maintenance	Highway Maintenance
Winter Service	Leycroft Road Depot Gritter Fleet, Grit Bins	Group Manager Highway Maintenance	Highway Maintenance
Street Furniture	Fencing & Miscellaneous Walls Planters Roadside Seats Street Name Plates Bollards (Non-illuminated) Bus Shelters Bus Stop Flags Cycle/Motor Cycle Racks Information Boards Tree Pits	Head of Highway Maintenance Team Leader Sustainable Transport	Highway Maintenance Transport Strategy

Drainage Assets	Plans showing gully locations Gully locations in MAPinfo STWA sewer maps Historic flood information Plan showing tributaries of river Soar General drainage assets like gullies, connecting pipes & main drains, inspection chambers.	Flood Risk Manager	Highway Maintenance
Whole Government Accounting	Collecting full transport assets inventory 2010-11 Provide Depreciated Replacement Costs (DRC) 2011-12 – Provide full dry run GRC and DRC balances 2012-13 provide WGA full financial statements	Senior Engineer Transport Strategy	Transport Strategy

1.3 What is Asset Management?

1.3.1 In Leicester we have adopted the definition provided in the County Surveyors Society “Framework for Asset Management” published in June 2004:

“Asset management is 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.”

1.3.2 This definition brings together themes that define an asset management approach:

- **Strategic Approach** - A systematic process that takes a long term view
- **Whole of Life** - The whole-life/life-cycle of an asset is considered
- **Optimisation** - Maximising benefits by balancing competing demands
- **Resource Allocation** - Allocation of resources based on assessed needs
- **Customer Focus** - Explicit consideration of customer expectations

The Key Elements of Asset Management

1.3.3 The key elements of asset management planning are:

- Planning for future asset requirements based on projected demand and service levels - customer requirements
- Monitoring the condition and performance of assets
- Optimising the long-term life cycle maintenance and operating costs
- Cost effective management through improved system and practices
- Demonstrating stewardship of assets on behalf of customers and stakeholders

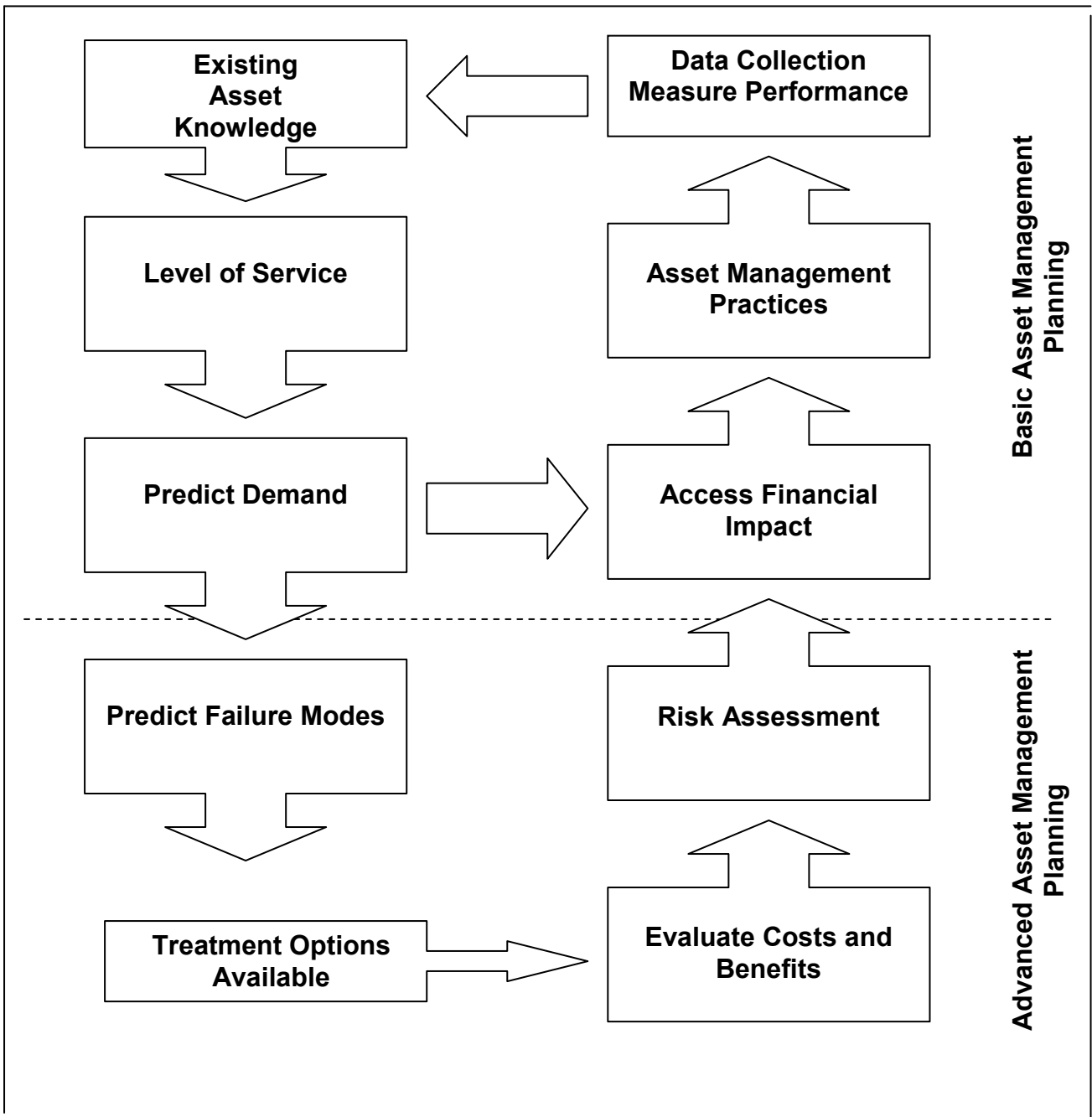
1.3.4 The adoption of a formalised asset management approach in Leicester builds on the foundations of existing practices but also represents a large step improvement in what we do. This plan sets out practices in regard to these

elements as far as is possible. Where improvements in our practices have been identified they have been set out in the asset grouping chapters.

Basic and Advanced Asset Management

1.3.5 There are two internationally recognised styles of asset management - basic and advanced. The differences between the two models are shown at Figure 1.1. This TAMP represents an evaluation of asset management practices in the Council and sets out a way forward. The approach in this plan follows the basic system, with some enhancements from an advanced system. For example, risk assessment will be developed over the life of this plan.

Figure 1.1 Basic and Advanced Asset Management Planning



- 1.3.6 This necessitates taking a lifecycle approach to asset management and the developing TAMP is based on:
- Best available current information
 - Condition sample
 - Existing service levels
 - Existing strategies, policies and plans
 - Calculating cash flow predictions for asset maintenance, rehabilitation and renewal based on local knowledge
 - Providing service performance measures against which improvement could be monitored
 - Contrast existing approaches with opportunities for improvement
- 1.3.7 Advanced Asset Management builds on the basic approach by engaging prediction modelling, risk management and optimised renewal decision-making techniques. These facilitate long term (10 year) financial forecasts and programmes that minimise lifecycle costs whilst delivering required levels of service. Accurate and detailed data on assets is essential to gain the benefits of advanced asset management. It is intended that the more sophisticated advanced approach will be adopted for the Leicester City Council Transport Asset Management Plan 2011 to 2015.

1.4 Why do it?

The Highways Act 1980

- 1.4.1 The City Council has a legal responsibility for the highway network in terms of keeping the routes available and safe for passage of the travelling public. It undertakes this duty in its role as the Highway Authority. Much of the highway network has been handed down to the Authority through historic routes and networks. Over time the network has been augmented through new routes either via new developments (housing, commercial, industrial) or through changes to the original network to facilitate traffic and economic growth.
- 1.4.2 Whilst the basic duty of a Highway Authority relates to safe passage, the network has been upgraded over time in order that it can provide strong contributions to the economic and social well being of the city. Leicester's Local Transport Plan sets the transport strategy and implementation programme for delivery of transport improvements. It is largely a performance management approach where funding is used in a way that will ensure the strategic targets are met. Clearly an important part of progress towards targets will be using funding available in a way that will maximise effectiveness and outcomes. Effective asset management will be an essential part of this.
- ##### ***Prudential Code***
- 1.4.3 The government has introduced the Prudential Code to govern the way in which local authorities manage their assets. The code requires local authorities to have explicit regard to option appraisal, asset management planning and strategic planning when making capital investment decisions and to demonstrate that their plans are affordable, prudent and sustainable. It enables authorities to choose between revenue and capital intensive options for service delivery, undertake spend to save capital schemes and undertake additional self-funded capital investment where they can afford to do so. The code,

therefore, enables the introduction of more sophisticated application of asset management than is possible under the previous regime. A robust asset management plan will be a valuable tool if we wish to explore the potential benefits the code enables.

Asset Valuation - Whole of Government Accounts

The government is working towards the production of whole of government accounts (WGA). WGA accounts will be commercial-style accounts covering the whole of the public sector including local authorities. WGA will be produced on an accruals basis and will use Generally Accepted Accounting Principles (GAAP), adapted where necessary for government. This form of accounting is known as Resource Accounting and Budgeting (RAB). Under these requirements local authorities will be required to value their assets. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the CIPFA's Guidance published in 2010 a 'Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting'.

1.5 Leicester's Transport Asset Management Plan Objectives

1.5.1 Leicester's Transport Asset Management Plan objectives are derived from the Council's corporate objectives and specifically the Council's transport objectives as articulated in the Leicester's Local Transport Plan. The objectives have also been developed with due regard to the duties and responsibilities placed upon highway authorities by legislation and guidance related to managing the highway network.

Corporate Objectives One Leicester

1.5.2 The Leicester Partnership's Sustainable Community Strategy, 'One Leicester', adopted in 2008, sets out a 25 year vision for the city. One Leicester was developed after extensive consultation across the city and is supported by all of the members of Leicester Partnership – the group that represents the main public, private, voluntary and community organisations in Leicester.

1.5.3 The vision is to transform Leicester into Britain's most sustainable city and in doing so, to deliver a beautiful city, with confident people and a new prosperity. Leicester will be a great place to live but also somewhere that does not place a burden on the planet in future years. To realise the vision One Leicester has the following three goals:

- Confident people
- Greater prosperity
- Beautiful place

1.5.4 To meet these goals One Leicester has developed the following seven key priorities, those in bold being particularly relevant to the implementation of the TAMP:

- Investing in our children.
- **Planning for people not cars.**
- **Reducing our carbon footprint.**

- **Creating thriving, safe communities.**
- **Improving wellbeing and health.**
- Talking up Leicester.
- Investing in skills and enterprise.



Our refurbished (2006/07) St Margaret's Bus Station,

Leicester's Local Transport Plan Objectives

1.5.5 Leicester's Local Transport Plan 2011 onwards (LTP3) sets out our vision for transport:

Our transport vision is:

- **To help transform Leicester into Britain's sustainable city that will be a great and prosperous place to live but also somewhere that does not place a burden on the planet in future years.**

The LTP3 identifies key objectives to improve highway and transport services for the city. It is this vision and the LTP3 objectives that give direction for our asset management objectives, which are highlighted in Table 1.1. Following are the seven LTP3 transport objectives:

- To Reduce Congestion and Improve Journey Times
- To Improve Connectivity and Access
- To Improve Safety, Security and Health
- To Improve Air Quality and Reduce Noise
- To Reduce Carbon Emissions
- Manage to Better Maintain Transport Assets
- To Improve Quality of Life

Table 1.1 Leicester’s Transport Challenges

Goal – Support Economic Growth

Addressing issues associated with the reliability, availability and predictability of journey times, particularly on key strategic routes and in the city centre

- Traffic flows on our roads have been rising strongly over recent years, although there has been a recent interruption to this trend due to the recession, which is seen as a temporary impact
- There is peak period congestion on Leicester’s arterial routes and ring roads
- Poor public transport interchange and lack of kerb space for buses in Leicester city centre

Tackling recurrent / non-recurrent delays on our transport system

- Accidents and incidents cause congestion on Leicester’s arterial routes and ring roads

Ensuring that future population, housing and economic growth does not lead to demand for travel that has adverse operational effects on our transport system

- Our population is growing at a faster rate than regionally or nationally
- Significant levels of housing growth are planned for Leicester and Central Leicestershire between 2011 and 2026
- Road traffic freight is predicted to increase significantly between now and 2020

Ensuring that the availability of car parking in Leicester city (in terms of both levels and location) are sufficient to meet the needs of businesses and support the economy, whilst not adversely affecting the positive benefits of sustainable transport

- Some sectors of the business community cite a lack of parking for staff and customers in Leicester City as a potential barrier to inward investment.

Goal – Promote Equality of Opportunity

To provide an accessible, integrated, affordable and viable transport network that meets the future needs of businesses and citizens

- Difficulty in accessing public transport, footways and public rights of way for mobility impaired and disadvantaged groups
- Poor public transport interchange and lack of kerb space for buses in Leicester city centre

Addressing the gaps and inefficiencies in our existing transport system that hinder connectivity and access to key facilities and employment

- 36% of Leicester’s commuters don’t use public transport or walk or cycle when the vast majority of Leicester’s residents live within 400m of a bus stop and 82% of Leicester’s residents work within Leicester
- Nearly all of the population of Leicester live within 2 miles of a hospital,

but in some deprived areas it can take up to an hour using public transport to get to the General Hospital

- The bus network is designed to take people into the city centre and out again
- Orbital services are infrequent and slow

Addressing gaps and weaknesses in the provision of information on the choice of transport available and accessible to people travelling in and around Leicester

- Residents in Leicester City feel more can be done to provide information on public transport and cycling opportunities throughout the city

Unlock suppressed demand for walking and cycling trips

Goal – Reduce Carbon Emissions

Reducing the levels of carbon dioxide emissions from our transport

- Transport is currently a significant source of carbon dioxide emissions in Leicester
- Population, housing and economic growth will result in additional demand on our transport network which could lead to an increase in carbon dioxide emissions

Increase the level of action amongst individuals, businesses and schools to reduce levels of transport-related emissions

- National research shows there is limited understanding amongst residents and businesses of the relationship between climate change and travel behaviour / habits
- There are barriers to changing travel behaviour to more sustainable modes (i.e. reliability, cost, convenience, safety)

Ensuring that our transport is resilient and adaptable to the impacts of climate change

- Potential effects of climate change on the highway network include damage to roads, bridges and other structures from both heat and flooding

Goal – Contribute to Better Safety, Security and Health

Continue to find cost effective ways to further reduce the numbers of deaths and injury accidents on our roads

- 67% of killed and seriously injured casualties in Leicester are vulnerable road users (i.e. pedestrians, cyclists and motorcyclists)

Addressing barriers that inhibit people from using public transport and choosing to walk and cycle as physically active modes of travel

- 25% of Leicester's population were clinically obese in 2007/08
- Personal safety and security is seen as a barrier to walking and cycling (i.e. congested roads, poorly maintained surfaces, consideration of other road users)

National research indicates that if people felt more secure, 11.5% more

journeys would be made on public transport

Reducing the levels of nitrogen dioxide emissions from transport

- Transport is currently the main source of nitrogen dioxide emissions in Leicester and the level of nitrogen dioxide along the main road network is well above the European directive threshold
- Population, housing and economic growth will result in additional demand on our transport network which could lead to an increase in nitrogen dioxide emissions

Reducing the levels of noise from transport

- There are approximately 200 dwellings (and associated population) in Leicester city to be investigated as a first priority due to noise from roads

Goal – Improve Quality of Life and a Healthy Natural Environment

Provide and create more opportunities for better access to the natural environment and green space

- Particular areas where there is poorer access to the natural environment and green space including areas of the countryside edge in and around Leicester
- Particular groups of residents who experience barriers to / have difficulty in accessing the natural environment and green space include those in poor health, those with limited access to independent transport, those who experience higher levels of deprivation

Dealing with the negative effects of traffic, such as noise, vibration, severance, air quality and speeding, that impact upon local communities and the natural environment

- 80% of nitrogen dioxide in Leicester City is produced by road transport
- The most deprived communities in the city are more likely to be located in close proximity to local roads and therefore suffer more from the negative impacts of traffic such as noise, vibration and severance
- Travel demands resulting from future growth could lead to an increase in the negative effects of transport

1.5.6

Leicester City's Transport Asset Management Plan Objectives

In order to further the opportunities for achieving the transport and wider objectives there is an enormous contribution that can be made which is infrastructure related. This is not just in connection with changes to the assets themselves but the contribution can be maximised by the way the asset is managed. Hence our Transport Asset Management Plan objectives are:

Leicester's Transport Asset Management Plan Objectives:

- To optimise network **serviceability** – by ensuring availability, achieving integrity, maintaining reliability & enhancing condition
- To optimise the **safety** of the network – by complying with statutory obligations & meeting user's need for safety
- To optimise **sustainability** – by minimising cost over time, maximising

value to the community & the environment

- To focus on the user – **customer service**, an overarching objective - optimising the use of the resources available.

The derivation of these objectives is explained in more detail in Chapter 2.

1.6 The Transport and Highway Maintenance Strategy

Aims of the Maintenance Strategy

1.6.1 The aims of the Highway Maintenance Strategy are:

- to deliver the Transport Asset Management Plan objectives
- to achieve the targets we have set in Chapter 9 of the Leicester's Local Transport Plan 2011-2026
- to achieve the targets we have set in this Transport Asset Management Plan

Elements of the Strategy

1.6.2 The elements of the strategy are:

- To allocate resources on an assessed needs basis to minimise the risks of assets deteriorating
- To allocate maintenance resources to support the Local Transport Plan transport strategy
- To carry out inspections and repairs to the standards we have set in our life-cycle management plans
- To continue to seek additional funds through the Council's Revenue and Capital Budget Strategies
- To continue to package maintenance works with improvement schemes whenever possible and practicable to achieve value for money and to minimise disruption to the highway user
- To continue to improve our asset management practices

The Strategy for 2011 – 2015 summarised

1.6.3 During the preparation of this asset management plan we have reviewed our maintenance strategy and identified the need to modify our current strategy and have identified areas for improvement in our asset management practices. Our strategy for 2011 onwards is to continue to improve our network management procedures, to continue to focus on improving the condition of the unclassified roads and footway network whilst maintaining the condition of the carriageway network as it is. We plan to spend proportionally more money replacing traffic signal installations to reduce the number of installations beyond their design life but will reduce the rate of replacing street lighting as the lighting stock is in relatively very good condition. We will continue to carry out bridge maintenance works spending the budget allocated by the Department for Transport for bridges. Operation and maintenance of our car parks and St Margaret's Bus Station will continue to follow a robust business management approach which is seeing the continual improvement of services provided using these assets.

- 1.6.4 The individual asset grouping maintenance strategies which together comprise Leicester’s Highway Maintenance Strategy are explained in the asset grouping lifecycle management plan chapters (chapters 4 to 12).

Chapter 2 Levels of Service

2.1 Introduction

Levels of service describe the quality of services provided by operation of the assets for the benefit of the highway users. This chapter explains the various issues, including derivation of the Transport Asset Management Plan objectives, condition of the assets, future demands on the network, customer expectations, legislative requirements and best practice. Together these contribute to determining levels of service for the provision and maintenance of the highway and transport network. Our process for managing and monitoring performance against the levels of service targets is explained towards the end of this chapter.

2.2 Condition of the Highway and Transport Network

2.2.1 The physical condition of the asset in practice has two elements:

- The perceived condition of the asset as “measured” by public and user perception
- The condition of the asset as determined by condition surveys

Current Condition

2.2.2 The City Council’s highway infrastructure assets are in a varying state of condition and fitness for purpose. The Principal and Non-Principal Classified roads are in good condition when assessed by Best Value Performance Indicator results. The Unclassified roads and footway network is in poor condition. The condition of footways in busy areas (category 1, 1a and 2 network) is assessed as below the lower threshold in 2006/07 Comprehensive Performance Assessment regime which is of real concern. The poor condition of the footway network is mainly due to a lack of sufficient investment in maintenance over many years. The overall condition of the bridge stock is considered “FAIR”, using the County Surveyors’ Society assessment criteria. About 8% of our street lighting stock is above desired maximum age of 40 years and we have 69 traffic signal equipment installations above the design life of 15 years.

2.2.3 During 2000 to 2005, up until March 2005, the Council allocated approximately 75% of the highway maintenance spending share (FSS) and 80% of the LTP Capital Maintenance budget allocation to highway maintenance. The allocation of 80% of the LTP Capital Maintenance was in accordance with the Council’s Capital Strategy. At this level of funding for road and footway maintenance, using the condition data available at the time, it was estimated that it would take until at least 2013 to eliminate the maintenance backlog on the Principal Road Network and to 2021 on the Non-Principal Road Network. On the footways the target of eliminating the backlog would never be achieved, as the rate of footway deterioration would continue to increase each year. However, the Council resolved (March 2005) to spend 100% of the LTP Capital Maintenance allocation on highway maintenance and resolved (March 2006) to increase the highway maintenance revenue budget by an average of approximately £1.25million over 2006 to 2008. Now the Capital Maintenance budget allocated is only £2.104m (2011/12) and 2.13m (2012/13), which will not be sufficient to achieve the target.

2.2.4 The highway network condition is reported annually using the Best Value Performance Indicators (BVPIs). Now BVPIs are renamed as LLTP (Leicester Local Transport Plan indicators) and are calculated using the sample survey data and in accordance with procedures specified by the Department for Transport. LLTP only give an approximation of the condition, as they are derived from sample surveys and various techniques specified by the Department for Transport are used to calculate them. Considering the average of 2004/5 & 2005/6 BVPI results, it is estimated that approximately the following require planned maintenance at the present:

- 'A' Class roads - 26%
- 'B' & 'C' Class roads - 19%
- Other unclassified roads - 8%
- Footways - 39%

The estimated cost of repairing this amount of the carriageway and footway networks at today's (2006) prices is £150million. This amount relates purely to the specified carriageway and footway categories and excludes all other assets in the highway such as bridges, lighting, and cycleways.

2.3 Future Demands on the Network

2.3.1 The likely demands on the highway and transport network over the future years have been thoroughly researched and analysed during the preparation of the Leicester's Local Transport Plan 2011 to 2026 (LTP3). The LTP3 explains in detail the future demands on the network and the Council's adopted plans to cater for these increasing demands which are briefly highlighted in chapter 1 (table 1.1).

2.4 Customer Expectations

2.4.1 The basis for developing the asset management approach was derived from analysis during the Best Value Review of Highway and Transportation Services, at Leicester City Council, in 2002. Since then we have conducted further consultation during the preparation of the Leicester's Local Transport Plan 2011 to 2026, Leicester City's Rights of Way Improvement Plan 2011 to 2021 and this Transport Asset Management Plan 2010-15 (our key plans). This consultation has confirmed that our plans to meet future demands on the network are broadly agreed by the various user groups. A brief summary of this consultation is included below in table 2.1.

Consultation on our key plans

2.4.2 We have developed a database of nearly 400 stakeholders representing the business community, public service providers, environmental groups, disabled groups, ethnic minority groups and district councils as well as interested individuals. All are invited to our annual Local Transport Day each spring. Local Transport Plan Day is an opportunity for stakeholders to put their views directly to those responsible for transport strategy in Leicester City. Many of the participants have been involved in the process for several years and have been kept up to date with all the relevant documentation. As a result the level of informed debate is high and many useful observations and ideas are shared.

2.4.3 Alongside the stakeholder database and LTP Day, each year we carry out two major public consultation exercises – Public Ward Meetings and Group Discussions. We use these exercises to find out how Leicester City’s residents feel about the work we are doing and the direction they think we should be heading in. We have accumulated a data resource which allows us to say with some accuracy how public attitudes to transport strategy have evolved over the last five years.

2.4.4 We began consultation and involvement for the Plan at our twelfth LT Day in 2009. Officers have made presentations to a wide range of groups between 2009 and up to December 2010 to ensure that key stakeholders were involved in the early stages of the development of LTP3. Transport Asset Management Plan (TAMP) was consulted as part of LTP3. The general public was consulted by means of an “on-line” questionnaire and a leaflet outlining the main LTP goals, measures and headline targets between October 2010 and January 2011. This leaflet was distributed to all households in the city with the city council’s community paper ‘Leicester Link’. A questionnaire inviting comments on our proposals was included within the leaflet and the responses are being used to inform our choice of priorities for the LTP. In order to encourage wide participation in the consultation emails were sent to local businesses, all housing tenants and all city council employees, amongst others, at the beginning and the middle of the consultation period, inviting/reminding them to complete the online questionnaire.

2.4.5 The five actions, which the general public voted as most likely to help achieve all the objectives are;

- **Provide more opportunities for people to walk or cycle**
- **Improve public transport infrastructure, ticketing and information**
- **Maintain and extend existing bus services**
- **Introduce trams**
- **Support more low emission vehicles**

Table 2.1 below shows the top five actions the general public felt would best achieve the agreed objectives. Although, these results do not exactly match the results of the options assessment study we undertook, the package of measures we have considered in each chapter are a combination of the results of the consultation and the options assessment results.

Customer Service Standards

2.4.6 There will be a continued focus on service users. We published our customer charter entitled “Protocol for Major Road Works” in 2011. This is included here:

Leicester City Council will:

- Involve the press with regular briefings and information on major roadworks
- Include major roadworks on the City Council Intranet and Internet Sites
- Provide radio information on major roadworks including advertising major roadworks in advance

- Issue a weekly bulletin to the Leicester Mercury with a copy to the Business Pages detailing the major roadworks (proposed and current)
- Explain to affected parties the benefits and the reasoning on how major roadworks contribute to the City's Transport Policy
- Provide signage at major roadworks that is useful and informative
- Ensure the involvement of Bus Operators at the earliest opportunity in the planning of major roadworks
- Be proactive in informing local residents and businesses affected by the major roadworks in advance and in ensuring that all correspondence is clear, consistent and informative
- Ensure that the moratorium of City Council roadworks and Statutory Undertakers works on major roads and in the City Centre during December and early January is continued in future years (except emergency works)
- Ensure that the quarterly Co-ordination meeting between the City Council, the Statutory Undertakers and other interested parties takes place and provides effective co-ordination between all parties
- Ensure that every opportunity is taken to explain the need and reasoning for major roadworks, eg. by inclusion in the monthly City Council Link Magazine
- Ensure the design of major roadworks meets the need of pedestrians, cyclists and disabled people
- Provide guidelines for all staff managing major roadworks in the City

Table 2.1

To reduce congestion and improve journey times	To improve connectivity and access	To improve safety, health and security	To improve air quality and reduce noise	To reduce carbon emission	To better maintain highway and transport infrastructure
Improve public transport by developing priority lanes, better ticketing, more information, better bus shelters.	Maintain and extend existing bus services	Install traffic calming, safety cameras, vehicle activated signs and more 20mph zones	Support more low emission vehicles	Support more low emission vehicles	Repair potholes
Maintain and extend existing bus services	Improve city centre bus arrangements e.g. better routes and more stands	Continue to provide road safety education and training	Implement measures to reduce traffic noise	Provide more opportunities for people to walk or cycle - better information, more crossings, cycle lanes, maps/route planners	Maintain footways and main roads
Provide more opportunities for people to walk or cycle - better information, more crossings, cycle lanes, maps/route planners	Improve public transport by developing priority lanes, better ticketing, more information, better bus shelters.	Improve street lighting	Provide more opportunities for people to walk or cycle - better information, more crossings, cycle lanes, maps/route planners	Introduce trams	Improve public transport by developing priority lanes, better ticketing, more information, better bus shelters.
Improve city centre bus arrangements e.g. better routes and more stands	Introduce trams	Provide more opportunities for people to walk or cycle - better information, more crossings, cycle lanes, maps/route planners	Introduce trams	Run more campaigns (e.g. to promote walking and cycling, car clubs)	Improve traffic management (traffic lights, yellow lines, co-ordination of street work.
Introduce trams	Build facilities closer to where people live.	Repair potholes	Run more campaigns (e.g. to promote walking and cycling, car clubs)	Improve street lighting	Carry out a programme of bridge strengthening and major maintenance

Impact on Levels of Service

2.4.7 Whilst the survey information obtained is not exactly related to specific levels of service or targets it is possible to draw some direct conclusions about general messages from users. These can be summarised as:

- Improve the general condition of roads
- Improve the general condition of footways
- Improve traffic management (traffic lights, yellow road markings, & co-ordination of street works)
- Improve facilities for cyclists and improve cycle route maintenance

- Improve public transport by developing priority lanes, better ticketing, more information, better bus shelters.
- Carry out a programme of bridge strengthening and major maintenance

2.5 Organisational Objectives

2.5.1 As explained in Section 1.4, the most direct impact on technical levels of service in this plan is derived from the objectives set in the Leicester's Local Transport Plan. They are all related to the use of infrastructure assets and hence it is possible to relate them to the asset management goals. This relationship is shown in Figure 2.2. It can then be seen that service levels around safety, condition, environment and availability/accessibility can be produced from this.



New carriageway/footway construction at Granby Street (2010)

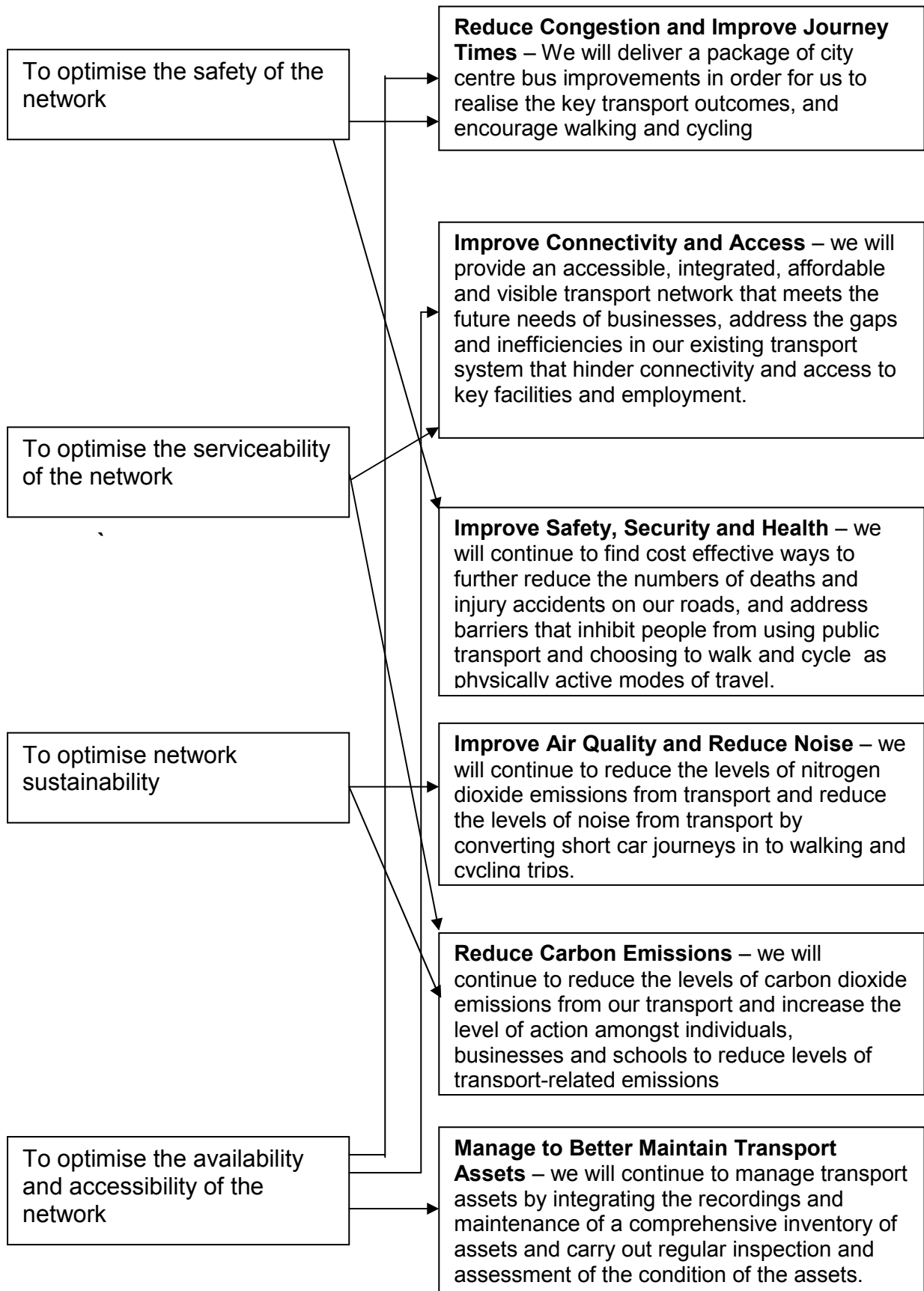


Newly developed pedestrianised area outside "Curve"

Figure 2.2

Transport Asset Management Plan Objectives

Local Transport Plan Objectives



2.6 Legislative Requirements

Role of the Highway Authority

2.6.1 The role of the Highway Authority as asset manager is governed by an extensive range of legislation. In relation to highway maintenance, much is based on statutory powers and duties contained in legislation and precedents developed over time as a result of claims and legal proceedings. Even without such specific powers and duties, highway authorities have a general duty of care to users and the community to maintain the highway in a condition fit for its purpose.

Key Legislation

2.6.2 The Highways Act 1980 sets out the main duties. In particular, Section 41 imposes a duty to maintain highways maintainable at the public expense, and almost all claims against authorities relating to highway functions arise from alleged breach of this Section. The term “highway” includes carriageways, footways and cycleways. Section 58 of the Act provides for a defence against such actions on the grounds that the Council has taken such care as in all the circumstances was reasonably required to secure that the part of the highway in question was not dangerous for traffic.

Further Legislation

2.6.3 Other key legislative responsibilities are set out in:

- Railways and Transport Act 2003
- Local Authorities (Transport Charges) Regulations 1998 – powers to charge for certain functions e.g. skips, scaffolds
- New Roads and Street Works Act 1991 – co-ordination and regulation of Utilities activities
- Road Traffic Regulation Act 1984 for the improvement and management of traffic
- Traffic Signs and General Directions 2002
- Road Traffic Act 1988 – duty to promote road safety, requirement to undertake accident studies, accident remedial works and safety audit
- Road Traffic Reduction Act 1997
- Transport Act 2000 – power to charge utilities for occupation of road space during works, designation of home zones and quiet lanes
- Traffic Management Act 2004.
- Flood and Water Management Bill 2009

2.6.4 There is also a range of environmental legislation within which authorities must consider the effects of their operations:

- Wildlife and Countryside Act 1981
- Environmental Protection Act 1990
- Noxious Weeds Act 1959
- Rights of Way Act 1990
- Countryside and Rights of Way Act 2000

2.6.5 There is also a range of general legislation which impacts on and shapes the way assets are managed.

- Health and Safety at Work Act 1974
- Management of Health and Safety at Work Regulations 1992
- Construction (Design & Management) Regulations 1994
- Disability Discrimination Act 1995
- Criminal Justice and Public Order Act 1994
- Human Rights Act 1998
- Freedom of Information Act 2000
- Local Government Act 2000

2.7 Codes of Practice

2.7.1 In addition to the legislation above, guidance is provided to Local Highway Authorities through Codes of Practice. To assist local highway authorities in addressing their responsibilities three Codes have recently been published:

- Well-maintained Highways: Code of Practice for Highway Maintenance Management, July 2005 - UK Roads Board
- Well-lit Highways: Code of Practice for Highway Lighting Maintenance, November 2004 – UK Lighting Board
- Management of Highway Structures: A Code of Practice, Autumn 2005 – UK Bridges Board
- Transport Infrastructure Assets- Code of Practice - CIPFA

Although it is not mandatory to follow these Codes, they will no doubt form the basis for future challenge in the courts and are therefore an important consideration when considering asset management practices.

2.7.2 As such, we propose to follow the full extent of the codes and many of the improvement plan actions in the following chapters reflect this. Where we intend to deviate from the Codes we will explain why and seek our Cabinet approval of these variations.

2.8 Desired Levels of Service

2.8.1 An analysis of the customer views, legislative requirements and corporate aims indicate that three areas of technical services should be focussed on:

- Safety of the asset
- Availability, Accessibility and Condition of the asset
- Environmental impact of the asset including sustainability

This summary re-affirms our TAMP objectives set out in section 1.5

2.8.2 These technical areas can be supplemented by the way the service is delivered to its users and communities. Good customer service is about focusing on users needs through participation and consultation, responsiveness, providing assurance and imparting information. Our emerging Quality Management System provides the framework and procedures for this approach. As such a fourth area of service needs to be identified as customer service.

2.8.3 We will further develop the concept of levels of service and options for the levels of service to be provided, together with associated costs, to facilitate decision making in the Council’s budget setting process. The strategic service level performance indicators, that will be used to facilitate managing and monitoring of performance, and the associated targets, that initially represent the desired levels of service, are summarised in section 2.9.

Improvement action: “ To prepare a report presenting options for levels of service and associated costs.”

2.9 Service Level Performance Monitoring

2.9.1 Level of service performance measurement for the overall transport asset is summarised in Table 2.2 “Levels of Service – associated Performance Indicators”. The specific strategic level indicators and targets are detailed in Chapter 9 of the Leicester’s Local Transport Plan 2011 to 2026. These indicators are supplemented by the Transport Asset Management Plan “operational” performance indicators that are provided in each asset grouping chapter (chapters 4 to 12). The performance review process is explained in our Quality Manual (Highways and Transportation Quality Manual).

2.9.2 We consulted our stakeholders on the indicators and targets during the preparation of the Leicester’s Local Transport Plan. Overall we received a favourable response to the proposals. Our proposals were amended to take account of consultation responses.

2.9.3 The outcome of the consultation is explained in table 2.1

Table 2.2 Levels of Service - Associated Performance Indicators	
Level of Service Indicator Group	Group Summary
L LTP 41	Principal roads where maintenance should be considered
L LTP 42	Non-principal roads where maintenance should be considered
L LTP 43	Unclassified Road Condition
L LTP 44	Footway Condition
L LTP 45	Percentage of Footpaths easy to use - that is: signed, well surfaced and way-marked
L LTP 46	Bridge Condition Index
L LTP 47	Traffic Signal Condition Index
L LTP 48	Street Lighting Condition Index Steel Column Concrete Column

2.10 Improvement Plan

2.10.1 The improvement plan for this chapter is included here:

Table 3.1 Lifecycle Management Planning Improvement Plan					
Paragraph Reference	Improvement Action	Priority	Lead	Target Date	Est. Cost
2.8.3	To prepare a report presenting options for levels of service and associated costs	1	RMK	Oct 2011	Within staff budget

Chapter 3 – Lifecycle Management Planning

3.1 Introduction

3.1.1 This chapter explains our approach of lifecycle management planning to help us optimise the effectiveness of Leicester’s highway and transport assets. Leicester’s total asset has been divided into distinct asset groupings to better focus lifecycle management planning. These groupings are:

- Carriageways & Footways
- Highway Structures
- Car Parks & Bus Station
- Street Lighting
- Traffic Signals & Associated Equipment
- Trees & Landscaping
- Street Furniture
- Winter Service
- Drainage Assets

Chapters 4 to 11 are the lifecycle management plans for each of the asset groupings respectively. The practices and procedures documented are those that are currently being operated.

3.2 Purpose of Lifecycle Management Plans

3.2.1 The primary purpose of a lifecycle management plan is to document how a particular asset is managed and as an output identify current and future needs, and hence determine “performance gaps”, to be addressed through delivering forward works programmes and improvements in management practices. The secondary purpose is to record the institutional knowledge for the enhancement of the future service delivery and to take on board specific requirements of the users.

3.2.2 In the lifecycle management plans we outline asset grouping objectives, asset performance and inventory information and what is planned for the asset group or individual asset, during each phase of life (ie from creation to disposal) in order to manage and operate the assets at the agreed levels of service whilst optimising lifecycle costs.

3.3 Inventory – The Asset Register *Access to Information*

3.3.1 Leicester’s inventory, also known as the asset register, is held primarily on databases. Our main databases are:

- MARCH (Maintenance Assessment Rating Condition Highways) – for roads, footways and cycleways
- MAYRISE (MAYRISE is the name of the software company) - for roads, footways, lighting, illuminated signs and traffic signals
- BMX (Bridge Management Expert) – for highway structures.

Details of the systems and the adequacy of data held are discussed in the individual asset lifecycle management plans.

Asset Condition Information

3.3.2 Details of the following items, wherever available, are given within the respective lifecycle management plan.

- Details on the condition of the asset
- Inspected methods and frequency
- Data and result of the inspections
- Data confidence levels and deficiencies
- Data storage location
- Desired condition of the asset
- Standards exist that defines what the desired condition of the asset is in terms of condition assessment & intervention criteria

Asset Capacity Information

3.3.3 Inventory details provide essential information to help asset managers to ensure that the assets are utilised effectively in order to provide the maximum return on funds invested and to deliver the required level of service. While it is clear that some assets are operating beyond their capacity at peak periods i.e. congestion on busy roads, it is apparent that some may need to be reviewed in terms of operating below their full capacity, e.g. street lights during the early hours of the morning.

3.3.4 Our asset managers have data on their respective assets and manage them in their lifecycle plans for the optimum utilisation of their assets. As the concept of levels of service is further developed within the future TAMPs, management of capacity will feature as part of the optimisation of asset utilisation.

3.4 Asset Valuation

3.4.1 The Asset Inventory will be developed in accordance with the County Surveyors Society Framework for Highway Asset Management, covering the needs of the Asset Valuation. In order to support the asset valuation, the asset inventory includes the Asset Register that lists the assets in our ownership and Valuation Data recording features that influence the asset values. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the CIPFA's Guidance published in 2010 a 'Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting'.

Our asset valuation is covered in detail in Chapter 13.

3.5 Asset Lifecycle Options and Asset Life

3.5.1 Lifecycle management plans can be developed for all highway and transport assets. The plans document the various options that can be employed in managing the assets to meet the levels of service expected from them during their life. Lifecycle options can be defined in asset management terms as:

- Creation or Acquisition – build or purchase a new asset
- Routine Maintenance – carry out routine maintenance to maintain the asset in a serviceable condition

- Renewal or Replacement – carry out work to return the asset to its “as new” capacity and condition
- Upgrading – improve the asset above its original standard
- Disposal – decommission or demolish obsolete asset

Phases of Asset Life

3.5.2 An asset passes through the phases of creation or acquisition, operation - routine maintenance, renewal or replacement, possibly upgrading and then disposal during its serviceable life. The following paragraphs explain the key aspects of each of these phases.

Creation or Acquisition

3.5.3 Creation or acquisition creates a new asset that did not previously exist. The introduction of new assets may arise through construction programmes such as the Council’s Local Transport Plan Integrated Transport Capital Programme. This programme includes projects such as the Leicester Park and Ride Scheme. Many new assets, such as new roads, introduction of new lighting systems, and footpaths are created by private developers and then adopted by the Council to operate and maintain. As a result of current major city centre regeneration and Ashton Green housing development many new highway and transport assets are being and will be developed and will be adopted by the Council over the next fifteen years.

3.5.4 During the on-going assessment of our performance in creating, acquiring and upgrading assets we prepared and adopted a highway development control quality management procedure, including a commuted sums policy (for securing funds from private developers for future maintenance requirements). The policy and specifications for new or upgraded assets is contained within our 6C’s Regional Design Guide.

Routine Maintenance

3.5.5 Routine maintenance is the regular ongoing day-to-day work that is necessary to keep the assets operating, including instances where portions of assets fail and need immediate repair to make the asset operational again. This can include planned maintenance and reactive maintenance. Planned maintenance includes activities such as preventative maintenance, safety inspections, condition monitoring and organised corrective maintenance, which are co-ordinated to keep the asset in service. Reactive maintenance relates to corrective maintenance to put right minor failures which have occurred to ensure safety and availability of the network.

3.5.6 The range of asset types within the overall transport asset necessitates a variety of routine maintenance activities. These are categorised against the various routine maintenance types of work. This helps indicate the balance between planned and reactive activities and the extent of preventative work that is undertaken. It is important to recognise that these activities, properly undertaken and to sufficient extent, will form the core of all maintenance on the asset.

- 3.5.7 Leicester's current standards for routine maintenance activities have in general, been arrived at through broad adoption of standards set out in codes of practice, namely:
- Well-maintained Highways, Code of Practice for Highway Maintenance Management July 2005
 - Well-lit Highways, Code of Practice for Highway Lighting Management November 2004
 - Management of Highway Structures: A Code of Practice 2005
 - New Roads and Streetworks Act Codes of Practice
 - Transport Infrastructure Assets- Code of Practice - CIPFA

We have and are reviewing our maintenance arrangements and standards with regard to these codes of practice as part of preparing this Transport Asset Management Plan and progressing our improvement actions.

Renewal or Replacement

- 3.5.8 Renewal or replacement work is major work, which does not increase the design capacity of any asset but restores, rehabilitates, replaces or renews an existing asset to its original capacity. Activities over and above this are covered within the creation, acquisition or upgrading plans. All assets will deteriorate over time and even though good quality routine maintenance will extend their life, they will reach a point at which their serviceable life ends. This can be further extended by more major action to rehabilitate the asset – a good example of this is Leicester's sustained bridge maintenance programme where we have completed major works during 2000 to 2008 to bridges such as West Bridge, Northgates and North Bridges and Humberstone Road Bridge.

Upgrading

- 3.5.9 Upgrading works upgrade or improve an existing asset beyond its existing capacity. They result generally from growth in social and environmental needs and are often improvements to close the gaps between existing and desired levels of service. The upgrading of assets may arise through construction programmes, development works and regeneration works. An example of upgrading is our bridge strengthening programme. During the mid 1990's to 2009 we have completed a major programme to upgrade the carrying capacity of bridges on our Principal Road Network to meet the European Directive requiring us to cater for 44 tonne lorries.

Disposal

- 3.5.10 Disposal activities are associated with the disposal of a decommissioned asset. This would include sale, demolition or relocation where an asset is no longer required or no longer fit for purpose and alternative provision is to be made. We only dispose of an asset, or part of an asset, following a rigorous assessment of all options has been completed and disposal is confirmed as the best option relating to provision of future highways and transport services. Following such an assessment the Upperton Road Viaduct Scheme, April 2007 to December 2008, included the demolition of the 11 span viaduct and the creation of a much shorter, lower level, single span bridge.

3.6 Performance Gaps

3.6.1 A performance gap is the gap between current performance and desired performance (desired level of service as discussed in 2.8). Performance gaps for the asset groupings will be identified in the respective lifecycle management plans. Wherever feasible the gaps will be quantified with respect to the condition of the asset and demands placed on it. Current and desired performance of the asset grouping will be assessed including any backlog and measurement targets. The performance gaps identified will generally be addressed through implementation of the forward works programme and improvement actions managed through the Division's Quality Management System.

3.7 Option Identification

3.7.1 Options identification and appraisal methods for the creation/acquisition, routine maintenance, renewal/replacement, upgrading and disposal will be stated in the lifecycle management plans. The maintenance treatments used, frequency for repeating the treatments and relevant costs will be developed as part of the improvement plans in the individual lifecycle management plans as appropriate.

3.8 Budget Optimisation

Delivering Leicester's Local Transport Plan

3.8.1 During the preparation of the Local Transport Plan the proposed Integrated Transport and Capital Maintenance (funded through the Local Transport Plan process) budgets were allocated to service areas to facilitate delivery of the key objectives of the plan and hence to meet the service level targets as discussed in section 2 of this asset management plan.

Maintenance Budgets

3.8.2 Historically, assessment of the condition of the assets and demands placed on them, and levels of service have not fully been considered in establishing and prioritizing the budgets. However, during the preparation of Leicester's Local Transport Plan we began to prioritise the planned maintenance programmes taking into account the Principles and Objectives of the Highway Maintenance Strategy from the Code of Practice for Maintenance Management amended to take account of the key objectives of the Local Transport Plan.

3.9 Risk Management

Risks to Service Delivery – Current Levels of Service

3.9.1 Risk management is a key part of the Council's strategic management and performance management process and underpins our asset management approach at all levels. It is undertaken using the Leicester City Council specific Risk Management Toolkit. The inherent risks are established first and control measures put in place. Residual risks are then determined and any further risk management action identified.

3.9.2 Formal and informal risk assessment and management have been carried out over many years leading to the current routine maintenance standards and maintenance policies and procedures we have today. Risk management and derived maintenance regimes and standards for each of the asset groupings is documented in the lifecycle management chapters. Our strategic level risk

register and operational asset grouping risk registers, which are reviewed annually and after a significant event, are included at Appendix A.

“Residual risks - High Score Risks”

3.9.3 The two residual risks high risk areas identified through our risk management process are:

- Severe weather leading snow or ice on highway, fallen trees blocking highway, flooding blocking highway causing disruption to highway users and damage to property - further actions are to prepare strategy to deal with increasing likelihood of local flooding and to review trees routine maintenance standards
- Difficulty in attracting and retaining technical staff leading to scheme delays – further action is to revive graduate and technician training scheme and to develop framework contract for consultancy services

Risks to achieving Desired Levels of Service

3.9.4 The desired levels of service, as defined by our targets, are set out in Chapter 9 of Leicester’s Local Transport Plan 2011 to 2026 and the lifecycle management chapters in this document. Risks to achieving these targets may occur at corporate, programme or project level. These risks are managed using appropriate works programme and project management arrangements and quality management processes and procedures. The City Council adopted PRINCE2 as their project management standard in 2005. We have completed our first “high level” risk management exercise using the PRINCE2 methodology on our works programmes. These are included in Appendix-A of the TAMP Risk Registers.

3.10 Service Delivery

3.10.1 Improvement, operation and maintenance services are provided by in-house service providers and by external consultants and contractors through either long-term contracts and/or one-off contracts. These arrangements are explained in the following paragraphs.

Organisational Arrangements at Leicester City Council

3.10.2 The Best Value Review of Highways and Transportation in 2002 identified the need to re-organise the staff arrangements to shorten the supply chain, to introduce a quality management system and to modernise the procurement of services. A new organisational structure was put in place. The Operational side of the Highway and Drainage Asset Management is placed at Leycroft Depot within Highway Maintenance and the overall responsibility of the Transport Asset Management is retained within Transport Strategy. New procurement arrangements have been and continue to be put in place and a quality management system has been developed. At the same time as implementing new organisational arrangements staffs have been relocated to facilitate improved service delivery.

In-house Service Provision

3.10.3 Management, design, inspection and works maintenance services are provided by the Regeneration, Highways and Transportation Division of the Council:

- Transport and highway planning, travel planning services, lead on transport asset management, programme and project management, procurement strategy preparation and management, and liaison with DfT is provided by the Transport Strategy Section at New Walk Centre, Welford Place.
- Carriageway, Footway and street furniture maintenance design, inspection and maintenance works are provided by Highway Maintenance including City Highways based at Castle Park Depot, 90 Leycroft Road.
- Winter Service is provided by City Highways based at Castle Park Depot, 90 Leycroft Road.
- Street Lighting design, inspection and maintenance management is provided by Street Lighting teams based at St. Margaret's Depot, Slater Street.
- Transport and highway design, Highway Structures design, inspection and maintenance is provided by Design and Project Management section at York House, Granby Street.
- Urban Traffic Control, Traffic Signals & Associated Equipment design and maintenance management and Network Management services, Parking Management and Enforcement are provided by Traffic Management section at York House, Granby Street.
- Tree maintenance is provided by the Trees and Woodlands Section
- Verge and landscaping maintenance is provided by the Grounds Maintenance section.

Procurement of services from providers external to the Regeneration, Highways and Transport Division

3.10.4 The Best Value Review of Highways and Transportation Services in 2002 identified the need to modernise procurement of services to improve value for money. The Council was using traditional forms of construction and maintenance contracts and short-term maintenance contracts. Following the review a modernising procurement champion was appointed and the Council has, and continues to, introduce partnership type arrangements and longer-term maintenance contracts.

3.10.5 The construction and maintenance procurement strategy follows the Council's "Make or Buy Policy" and consists of the following main elements;

- Provision of works services by in-house providers City Highways
- Highway Maintenance Term Contract (specialist services only) (3 years) for works upto £150K
- Street Lighting Installation and Maintenance Contract (6yrs +2 yrs extension)
- Traffic Signals Maintenance Contract
- Framework Contract for Highway Works - General Civil Engineering & Repairs to Highway Structures (2006 – 2010) for works £150K to £1M
- Framework Contract for Highway Works – Highway Maintenance (2006 – 2010) for works £150K to £1M
- For schemes above £1M procurement is in accordance with European Procurement Rules

- Operation of 14 Select lists of preferred suppliers/contractors for one-off specialist works
- Trees and Landscaping Maintenance Agreement with City Landscapes
- Car Parks, Bus Station and Street Furniture Maintenance Management Agreements with Property Services
- Bus Shelter Provision and Maintenance Contract with J C Decaux

The various elements are explained in more detail in the lifecycle management plans for each of the asset groupings.

3.11 Improvement Plans

3.11.1 Improvements plans for each of the asset groupings have been developed during the preparation of this Transport Asset Management Plan and are included at the end of each chapter.

Chapter 4 – Carriageways and Footways Lifecycle Management Plan

4.1 Introduction

4.1.1 The carriageways & footways asset grouping, referred to as the highway network, incorporates the following elements:

- Carriageways and footways (including the surface, kerbs, channels and edge restraints and vehicular crossings).
- Cycle routes (combined with carriageways & footways with the associated road markings).
- Road markings (excluding Traffic Regulation Order markings).
- Hardened verges (including central reservations, bus laybys, laybys, grasscrete areas).
- Highway drainage (including gullies, drains, connection pipes, chambers, surface water channels and roadside ditches but excluding watercourses).
- Traffic calming features (including road humps, speed cushions and width restrictors).
- Public Rights of Way.



Integrated transport project on Humberstone Road (A47) completed 2010, resurfacing to road and footways, new bus lane and new anti-skid surfacing

Carriageways, Footways, Cycle Tracks and Traffic Calming Features

4.1.2 Carriageways & footways form the largest part of the transport asset with an estimated Gross Replacement Cost (GRC) of £962,900,739 (2010/11). The cycle track network is an expansion of the highway network aimed at encouraging people to cycle and is one of the key aims of improvement of our transport strategy. Up to date, accurate and well maintained road markings are essential to help all users use the network safely and efficiently.

Hardened Verges

- 4.1.3 Political interest and customer expectations arising from increased car ownership have prompted hardening of verges in key areas to benefit the local environment. Verge hardening is carried out under the Local Environmental Works Programme and plays an important role in neighbourhood renewal. The scheme selection criterion considers and promotes Sustainable Urban Drainage (SUDS) options for verge hardening schemes.

Highway Drainage

- 4.1.4 Standing water accelerates the surface and structural deterioration of carriageways and footways. Further deterioration is caused as vehicles pass over standing water forcing it into cracks within the road surface undermining road surface layers. Icing in winter, the effects of “freeze and thaw” and splashing of water by the passing traffic are major sources of damage, public dissatisfaction as well as posing safety risks. We are committed to promoting a safe and reliable network for walking and cycling and reducing drainage problems is an integral element of this commitment.

Rights of Way

- 4.1.5 The public rights of way network plays an important role in providing a leisure facility but can also provide safer routes to key destinations such as schools. Leicester City’s Rights of Way Improvement Plan 2011 to 2021 (RoWIP) details a statement of action to improve the management, maintenance and extension of the network.

4.2 Maintenance Strategy

Carriageways, Footways, Cycle Tracks and Traffic Calming Features

- 4.2.1 The specific aim of the strategy is to halt the deterioration and improve the condition of the roads, footways, cycle track networks and to improve the condition of traffic calming, and highway drainage features. We are focusing on improving the condition of the footways to maximise the contribution our footway assets can make. This will help to achieve our overall aim of encouraging more journeys to be made by bus, cycling and walking. Our recent highway condition survey results indicate our footway network is in poor condition. Improving the condition of the footway network should help reduce the number of claims for trips and falls against the Authority.
- 4.2.2 The first main part of our strategy is to conduct safety and condition inspections and routine maintenance in accordance with the Well-maintained Highways Code of Practice. The second main part of our strategy is to use an appropriate balance of surface treatments, partial and full depth reconstruction to improve the condition of our highway network. Using our professional judgement and prioritised information from the MARCHpms system delivery of a robust forward works programmes for the next 2 years will target sites within the amber to red bands.
- 4.2.3 Our strategy has guided the development of works programmes that target investment to achieve the best possible outcomes in terms of condition of the networks. Prioritisation of the forward works programmes has also been informed by using the principles and objectives of highway maintenance strategy from the Code of Practice for Maintenance Management amended to

take account of the objectives of the Leicester Local Transport Plan 3 (LTP3) of which there are 5 goals and 6 objectives, being:

- Economic Growth Supported – To reduce congestion and improve journey times
- Carbon Emissions Reduced – To reduce carbon emissions
- Equality of Opportunity Promoted – To improve connectivity and access
- Better Safety, Security and Healthy – To improve safety, health and security and to improve air quality and reduce noise
- Quality of Life and a Healthy Natural Environment are improved – To improve quality of life and manage to better maintain transport assets.

Road Markings

4.2.4 Our white road markings are renewed on a rolling programme of works stemming from higher priority sites such as major junctions to renewing lines on local streets. Yellow markings are included in this programme and renewed in conjunction with the council's Traffic Regulation Order's (TRO) team.

Hardened Verges

4.2.5 Our Local Environment Works (LEW) schemes target the selection of sites that require verge hardening. Our strategy is to link the priority selection with our flood management processes and highways maintenance strategies. Sites are reviewed and selected on a needs basis and whether or not the verge hardening proposal will affect the local natural environment.

Highway Drainage

4.2.6 The Highway Maintenance Group carry out routine gully cleansing on all gullies in the carriageway. Routine maintenance needs to be extended to include footway gullies, rain-grips, channels, and any other associated drainage features with due regard to our current transport strategy and to address the increasing risk of highway flooding due to hanging weather patterns.

Improvement action: 'To complete the inventory of highway drainage assets and develop a sustainable maintenance regime to ensure their effectiveness.' Develop a highway drainage programme of work.

Rights of Way

4.2.7 Currently maintenance works to the network are carried out as a result of inspections or following requests from users. A maintenance strategy for the rights of way network is being developed and implemented through Leicester City's Rights of Way Improvement Plan 2011 to 2021.

Specific Asset Management Policies

4.2.8 In addition to the policies and strategies articulated in this chapter we have the following specific policies including:

- Street Naming Policy 2011 – see Appendix B1
- 6C's Regional Design Guide (Htd) available at www.leicester.gov.uk
- Roadside Memorials and Tributes our policy is for Councillors to decide whether or not to agree to the request on a case by case basis.

- Vehicle Crossing Policy 2011. The procedure for the approval and construction of a vehicular crossing over the footway and verge to provide access to private property and for removing a crossing when it is no longer required. See Appendix B4
- Gating Order Policy 2008. Since the introduction of the Clean Neighbourhoods and Environment Act 2005 we have received requests from the Community Safety team from the Housing Department to put gates across footpaths to help address anti-social behaviour. See Appendix B5.

4.3 Inventory

Recording of Information and Computer Information Systems

4.3.1 Teams in the authority involved in highway maintenance activities use varied software and formats for data storage. As a result some duplication and ambiguity in the information being recorded is found. An Asset Management computer system is being developed by the Highway Maintenance Group that will enable key information from current systems to be extracted to aid bringing together different data sets. This will help in reducing duplication of information and allow users to record accurate information in a consistent manner. It will also allow data to be widely and easily available through shared drives and the Intranet. Our current maintenance systems that are in use are:

- ***MARCHpms*** - Condition of highway network, the analysis and prioritization of maintenance needs, and highway geometry inventory information. This system is located in the Engineering Contracts team part of the Highway Maintenance Group.
- ***MAYRISE for NRSWA*** 1991 - Highway network and utility openings/reinstatement information. Located in Transport Systems team.
- ***MAYRISE*** - highway maintenance safety inspections, records of inspections reactive repair orders and budgetary information. Located in the Highway Management team part of the Highway Maintenance Group.
- **List of Streets** - The Council is required, under Section 36(6) of the Highways Act 1980, to make and keep up to date a list of those streets within its area which are highways maintainable at public expense. To provide a more comprehensive record, the list of streets also includes footpaths, bridleways, cycle tracks, named permissive paths and named private accesses. A description of the start and end point for each route is shown. Where the street is classified and numbered as part of the national numbering system, the route number is included. Individual path references for those footpaths and bridleways shown on the definitive map are also shown. The list of streets is updated and managed by the Transport Strategy team with links to Information Systems who are responsible for the upkeep of the National Street Gazetteer (NSG).
- ***MapInfo (GIS)*** - records the extent of highway, land and national street gazetteer data, highway inventory and condition information on mapped format. Map tables are produced for various items as “layers” combining certain key layers is seen to be an advantage to improve the current data on GIS.
- ***AutoCAD*** – Various technical drawings are produced, and information to detailed construction information is recorded by either investigatory testing such as cores or by detailed design at road construction stage. The

importance of recording and retaining “as built information” for varying layers and extents of works is critical. Record keeping and the need to bringing up to date of historical information will aid future analysis of highway maintenance treatment selections.

Carriageways and footways - Inventory and Hierarchy

4.3.2 Leicester’s highway network is classified into the respective groups as follows:

- Principal road network (A roads) - length 91.25 km
- Non-principal classified (B and C roads) - length 60.5 km
- Unclassified roads – length 686.9 km
- Footways 1a, 1, 2, 3 and 4 - length 1300 km (1a, 1 and 2 length 285km)
- Rights of way - recorded length 65km
- Cycle tracks - approximately 60km
- In addition network increase is expected to be 90 km for next 10 years.

4.3.3 Inventory information is collected through various surveys and provided by people involved in the acquisition, creation, maintenance and disposal of the assets. The two types of inventories being collected are:

- Highway inventory - lengths, widths, surface type, construction type, speed limits, radius of bends, and number of lanes.
- Feature inventory - number of and locations of roundabouts, road and footway drainage items, street name plates, street furniture and hard/soft verges.

4.3.4 The highways Maintenance Group is responsible for activities for the collection of inventory, condition and maintenance strategies. Roads and footway widths are being collected through annual surveys and a stringent timetable is set for inventory information by CIPFA for asset valuations. The key dates being:

- 2009-10 provide Gross Replacement Cost (GRC) figures
- 2010-11 provide Depreciated Replacement Costs (DRC)
- 2011-12 provide full dry run GRC & DRC balances...
- 2012-13 provide WGA full financial statements

Improvement action: “To collect outstanding roads and footways inventory data, complete WGA asset valuations.”

4.3.5 We are developing a definitive map to show the extent of the adopted highway boundary on GIS.

Improvement action: “To develop a definitive map for the highway network and update databases.”

4.3.6 The “Well-maintained Highways, the Code of Practice for Highway Maintenance Management”, sets out footway and carriageway hierarchies. Leicester has adopted these hierarchies. The definitions are shown in Tables 4.1 and 4.2.

Category	Hierarchy Description	Type of Road General Description	Description
1	Motorway	Limited access motorway regulations apply	Routes for fast moving long distance traffic. Fully grade separated and restrictions on use.
2	Strategic route	Trunk and some principal 'A' roads between primary destinations	Routes for fast moving long distance traffic with little frontage access or pedestrian traffic. Speed limits are usually in excess of 40 mph and there are few junctions. Pedestrians crossings are either segregated or controlled and parked vehicles are generally prohibited
3a	Main distributor	Major urban network and Inter-primary Links. Short medium distance traffic	Routes between strategic Routed and linking urban centres to the strategic network with limited frontage access. In urban areas speed limits are usually 40mph or less, parking is restricted at peak times and there are positive measures for pedestrian safety
3b	Secondary distributor	Classified road (B and C class) and unclassified urban bus routes carrying local traffic with frontage access and frequent junctions	In built up areas these roads have 30 mph speed limits and very high levels of pedestrian activity with some crossing faculties including zebra crossings. On-street parking is generally unrestricted except for safety reasons
4a	Link road	Roads linking between the main and secondary distributor network with frontage access and frequent junctions	Residential or industrial inter-connecting roads with 30 mph speed limits, random pedestrian movements and uncontrolled parking.
4b	Local access road	Roads serving limited numbers of properties carrying only access traffic	Residential loop roads or cul-de-sac.

Category	Category Name	Description
1 (a)	Prestige walking zones	Very busy areas of towns and cities with high public space and street scene contribution.
1	Primary walking routes	Busy urban shopping and business areas and main pedestrian routes.
2	Secondary walking routes	Medium usage routes through local areas feeding into primary routes and pedestrian focus

		points such as schools, local shopping centres, medical and community centres.
3	Link footways	Linking local access footways through urban areas and busy rural footways.
4	Local access footways	Footways associated with low usage, short estate roads to the main routes and cul de sac.
5	Footpaths	Not alongside carriageways.

4.3.7 Our asset management activities have established the need to review network hierarchy and category records held in the various systems. Asset valuations require accurate network information and the need to bring up to date this information.

Improvement action: “To review carriageway and footway hierarchy records and to bring them up to date.”

Network Management Hierarchies

4.3.8 In addition to the hierarchies used for our maintenance strategy we employ various other local hierarchies, described in the next paragraphs, to facilitate network improvement and management and to address the network management duty (Traffic Management Act 2004) and our responsibilities arising from the NRSWA Act 1991 and the Network Management Plan (NMP). We have a duty to manage, including improving and maintaining, our network to secure the expeditious movement of traffic. This includes all road users including cyclists and pedestrians. A new Net Work Management Plan is created as part of the LTP-3 document and will be in parallel to the TAMP for the next four years period 2011-15.

Improvement action: “To review the various network management and maintenance strategy network hierarchies to ensure a high degree of compatibility between the networks.”

Improvement action: “To complete the categorisation of the networks to the finalised hierarchies.”

Associated Street Data (ASD) – requirement of the Traffic Management Act 2004

4.3.9 We are developing a consistent approach to recording of network hierarchies, and strategic hierarchies, in the form of a list of “associated street data” (ASD) by enhancing the existing list of streets, MARCHpms and Mayrise systems. The ASD will include the following data sets:

Data set 1 - Traffic Sensitive Streets

4.3.10 A list of “traffic sensitive streets” where we impose specific restrictions to ensure we keep traffic moving at specific times of the day and times of year. The list is reviewed and enhanced annually through linking all information with the list of streets to create a list which is part of the ASD.

Data set 2 - Streets of Engineering Difficulty and Special Surfaces

4.3.11 We have a list of streets of special surfaces but we are in need of a list of streets with engineering difficulty. The list of special surfaces includes the type of surface such as granite stones, marble etc. The list of engineering difficulty will identify the streets in the city that are difficult to carry out utility works.

Improvement action : “To prepare a list of streets with engineering difficulty”.

Improvement action : “To review the list of special surfaces annually”.

Data set 3 - Abnormal Loads Routes

4.3.12 The Special Types General Order Vehicles Act 2003 requires vehicle operators, of vehicles exceeding standard dimensions, to notify highway authorities of their planned journeys. The Bridges Team of the City Council deals with the abnormal load request. The procedure for dealing with the abnormal load request is explained in the team’s specific procedure “Abnormal Indivisible Load Movement” RHT-HB-01-P and associated flow chart RHT-HB-01-FC1.

Data set 4 – NRSWA 1991 Reinstatement Categories

4.3.13 The NRSWA 1991 states authorities should define their highway network to meet road reinstatement type categories. The following categories apply, Table 4.3:

Table 4.3 – Reinstatement Categories	
Road Category	Traffic Capacity
Type 0	Road carrying over 30 to 125 msa
Type 1	Road carrying over 10 to 30 msa
Type 2	Road carrying over 2.5 to 10 msa
Type 3	Road carrying over 0.5 to 2.5 msa
Type 4	Road carrying up to 0.5 msa

(msa – million standard axles)

Where a statutory undertaker reinstates the highway they must ensure the work is carried out to the type of reinstatement category, which is derived from the hierarchy of the road and the number of Ordinary Goods Vehicles (OGV) calculated from the Annual Average Daily Flow (AADF) data and converted to Million Standard Axle (MSA). This information tabulates the layer thickness required when either backfilling as temporary works or permanent works for a specific road hierarchy. In light of this we are currently in the process of redefining the network hierarchies, and aligning our categories to suit both the Government road hierarchy system and local hierarchies.

Improvement action – to provide traffic count information and develop reinstatement specifications for works carried out by the utilities and developers.

Data set 5 – Speed Management

4.3.14 Our Speed Management strategy forms part of a Road Safety strategy that is divided included in LTP-3. The strategy sets the priorities for scheme selection for traffic calming features for streets in the City. We completed the speed limit review in 2010 taking into account the latest national guidance. We are in the process of implementing speed limit changes as a result of the review. This information will form part of the ASD, allowing us to bring data together.

Improvement action – “To update Associated Streets Data (ASD) with revised speed limits once implemented”.

Local Authority Road Hierarchies

4.3.15 In order to identify and address the needs of all road users and to maximise the benefits of the existing transport system, we have developed a Road User

Hierarchy (User Classification), Traffic Management User Hierarchy and Road Hierarchy. This is also important as it ensures that the needs of vulnerable road users and sustainable forms of transport are fully considered within scheme design and policy implementation. The priority given to each user at any point on the network is clearly defined, allowing proper investment and maintenance to be targeted to greatest effect.

Local Authority Road User Hierarchy Definition?

4.3.16 The Road User Hierarchy (User Classification) is defined in order as:

1. Pedestrians
2. Cyclists
3. Public transport passengers
4. Other motorised vehicle users

Traffic Management User Hierarchy Definition?

4.3.17 To help us decide on the priority for dealing with the competing demands in the management of the network, and so help us decide which activity gets a higher priority, we also have a Traffic Management ‘User’ Hierarchy defined in order as:

1. Pedestrians
2. Emergency services
3. Utilities and highways - immediate (including emergency) works
4. Cycles
5. Public transport
6. Freight distribution
7. Blue badge holders
8. Other motorised vehicle users
9. Utilities and highways - planned works
10. Scaffolding, hoarding and skips

Local Authority Road Hierarchy

4.3.18 The Road Hierarchy is defined in order as follows:

1. Strategic Routes with priority for Freight Movement
2. Strategic Routes with priority for Public Transport
3. Strategic Routes with priority for Motorised Traffic generally
4. Local Distributor Roads in commercial development
5. Local Distributor Roads in residential development
6. Local Access Roads
7. Cyclist Routes
8. Pedestrian Routes
9. Rights of Way

4.3.19 We will take this hierarchy into account in considering improvements along any part of the transport network. Good pedestrian access is required to support the use of public transport and appropriate, safe pedestrian and cycle facilities will need to be considered on all routes. In the context of the three types of Strategic Route, the highest priority is assigned to freight, public transport or general motorised traffic, depending on the type of Strategic Route, as defined above. The Road User Hierarchy will complement the Road Hierarchy. It will ensure that all proposed highway works will be subject to a rigorous audit procedure based on the User Hierarchy. Thus the most appropriate pedestrian

/ cyclist / public transport facilities are delivered on the network, subject to the primary consideration of the Road Hierarchy priority modes.

4.3.20 On Local Distributor Roads there is a need to accommodate motorized traffic but these roads are not signed for through traffic and freight traffic is discouraged in residential areas. Priority within the motorised traffic element will vary depending on the circumstances of the individual route, such as whether or not it is a significant bus route. This in turn affects the type of pedestrian/cyclist/public transport facilities incorporated. Application of the Road User Hierarchy however, will ensure that the maximum possible priority is given to pedestrians and cyclists on these routes. On Local Access Roads (including residential, service and pedestrianised roads) pedestrians receive the highest priority, followed by cyclists. Further prioritisation will depend on the circumstances of the individual road, such as use by public transport or service vehicles.

Cycle Tracks – inventory and hierarchy

4.3.21 An update to the 1998 cycle track map showing new and improved cycle routes within the Leicestershire boundary was carried out. The new publication is available on the Sustrans website. In addition, inventory information for this asset will be collected to aid future maintenance management.

Improvement Action: “To collect cycle route inventory data and condition data.”

4.3.22 In accordance with the Well-maintained Highways Code of Practice we have adopted the cycle route hierarchy shown in Table 4.4.

Category	Description
A	Cycle lane forming part of the carriageway, commonly 1.5m strip adjacent to the nearside kerb. Cycle gaps at road closure point (no entries allowing cycle access)
B	Cycle track, a highway route for cyclists not contiguous with the public footway or carriageway. Shared cycle/pedestrian paths, either segregated by a white line or other physical segregation, or un-segregated.
C	Cycle trails, leisure routes through open spaces. These are not necessarily the responsibility of the highway authority, but may be maintained by an authority under other powers or duties.

Improvement action: “To categorise the cycle track network to the cycle track hierarchy.”

Winter Service Hierarchies

4.3.23 We have route hierarchies for the Winter Service – these are detailed in chapter 10.

Road Markings and Coloured Surfacing– inventory information

4.3.24 We have acquired a variety of coloured surfacings with demarcation markings, including skid resistance surfacing. At present, a formal data collection and storage arrangement for these elements is not in place. The minimum

requirement is to collect the location and condition of existing coloured surfacings, moving towards the collection of line marking data. All coloured surfacing material are inspected in line with carriageway safety inspections. Details of waiting restriction markings are recorded by the TRO, and are stored in the team’s mapping software. These markings are inspected by our parking enforcement officers.

Improvement Action: “To collect road markings inventory data and bring together both types of markings under one system.”

Hard Verges – inventory information

4.3.25 Improvement action arising from reviewing our inventories is to develop a hard verges inventory and collect inventory data.

Improvement Action: “To collect hard verges inventory data.”

Highway Drainage – inventory information

4.3.26 Improvement action arising from reviewing our inventories is to develop a highway drainage inventory and collect inventory data. This will include, for example, the number and type of new gullies, pipe depths, diameters, connection types and internal diameter of the gully pot for jetting purposes.

Improvement Action: “To collect highway drainage inventory data.”

Traffic Calming – inventory information

4.3.27 Improvement action arising from reviewing our inventories is to develop a traffic calming features inventory and collect inventory data.

Improvement Action: “To collect traffic calming features inventory data.”

Rights of Way – inventory and hierarchy

4.3.28 Leicester City Council’s Rights of Way Improvement Plan (RoWIP) details a statement of actions for the improvement to the management, maintenance and extension of the network including addressing inventory and hierarchy issues. Rights of way definitive map preparation is an ongoing activity. As of January 2011, 65km of rights of way is recorded. The current hierarchy is detailed in Table 4.5.

Category	Description
1	Longer distance footpath routes
2	Strategic footpath routes
3	Leisure footpath routes
4	Bridleways
5	Other access routes

Asset Information and Data Management Strategy

4.3.29 We recognise the need to have up to date information for effective and efficient asset management decision-making. Hence, we are developing an Asset Information Strategy (AIS) to help us improve ways of recording, collecting and storing information from various sources.

Improvement action: “To develop and implement an Asset Information Strategy” for collection of all asset information.

4.4 Current Asset Condition
Carriageways and footways

4.4.1 Surveys are undertaken to measure deterioration trend and financial costing. The survey results are used to report on the WGA asset valuations. The confidence level in condition data is low due to the constant change in survey methods and frequent changes to the criteria for deriving performance indicator results.

Condition of the Principal Road Network

4.4.2 The machine based SCANNER condition surveys collect data for the determination of the condition of principal roads and non-principal classified roads represented by LLTP41 and LLTP42. LLTP41 represents the percentage of the principal road network that should be considered for planned maintenance soon. Results for LLTP41 are shown in Table 4.6. The red category indicates sites that require maintenance within a 1-year time span, with the amber showing sites that require work from 2 year to 8-year time span. The green sites indicate no immediate action is required however planned inspections should be considered. Our overall assessment from this information is that the network is in fair condition. The estimated cost of restoring the network to all green category using various maintenance treatments is £40 million.

Table 4.6 Principal Road Network Condition LLTP41			
Year	Actual	Comments	
2000/01	20%	Definitions often changed up to 2005/06 Note: A Low percentage is good	
2001/02	22.9%		
2002/03	42.77%		
2003/04	1.31%		
2004/05	39.59%		
2005/06	13.0%		
2006/07	11.0%		
2007/08	8.0%		
2008/09	8.0%		
2009/10	5.0%		
2010/11	TBC		
Category	Condition	Length	Result
Green	Generally good condition	92.343 km	70.7%
Amber	Plan investigation soon	31.154 km	23.9%
Red	Plan maintenance soon	7.053 km	5.4%

Condition of the Non-Principal Classified Road Network

4.4.3 The LLTP42 result represents the percentage of the Non-Principal Road network needing planned maintenance soon. The survey results and LLTP42 are shown in Table 4.7.

The condition of the B and C roads is fair. The estimated cost of restoring the network to all Green category using various maintenance treatments is £35million.

Table 4.7 Non-Principal Classified Road Network Condition LLTP42			
B Roads			
Year	LLTP42	Comments	
2000/01		Definitions often changed up to 2005/06 Low percentage is good	
2001/02	23.12%		
2002/03	37.30%		
2003/04	39.38%		
2004/05	26.61%		
2005/06	12.0%		
2006/07	11.0%		
2007/08	7.0%		
2008/09	8.0%		
2009/10	5.0%		
2010/11	TBC		
C Roads			
Year	LLTP42	Comments	
2000/01		Definitions often changed up to 2005/06 Low percentage is good	
2001/02			
2002/03	16.87%		
2003/04	20.74%		
2004/05	10.04%		
2005/06	5.91%		
2006/07	9.59%		
2007/08	14%		
2008/09	18%		
2009/10	19%		
2010/11	TBC		
B Roads Survey Lengths			
Category	Condition	Length	Result
Green	Generally good condition	16.233 km	66.1%
Amber	Plan investigation soon	6.875 km	28.0%
Red	Plan maintenance soon	1.458 km	5.9%
C Roads Survey Lengths			
Category	Condition	Length	Result
Green	Generally good condition	56.768 km	76.7%
Amber	Plan investigation soon	13.681 km	18.50%
Red	Plan maintenance soon	3.552 km	4.8%

Condition of the Unclassified Road Network

4.4.4 For internal reporting requirements we will carry out (minimum 25% of the nearside lane length per year) using either a UKpms CVI Survey or an equivalent Detailed Visual Inspection (DVI) Survey. Visual surveys are carried out in accordance with Visual Data Collection for UKPMS Volume 2 of the UKPMS User Manual. The part of the unclassified network chosen for the annual survey is, as far as possible, a representative sample of the entire unclassified network. Leicester uses CVI data for the production of LLTP43. LLTP43 does represent the percentage of the unclassified road network that has exceeded the point at which surface or structural repair should be

considered. The unclassified road network accounts for 85% of the city’s entire highway network. The survey results are shown in Table 4.8.

Leicester’s result was 7.75% (the average for years 2005/06 and 2006/07) therefore we were above the upper threshold limit, which is good. We believe the condition of the unclassified roads is poor. The estimated cost of restoring the network (196km) is £98million using the various maintenance treatments.

Table 4.8 Unclassified Road Network Condition LLTP43			
Year	LLTP43	Comments	
2000/01	N/A	Definitions often changed up to 2005/06 Low is good	
2001/02	N/A		
2002/03	16.87%		
2003/04	20.74%		
2004/05	10.04%		
2005/06	5.91%		
2006/07	9.59%		
2007/08	14.0%		
2008/09	16.0%		
2009/10	19%		
2010/11	TBC		
Threshold Limits	Condition	Length	Result
Structural CI >=85	Length exceeding threshold	31.403 km	7.5%
Wearing Course CI >=60	Length exceeding threshold	77.244 km	18.5%
Edge CI >= 50	Length exceeding threshold	3.433 km	0.8%

Condition of the Footway Networks

4.4.5 Detailed Visual Inspection condition surveys are carried out on footways 1a, 1 and 2 upto 2009/10. It is designed to provide the percentage length of the footway network with a Condition Index (CI) greater than 20. The final calculations for the LLTP44 are based on a 50 per cent survey of Category 1a, 1 and 2 footways each year, so that the complete Category 1a, 1 and 2 networks are covered every two years. From 2010/11 the new Footway Network Survey (FNS) is carried out over 25% of the network. The survey results and LLTP44 are shown in Table 4.9.

Leicester’s result was 38.04% (the average for years 2008/09 and 2009/10). The condition of the 1a, 1 and 2 Footway network is poor. The estimated cost to restore the network to a good condition is £22 million using various maintenance treatments

Table 4.9 Footways Category 1, 1a & 2 Network Condition LLTP44		
Year	LLTP44	Comments
2002/03		No surveys
2003/04	57.0%	Low is good
2004/05	49.81%	
2005/06	28.99%	

2006/07	47.09%							
2007/08	25.00%							
2008/09	39.00%							
2009/10	50.00%							
2010/11	no longer surveyed							
Condition Index (CI) Band	Processed length within CI Band (km)				Percentage Length over threshold			
	1	1a	2	Overall	1	1a	2	
20 and over	2.34	0.00	70.73	73.070	35.3 %	0.00 %	47.7 %	
Under 20	0.07	0.06	2.836	2.981				
Zero	4.20	0.27	74.66	79.172				
Not Assessed	0.00	0.00	0.198	0				
All	6.63	0.33	148.2	30.494				

4.4.6 The remainder (category 3 and 4) of the footway network has been surveyed using the new FNS method, the results will be published towards the end of MARCH 2011. We estimate, from our safety inspections, that the category 3 and 4 network is in a similar condition to the 1, 1a and 2 network.

Cycle Track Condition

4.4.7 There is presently no statutory indicator specifically identifying the condition of cycle routes. We have collected condition data for cycle tracks and found the majority of defects result from poor signing and lining, and inconsistent design of the route itself. Designers who prepare new cycle route schemes should deliver good condition cycle routes. Reference to the guidance published by TRL and the Footway and Cycle Route Design Construction and Maintenance Guide AG26 should be made during the design process.

Improvement action: “To develop a cycle route condition assessment system”

Improvement action: “ To prepare cycle route design guidance notes.”

Road Markings and Traffic Calming Features Condition

4.4.8 There are no statutory or local indicators identifying the condition of road markings or road humps. The condition of road humps will generally be assessed with that of the roads where they are located.

Hardened Verges Condition

4.4.9 There are no statutory or local indicators identifying the condition of hard verges. The condition of hard verges will generally be assessed with that of the adjoining roads.

Highway Drainage Condition

4.4.10 There are no statutory or local indicators identifying the condition of highway drainage systems.

Rights of Way

- 4.4.11 The council completed its rights of way network survey in September 2006 with a view to creating a database including location and condition. LLTP 45 represents the percentage of the rights of way network that is well signed and easy to use. The figure is calculated by comparing the improvements to the total network. LLTP45 (BVPI 178) (percentage of paths that are easy to use) for 2005/2006 was 62%, for 2006/2007 was 70%, for 2007/08 was 88%, for 2008/09 was 94% and for 2009/10 was 95%. This shows an overall improvement.



Super crossing at the junction of Granby Street and St Georges Way funded by Growth Point Funding and ERDF (European Regional Development Funding) - work completed 2010, resurfacing to road, new block paved footways, and controlled crossing.

4.5 Asset Valuation Update

- 4.5.1 The drivers for asset valuation are discussed in Chapter 13. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the 'Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting' published by CIPFA in 2010 for Highway Infrastructure Asset Valuation along with the appropriate depreciation methodology. See Chapter 13 for further information.

4.6 Asset Lifecycle Options and Asset Life

4.6.1 Creation/Acquisition More work

- 4.6.1.1 For this asset grouping, creation or acquisition of assets arises through improvement projects implementing the Council's transport strategy and private sector led new developments that include new highway infrastructure. Leicester City's Rights of Way Improvement Plan 2011 to 2021 details proposed new sections of the Rights of Way network. Forward works programmes for creation and acquisitions are included in Chapter 14.

4.6.2 Routine Maintenance

4.6.2.1 Routine maintenance is the regular ongoing day-to-day work that is necessary to keep the assets operating. This includes planned and reactive maintenance. Planned maintenance includes activities such as condition inspections, safety inspections, New Roads and Street Works Act inspections and planned preventative maintenance (patching, cleaning, grass cutting). Reactive maintenance relates to corrective maintenance to put right minor failures, such as potholes and rocking slabs responding to inspections, complaints and emergencies. Leicester's routine maintenance arrangements are described in the following paragraphs. During the preparation of this TAMP we have identified the need to establish arrangements to regularly review our survey regimes.

Improvement action: "To establish arrangements to review the inspection, assessment and recording regime."

Condition Inspections – carriageways and footways

4.6.2.2 We carry out condition surveys to aid the development of robust highway maintenance programmes and to assist in properly management the highway network. In addition, technical staff make ad-hoc condition assessments to ascertain extent of damage and for prioritisation purposes. These are reactive inspections. We currently have adopted the minimum (as defined in the Well maintained Highways Code of Practice) scenario for the application of UKPMS.

Deflectograph Surveys

4.6.2.3 We use Deflectograph surveys to help clarify carriageway structural condition of our principal and non-principal classified road network. This survey is a 5 yearly project; however visual inspections and other technical surveys have clarified overall condition. The deflectograph survey will eventually be used on a 10 yearly basis.

National Road Maintenance Condition Survey

4.6.2.4 The National Road Maintenance Condition Survey (NRMCS) is a visual condition survey instigated directly by the DfT. This survey has completely been phased out and no longer available. The idea is that the SCANNER survey collects sufficient maintenance needs data.

Condition Inspections - Highway Drainage, Road Markings and Traffic Calming Features

4.6.2.5 There are no formal condition assessment measures for drainage, road humps and road markings. However, service and reactive inspections, covered later in this section, are carried out to identify areas needing attention. We have not adopted an intervention level for road markings but instead a rolling programme of road marking replacement/repair as this is more cost effective than reactive maintenance. Our inspections do however identify reactive maintenance requirements if road markings become worn quicker than anticipated.

Condition Inspections - Rights of Way

4.6.2.6 In 2006/07 we conducted a full inspection survey of the main Public Rights of Way (PRoW) to identify the overall extent of condition, surface type, signing

and access requirements. However the rights of way network is inspected as part of the highway inspections but not reported to the strategy team for any future improvement proposals. Strategy Officers in the future should liaise with the Highway Asset Management Team for inspection feedbacks to propose future maintenance works in the forward works programme.

Improvement action: “Strategy Officers to liaise with the Highway Asset Management Team for inspection feedback”.

Safety Inspections - Carriageways, Footways and Cycle Routes

4.6.2.7 We currently carry out a regime of inspections based on the Well-maintained Highways Code of Practice, in terms of approach, frequency and intervention level. This is to meet our statutory obligation to ensure that the network is kept in a safe condition and to support a defence under Section 58 of the Highways Act 1980. Slight adjustments have been made to the frequencies to those stated as the minimum requirements in the Code of Practice. These adjustments mean that although the footway and carriageways are of differing hierarchies both features are inspected (walked) at the same time to optimise the use of staff resources. The interval of inspection varies from fortnightly to twice a year according to the hierarchy of the carriageway and footway. The inspection regime is derived from the Code of Practice and our risk assessment.

Feature	Description	Hierarchy Category	Frequency
Roads	Strategic Route (primary route)	2	3 months
	Main Distributor	3(a)	3 months
	Secondary Distributor	3(b)	3 months
	Link Road	4(a)	6 months
	Local Access	4(b)	6 months
Footways (including Public Rights of Way)	Prestige Area	1(a)	fortnightly
	Primary Walking Zone	1	1 month
	Secondary Walking Zone	2	3 month
	Link Footway	3	6 months
	Local Access Footway	4	1 year
Cycle Route	Part of Carriageway	A	As for carriageways
	Remote from Carriageway	B	As for footways
	Cycle Trails	C	1 year
Footpaths (Public Rights of Way)	Made	Local 5	2 Years
	Unmade	Local 6	5 Years

Carriageways		
Defect Type	Location	
	2, 3(a), 3(b), 4(a), 4(b)	
	Intervention Level. (mm)	Category

Pothole, Raised or Missing Block, Levels on Concrete Bays	40-59	D		
Pothole, Raised or Missing Block, Levels on Concrete Bays	60 +	B		
Loose or missing ironwork	Loose or missing ironwork	B		
Fading road markings	N/a	Note; rolling programme of road marking repair/replacement		
Missing or damaged road studs	N/a	Note: rolling programme of rod stud replacement		
Areas of carriageway designated for pedestrian usage - Footway intervention levels to be applied e.g. Pedestrian/zebra crossing, refuges with adjacent dropped crossing, adjacent to tactile paved crossing points and temporary pedestrianised areas.				
Footways and cycleways				
Defect Type	Location 1,1a		Location 2,3,4	
	Intervention Level (mm)	Category	Intervention Level (mm)	Category
Trip	20 +	B	25 + 20 – 24	B PM
Rocking Block / Flagstone	+/-20 +/- 10 - 19	B PM	+/-20 +/- 10 - 19	D PM
Missing Block	All	B	All	B
Loose Kerb adjacent to hard surface of footway / refuge	+/-20	B	+/-20	PM
Kerb – sunken or raised against next kerb or adjacent footway	20+	B	25+ 20-24	B PM
Kerbs – protruding into carriageway	60+	PM	60+	PM
Missing Kerb	All	B	All	B
Sinkage – Steep sided tripping point	>25 in 0.5m	PM	>25 in 0.5m	PM
Horizontal Gap	Width>25 and Depth>25	PM	Width>25 and Depth>25	PM
Bollards – New	New Installation	E	New Installation	E
Bollards – Knocked over – Repair/ Replace	If trip >25 If trip 20 – 24	A B	If trip >25 If trip 20 - 24	A PM
Grass Verges	Only repair if cost can be recharged	E	Only repair if cost can be recharged	E
Loose or missing ironwork	Loose or missing ironwork (Reported for the attention of Statutory	Request 7 day response or recharge	Loose or missing ironwork	N/a

	Undertakers)	repair		
Category A – Same day by 2000 hours		Category B - Within 24 hours		
Category D – Within 8 working days		Category E - Within 4 weeks		
Category PM - Planned Maintenance				

4.6.2.8 The safety inspection regime produces a notebook record of the inspections and actionable defects are recorded, which are then input to the MAYRISE highways management database. Although individual officers prepare the inspection routes as “planned routes” the repair to any defect is determined to be “reactive”. Officers also nominate sites that they feel require a “planned maintenance scheme”. To improve efficiency of our inspection process we plan to introduce use of hand held computers to collect data.

Improvement action: “To introduce use of hand held computers for safety inspections.”

4.6.2.9 As part of the highway inspections any utility companies’ dangerous cover or equipment is recorded and the company informed by fax, phone or email depending on urgency in accordance with Section 81 of the New Roads and Streetworks Act 1991. If no action is taken by the company within a reasonable period of time then the cover or equipment is made safe by City Highways and the company re-charged.

Skid Resistance Strategy

4.6.2.10 The Well-maintained Highways Code of Practice recommends that Highway Authorities should publish their skid resistance strategy as part of their TAMP. We have begun to develop and implement our strategy. Sideways Force Coefficient Routine Investigation Machine (SCRIM) surveys are conducted to assess skid resistance with the data being loaded into MARCHpms. The surveys only cover the A, B and C road network due to the limitations of the size of survey vehicle being used. In 2010 we surveyed the entire network above in both directions.

Improvement action: “To develop and implement our Skid Resistance Strategy and publish the strategy.”



The SCRIM machine used for skid resistance surveys

Service Inspections for Regulatory Purposes - New Roads Street Works Act 1991 (NRSWA) and Traffic Management Act 2004

4.6.2.11 The NRSWA requires Highway Authorities to carry out a minimum of 10% random sample inspections of openings and reinstatements in the highway notified to the Authority on an “N” (opening) notice. The periods for the inspections are dictated using the calendar year, and the authority agrees the total number of inspections based on the past years total with each of the Statutory Undertaker prior to commencing inspections. On agreement the Statutory Undertaker pays the appropriate fee for the full year in advance of inspections. The agreed total covers the following categories:

- Category A - during works (10%)
- Category B - 6 months after works on receiving R notice (10%)
- Category C - in the last month of the 2-year period after receiving R notice (10%)

Category B and C are randomly selected based on the Authority receiving an appropriate “R” (reinstatement) notice.

4.6.2.12 Reinstatements beyond 2 years are deemed to be “out of guarantee”. Exceptions are unless the reinstatement does not comply with NRSWA 1991 specifications for reinstatements or categorised as being an interim or temporary repair. Once deemed as out of guarantee the any failure of the reinstatement becomes the responsibility of the council. In addition, the following other types of inspections are permitted within the confines of NRSWA 1991.

- Investigatory inspections - inspections that are raised through a customer complaint, or a member of staff.

- Agreed inspections - inspections that are part of special projects with fixed number of inspection units over a 2-year period.
- 4.6.2.13 The MAYRISE system for the New Roads and Street Works 1991 Act and Traffic Management 2004 Act holds information on costs for overruns, generates defects and sample inspections of utility works. It also highlights issues of coordination and clashes of sites, and street referencing using the National Street Gazetteer information. A facility exists within this software to produce analysis reports for given sites, the number of openings for particular streets, sites which are due to fall outside the 2 year guarantee period and so on. Our aim is to increase the number of inspections for utilities as follows:
- Category A – retain at 10%
 - Category B – retain at 10%
 - Category C – increase to 100%
- 4.6.2.14 By increasing category C inspections, we will manage and limit the damage caused by statutory undertakers. In addition the increase will allow us to recoup monies for bringing the asset back into an acceptable condition, within the confines of the set levels of service. We have also recognised the need to ensure compliance with reinstatement specifications for works carried out by the utilities and developers to help preserve the condition of our assets. We are also planning to carry out compliance testing of the service reinstatements of past and present works to gauge the quality of the reinstatements. The compliance testing will consist of coring to measure layer thickness and impact testing to measure compaction. Any sites found to not comply with the specification for reinstatements will be identified to the relevant utility company for action. Where individual statutory undertakers continually fail, we will consider serving an “Improvement notice” enforceable through the NRSWA 1991.
- 4.6.2.15 To assist in better record keeping, and to gauge the impact of streetworks affecting the highway asset we will be developing a NRSWA operational control measure that will consist of staff performance targets, monthly target appraisals, defect recording and reporting procedure, ongoing data continuity checks such as updating NSG data and data consistency reviews with other systems.
- Improvement action; “To increase Category C NRSWA inspections to 100% of openings.”**
- Service Inspection – Highway Drainage**
- 4.6.2.16 We do not currently have a formal highway drainage inspection regime. A policy is being produced to cover flooding of the highway, and will consider highway drainage, watercourses, and risks associated with seasonal change.
- Service Inspection – Road Markings and Studs**
- 4.6.2.17 Instead of having an inspection regime we have determined that it is more efficient to have a renewals programme for markings and studs.

Service Inspections for Cycle Route Network Integrity

- 4.6.2.18 One of the key national and local transport priorities is to encourage more people to cycle we will introduce cycle route network integrity inspections on an annual basis to ensure network integrity.

Improvement action: “To introduce annual cycle route network integrity inspections.”

Planned Preventative Maintenance - Carriageways, Footways and Cycle Routes

- 4.6.2.19 Condition data is used to derive the planned maintenance programme of works for the principal classified, non-principal classified and the footway category 1, 1a and 2 networks. The information from the safety inspection process is used to develop a “nominated schemes list” for the remainder of the network, which is then prioritised to develop a programme for minor repairs. Carriageway cyclic maintenance will be fine-tuned to meet user demands, and current traffic flow and standard axle weight distribution. For example the busier primary route network (outer ring road) takes precedence over principal roads dependant on usage therefore intermediary treatments may be brought forward on identification of defects. Footway cyclic events will be fine-tuned to meet user demands, and current pedestrian usage. For example busier footways will require intermediate treatments earlier than say a quiet urban footway.

- 4.6.2.20 We have a weed spraying programme using a non-residual herbicide (glysophate). This is completed three times a year throughout the city.

Planned Preventative Maintenance - Highway Drainage

- 4.6.2.21 An annual programme of highway drainage works is established consisting of minor ponding sites, gully jetting sites, and ironwork repairs carried out by City Highways. Planned gully cleansing is now also undertaken by City Highways in order to provide a more comprehensive highway drainage service.

Planned Preventative Maintenance - Public Rights of Way

- 4.6.2.22 The maintenance activities to the Rights of Way Network have been undertaken based on the available information and requests from the users. Typical activities include clearing vegetation overgrowth, repairing surfaces, renewing signs/way markings and removing obstructions. Using the recent (summer 2006) network survey information we have developed the forward maintenance programme included in the Leicester City’s Rights of Way Improvement Plan 2011-2021

Reactive Maintenance

- 4.6.2.23 Reactive maintenance consists mainly of making safe potholes in carriageways, rocking slabs and trips on footways. Reactive maintenance carried out when defects are identified by our highway inspectors or are reported by members of the public.

Routine Maintenance Service Standards

- 4.6.2.24 Tables 4.12 and 4.13 detail the current routine maintenance activities and service standards for carriageways and footways.

Table 4.12 Routine Maintenance Service Standards – Carriageways, including Road Markings and Highway Drainage		
Activity Type	Activity	Service Standard
Preventative	Surface treatments	Condition and judgment based
	Precautionary salting	Dependent on weather conditions and forecast and set out in Winter Service Operational Plan
Condition Monitoring	Safety inspections	Prestige Zones - Fortnightly Other City Centre – 12 times per year Principal and Classified - 4 times a year Others - 2 times a year
	Condition Inspections	Structural strength (principal) - 100%/year Skid resistance (>10,000pa) - to be decided Visual (CVI) Classified - 50%/year Unclassified - 25%/year
	NRSWA Inspections (Shown in Table 4.13)	Sample inspections: dependent on the utilities level of activity, but generally 30% of the average number of units of inspections generated over previous three years equally divided between the categories of inspections. Investigatory inspections: investigate complaints about undertakers work.
Corrective	Minor patching	Non specified, condition and judgment based
Enforcement	Enforcement action	As identified through safety and ad-hoc inspections
Reactive	Emergency repairs	Hazardous potholes repaired within 24 hours of report
	Ad hoc Inspections	Non specified, responsive
	Post salting and snow clearance	Dependent on prevailing weather conditions - set out in winter service plan
Road Markings Activities		
Condition monitoring	Safety inspections	As carriageways service standards
Reactive	Road marking repairs	Non specified, condition and judgment based
Drainage Activities		
Preventative	Scheduled gully emptying	All gullies emptied every 8 months
	Beany blocks ACO – drains	At present all cleaning is ad hoc. Formal procedures for regular cleaning are needed.
Condition monitoring	Safety inspections	Are needed
	Pump inspections	Annually
Corrective	Minor corrective	Non-specified, condition and judgment based
Reactive	Flooding clearance, non-schedule gully and manhole emptying	Non-specified, condition and judgment based
	Ditch emptying	Non-specified, condition and judgment based (this is programmed)
3rd Party Activities		
Reactive	Sweeping/Cleansing	Non-safety related.

Table 4.13 Routine Maintenance Service Standards – Footways		
Activity Type	Activity	Service Standard
Preventative	Planned schemes - resurfacing Surface treatments e.g. slurry seal	Condition and judgement based
Corrective	Planned schemes	Non-specified, condition and judgement based
	Safety inspections	Prestige Walking Zone - Fortnightly Primary Walking Route – 12 times per year Secondary Walking Route (adjacent to classified roads and other identified key footways) – 4 times per year Link Footway – 2 times per year Local Access Footway (housing hard areas) - Yearly
Condition monitoring	Condition Inspections	Visual (DVI) - 50%/year Classes 1, 1a & 2
	NRSWA reinstatement inspections	Sample inspections dependent on the utilities level of activity, but generally 30% of the average number of units of inspections generated over previous three years equally divided between the categories of inspections. Investigatory inspections: investigate complaints about undertaker’s work.
Corrective	Enforcement actions	As identified through safety and ad hoc inspection.
Reactive	Emergency repairs (trips, holes etc)	Dangerous damage to pavements carried out within 24 hours, and other defects in line with intervention levels.

Improvement action: “To develop cycle route routine maintenance service standard.”

4.6.3 Renewal/Replacement Carriageways, Footways and Cycle Routes

4.6.3.1 Renewal or replacement work restores the highway asset to its “as new” capacity and condition. Annual and ten year renewal or replacement programmes are being prepared using condition assessment information and demand information arising from the transport strategy. Our strategy for preparation of asset renewal or replacement programmes is tabulated in Table 4.14.

Table 4.14 Renewal/Replacement Programmes		
Carriageways		
Asset Type	Renewal/Replacement Programme	Basis for Programme
Carriageway	Principal Roads 5 year (2006 – 2011)	Based on SCANNER,CVI and SCRIM surveys.
	Non-Principal Roads 1 year (2010 – 2011) and Annual Activity	Based on visual condition survey (DVI and CVI) results. Currently giving priority to higher levels of hierarchy and within this to sites with highest overall structural condition index (CI). Also opportunity on lower hierarchy roads where renewal is economically justified. Planned patching and repairs programmes are locally determined judgements.
Traffic Features	Treat with roadway on which they are located	Locally determined judgement based on need and budget restrictions.
Road markings	Renew markings below required reflectivity	Replace markings as part of new scheme Replace markings as part of highway reconstruction or resurfacing
Pedestrian Features	Treat with roadway/footway they are related to	Locally determined judgement based on need and budget restrictions.
Drainage	Annual Programme	Programmes derived giving priority to sites exhibiting flooding to property, flooding causing obstructions and repeated maintenance expenditure.
Footways and Cycle Routes		
Footways and cycle routes	1 year programme	Based on visual condition survey results. Currently based on giving priority to higher levels of hierarchy and to sites with highest overall condition index.
	Annual Activity	Patching programmes, minor localised renewals are locally determined.

4.6.3.2 Renewal/replacement activities for this asset grouping are derived from insurance claims, visual surveys and complaints. Table 4.15 below gives details.

Table 4.15 Renewal/Replacement Activities – Carriageways, Footways & Cycle Routes		
Asset Type	Renewal	Replacement
Carriageways	Planned patching	Based on visual condition survey results. Currently based on giving priority to higher levels of hierarchy and to sites with highest overall condition index.
Footways	surfacing	
Cycle ways	Haunching/overlay	
Cycle lanes	Retread	
Highway drainage	Inlay/Overlay	Reconstruction
	Refurbishment of drainage systems	Removal of existing drainage systems and replacement with new
	1 year programme	
	Annual Activity	Patching programmes, minor localised renewals are locally determined.

Road Markings

4.6.3.3 A prioritised cyclic road, footways and cycle routes markings renewal programme will be developed once the information has been analysed.

Improvement action: “To develop a road, footways and cycle routes markings renewal programme.”

Traffic Calming Features

4.6.3.4 These are generally renewed/repared together with improvements to the roads where they are located.

Public Rights of Way

4.6.3.5 The renewal programme for the Rights of Way network is included in the Implementation Plan, Part B of Leicester’s Local Transport Plan 2011-2026

4.6.4 Upgrading

4.6.4.1 For this asset grouping, upgrading or improvement beyond the existing asset condition is achieved through the following activities.

- Geometry changes arising in improvement projects
- New developments (Section 278 HA 1980 etc.).
- Extension and/or hard surfacing of the Rights of Way network.
- Locally driven e.g. minor junction improvements.
- Works under Sections 62, 64, 65, 66, 72, 73, 75, 76, 77 & 78 of the Highways Act 1980.
- Changes to existing systems to improve drainage performance.
- Local safety schemes.

4.6.5 Disposal

4.6.5.1 Disposals of carriageways, footways, cycle routes, road markings and traffic calming features are generally consequential to the decisions to improve the transport network through the works programmes or as a result of new developments on brown field sites. Highways no longer required for the

passage and re-passage of the public can be disposed of through the implementation of “stopping up” orders under Section 116 of the Highways Act 1980. Not enough what do we do when we have ‘stopped them up’.

4.6.5.2 We ensure that new development will not have an adverse effect on the existing public highway including amenity areas and that all the users including car users, bus passengers, cyclists, pedestrians and LGV drivers will not be worse off. Recent research has shown that once traffic flows exceed 75% - 80% of capacity, the network flows can become unstable very quickly and resilience reduced such as a broken down or slow moving vehicle or the passage of emergency response vehicles can have a dramatic impact, although temporary, on increased journey times and delays. Such events that occur when traffic flows are less than 75% usually have a much lesser impact. This also applies to more significant events when the effects will be over a much longer period. When considering any request by developers for alterations to the main highway network in future, we will require the retention of all the existing reserve capacity for vehicles, pedestrians and cyclists.

4.6.6 Treatment Options

4.6.6.1 There are treatment options within the lifecycle options/phases of asset life discussed earlier. Determining the most appropriate treatment for the asset leads to the most cost effective deployment of the maintenance budget. The following are the key treatments for lifecycle management and maintaining consistency for highway maintenance.

- Surface dressing
- Thin surfacing
- Slurry sealing
- Advance patching
- Joint sealing
- Concrete joint repairs
- HRA joint repairs
- Strengthening
- Full reconstruction
- Drainage improvements
- Plane and Resurface
- Overlay
- Concrete bay renewals
- Replace slabs with bitmac (with exception of conservation and prestige areas)
- Kerbing works
- Reactive repairs

Improvement action: “To develop working procedures for each treatment option with costings for setting appropriate levels of service.”

4.7 Performance Gaps

4.7.1 The performance gaps for this asset grouping are primarily the difference between current condition and desired condition, which is represented by the

condition targets, and the areas where improvement actions have been identified. These gaps will be closed through delivering the forward works programme detailed in Chapter 14 and the improvement actions identified in this chapter (collated at the end of this chapter).

4.8 Optimisation and Maintenance Budget Considerations

4.8.1 Optimisation is the process of identifying the optimal regime for the operation and maintenance of the network. We will be identifying the optimal regime when preparing the forward works programme with due regard to the lifecycle options and treatment options.

4.8.2 Capital and revenue budgets are allocated on a needs basis using condition and safety inspection information derived from the various surveys and from demand related information and assessment. The category of hierarchy of the road or footway in the network categories being an indication of demand coupled with appraisal against the key objectives of the Local Transport Plan. During the preparation of the Central Leicestershire Local Transport Plan we began the practice of prioritising proposed schemes in the planned maintenance programmes taking into account the Principles and Objectives of the Highway Maintenance Strategy from the Code of Practice for Maintenance Management amended to take account of the key objectives of the Local Transport Plan.

4.8.3 The financial summary of our indicative capital maintenance funding (000's) proposed for the next 2 years (2011-13) is shown in Table 4.16. Out of the £5.6 million revenue budget this financial year 2010-11, an amount of 2.480m was spent on highway maintenance works and is shown in Table 4.17

Table 4.16 (Capital Maintenance)

Description	2011/12 £(000S)	2012/13 £(000S)
Principal/Primary Roads	580	290
Non Principal Classified Roads	97	97
Unclassified Roads	183	183
Footway 1a, 1 & 2,3 &4	229	254
Generic treatments, Laybys, Footpaths, & Verge Hardening	401	401
Bridges on primary route	20	0
Bridges	460	620
Traffic signal renewal	320	270
Street lighting renewal	40	40
Vehicle activated signs	10	10
Pot holes	280	0
GRAND TOTAL	2,620	2,165

Table 4.17 (Revenue Budget)

Description	2010/11 £(000S)
Carriageways and footways	551
Bridges	11
Traffic signs	179

Traffic signals	431
Street lighting	411
Road markings	70
Verge, laybys, trees maintenace	646
Winter maintenace	150
Water Courses	31
GRAND TOTAL	2,480

4.9 Risk Management

4.9.1 Risk management is carried out using the Leicester City Council specific Risk Management Toolkit as explained in section 3.9. The risk assessment exercise for this asset grouping is carried out annually and following a significant event. The risk register is included in Appendix A.

4.10 Forward Works Programme

4.10.1 Our maintenance strategy has guided the development of works programmes that target investment to achieve the best possible outcomes in terms of condition of the networks. Prioritisation of the planned maintenance programmes has also been informed by using the Principles and Objectives of Highway Maintenance Strategy from the Code of Practice for Maintenance Management amended to take account of the high level objectives of the Local Transport Plan. This system focuses on Network Safety, Network Serviceability and Network Sustainability and the contribution to the four high level objectives of the LTP. Improving the quality of the footway network is key to improving access to local facilities, local centres, public transport interchanges and bus stops. Not only will this investment help us deliver our accessibility objectives, it should reduce the number of claims for trips and falls against the Authority. For more details please refer to chapter 14.

4.11 Service Delivery

Service Delivery Arrangements

4.11.1 Service delivery arrangements for all asset groupings are explained in section 3.10. The arrangements used for this asset grouping are considered in more detail here. Asset management, programme management, design and construction works inspection services are provided in the main by staff in the Regeneration, Highways and Transportation Division. Condition surveys are procured from external suppliers. City Highways carries out improvement and maintenance works in accordance with the Division’s construction and maintenance procurement strategy. City Cleansing provides gully cleansing and highway drainage and weed killing maintenance services through an internal service level agreement. Highway services provided by “external” contractors are procured through the Division’s construction and maintenance procurement strategy.

4.11.2 The current arrangement of employing an external supplier to conduct condition surveys and in-house inspectors to conduct safety and service inspections is to be reviewed to use staff resources better and bring awareness and improved technical ability to improve the way we manage the highway network.

Improvement action: “To review the current condition, safety and service inspection arrangements with a view to improving efficiency and management of the highway network.”

Service Delivery Locations

4.11.3 Transport and highway planning and asset management, programmes are provided by the Transport Strategy Section, the design and procurement is provided by the Design & Project Management Section and the construction works are carried out by The City Highways Group, Highway Maintenance Section

4.11.4 Carriageway, footway and highway maintenance inspection is carried out by the Highway Asset management team. The design work is done by the engineering contract team and the work is carried out by City Highways. All the teams are part of Highway Maintenance based at Castle Park Depot, 90 Leycroft Road.

Construction and Maintenance Procurement Strategy

4.11.5 The construction and maintenance procurement strategy follows the Council’s “Make or Buy Policy” and consists of the following main elements relating to this asset grouping;

- Highway Maintenance Term Contract (3 years) for works up to £150K
- Framework Contract for Highway Works - General Civil Engineering & Repairs to Highway Structures (2006 – 2010) for works £150K to £1M
- Framework Contract for Highway Works – Highway Maintenance (2006 – 2010) for works £150K to £1M
- For schemes above £1M procurement is in accordance with European Procurement Rules

Table 4.18 details the term contacts arrangements to deliver works up to £150,000.

Table 4.18 Term Maintenance Contracts for works up to £150,000			
Schedule – Title	Principal Contractor	Start Date (Duration in yrs)	Approx Value pa
A - General Civil Engineering	City Highways (Make or Buy)	1 April 06 (3)	£2m
B – Non HRA Repairs	City Highways (Make or Buy)	1 April 06 (3)	£0.7m
C – HRA Repairs	City Highways (Make or Buy)	1 April 06 (3)	£0.25m
D - Carriageway Marking & Road Studs	Linkline	1 April 06 (2 + 1)	£0.25m
E – Domestic F’way Crossing	Kept separate		
F - Anti Skid Surfacing	Highway Maintenance Specialist	1 April 06 (2 + 1)	£0.1m

4.11.6 The two Framework Contracts are used for works between £150,000 - £1m. However instructions may be made for schemes of less than £150,000 on

exceptional occasions (i.e. reserve arrangements when City Highways cannot deliver works under Term Maintenance Contract). The contracts operate for a period of four years with an option to extend, at the council’s discretion, for a further maximum two years in yearly increments. Works under the framework contracts will be divided as indicated in the following two paragraphs. Both framework contracts include performance monitoring and partnering arrangements to encourage a culture of co-operative working and early contractor involvement. Annual contract reviews will be conducted to ensure best value and optimised productivity.

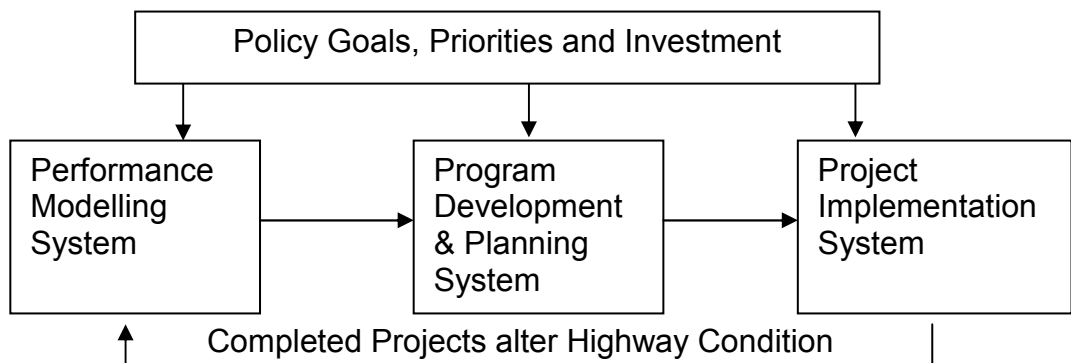
4.11.7 Framework Contract for Highway Works (General Civil Engineering & Repairs to Highway Structures) - works under this contract shall comprise schemes for highway and junction improvements, traffic calming, provisions for non-motorised users, safer routes to schools, lighting and signing improvements and repairs to bridges and other highway structures. The average annual budget for this work is estimated to be £2.5 million and the Council has appointed two contractors to provide the service in conjunction with the Council’s City Highways organisation.

4.11.8 Framework Contract for Highway Works (Highway Maintenance) - works under this contract shall comprise resurfacing and highway reconstruction, repairs to concrete carriageways and anti-skid surfacing of carriageways. The average annual budget for this work is estimated to be £1 million and the Council has appointed one contractor to provide the service in conjunction with the Council’s City Highways organisation. Surface Dressing and Slurry Sealing, being seasonal and specialist processes, will remain separately tendered.

4.12 Asset Management Process

4.12.1 Our highway management process essentially comprises of modeling, programme development and planning, and implementation. The process ensures that goals and objectives are fulfilled and that condition changes are recorded. This process is outlined in Figure 4.1 below.

Figure 4.1 Highway Management Project Flow Chart



4.12.2 The Performance Modelling System in the main involves the Transport Strategy Section and essentially incorporates the following activities.

- Receiving guidelines
- Interpreting the guidelines and drafting relevant strategies

- Arranging for the condition surveys
- Interpreting the condition data and drafting forward works programmes
- Ensuring that all high level objectives are achieved

4.12.3 The Programme Development and Planning System in the main involves Transport Strategy, Design and Project Management and Traffic Management Sections, and essentially incorporates the following activities.

- Receiving works briefs
- Develop works programmes
- Undertake options study

4.12.4 The Project Implementation System in the main involves Design and Project Management, Highways Maintenance and , Traffic Management Sections, and essentially incorporates the following activities.

- Design the works
- Deliver agreed works programmes

4.13 Service Level Performance Monitoring

4.13.1 Levels of service monitoring is explained in section 2.9. In addition to the level of service monitoring we will use an “operational level” suite of indicators to help us manage performance in striving to achieve the desired levels of service. This suite will be expanded, as appropriate, as we develop our asset management. The current indicators and targets we use for this asset grouping are provided in Table 4.19

Table 4.19 – Carriageways and footways Operational Level Performance Indicators					
	Description	07/08	08/09	09/10	10/11
Serviceability					
CL 33	LLTP 41 (BVPI 223) Principal Road Condition	11%	11%	10%	10%
CL 34	LLTP 42 (BVPI 224a) Non Principal Classified Road Condition	11%	11%	11%	10%
CL 35	LLTP 43 (BVPI 224b) Unclassified Road Condition	9.58%	9.57%	9.56%	10%
CL 36	LLTP 44 (BVPI 187) Footway Condition	44.91	43.27	41.64	40%
TAMP CF1	No of days temporary traffic control or road closures caused by road works per km of traffic sensitive road (BVPI 100)	4.5	4.0	3.9	3.8
TAMP CF2	Percentage of the Category A and B cycle route network where maintenance should be considered	N/A	tbe	tbe	tbe
TAMP CF3	Percentage of Category C NRSWA works inspected	10%	10%	10%	10%
Safety					

TAMP CF4	Repairs to dangerous highway defects carried out within 24hrs	85%	90%	90%	90%
TAMP CF5	Percentage safety inspections completed on time	100%	100%	100%	100%
TAMP CF6	Percentage of planned Griptester surveys carried out	100%	100%	100%	100%
TAMP CF7	Highway Repudiation Rate - percentage third of claims successfully repudiated from 3 years previous	75%	81%	75%	80%
Sustainability					
TAMP CF8	Annual reactive maintenance expenditure as a percentage of planned maintenance	24.6%	42%	44%	44%
TAMP CF9	Costs of settled claims per1000 population from 3 years previous	£2940	£2323	£2000	£2000
TAMP CF 10	Percentage highway works by tonnage undertaken with recycled/secondary aggregate	53%	60%	65%	65%

4.14 Improvement Plan

4.14.1 Improvement actions identified for this asset grouping have been collated into Table 4.20

Paragraph Reference	Improvement Action	Priority	Lead	Target Date	Est. Cost
4.2.6	To complete the inventory of highway drainage assets and develop a sustainable maintenance regime to ensure their effectiveness.' Develop a highway drainage programme of work.	1	AA	Dec 2011	Staff time
4.3.4	To collect outstanding roads and footways inventory data, complete WGA asset valuations	2	HC	June 2012	Staff time
4.3.5	To develop a definitive map for the highway network and update databases	1	HC	Dec 2011	Staff time
4.3.7	To review carriageway and footway hierarchy records and to bring them up to date.	1	PS	Dec 2011	Staff time

4.3.8	To review the various network management and maintenance strategy network hierarchies to ensure a high degree of compatibility between the networks.” To complete the categorisation of the networks to the finalised hierarchies	1	RMK	Dec 2011	Staff time
4.3.11	To create lists of Streets with Engineering Difficulty and Special Surfaces To review the list of Special Surfaces annually	2	EK/ HC	June 2012	Staff time
4.3.13	To provide traffic count information and develop reinstatement specifications for works carried out by the utilities and developers.	3	EK	Dec 2011	Staff time
4.3.14	To update Associated Streets Data (ASD) with revised speed limits once implemented.	3	HC	Mar 2012	Staff time
4.3.21	To collect cycle route inventory data and condition data.	2	HC	June 2012	Staff time
4.3.22	To categorise the cycle track network to the cycle track hierarchy.	2	HC	June 2012	Staff time
4.3.24	To collect road markings inventory data and bring together both types of markings under one system.	3	HC	Dec 2012	Staff time
4.3.25	To collect hard verges inventory data.	2	HC	Mar 2012	Staff time
4.3.26	To collect highway drainage inventory data	3	HC	Dec 2012	Staff time
4.3.27	To collect traffic calming features inventory data.	3	HC	Dec 2012	Staff time
4.3.29	To develop and implement an Asset Information Strategy” for collection of all asset information.	1	RMK	Dec 2011	Staff time

4.4.7	To develop a cycle route condition assessment system”	3	HC	Dec 2012	Staff time
	To prepare cycle route design guidance notes.”	2	RMK	June 2012	Staff time
4.6.2.1	To establish arrangements to review the inspection, assessment and recording regime	1	RMK	Dec 2011	Staff time
4.6.2.6	Strategy Officers to liaise with the Highway Asset Management Team for inspection feedback	2	RMK	Sep 2011	Staff time
4.6.2.8	To introduce use of hand held computers for safety inspections	3	AA	Dec 2012	£7000 plus staff time
4.6.2.10	To develop and implement our Skid Resistance Policy and publish the Policy.	2	RMK	June 2012	Tbe
4.6.2.15	To increase Category C NRSWA inspections to 100% of openings.	2	EK	June 2012	Tbe
4.6.2.18	To introduce annual cycle route network integrity inspections.	3	HC	June 2012	Staff time
4.6.3.3	To develop a road, footways and cycle routes markings renewal programme	2	HC	June 2012	Staff time
4.6.6.1	To develop working procedures for each treatment option with costings for setting appropriate levels of service.	2	HC	June 2012	Staff time
4.11.2	To review the current condition, safety and service inspection arrangements with a view to improving efficiency and management of the highway network.	1	AA	Dec 2011	Staff time

Chapter 5 – Highway Structures Lifecycle Management Plan

5.1 Introduction

5.1.1 The stock of Highway Structures asset owned by Leicester City Council consists of road bridges (to include culverts, subways & underpasses), footbridges, retaining walls, embankments, cuttings, gantries, tee posts, high mast lighting, disused rail bridges, a listed disused tunnel and currently 2 footbridges awaiting adoption by the Council. This Life Cycle Plan is broadly based upon the Code of Practice for the Management of Highway Structures. Reference has also been made to the following:

- BD 63/94 - Highway Structures: Inspection & Maintenance
- BA 50/93 - Post Tensioned Concrete Bridges: Planning, Organisation & Methods for Carrying Out Special Inspections
- CSS Bridge Condition & Performance Indicators

(Note: Structures owned by other authorities are not included in the asset management planning)

5.1.2 Highway bridges are provided to support the highway over natural obstacles such as rivers, watercourses or manmade obstacles such as railways, interchanges, rights of way or canals. The City Council have placed particular importance to routes which are significant for public transport or where bridges lead to existing or potential commercial areas. All structures should be capable of carrying the appropriate bus or HGV loading.



No. 21 The Newarke is a Grade II listed bridge over the Grand Union Canal

5.2 Maintenance Strategy

5.2.1 The aim of our Highway Structures strategy is to obtain best value from the funding available to keep all bridges fit for purpose and safe for use. The management of our highway structures is in accordance with the Management of Highway structures Code of Practice produced by the Roads Liason Group. Work to the bridges includes a mixture of bridge strengthening, reconstruction and major maintenance on both the Primary and Non-Primary Route Network.

5.2.2 The main objectives of our strategy are:

- To optimise the availability & accessibility of the highway network through good planning and co-ordination of works.
- To maintain our highway structures in a safe for use and fit for purpose condition to optimise the safety of our highway network through effective management including implementing the Code of Practice for Management of Highway Structures.
- To ensure that routine inspections & maintenance works are carried out in a timely manner to achieve optimal performance of the asset.
- To prevent deterioration of the Bridge Stock Condition.

5.3 Inventory

Recording of Information and Information Systems

5.3.1 Highway Structures inventory data and project management information is held in asset management & project files stored on the central computer server and electronic Bridge Management Expert (BMX) database. Data is also kept on hard copy reports, records, drawings, videos and photos. Data on the central computer server may also be linked to BMX. Data produced from routine inspections is recorded on County Surveyors Society Inspection pro-forma held on the BMX database. Forward inspection plans are also produced on the BMX database. Inspection photos are kept locally in the BMX database or linked to central server. Measurements & other information from the inspections are also kept on the server. The BMX programme produces condition indicators for individual structures and for the stock of highway structures. Incidents/emergencies, site records & photos are kept in the BMX database and on the server and some information is kept in paper files.

5.3.2 Abnormal loads routing using highway structures is currently managed through notifications to us by fax and paper copies, look up charts & maps. We plan to investigate how the BMX database & ESDAL System could help manage the abnormal load movements.

Improvement action: “To investigate how the BMX database & ESDAL System could help manage the abnormal load movements.” (See Table 5.10 Para Ref 5.3.2)

5.3.3 The assets are divided by their construction form, location on the highway network, and the type of access required. This information is useful for inspection and optimal treatment options for the maintenance works.

Improvement action: “To continue to develop the BMX database and scan hard copy records into electronic form.”

Inventory – assets by type

5.3.4 Leicester City Council owned structures assets are as follows:-

- **Road bridges** - these are further classified by their form of construction, road hierarchy & type of access (see Table 5.1).
- **Footbridges** – Preparatory to commencement of routine inspections, detail was incomplete for most of the structures. Following on from routine inspections, that got underway in 2006, detail is now available for approx. 40% of the bridges (to include Public Rights of Way bridges) inspected to end of Dec 2010. (see Tables 5.2 and 5.3).
- **Disused Great. Central Way Rail Bridges** - these are all steel bridges, some are closed to traffic & pedestrians whereas some are open to pedestrians only (see Tables 5.2 & 5.3).
- **Retaining walls** - these are the stand-alone walls greater than 1.5metre in height (see Tables 5.2 & 5.3 & classified by their location on road hierarchy). Stand-alone walls have been allocated unique names and nos. and may or may not be adjacent to a bridge structure. (*All other Walls adjacent to a structure are considered as part of the structure).
- **Embankments & Cuttings** - these are classified by their location on the road hierarchy
- **Tunnel:** - there is one disused brick built rail tunnel with ventilation shafts. The structure is listed & maintained by the Property Services Department.
- **Gantries & Tee Posts:** - these are classified by their location on the road hierarchy.
- **High Mast Lighting:** - High Masts are a structural asset which is currently maintained by the Public Lighting Group (see Chapter 7).

Table 5.1: Leicester City Council Owned Road Bridges (Reviewed Jan 2011)

Road Type	Construction Form & No. of Bridges by Road Hierarchy																				No. of Bridges by Road Hierarchy		
	Conc Slab	Conc Box	Conc Beam & Slab	Steel Beam & Slab	Plate Girder & Deck Plate	Trough	Metal Arch, Girder & Slab	Arch	Jack Arch	RC Portal	Const. Form to be checked	Sub Way			Culvert			Underpass					
												Conc Slab	Conc Beam & Slab	Conc Box	Conc Slab	Cased Steel Beam & Slab	Conc Box	Arch	Const. Form to be checked	Conc Box		Conc Beam & Slab	RC Portal
A (Primary)	1	3	5	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	1	2	-	1	15
A (Principal)	1	5	4	2	1 (Br. No.4) 1	1(Br. No.4)	-	1 (Br. No.4) 2	1	-	-	-	-	1	-	1 (Br. No.33)	1 (Br. No.33)	1 (Br. No.33)	-	2	-	-	21
B	-	-	-	-	1	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	4
C	4	1	2	3	1	-	1	2	4	-	-	-	-	-	-	3	1	1	-	-	-	-	23
UC (Unclassified)	20	6	2	8	2	-	1	5	4	1 (Over A Primary)	1	-	5	9	1 (Br. No. 90)	-	1 (Br No.90) 1	1 (Br No. 90)	3	-	1	-	70
Public Right of Way	1	-	-	-	-	-	1	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	5
Total No. Of Road Bridges																					138		

- Notes:** 1. Bridges with multiple construction forms in Table 5.1 are: No.4 (Old Bow Bridge), No. 33 (Hinckley Rd.) & No. 90 (Imperial Avenue). For the bridge stock multiple const. forms are not counted separately but considered as part of that bridge.
2. Construction forms to be checked for following 2 bridges discovered in Jan 2011: No. 15 Barkbythorpe & No.219 Mountain Road
3. Construction forms to be checked for following 4 culverts discovered in 2010: No. 77 Hamilton Lane, No. 164 Netherhall Road, No. 167 Troon Way & No. 168 Rayner Lane
4. Construction form to be checked for following 1 culvert discovered in Jan 2011: No. 176 Stoughton Lane

Table 5.2: Leicester City Council Owned Other Highway Structures (Reviewed Jan 2011)

STRUCTURE TYPE & NO.										
Foot-Bridges (Incl. combined vehicle & pedestrian bridges)	Disused Gt. Cent. Way Bridges (Excl. 3no. backfilled rd. bridges)	Gt. Cent. Way Arches	Stand-Alone Retaining Wall	Embankment	Cutting	Gantry	Tee Post	High Mast Lighting	Tunnel	No. Of Structures
56	8	2 sets (Each set as 1 structure)	41	4	3	14	8	19	1	156

Note: Stand-alone retaining walls are those walls that have been assigned unique names & nos.

Table 5.3: Leicester City Council Owned Other Structures on the Highway Network (Reviewed Jan 2011)

Road Type	STRUCTURE TYPE & NO.										
	Foot Bridges	Disused No. 205 Mint Rd nature bridge)	Gt. Cent. Way Bridges (Excl. reserve)	Gt. Cent. Way Arches	Stand-Alone Retaining Wall	Embankment	Cutting	Gantry	Tee Post	High Mast Lighting	Tunnel
A (Primary)	1 (O)	-	-	-	9	2	-	-	2	-	-
A (Principal)	4 (O) & 1 (Adj)	1 (O)	-	-	18	2	-	14	6	19	-
B	-	-	-	-	-	-	-	-	-	-	-
	1(O) & 1(Adj)	-	-	-	4	-	1	-	-	-	-
Unclassified	1(O) & 1(Adj)	-	-	-	9	-	2	-	-	-	-
Public Right of Way	46	6	-	-	1	-	-	-	-	-	-
TOTAL	56	7	-	-	41	4	3	14	8	19	-

(Adj)=Structure adjacent to road. (O)= Structure over the road.

Note: No. 205 Mint Road Bridge on the Great Central Way excluded from Table 5.3 (Nature reserve bridge)

Table 5.4: Non-Leicester City Council Structures on the Highway Network (Non-LCC Structures excluded from routine inspections & maintenance)

Adj)=Structure adjacent to road. (O)= Structure over road or Public Right of Way. (C)= Structure carries road or Public Right of Way.

ROAD TYPE	STRUCTURE OWNER, STRUCTURE TYPE, NO. OF STRUCTURES & LOCATION ON HIGHWAY NETWORK																	
	Highway Agency	Railway Authority				BRB (Residuary) Ltd	British Waterways	Gas Company	Leic. College (Abbey Park)	Soar Valley College	John Lewis Lewis	NHS- Royal Infirmary	W. Gimson Ltd	Raithby Lawrence Ltd & Charles Street Buildings Ltd	Severn Trent	Charles Street Buildings Ltd	Structures to be adopted	
	Bridge	Bridge	Footbridge	Tunnel	Ret. Wall	Bridge	Footbridge	Footbridge	Footbridge	Footbridge	Footbridge	Footbridge	Bridge	GCW Arches	Culvert	GCW Bridge	Footbridge	Ret. Wall
A (Primary)	1(O)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1(O)- No.1046 Hamilton way	-
A (Principal)	-	5(O) 3(C)	1(O)	-	-	-	-	-	-	1(O)	1(O)	-	-	-	-	-	-	1(Adj)- No.2031 South Gates House
B	-	1(O)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	-	6(O) 1(C)	-	-	-	-	-	-	-	-	-	1(Adj)	-	-	-	-	-	-
UNCLASSIFIED	-	4(O) 1(C)	-	2(C)	1(Adj)	1(U)	-	-	-	-	-	-	-	1(C)	1(O)	-	-	-
Public Right of Way	-	5(O) 1(C)	2(C)	-	-	-	4 (C)	1(C)	-	-	-	-	-	-	-	-	1(O)- No.1025 Pax Bridge	-

5.4 Current Asset Condition

5.4.1 As on January 2011 the Council owns 138 road bridges of which 131 were inspected by the end of December 2010. Table 5.5 shows the current condition of the bridges inspected for the years 2005/2006 to 2009/2010 and the projected condition during for 2010/2011. Condition reporting is in accordance with County Surveyors Society (CSS Bridges) document for Bridge Condition Indicators. The bridge stock condition has been evaluated using the average stock condition index (BSClave) and is weighted by the deck area. The BSClave value for 2005/2006 was 84%, being near middle of the 'Good' band. (The old 5 category Condition Bands comprising 'Severe', 'Very Poor', 'Poor', 'Fair', 'Good' & 'Very Good' used in previous management plan have now been replaced with 5 category Condition Bands in Table 5.5)

5.4.2 The BSClave value improved to 86% in 2006/2007 and remained at this value until 2008/2009. In 2009/2010 the stock condition further improved to 88%, reaching almost the top end of the 'Good' band. In 2010/2011, after works have been carried out on structures included in the forward works programme up to 31 March 2011, the projected stock value & condition are expected to remain at 88% and top end of the 'Good' band .

Table 5.5 Reported and Projected Stock Condition of 131 Road Bridges Inspected to 31 Dec 2010. (Reviewed Jan 2011)

Condition Band	Current Stock Condition for the Financial Years					Projected Stock Condition
	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Very Poor (0-39%)	Zero	Zero	Zero	Zero	Zero	Zero
Poor 40-64%)	Zero	1	1	1	1	1
Fair (65-79%)	24	23	23	23	23	23
Good (80-89%)	49	47	46	47	45	45
Very Good (90-94 100%)	46	48	49	49	62	62
No. of bridges	119	119	119	120	131	131
BSClave (weighted by deck area)	84%	86%	86%	86%	88%	88%

Note: No. of bridges in the condition bands in Table 5.5 for the 'Current Stock Condition' are approximate. This is because the BMX bridge database software produces results for a calendar year rather than the local govt. financial year.

5.4.3 We have managed to complete BCI Inspection & Condition Ratings for 95% of currently known 138 road bridges. We will complete this information during

routine inspections for the outstanding 7 bridges and any other structures that we may acquire or find in the future.

Improvement action: To upgrade BMX bridge database with the software provider to be able to produce Stock Performance Reports based on Local Govt. financial year & not calendar year & to upgrade the software for accurate reporting.

Reliability Condition

5.4.4 All pre-2010 recorded bridges have now been assessed for the 40 tonne Assessment Live Loading. We are currently checking all drainage maps to make sure we have captured all bridges (structures spanning at least 1.5 metres). We captured or discovered 7 no. structures in 2010 to Jan 2011. There are no records available for these structures Deck replacements have been carried out on 56 cast iron bridges (i.e. bridge nos. 50, 51, 52, 54 & 55) & 1 steel bridge (Bridge no. 43), which failed the 40 tonne Assessment Live Loading. Combined strengthening & maintenance works were carried out on 7 bridges (i.e. bridge nos. 28, 37, 41, 42, 64, 65 & 68).

5.4.5 We have applied for DfT funding for the period 2011/2012- 2015/2016 for the following Council owned structures on the highway network:

- Reconstruction of 5 bridges (i.e. bridge nos. 53, 73, 74, 83 & 84)
- Strengthening/reconstruction of structural elements of 2 bridges (i.e. bridge nos. 2 & 110)
- We have included approx. 58 bridges for major maintenance

Structures on the highway network owned by BRB (Residuary) Ltd :

- Ulverscroft Road Bridge (No. 1004) needs strengthening & major maintenance but it is not clear if sole responsibility lies with BRB and what level of funding they would make available.

Council owned road bridges on the Public Rights of Way:

- We have identified 4 road bridges (i.e. bridge nos. 23,70,86 & 99) on the Public Rights of Way
- These structures are in need of major maintenance/strengthening works
- We do not know how these works are to be funded.

Improvement action: “To complete the check of all drainage maps to capture all bridges for recording and assessment purposes.” (See Table 5.10: Cl. 5.4.3)

5.5 Asset Valuation

5.5.1 The drivers for asset valuation are discussed in Chapter 13 The gross replacement cost of this asset group is not yet available. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the ‘Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting’ published by CIPFA in 2010 for Highway Infrastructure Asset

Valuation along with the appropriate depreciation methodology. See Chapter 13 for further information.

5.6 Asset Lifecycle Options and Asset Life

Creation/Acquisition

5.6.1 For this asset grouping, creation or acquisition of assets arises through public, mainly physical regeneration schemes, or private sector led new developments that include new highway infrastructure. Structures waiting to be adopted, pending completion of outstanding works, are Pax Footbridge (No.1025), Hamilton Way Footbridge (No.1046) & Southgates House Retaining Wall (No. 2031).

The Upperton Road Viaduct Scheme saw the creation of a new low level bridge (No. 194 Upperton Road Bridge), during 2007/08, over the River Soar, as a replacement for the eleven span hundred year old viaduct structures. Little Holme Street Retaining Wall (no. 2036) was built in 2004.

In the last 15-16 years Bendbow Rise (No. 198) & Gallards Hill (No. 199) underpasses were built around 1994 & Crofters Drive Bridge (No.197) was adopted in 1998.

All Saints Open Retaining Wall (No.2041) was created in 2010 as part of the Sanvey Gate highway junction improvement scheme.

Routine Maintenance

5.6.1.2 Routine maintenance is the regular ongoing day-to-day work that is necessary to keep the assets operating. This includes planned and reactive maintenance. Planned maintenance includes activities such as condition inspections and safety inspections and planned preventative maintenance such as painting, replacement of renewable elements such as waterproofing, bearings, movement/expansion joints, surfacing. Reactive maintenance relates to corrective maintenance to put right minor failures, responding to inspections, complaints and incidents/emergencies, such as a lorry striking and damaging a bridge, replacing substandard elements such as parapets and safety barriers. Leicester's routine maintenance arrangements are described in the following paragraphs.

Routine inspections – Road bridges

5.6.2.2 Table 5.6 shows the Routine Inspection regime for the road bridges. The regime includes General, Principal, Underwater and Superficial Inspections. These are briefly described in the following paragraphs. The bridges have been identified by their location on the highway network & the type of access required to inspect them. (Retaining walls, embankments and cuttings adjacent to a bridge, but without a unique name and number assigned to them, are considered part of that bridge for inspection).

General Inspections (Road Bridges)

- 5.6.2.3
- Normal access & access by boat bridges – Inspection to be carried out every 2 years, in compliance with recommendation in Clause 6.4.6 & 6.4.7 of the Code of Practice for the Management of Highway Structures.
 - Difficult access bridges – For a General Inspection the inspection interval of 2 years will also apply to confined space, road over rail & bridges requiring special access & lane closures. Where considered necessary, increasing the inspection interval would be subject to a risk assessment being carried out in accordance with the provisions in Clause 6.4.29 of the Code of Practice.
 - All general inspections shall comply with Clause 6.4.7 of the Code of Practice
 - CSS Bridge Condition Indicators & Inspection pro-formas are to be used for the inspections.
 - Decreasing the Inspection Interval - At present we do not anticipate decreasing the 2-year interval for any of our bridges.

Principal Inspections (Road Bridges)

- 5.6.2.4
- A Principal Inspection is to be carried out every 6 years in compliance with the recommendation in Clause 6.4.8 of the Code of Practice for all road bridges except Confined Space bridges and Road over Rail bridges. Confined Space & Road over Rail bridges inspections to be carried out every 6 to 10 years. Inspection interval greater than 6 years would be subject to risk assessment being carried out in accordance with the provisions in Clause 6.4.29 of the Code of Practice. CSS Bridge Condition Indicators & Inspection pro-formas are to be used for the inspections with detailed condition reporting & photographs. Where necessary, the report to be supplemented with test results, sketch details, drawings and appendices.

Underwater Inspections (Road Bridges)

- 5.6.2.5
- Underwater inspection to be carried out every 6 to 10 years. Inspection interval greater than 6 years would be subject to risk assessment being carried out in accordance with the provisions in Clause 6.4.29 of the Code of Practice. Specialist contractors are to carry out underwater inspections and would be required to submit inspection reports. It is recommended for best practice that the underwater inspection of bridges shown in Table 5.6 coincides with the Principal Inspection of those bridges.

Superficial Inspections (Road Bridges)

- 5.6.2.6
- These inspections are to rely on general vigilance during bridge and highway works, internal and external reporting of defects, reporting by stakeholders and the public.

Routine Inspections –Footbridges & Other Highway Structures

- 5.6.2.7
- The routine inspection regime is very similar to that for the road bridges. We need to determine if any of the footbridges require an underwater inspection. Table 5.7 applies to these structures and is generally similar to Table 5.6 for the road bridges. It lists all the structure types on the highway network, including structures, which are not within the footprint of the network.

Footbridges are further classified as over or adjacent to the network. The comments column has been used to indicate type of access, ownership of asset if other than the Bridge Office for its maintenance & the current level of information of the asset. County Surveyor Society Bridge Condition Indicators & Inspection pro-formas will be used for the general inspections.

- General Inspections (Note: Embankments, Cuttings, High Mast Lighting, Glenfield Tunnel & Great Central Way Arches excluded from GI): Inspection to be carried out every 2 years, in compliance with recommendation in Clause 6.4.6 & 6.4.7 of the Code of Practice for the Management of Highway Structures.
- Principal Inspection (Note: Embankments, Cuttings, High Mast Lighting, Glenfield Tunnel & Great Central Way Arches excluded from PI): Principal Inspection is to be carried out every 6 years in compliance with the recommendation in Clause 6.4.8 of the Code of Practice, but only when need identified from routine/non-routine inspections or risk assessments.
- Underwater Inspection (Note: Currently known Stand-Alone Retaining Walls, Gantries, Tee Posts, Embankments, Cuttings, High Mast Lighting, Glenfield Tunnel & Great Central Way Arches are excluded from UW Inspection): Underwater inspection to be carried out every 6 to 10 years but only when need identified from routine/non-routine inspections or risk assessments in accordance with the principles of the Code of Practice.
- Superficial Inspection: These inspections are to rely on general vigilance during bridge and highway works, internal and external reporting of defects, reporting by stakeholders and the public. (See also Table 5.7)



(Old Bow Bridge (No.4): Major maintenance works carried out in 2009)

TABLE 5.6: Leicester City Council Road Bridges – Routine Inspection Details. (Reviewed Jan 2011)

Access Type	ROAD HIERARCHY & NUMBER OF BRIDGES						TYPE OF INSPECTION & FREQUENCY			
	A (Primary)	A (Principal)	B (Classified)	C (Un-Numbered Classified)	UC (Unclassified)	Public Right of Way	General	Principal	Under Water	Superficial
Normal Access (on foot, using ladders, waders, Wellingtons etc)	5	3	3	11	60	1	Every 2 yrs	Every 6 yrs	Every 6-10yrs years (to be agreed with highway authority) for the following bridges: - Br. No.2 (C road) Br. No. 4 (A-Principal Rd) Br. No. 19 (A- Principal Rd) Br. No. 21 (C-Rd) <u>Notes:</u> (1)Underwater inspection may also be carried out for other bridges, when considered necessary (2) Where possible underwater inspections to coincide with Principal Inspections	Report obvious deficiencies during bridge & highway works, from lookouts, vigilance and reporting by others
Special Access Arrangements Required (Cherry Picker, Platforms etc, Lane closures)	5	5	-	1	-	-	Every 2 yrs	”		
Boat Inspections	1	8	-	9	4	4	Every 2 yrs	”		
Confined Space Inspections	2	3	1	4	4	-	Every 2 yrs	Every 6 to-10 yrs (Based, on risk assessments)		
Road Over Rail	3	-	-	-	1	-	Every 2 yrs	”		
No. of bridges	16	19	4	25	69	5	Total no. of bridges		138	

Table 5.7: Leicester City Council Owned Footbridges & Other Highway Structures – Routine Inspection Details (Reviewed Jan 2011)

Structure type	Road Hierarchy & No. Of Structures						Inspection Type & Frequency				Comments
	A (Primary)	A (Principal)	B	C	UC	Public Right of Way	General	Principal	Under water	Superficial	
Footbridge	1 (O)	4(O) 1(Adj)	-	1(O) 1 (Adj)	1 (O) 1 (Adj)	46	Every 2yrs	Complex/vulnerable structures every 6 years. For simple structures every 6 yrs if need identified from routine & non-routine inspection/ risk assessment	Every 6-10 yrs only when need identified from routine & non-routine inspection/risk assessment	Report obvious deficiencies from general vigilance, routine highways & structures maintenance works. Look out, vigilance inspections wherever possible between General & Principal Inspections. (Past practice until 1994: routine safety inspections by highway inspectors. Current practice: relies on reporting by internal & external sources including the public, stakeholders etc.) Report anything needing urgent action e.g. impact damage, loose expansion joints, unsafe structures, vandalism, arson, damage from natural causes etc.	Boat/Special Access/ Lane closures may be required
Disused Gt. Central Way Bridges	-	1 (O)-	-	-	-	6	”	”	”		”
Stand Alone Retaining Walls (Walls with unique names & nos.)	9	18	-	4	9	1	Every 2yrs	Every 6 yrs if need identified from routine & non-routine inspection/ risk assessment	-		Special Access/Lane closures may be required
Gantry	-	14	-	-	-	-	”	”	-		”
Tee Post	2	6	-	-	-	-	”	”	-		”
Embankment	2	2	-	-	-	-	-	-	-		Details to be checked
Cutting	-	-	-	1	2	-	-	-	-		”
High mast Lighting	-	19	-	-	-	-	-	-	-		Maintained by Public Lighting team
Glenfield Tunnel	-	-	-	-	-	1	-	-	-		Maintained by Property Services Team
Gt. Central Way Arches	-	-	-	-	-	-	-	-	-		Maintained by Property Services Team

(Adj) = Structure adjacent to road. (O) = Structure over road

Non-Routine Inspections – Safety Inspections

- 5.6.2.8 These are unplanned inspections. A safety inspection is carried out when need is identified from a routine general, principal or superficial Inspection or during highway surveillance by others. Safety inspections are also carried out following an emergency and for damaged and unsafe structures or their elements. The purpose of this inspection is to determine severity and extent of damage or defects and the immediate health and safety measures required.

Non-Routine Inspections - Special Inspections

- 5.6.2.9 A Special Inspection may follow on from a safety inspection, work for other clients and third parties or a routine inspection. Table 5.8 has been produced to clarify when it is appropriate to carry out a special inspection and it gives general guidance on the inspection strategy to be followed. Post tensioned and half joint bridges have been individually identified, by virtue of their location, to better plan the specialist nature of work required on these bridges, because the post-tensioned No. 135 Watermead Way Bridge lies on the A Classified Primary & the half joint No. 110 St Margarets Way River Bridge is on the Principal Classified “A road” highway network.

Miscellaneous other inspections

- 5.6.2.10 There are several other inspections carried out as and when required:
- Inspection for assessment of structures to determine their load carrying capacity (Bridge assessments were completed in the past but discovered 7 existing structures on the highway network, during 2010 to Jan 2011, of which we do not have any records. Bridge Office to investigate if assessment is required for these structures.
 - Acceptance Inspection of developer constructed structures before their adoption by the Council.
 - Acceptance Inspection of existing structures that the Council wishes to adopt.
 - Inspection requirements of structures owned by other owners.
 - Inspection of Mechanical and Electrical equipment in a highway structure.
 - Site Investigation and Testing.

Improvement Actions for Inspections

- 5.6.2.11 During the preparation of this Lifecycle Management Plan we have identified several areas for improvement relating to our inspection activities. These are listed here:
- We have managed to complete BCI Inspection & Condition Ratings for 95% of currently known 138 road bridges. We will complete this information during routine inspections for the outstanding 7 bridges and any other structures that we may acquire or find in the future.
 - Implement inspection regime for all highway structures in 2011/12.
 - Prioritise inspections by structure condition, road hierarchy, access requirements, form of construction, risk assessment and any other considerations.

- Plan inspection of confined space & road over rail bridges.
- Confidence levels, completeness and accuracy: Ongoing verification and updating of data for footbridges and other highway structures from routine/non-routine inspections, site visits and other sources of information.
- Set up clear guidelines, policies and procedures in next 2-3 years (2011-2013), depending on staff availability, for:
 1. The Acceptance Inspection of existing and new structures before their adoption by the Council.
 2. Inspection requirements of other owners.
 3. Action to be taken by the Council in default of action by the private owner.
- Produce a working manual for site investigation, testing and monitoring techniques for the various forms of construction together with Health and Safety measures and any other issues in next 2-3 years (2011-2013), depending on staff availability. Basic inspection regime in place is adequate at present and is applied to ongoing inspections. Enhanced regime may be considered if need justified in future.

Reactive maintenance relates to corrective maintenance to put right minor failures, responding to inspections, complaints and incidents/emergencies, such as a lorry striking and damaging a bridge, replacing substandard elements such as parapets and safety barriers.

Planned Preventative Maintenance

- 5.6.2.12 Planned preventative maintenance to highway structures consists mainly of painting steel and cast iron structures, replacement of renewable elements such as waterproofing, bearings, movement/expansion joints, surfacing.

Table 5.8: Non– Routine Special Inspections (Reviewed Jan 2011)

ITEM COVERAGE	DETAILS
General	A Special Inspection may follow a Safety Inspection to monitor interim measures for damaged or unsafe structures and to determine repair or other actions required in the longer term or when need for a Special Inspection is identified from a routine General, Principal or Superficial Inspection. Inaccessible parts of a structure during a routine inspection may also require a Special Inspection. A Special Inspection & monitoring may also follow from work carried out for other Clients and third parties.
Bridge foundations	Non-routine underwater inspection by specialist contractors. Causes: flooding, findings from routine inspections, accidental damage, proposed works and their effect on foundations, signs of major scour, bed erosion & undermining.
Weak bridges	Bridge monitoring frequency varying from regular – every 3 months or dependant upon severity of defect, including any temporary works.
Structure condition reporting from routine & non-routine inspections	Inspection in-house or by specialist contractors. Inspection necessitated by findings from routine & non – routine inspections, accidental damage & other causes. Bridge monitoring frequency varying from regular – every 3 months or dependant upon severity and extent of defect.
Bridges subject to weight limit	
Damaged bridges (Damage from accidents, vandalism, arson, abnormal loads etc)	
Damaged bridges (Damage from structural movement / settlement, fire, flooding, storm, debris, vegetation and other natural causes)	
Pre-stressed bridges	
Half joint bridges (No. 0110- St Margaret’s Way River Bridge)	
Other Highway Structures (Damaged/unsafe footbridges, retaining walls, embankments, cuttings)	
Other Highway Structures (Damaged/unsafe gantries and tee-posts)	
Post tensioned bridges (No. 0135 – Watermead Way)	Inspection in –house or by specialist contractors. Inspection necessitated by routine inspection & other causes as above. Frequency dependant upon severity of defect. Inspection to BA50: Special Inspection of Post Tensioned Bridges

Reactive Maintenance

- 5.6.2.13 Reactive maintenance to highway structures generally consists of responding to ‘one-off’ maintenance requirements that are either related to condition & damage to structural element, risk assessment, customer requests or in response to bridge strikes, incidents or emergencies where work is now costed prior to instruction. Replacing substandard elements such as parapets and safety barriers may also be construed as reactive maintenance. There is often a need to quickly clear and make safe damage arising from road traffic incidents or accidents. The new BMX database has a clearly defined procedure for recording emergencies and reactive works. Incident reporting is now carried out using the BMX database.

Routine Maintenance Standards

- 5.6.2.14 The routine maintenance standards are defined in Tables 5.6, 5.7 and 5.8.

5.6.3 Renewal/Replacement / Maintenance Works

- 5.6.3.1 Renewal or replacement work restores the highway asset or its components to “as new” capacity and condition but it does not necessarily result in enhanced performance. (Renewal or replacement resulting in enhanced performance are referred to as Upgrading in Clause 5.6.4 below)

In the forward works programme 2011/12 to 2014/15 we have applied for capital funding from the Central Government (DfT) for major maintenance works on 15 road bridges. The forward works planning is ambitious and likely to be drastically affected in light of unprecedented level of curtailment of spending on transport infrastructure by the Central Government.

- 5.6.3.2 There are 6 jack arch bridges approaching end of their normal life span of 120 years (Bridge nos. 6,7,41,46,47 & 58) . The remaining 6 jack arch bridges are more than 120 years old bridge (Bridge nos. 19, 23, 30, 42, 53 & 56). To prolong their useful life span we have carried out or propose to carry out the following:

- Major maintenance works were carried out to 3 of these jack arch bridges (Nos. 41,42 & 19) in 2003 & 2007
- In the forward works programme during 2011/2012- 2014/2015 we propose to reconstruct No. 53 Atkinson Street Bridge (See Clause 5.6.4).
- In the forward works programme beyond 2014/15 No. 23 Soar Lane River Bridge is proposed for strengthening works. (See Clause 5.6.4)
- In the forward works programme beyond 2014/15, we propose to carry out major maintenance for the remaining jack arch bridges.

- 5.6.3.3 There is 1 concrete arch bridge, No.21 The Newarke, approaching normal life span of 120 years. There are 5 arch bridges (Nos. 20, 27, 60, 86 & 16) which are more than 120 years old. To prolong their useful life span, we have carried out or propose to carry out the following:

- Major maintenance works were carried out to 3 of these arch bridges (Nos. 16, 20 & 21) in 2002, 2006 & 2007

- In the forward works programme beyond 2014/15 we propose to strengthen or replace No. 86 Aylestone Old Mill (River) Bridge (See Clause 5.6.4) & carry out major maintenance works on No.60 Kimberley Road Bridge
- In the forward works programme beyond 2014/15 we may propose some maintenance works to the remaining 2 bridges. (From the BMX database, one of these bridges is in 'Good' condition and the other at lower end of 'Very Good' condition.)

5.6.3.4 There is 2 steel bridges approaching end of normal life span of 120 years (i.e. bridge nos. 64 & 65). No. 4 Old Bow Bridge is nigh 100 years old. The remaining 7 steel bridges, including some with other form of cast metal components, are more than 120 years old (i.e. Bridge Nos. 2,8,17, 28, 29,65 & 70). To prolong their useful life span we have carried out or propose to carry out the following:

- Pre-2000 to 2003: Strengthening/maintenance works carried out on 5 bridges (Nos. 17, 28, 29, 64 & 65)
- 2009: Major maintenance works carried out at No.4 Old Bow Bridge
- No.2 Abbey Park Road River Bridge for strengthening/major maintenance included in forward works programme during 2011/2012- 2014/2015
- No. 8 Duns Lane Bridge reported in 'Good' condition at present but to be reviewed during routine inspections for inclusion in the forward works programme.
- No. 70 Soar Lane Canal Bridge is a listed structure on the Public Right of Way. Recommended major maintenance works in next 5-6 years.

5.6.4 Upgrading

5.6.4.1 Upgrading, with reference to the Code of Practice, brings an existing structure or its components up to the appropriate current standard and enhances their structural performance. E.g. bridge strengthening/deck replacements for structures that failed the 40 tonne Assessment Live Loading. Replacing sub-standard elements such as parapets, barriers are further examples of Upgrading because the renewal/replacement.

5.6.4.2 For this asset grouping, upgrading or improvement beyond the existing asset condition has and is being achieved as part of the bridge strengthening programme. All known road bridges have been assessed for the 40 tonne Assessment Live Loading. However, during January 2011 we identified 7 structures on the highway network of which we do not have any records and therefore may need assessment. Deck replacements were carried out in 2002 for 2 cast iron bridges (Nos. 50&52) & in 2004 for 3 cast iron bridges (Nos. 51,54&55). Deck replacement in 2005 was carried out for one steel bridge (i.e. No. 43 Humberstone Road Bridge); these structures having failed the 40 tonne loading.

5.6.4.3 Safety barriers were upgraded at No. 135 Watermead Way Bridge & No.179 Redhill Flyover in 2008 and No. 177 Braunstone Way Bridge in 2009 as part of major maintenance works on these bridges. Currently, safety barriers are being

upgraded as part of major maintenance works at No. 185 Soar Valley Way Subway.

5.6.4.4 Parapets were upgraded for No. 135 Watermead Way Bridge in 2008 as part of major maintenance in 2008 & for No. 74 Briton Street Footbridge during the Upperton Road Development scheme in 2008. Upgraded steel P4 pedestrian parapet panels were introduced in 2004/5 at No. 149 Heard Walk & No. 150 Lismore Walk Subways in Beaumont Leys to replace missing sub-standard aluminium panels.

5.6.4.5 We were planning to strengthen four more bridges during 2006 to 2011 but no strengthening works have been carried out so far for this period. Our upgrading proposals (See Cl. 5.4.3 above) during 2011/2012- 2014/2015 for the Council owned bridges on the highway network are as follows:

- Reconstruction of 5 bridges that failed the 40 tonne assessment (i.e. bridge nos. 53, 73, 74, 83 & 84)
- Strengthening/reconstruction of structural elements of 2 bridges (i.e. bridge nos. 2 & 110)

5.6.4.6 In the forward works programme beyond 2014/2015 our upgrading proposals are as follows:

- Reconstruction of No. 128 Kingsway Road Bridge which failed the 40 tonne assessment
- Replace or strengthen deck slab of No.90 Imperial Avenue Culvert
- Strengthen or replace No. 86 Aylestone Old Mill (River) & No. 99 Aylestone Old Mill (Canal) bridges on the Public Right of Way.
- Strengthen No. 23 Soar Lane (River) Bridge which is on the Public Right of Way

5.6.5 Disposal

5.6.5.1 We currently have no structures on our disposal plan.

The 3 Magazine Walk Subways (Nos. 133,192&193) were made redundant in Sept 2007 & No.178 Granby Street Subway was made redundant in Aug 2010. These subways were made redundant as part of the City's regeneration scheme. No. 1041 Bowstring Bridge (disused Great Central Way bridge) was demolished in Dec 2009. The eleven span Upperton Road Viaduct structure was replaced by a single span much shorter low level Upperton Road Bridge (No. 194) during 2007 and 2008. The Charles Street footbridge was no longer required and was removed in 2007.

5.7 Performance Gaps

5.7.1 The performance gaps for this asset grouping are the bridge stock Condition Band for bridges in the 'Poor' and 'Fair' Bands. (The 5 Condition Bands, 'Very Poor' to 'Very Good' are shown in Table 5.5). Currently, there is 1 bridge in 'Poor' condition and 23 in 'Fair' condition. We are seeking to improve their condition to 'Good' Band through implementation of forward works programmes & improvement actions. The improvement actions have been collated at the end of this chapter.

5.8 Optimisation and Maintenance Budget Considerations

5.8.1 Budgetary needs are identified from the inspection and assessment regime. The information from the budgetary needs is used to formulate the Implementation Programme. The forward works programme is funded mainly from the Local Transport Plan Capital Maintenance Budget (around £700K per year in last 2 year) Maintenance works to bridges on the Primary Route Network are funded by an annual grant, bid for by the City Council, for specific bridges, from the Department for Transport. Demolition of the Upperton Road viaduct and creation of the new bridge replacing the viaduct was funded by a Major Scheme allocation (£18.8 million) again made by the Department for Transport.

5.8.2 The indicative revenue budget for general structural inspection and maintenance is £50,000 per annum.

5.9 Risk Management

5.9.1 Risk management is carried out using the Leicester City Council specific Risk Management Toolkit as explained in section 3.9. The risk assessment exercise for this asset grouping is carried out annually and following a significant event. The risk register is included in Appendix A. In addition, we are making progress in conducting risk assessments for confined space bridges. We aim to have developed risk assessments for all highway structures during the cyclic inspections or as & when staff time is available.

Improvement Action: “To complete risk assessments for all highway structures.”

5.10 Forward Works Programme

5.10.1 Bridge inspection, assessments and testing programmes to date have been carried on a yearly basis. A schedule of minor works from these inspections is produced on a yearly basis. In the Forward Works Programme for the next 4 years (2011/12 to 2014/15) we have included 15 bridges for major maintenance, 5 bridges for reconstruction & 2 bridges for strengthening/reconstruction, which will be taken up subject to availability of funds.

5.11 Service Delivery

Service Delivery Arrangements

5.11.1 The Bridges Team is responsible for the management of assets in this asset grouping. The Team carries out the design, inspections, assessments, prepares asset management plans & works programmes, prepares drawings, contract documents for new build & existing structures, manages abnormal load movements and carries out site supervision and takes on the role of CDM Co-ordinator for the projects. (External consultants, additional staff would be required from time to time to address the work load, nature of assignment & level of service to be provided). The services of the Team are provided in accordance with the Team’s Quality Management System.

5.11.2 The elements of the construction and maintenance procurement strategy, explained in Chapter 3 (section 3.10) employed for highway structure works include;

- Provision of works services by City Highways
- Framework Contract for Highway Works - General Civil Engineering & Repairs to Highway Structures (2006 – 2010) for works £150K to £1M
- Framework Contract for Highway Works – Highway Maintenance (2006 – 2010) for works £150K to £1M
- For schemes above £1M procurement is in accordance with European Procurement Rules
- EXOR Select lists of preferred suppliers/contractors for one-off specialist works

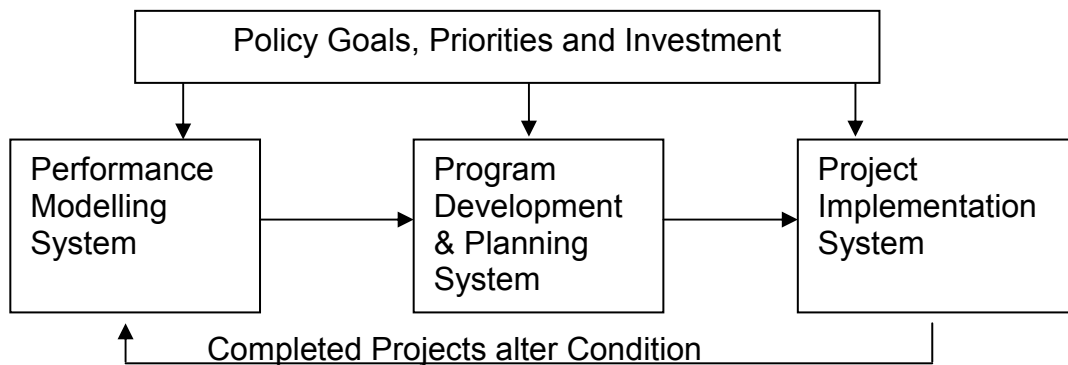
Service Delivery Locations

5.11.3 The Bridges Team is located at York House, 91 Granby Street, Leicester LE1 6FB. City Highways are located at Castle Park Depot, 90, Leycroft Road. External contractors are usually located in the East Midlands.

5.12 Asset Management Practices

5.12.1 Our highway structures management process essentially comprises of modelling, programme development and planning, and implementation. The process ensures that goals and objectives are fulfilled and that condition changes are recorded. This process is outlined in Figure 5.1.

Figure 5.1 Highway Structures Management Project Flow Chart



5.12.2 The Performance Modelling System in the main involves the Bridges Team essentially incorporates the following activities.

- Receiving guidelines
- Interpreting the guidelines and drafting relevant strategies
- Arranging for the condition surveys
- Interpreting the condition data and drafting forward works programmes
- Ensuring that all high level objectives are achieved

5.12.3 The Programme Development and Planning System in the main involves the Transport Strategy Section and the Bridges Team and essentially incorporates the following activities.

- Receiving works briefs
- Develop works programmes
- Undertake options study

5.12.4 The Project Implementation System in the main involves the Bridges Team, Transport Strategy and Transport Systems Sections, and essentially incorporates the following activities.

- Design the works
- Deliver agreed works programmes
- Updating records

5.12.5 We are currently reviewing our asset management practices and maintenance standards against the Code of Practice “Management of Highway Structures September 2005” and will amend practices and seek appropriate approvals for recommended levels of service in due course.

Improvement action: “To complete the review of asset management practices and maintenance standards against the Management of Highway Structures Code of Practice. “

5.13 Service Level Performance Monitoring

5.13.1 Levels of service monitoring is explained in section 2.9. In addition to the level of service monitoring we will use an “operational level” suite of indicators to help us manage performance in striving to achieve the desired levels of service. This suite will be expanded, as appropriate, as we develop our asset management approach and as the County Surveyors Society publish indicators. The current indicators and targets we use for this asset grouping are provided in Table 5.9

Table 5.9 Highway Structures Operational Performance Indicators (Reviewed 13 Jan 2011)					
PI Ref	Description	11/12	12/13	13/14	14/15
Serviceability					
CL 37	Bridge Stock Condition (Road Bridges weighted by deck area)	88%	88%	89%	90%
TAMP HS 1	Percentage of bridge stock without any restrictions to use	100%	100%	100%	100%
Safety					
TAMP HS 2	Percentage of planned routine inspections completed on time	50%	55%	60%	65%
Customer Service					
TAMP HS 3	Percentage of complaints responded to within 10 days	100%	100%	100%	100%
TAMP	Percentage abnormal load	100%	100%	100%	100%

HS 4	route requests responded to on time				
TAMP HS 5	Percentage New Roads & Streetworks Act Notices responded to on time	100%	100%	100%	100%

5.14 Improvement Plan

5.14.1 Improvement actions identified for this asset grouping have been collated into Table 5.10

Para Ref	Improvement Action	Priority	Lead	Target Date	Est. Cost
5.3.2	To investigate how the BMX database & ESDAL System could help manage the abnormal load movements.” (See Table 5.10 Para Ref 5.3.2)	4	AT	Mar 2012	Staff time
5.3.3	To continue to develop the BMX database and scan hard copy records into electronic form	3	AT	Mar 2012	Staff time
5.4.3	To upgrade BMX bridge database with the software provider to be able to produce Stock Performance Reports based on Local Govt. financial year & not calendar year & to upgrade the software for accurate reporting.	1	AT	Dec 2011	Staff time
5.4.5	To complete the check of all drainage maps to capture all bridges for recording and assessment purposes.	3	AT	June 2012	
5.9.1	To complete risk assessments for all highway structures	2	AT	On going for routine inspections	Staff time

5.12.5	To complete the review of asset management practices and maintenance standards against the Management of Highway Structures Code of Practice	1	AT	Dec 2011	Staff time
--------	--	---	----	----------	------------

Chapter 6 – Car Parks including Park and Ride, Bus Station and Bike Park Lifecycle Management Plan

6.1 Introduction

- 6.1.1 The car parks, bus station and bike park asset grouping includes the eight public car parks owned and managed by the City Council, parking meters located in car parks and “on-street”, St Margaret’s Bus Station and the Town Hall Bike Park, The Team Leader Parking is responsible for the car parks and the parking meters. The Sustainable Transport Team Leader is responsible for St Margaret’s Bus Station and the Bike Park.
- 6.1.2 The car parks and off-street parking are provided mainly for people accessing essential services, shops and leisure services. Parking charges are set so as to discourage commuter parking and hence ensure that there is sufficient spaces available for non-commuters. Surplus income generated from the operation of the on-street parking operation is re-invested in transport services such as subsidising non-profitable bus services.
- 6.1.3 St Margaret’s Bus Station provides a facility for members of the public wishing to use public transport. It acts as an important interchange for passengers travelling across the county as well as being a departure and arrival point for many coach companies travelling throughout the country and abroad. It serves as a key arrival point for visitors to Leicester. A Bus Station Manager is contracted from Arriva to oversee the day-to-day running of the Bus Station and to report any problems/occurrences. The Bus Station was built in 1985. Between January and November 2006, the bus station underwent refurbishment and redevelopment works. The bus station is therefore deemed to be in good condition.



St

Margaret’s Bus Station following refurbishment in 2006

- 6.1.4 The Town Hall Bike Park provides a facility for the public arriving in the city centre by bicycle. It is a key arrival point for daily commuters, shoppers and increasingly workers and visitors to the Town Hall and nearby facilities. It provides secure cycle parking, information and a commercial cycle shop

providing bike maintenance and retail service. Parking charges are set to encourage use of the Bike Park for regular daily commuters and shoppers.

6.2 Maintenance Strategy

6.2.1 The aim of our strategy is to maintain the car parks and bus station in a safe and welcoming (good) condition thus providing the user with a pleasant experience when using the facility. Provision of the car parks and bus station contributes to the corporate objective of 'Improve our environment to make local neighbourhoods and the city centre places for people to be proud of'.

6.2.2 Our maintenance strategy consists of regular condition inspections by our building surveyors; appropriate routine maintenance and then occasional major refurbishment, mainly to the bus station. Facilities at the car parks and bus station are upgraded as new technology becomes available. The bus station provides its users with state of the art real time information on bus times and destinations.

6.3 Inventory Recording of Information and Information Systems

6.3.1 The car parks, bus station and bike park inventory data is held on the Council's property asset management information system PAMIS. The system is managed by the Council's Property Services Section.

Car Parks - inventory

6.3.2 Leicester City Council owns all the car parks listed below, with the exception of the Haymarket Centre Car Park that is owned on a leasehold basis.

Castle Park Car Park

6.3.3 Castle Park car park is located at the junction of High Street and the Central Ring Road approximately 500 metres west of the Clock Tower (the middle of the city centre). It is a surface level pay and display car park with 50 spaces and is tarmac surfaced.

Dover Street Car Park

6.3.4 Dover Street car park is located just off Granby Street approximately 600 metres south of the Clock Tower. It is a surface level pay and display car park with 164 spaces and is tarmac surfaced.

Granville Road Car Park

6.3.5 Granville Road car park is located adjacent to Victoria Park, near to the A6 London Road about a half a mile south of the city centre. It is a surface level pay and display car park with 70 spaces. The existing stoned car park surface at Granville Road car park is in a very poor condition and is uneven with several pot holes and areas of ponding. It is proposed to provide a new tarmac surface complete with drainage system. The re-surfacing will also enable parking spaces to be marked out and will maximise efficient use of the car park capacity as well as allowing for dedicated bays to be marked out for disabled users.

Haymarket Centre Multi-Storey Car Park

- 6.3.6 The Haymarket Car Park is located within the Haymarket Centre, above the shopping area, in the middle of the city centre. There are 485 spaces over two parking levels. A shopmobility service is operated adjacent to this car park. All of the old (approximately 16 years old) pay and display machines at the Haymarket Centre Multi-storey Car Park were replaced with new Metric machines in November 2007. This has resulted in a dramatic improvement in reliability and reduced maintenance costs. A heat detection system was installed during February and March 2008 and links the car park to the shopping centre alarm system. The roof parking level on the car park was re-surfaced and drainage repairs carried out during May and June 2008. As part of the works the car park was completely re-lined to assist circulation and to clarify dedicated parking spaces for disabled users. The existing CCTV equipment within the Haymarket Centre multi-storey car parks has been in place for over 10 years and is now in need of replacement/ refurbishment. The recording equipment has recently been replaced but the intention is to replace the existing 16 cameras and to transmit the images to the City Council's Security Control Room at York House where they will be both monitored and recorded.

Meynell's Gorse Park & Ride Car Park

- 6.3.7 The Meynell's Gorse Car Park is located on Ratby Lane, just off the A47 Hinckley Road approximately 3 miles west of Leicester City Centre. It is a surface level car park. There are spaces for 500 cars and a passenger waiting area and toilets/security office block. The surface of the car park is tarmac with block paved speed humps.

Enderby Park and Ride Car Park

- 6.3.8 The Car Park is located on Narborough Road approximately 3 miles south of Leicester City Centre. It is a surface car park. There are spaces for 1000 cars and a centrally located terminal building comprising of a passenger waiting room, toilets and security desk. The surface of the car park is tarmac with areas of block paving and landscaping.

Newarke Street (Phoenix) Multi-Storey Car Park

- 6.3.9 Newarke Street Car Park is located on Newarke Street, close to the Central Ring Road to the south of the city centre. It is a brick clad concrete framed multi-storey structure. It has 470 spaces for cars over 13 parking levels. It is a pay on foot car park. The existing CCTV equipment within Newark Street car park has been in place for over 10 years and is now in need of replacement/ refurbishment. At Newark Street it is proposed to replace the existing 36 cameras and to transmit the images to the City Council's Security Control Room at York House where they will be recorded.



Newarke Street (Phoenix) Multi-Storey Car Park

St. Margaret's Pastures Car Park

- 6.3.10 St Margaret's Pastures car park is located immediately adjacent to the A6 St Margaret's Way approximately a half a mile west of the city centre. It is a surface level pay and display car park with 125 spaces and is tarmac surfaced.

Abbey Park Car Park

- 6.3.11 Abbey Park car park is located in Abbey Park immediately adjacent to the A6 St Margaret's Way approximately a half a mile west of the city centre. It is a surface level pay and display car park with 80 spaces and is tarmac surfaced.

Victoria Park Car Park

- 6.3.12 Victoria Park car park is located immediately adjacent to Victoria Park, adjacent to the A6 London Road approximately half a mile south of the city centre. It is a surface level pay and display car park with 120 spaces and is tarmac surfaced.

St Margaret's Bus Station - inventory

- 6.3.13 St. Margaret's bus station is located on Gravel Street and backs onto Burleys Way. The Bus Station site is approximately 6200 metres² and the building itself covers an area of approximately 1900 metres². The Bus Station consists of 22 bays, which buses pull into to pick up and drop off passengers. There are also lay-bys on Gravel Street, which are used by long distance coaches.



National Express office

The new National Express office

6.3.14 Inside the bus station there is a waiting room, a café, a drivers' room, a newsagent's kiosk, a travel office for Skills, a travel office for National Express and Arriva offices housing their travel shop, customer service centre, despatch office and other staff offices. Other facilities include male, female and disabled toilets, a baby changing area, public telephones, left luggage lockers and seating. Electronic information displays showing scheduled and real time departures are also installed in the waiting room, the main concourse and above each of the doors. The Bus Station is open from 5:30am to 11:15pm Monday to Saturday and from 8:30am to 11:30pm on Sundays and Bank Holidays.

Enderby Park and Ride

6.3.15 The Enderby Park and Ride site, located at the corner of Leicester Lane and St John's in Enderby, opened in November 2009. The site consists of a 1,000 space car park and a terminal building housing a waiting room, toilets, viewing gallery and a security office. There are also lockers and cycle parking facilities located on the site.



Enderby Park & Ride

Haymarket Bus Station

6.3.16 The Haymarket Bus Station is the property of the owners of the Haymarket Shopping Centre. The “Bus Station” consists of 3 rows of linked cantilever shelters divided into 12 bus stops, each bus stop has a flag giving bus service details and an information case housing details of timetables which is attached to the shelter. Currently there are no raised kerbs installed at the station as much of the land is not Highway owned.

6.3.17 The City Council is responsible for updating and maintaining the bus stop flags and timetable information whilst the shopping centre’s owners are responsible for the maintenance of the shelters.

Town Hall Bike Park - inventory

6.3.18 The Town Hall Bike Park is located in the Town Hall accessed from Town Hall Square. Inside there is secure cycle parking for 100 bicycles, lockers, a cycle sales and repair outlet and shower/changing facilities for users. Websters Cycling is contracted via Groundwork to oversee the daily management of this service.

Current Asset Condition Car Parks

6.3.19 There are no statutory indicators identifying the condition of car parks. Our own assessment of the condition of the car parks is provided in Table 6.1.

Car Park Name	Condition
The Lanes Car Park	Good
Dover Street	Good
Granville Road	Poor
Haymarket Centre Multi-Storey	Good
Meynell’s Gorse Park & Ride Car Park	Good

Enderby Park & Ride Car Park	Good
Newarke Street (Phoenix) Multi-Storey	Good
St. Margaret's Pastures Car Park	Good
Abbey Park Car Park	Good
Victoria Park Car Park	Good

St Margaret's Bus Station

6.3.20 There are no statutory indicators identifying the condition of bus stations. The Bus Station was built in 1985. Between January and November 2006, the bus station underwent refurbishment and redevelopment works. The bus station was re-painted, new seating, timetable information stands and bins were installed. Building works were carried out which included building new offices for Skills travel, National Express and Arriva. The café was extended to provide a room specifically for drivers and the toilets were refurbished and reduced in number. Work to refurbish the waiting room was completed in summer 2007. The bus station is therefore deemed to be in good condition.



Refurbished toilets



New drivers mess

6.4 Bus Stops and Shelters

Inventory

6.4.1 In total, within the City boundary, there are 1,399 bus stops which are owned and maintained by Leicester City Council (LCC). Of these, 538 stops also have bus shelters, (75 belonging to the City Council and 463 belonging to JCDecaux). Most bus stops consist of a pole and flag with a timetable case attached to the pole. Sometimes the flag and timetable case may be attached to a lamp column to reduce street furniture in a location. Timetable cases may be owned by the City Council or one of the bus operators and are normally distinguished by the colour of the case or the information contained within it. There are 771 time table cases in the city. Bus stops also consist of a level access kerb (raised bus stop kerbs), these are in the process of being installed at all bus stops across the city and currently exist at 1058 stops.

- ▶ Total Bus Stops – 1399
- ▶ Total Shelters – LCC – 75
 - JC Decaux Ad – 255
 - JC Decaux Non ad – 208
- ▶ Total Timetable Cases – 771
- ▶ Total Raised Curbs – 1058

Some bus stops also have clearway markings located on the road beside the stop to prevent parking enabling the bus to pull up level with the kerb.

There are also 4 tram shelters located around the city which are no longer in use as bus shelters.

Maintenance

6.4.2 Bus stops themselves tend to require little maintenance unless damaged in accidents etc. Information on them, however, requires updating as and when the bus services operating to them changes. JCDecaux bus shelters are maintained by JCDecaux themselves although damage to the shelters is often reported via the City Council. These shelters are cleaned once a month, damage is repaired within 24 hours of calls being logged and graffiti cleaned within 48 hours of it being reported. LCC bus shelters are cleaned once a month using a contractor, if the contractor notices damage to the shelter then this is reported to the City Council who make the decision about whether to repair it or not and who would undertake the repair.

Locations of bus stop clearway markings are identified by officers and bus companies and are installed where appropriate. They are repainted when required either by an order from the Sustainable Transport Team or as part of resurfacing or relining works in an area where they exist. The tram shelters are painted twice a year or as and when required if offensive graffiti is identified on them.

Costs

6.4.3 Ensuring that the bus stops and City Council owned shelters are kept in good condition and with information kept up to date involves a cost of approximately £66,500 per annum.

This cost is broken down as follows:

Bus shelter Cleaning & maintenance (City Council owned)	£50,000
Minor bus stop works	£8,500
Bus stop flag renewals & timetable case purchases	£8,000

Town Hall Bike Park

6.4.4 The Town Hall Bike Park was built in 1997 to provide secure parking for 140 bicycles. Condition of the fixtures and fittings of the Bike Park is poor. A detailed review of its condition was completed in October 2008. A refurbishment programme is being developed.

Improvement action: “To complete the condition survey of the bike park and develop a refurbishment programme.”

6.5 Asset Valuation

6.5.1 The drivers for asset valuation are discussed in Chapter 13. The gross replacement cost of this asset group is not yet available. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the ‘Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting’ published by CIPFA in 2010) for Highway Infrastructure Asset Valuation along with the appropriate

depreciation methodology. It is proposed to work out the valuation during 2011/12. See Chapter 13 for further information.

6.6 Asset Lifecycle Options and Asset Life

Creation/Acquisition

- 6.6.1 For this asset grouping, creation or acquisition of assets occurs very infrequently but when it does it is most likely through improvement projects implementing the Council's transport strategy. A new facility, Enderby Park and Ride Project was opened in November 2009 and has a capacity of a 1000 car park space plus secure covered cycle parking, including a terminus building, near to Fosse Park/M1 Junction 21 on City Council owned land.

Routine Maintenance

- 6.6.2 Routine maintenance is the regular ongoing day-to-day work that is necessary to keep the assets operating. This includes planned and reactive maintenance. Planned maintenance includes activities such as condition inspections and safety inspections and planned preventative maintenance such painting and surfacing. Reactive maintenance relates to corrective maintenance to put right minor failures, such as broken windows, responding to inspections, complaints and emergencies. Leicester's routine maintenance arrangements for the car parks and bus station are described in the following paragraphs. We have identified the need to formalise the maintenance arrangements for the Bike Park.

Improvement Action: "To deliver Bike Park maintenance as part of a new Service Level Agreement".

Condition Inspections and safety inspections – car parks

- 6.6.3 The car parks are inspected annually. Furniture such as the metal height barrier, headroom warning notice, tubular metal guardrails, signs, notices and support posts and surface are inspected.

Haymarket Centre Car Park

- 6.6.4 The interior and exterior face of brick parapet walls, rubber speed restriction ramps and central divider, and fixings, metal sightscreens to top of ramp walls, metal height barrier rail, headroom warning sign and metal guardrails to parapet walls are inspected every year. Surface water drainage gullies and channels, rainwater pipes, fire hydrant points, portable fire extinguishers in attendants office and doors are inspected annually.

- 6.6.5 The attendants office including doors, frames and ironmongery, floor covering and finishes are inspected annually. Direction, information, disabled persons' parking and pay and display signs are inspected annually.

Newarke Street Car Park

- 6.6.6 The internal and external face of brick walls, concrete copings to roof parapets, concrete stringcourse and covering to staircase roofs are inspected annually. The metal safety bars to window openings, metal balustrades/guard rails to staircase and tubular metal safety barrier rails to pedestrian ramps are inspected annually.

6.6.7 The surface water drainage gullies, channels and rainwater pipes, fire hydrant, portable fire extinguishers are inspected annually. The doors, frames, ironmongery and worktops, ceramic floor and wall tiling in toilet and lobby, WC, washbasins, water heaters, hot and cold pipe work, waste pipes, soil pipes and overflows in the attendant's office and staff toilets are inspected annually. The lifts are inspected annually as are the roller shutters, the lightening conductor, headroom warning signs, direction signs, disabled persons' parking signs, pay and display signs and display frames.

St Margaret's Bus Station

6.6.8 Inspections are carried out annually by the Building Maintenance Team and on request of the Sustainable Transport Team and/or Bus Station Manager. Survey reports are completed upon inspection. The inspections include the concourse, waiting room, cleaners area and toilets, paved area to bus station frontage and departure bays, exterior brickwork, and cladding roof structure.

Enderby Park and Ride

6.6.9 Maintenance of the site is carried out by the City Council's Building Maintenance Section, this includes maintenance of the building as well as maintenance of the landscaping (following the end of the County's maintenance period in 2 years time). The County Council's Cleansing Services are contracted to clean the public areas of the site and empty waste bins. The Park and Ride site is managed by the City Council, a security firm is employed so that there is a presence at the site for the whole time that it is open to the public.

Planned Preventative Maintenance

6.6.10 Planned preventative maintenance to the car parks and bus station includes servicing of lifts and all other mechanical and electrical equipment, painting and cleaning.

Reactive Maintenance

6.6.11 Reactive maintenance consists of responding to 'one-off' maintenance requirements which is often customer driven and emergency responses where work is not costed prior to instruction. For example, there is a need to repair and/or make safe damage caused by vandals.

Routine Maintenance Standards

6.6.12 The routine maintenance standards for car parks and St Margaret's Bus Station are provided in Table 6.2

Activity Type	Activity	Service Standard
Preventative	Maintenance	Gully Cleansing Annually Fire hydrant point checked annually Fire extinguishers serviced annually Lifts serviced annually Road Grit checked early winter Cleaning of offices, meters Oil/petrol interceptor cleansed 6 monthly Pay and display machines service 6 monthly
Condition Monitoring	Condition inspections	Annual
Corrective	Minor repairs	As required, as soon as possible
Reactive	Emergency repairs	Same Day
	Ad hoc Inspections	Non specified, responsive

Renewal/Replacement

6.6.13 Renewal or replacement work restores the asset to its “as new” capacity and condition. The renewal/replacement programme for this asset grouping is explained in the following paragraphs. The planned future maintenance works for the next 4 years period will be included in the Implementation Plan.

**Haymarket Centre Multi-storey Car Park
CCTV System Replacement**

6.6.14 The present CCTV systems within the two multi-storey car parks were installed to improve the security of vehicles parked as well as the personal safety of car park users. The provision of CCTV cameras helps reduce the fear of crime especially in the case of women drivers and encourages greater use of the parking facilities, which in turn generates greater income. Both systems are in need of replacement. The estimated budget cost of replacing all of the cameras, monitors and associated equipment within the Haymarket Centre Car Park and link to York House is £126,000.

Re-surfacing/ Drainage Repairs

6.6.15 The roof parking level at the Haymarket was re-surfaced and drainage repairs carried out in 1996. Further re-surfacing work was carried out in September 2008.

**Newarke Street Multi-storey Car Park
CCTV System Replacement**

6.6.16 The estimated budget cost of replacing all of the cameras, monitors and associated equipment within the Newarke Street Car Park is £165,000.

Improvement action: “To replace the CCTV systems in the two multi-storey car parks, identify funding source and programme project.”

**On-Street Pay & Display
Machines & Associated Signs**

6.6.17 One hundred and forty machines and 300 signs were installed in 1999. They need to be replaced by 2013. The machines presently generate over £1,900,000 per annum and it is essential that the machines provided continue to operate efficiently and effectively to ensure that there is no loss of income to the authority. To enable the on-street parking regulations to be enforceable the bays need to continue to be clearly signed.

Improvement action: “To replace the yr 1999 machines and signs, identify funding source and programme project.”

6.7 Upgrading

6.7.1 For this asset grouping, upgrading or improvement beyond the existing asset condition can be achieved as part of improvement projects to the specific car park or bus station.

Granville Road - Re-surfacing

6.7.2 The present parking spaces are in need of maintenance. To improve the condition of the car park it is proposed that a tarmac surface is provided complete with a new drainage system and each space marked out. This will allow the provision of reserved spaces for disabled people.

Improvement action: “To upgrade the surface and drainage of Granville Road car park, identify funding source and programme project.”

Haymarket Centre Multi-storey Car Park

6.7.3 The car park fire alarm system was upgraded in March 2009.



Dover Street surface level car park

Disposal

6.7.4 Disposals of car parks or the bus station are infrequent. This is only likely to occur if a change of use is planned for the site of a car park or the bus station. This will only occur once all alternative options have been discounted, following a rigorous assessment, and an appropriate alternative site is found for the bus station or car park.

Performance Gaps

6.7.5 Operation and maintenance of the car parks and bus station was the subject of a detailed best value review in 2002. Seven improvement actions were identified during the review, including the need to improve lighting, replace unreliable pay and display machines and improve cleanliness of the facilities, all of which have been implemented since 2002. The bus station was refurbished in 2006. Car Park User satisfaction surveys were carried out in 2009. Performance gaps will be identified from the next round of surveys.

Optimisation and Maintenance Budget Considerations

Car Parks

6.7.6 Table 6.3 details typical expenditure incurred in maintaining the car parks and pay and display machines.

Table 6.3 Car Parks Typical Annual Maintenance Costs	
The Lanes, Dover Street, Granville Road, St Margaret’s Pasture, Abbey Park and Victoria Park Car Parks	£18,000
Haymarket Centre Car Park	£12,600
Newarke Street Car Park	£27,600
Pay and Display Machines	£56,300

St. Margaret’s Bus Station

6.7.7 Table 6.4 below details typical expenditure incurred in managing the bus station asset.

Table 6.4 St. Margaret’s Bus Station Typical Annual Management & Maintenance Costs	
Cleaning	£200,000
Security	£32,000
Bus Station Management	£45,000
Maintenance	£20,000
Rates	£45,032
Day to day costs - electricity, water, sewage, CCTV	£41,500

Risk Management

6.7.8 Risk management is carried out using the Leicester City Council specific Risk Management Toolkit as explained in section 3.9. The risk assessment exercise for this asset grouping is carried out annually and following a significant event. The risk registers are included in Appendix A.

Forward Works Programme

6.7.9 The forward works programme for the car parks and bus station is the renewals/replacement programme is highlighted in the Implementation Plan.

6.8 Service Delivery

Service Delivery Arrangements - Car Parks

6.8.1 The car parks are operated by Vinci Park UK Ltd and maintained through an annual Joint Service Agreement between Property Services of the Resources, Access & Diversity Department, acting as the maintenance consultancy services provider, and the Traffic Management Section, the purchaser. Building maintenance, mechanical and electrical servicing and works services are provided by contractors on the Council's select list of contractors.



Meynell's Gorse Park and Ride Car Park

Service Delivery Arrangements - St Margaret's Bus Station

6.8.2 Arriva provide a day-to-day management of the bus station and have a manager at the bus station. Property Services manage all maintenance at the Bus station through a Joint Service Agreement and Property Management, also of the Resources, Access and Diversity look after the leases and advise on valuation and property issues. Building maintenance, mechanical and electrical servicing and works services are provided by contractors on the Council's select list of contractors.

6.8.3 Guardian Security are contracted to work in the Bus Station from 4:30pm to 11:30pm every day, they are also responsible for unlocking the Bus Station in the morning and ensuring everything is locked up at night.

Service Delivery Arrangements - Pay and Display Machines

6.8.4 Metric Systems Ltd maintain the pay and display machines through an annual comprehensive maintenance agreement.

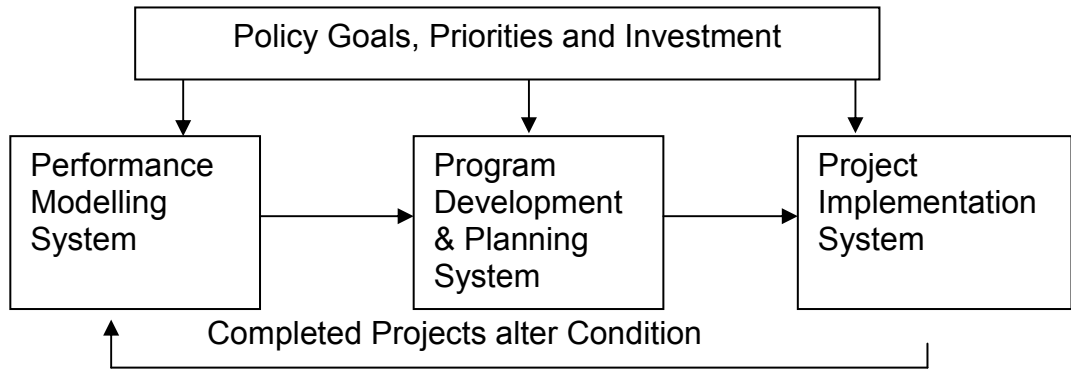
Service Delivery Locations

6.8.5 The Parking Enforcement Team responsible for the maintenance of the car parks is located in York House, off Granby Street and the Sustainable Transport Team responsible for the bus station is located at 6th Floor New Walk Centre. The Property Services and Property Management Sections are based in Sovereign House on Princess Road West. The maintenance contractors are generally East Midlands based.

Asset Management Practices

6.8.6 Our car parks and bus station management process essentially comprises of modelling, programme development and planning, servicing and project implementation. The process ensures that goals and objectives are fulfilled and that condition changes are recorded. This process is outlined in Figure 6.1.

Figure 6.1 Car Parks & Bus Station Management Flow Chart



6.8.7 The Performance Modelling System in the main involves the Parking Enforcement Team, the Sustainable Transport Team and Property Services essentially incorporates the following activities.

- Receiving guidelines
- Interpreting the guidelines and drafting relevant strategies
- Arranging for the condition surveys
- Interpreting the condition data and drafting forward works programmes
- Ensuring that all high level objectives are achieved

6.8.8 The Programme Development & Planning System in the main involves Property Services and essentially incorporates the following activities.

- Receiving works briefs
- Develop works programmes
- Undertake options study

The Servicing and Project Implementation System in the main involves Property Services and maintenance contractors and essentially incorporates the following activities.

- Design the works
- Deliver agreed works programmes

Service Level Performance Monitoring place in appendix

Levels of service monitoring is explained in section 2.9. In addition to the level of service monitoring we will use an “operational level” suite of indicators to help us manage performance in striving to achieve the desired levels of service. This suite will be expanded, if appropriate, as we develop our asset management approach over the next five years. The current indicators and targets we use for these asset groupings are provided in Tables 6.5 and 6.6.

Table 6.5 – Car Parks Operational Level Performance Indicators					
PI Ref	Description	11/12	12/13	13/14	14/15
Serviceability					
TAMP CP 1	Overall Condition of Car Park stock	Good	Good	Good	Good
Safety					
TAMP CP 2	Percentage servicing visits completed on time	100%	100%	100%	100%
Sustainability					
TAMP CP 3	Percentage income to operating cost	56%	57%	58%	59%
Customer Service					
TAMP CP 4	Percentage of complaints and requests for service responded to within 10 days	91%	92%	93%	94%
TAMP CP 5	Percentage satisfaction with car parks	Not collected	Tbe	Not collected	Not collected

Table 6.6 – Bus Station Operational Level Performance Indicators					
PI Ref	Description	11/12	12/13	13/14	14/15
Serviceability					
TAMP BS 1	Condition	Good	Good	Good	Good
Safety					
TAMP BS 2	Percentage servicing visits completed on time	100%	100%	100%	100%
TAMP BS 3	Compliance with Health and Safety Station Plan	100%	100%	100%	100%
Sustainability					
TAMP BS 4	Percentage income to operating cost	42%	45%	48%	50%
TAMP BS 5	Percentage departure charge income compared to base year 2005	17%	19%	21%	23%
Customer Service					
TAMP BS 6	Percentage of complaints and requests for service responded to within 10 days	90%	90%	90%	90%
TAMP BS 7	Percentage satisfaction with St Margaret’s Bus Station	66% base	Not collected	Not collected	75%

6.9 Improvement Plan

6.9.1 Improvement actions identified for this asset grouping have been collated into Table 6.7

Table 6.7 Car Parks and Bus Station Improvement Actions					
Paragraph Reference	Improvement Action	Priority	Lead	Target Date	Est. Cost
6.4.4	To complete the condition survey of the bike park and develop a refurbishment programme	1	JD	Dec 2011	Staff time
6.6.2	To deliver Bike Park maintenance as part of a new Service Level Agreement	1	JD	Dec 2011	Staff time
6.6.16	To replace the CCTV systems in the two multi-storey car parks, identify funding source and programme project	2	NC	Dec 2012	£126K & £165K
6.6.17	To replace the yr 1999 machines and signs, identify funding source and programme project	3	NC	March 2013	Tbe
6.7.2	To upgrade the surface and drainage of Granville Road car park, identify funding source and programme project	2	NC	Dec 2012	£75K

Chapter 7 - Street Lighting Life Cycle Management Plan

7.1 Introduction

7.1.1 The street lighting asset grouping incorporates the following elements:

Street Lighting Columns	Reflector Posts
Illuminated Bollards	Street Lighting Units
Feeder Pillars	Illuminated Traffic Signs
Network Cabling	Non-illuminated Traffic Signs
High Masts	Festive Decorations
Subway Units	Vehicle Activated Signs

This lifecycle management plan incorporates the Council's **Street Lighting Policy**.

7.1.2 The core business of public lighting is to allow people to see, be seen and observe others (community safety) whether travelling on foot, by cycle or by motorised modes. It includes safety aspects such as lighting of signs, bollards and reducing accidents. Improving the quality of lighting is key to reducing crime and the fear of crime, thus encouraging more walking and cycling after dark, which then increases natural surveillance of routes. The Public Lighting Group (PLG) is responsible for maintaining the above assets which it does so in accordance with the Well-lit Highways: Code of Practice for Highway Lighting Maintenance.



High Street December 2010

7.2 Maintenance Strategy

7.2.1 The aim of our street lighting maintenance strategy is to support the public highway network with safe, energy efficient, effective, appropriate lighting and illuminated traffic signs and bollards. With our street lighting we aim to maintain a night time highway environment that is safe and attractive to the public. Improving the quality of lighting is key to reducing crime and the fear of crime, thus encouraging more walking and cycling after dark, which then increases

natural surveillance of routes. This will be achieved by improvements as part of highway schemes, revenue and capital maintenance funded and our Community Safety Lighting works programme.

7.2.2 The main objectives of our maintenance strategy are:

- To create a public highway and footpath network, which is both safe and attractive at night by providing efficient street lighting and illuminated traffic signs and bollards.
- To provide and maintain a public lighting system that is cost effective and achieves an appropriate standard on all categories of road or footpath.
- To promote the use of the night time environment and the personal security of citizens and visitors by reducing the fear of crime especially in vulnerable sections of society.
- To achieve national best practice for the safety and reliability of public lighting.
- To install energy efficient equipment and negotiate effective electricity tariffs.
- To ensure that all public lighting installations have a minimal intrusion on both the night-time and daytime appearance of the environment.
- To contribute to the reduction of night-time accidents and enable traffic flow to be maintained after dark.

7.2.3 Our maintenance strategy is a balance of routine maintenance and reactive maintenance and replacement of life expired columns and lighting units. Our column replacement programmes are determined from ultrasound testing results (steel columns), age (target replacement age is currently 40 years) and risk factors associated with location for example. This means our maintenance funds are well targeted hence minimising the risk of column failure.

Design Standards

7.2.4 Levels of lighting are set by BS 5489:2003 & BS EN 13201:2003. This provides a formulaic approach based on whether the area is for vehicles or pedestrians and takes account of anticipated traffic flows. All new installations are designed to meet the requirements of the BS EN.

7.2.5 In the case of installations that are upgraded, the requirements of the BS EN are regarded as a target, but the existing infrastructure is used to the best economic effect. For example, 'one to one' lighting column replacements are used extensively in order to minimise the otherwise large costs associated with radical amendments to the underground electrical connection arrangements.

7.3 Inventory

Recording of Information and Information Systems

7.3.1 Street Lighting inventory data is held in an asset management database called Mayrise. The inventory classification is split between adopted highways, unadopted highways, and Housing Department equipment. Information is also held in GIS format. The system is backed up daily. Modifications are made daily with information supplied from staff and contractors. Our confidence level in our

inventory is extremely high in relation to illuminated street furniture. Work has now started on collating data for non-illuminated signage and the survey of the City Centre including Inner Ring Road is complete. All non-illuminated signs are accrued onto the Mayrise database, allocated an 'N' number and linked to their respective photographs. The inventory is predominantly in line with the recommended inventory detailed in Appendix A of the Well-lit Highways Code of Practice.

Improvement action: “To continue collecting non-illuminated equipment data outside the inner ring-road and input to Mayrise database.”

7.3.2 The level of detail on illuminated street furniture is broken down into a number of elements and consists of Structural, which includes the column and bracket, Parts, which includes lantern, lamp and switching control, Maintenance, giving routine maintenance dates, Cable, holding cable and electrical details, and Risk Assessment, holding information required by the Department for Transport.

Inventory – assets by type

7.3.3 Tables 7.1 and 7.2 detail the Street Lighting Assets by type.

Table 7.1 Street Lighting Assets Tabulated by Type					
Lighting Installations (No.) Information available from Mayrise Asset Management System					
Area	Columns	Wall Brackets	Underpass	High Masts	Subway
Adopted highway	33,274	912	460	19	175
Un-adopted highway	808	11			24
Housing	926	62			

Table 7.2 Traffic Signs and other Assets Tabulated by Type (as at 2010)					
Lighting Installations (No.) Information available from Mayrise Asset Management System					
Area	Traffic Signs	Beacons	Traffic Bollards	Feeder Pillars	Floodlighting
Adopted highway	5246	319	2165	317	
Un-adopted highway				31	211

7.3.4 The numbers, types and extent of street lighting assets is shown in Table 7.3

Column and Lamp Type (No.)					
Steel Columns	Concrete Columns	Cast Iron Columns	SOX Lamps	SON Lamps	Other Lamps
32,588	1735	291	4277	30,772	2953

7.4 Current Asset Condition
Street Lighting Columns

7.4.1 Life expectancy of both our steel and concrete columns is tabulated in Table 7.4. This has been calculated using a 40 year anticipated life for a standard column. We use inventory data, including age of column, and ultrasound testing results to help formulate our column replacement programme.

Life Expired (over 40 years old)	9%
Between 1 and 10 years (31-40 years old)	15%
Between 10 and 20 years (21-30 years old)	18%
More than 20 years (0-20 years old)	58%

7.4.2 There are 3241 lighting columns, 9% of 34,614 street lighting columns, over the target replacement age of 40 years. Of this total 1750 are concrete columns, the vast majority of which are fitted with galvanised conversion brackets, either because of spalling at the junction of the bracket and lantern, or as part of a lighting improvement programme. We recognise that this is only an interim solution and that the whole stock of 1735 concrete columns needs replacing. The majority of steel columns over 40 years old are 8m and 10m high columns on major roads and local distributor roads. These have all been ultrasound tested and those that have been found to have a significant loss of section have been replaced. All cast iron columns where the electricity supply cannot be isolated at ground level have been replaced.

7.4.3 The emphasis over the last 5 years (2006 to 2011) has been on improving community safety by increasing lighting levels around the City from general maintenance funding, as part of highway schemes and by implementation of the £445K Community Safety Lighting works programme funded from Local Transport Plan capital monies. This has resulted in over 700 lighting units being upgraded. The average annual maintenance budget available to replace life expired columns is £40,000. Those columns showing the greatest amount of deterioration are targeted for replacement from this budget.

7.4.4 The Department for Transport UK Lighting Board has recommended the adoption of a national street lighting column indicator and has asked authorities to submit their column indicator details by the end of July 2007. The column condition is the overall percentage of Current Age greater than Action Age (we currently use 40 years) together with the percentage for each of the three road categories 2, 3a/b, and 4a/b (as per the Well Maintained Highways Code of Practice).

Street Lighting Units

7.4.5 There are 3,241 lighting columns constituting 9% of the current lighting stock of 34,614 units that are over the target replacement age of 40 years old. Again, the emphasis over the last 5 years (2006 to 2011) has been on improving community safety by increasing lighting levels around the City from general maintenance funding, as part of highway schemes and implementation of the £445K Community Safety Lighting works programme. This has resulted in over 700 lighting units being upgraded and contributed to the excellent results for the Performance Indicator shown in Table 7.5.

Table 7.5 Percentage of street lamps not working as planned Appendix

Local Indicator LCEN 080 Percentage of street lamps not working as planned				
Year	2006 / 2007	2007 / 2008	2008 / 2009	2009 / 2010
Target	0.30	0.30	0.30	0.30
Actual	0.33	0.28	0.43	0.39



The Town Hall Christmas Decorations 2010

Illuminated Traffic Signs and bollards

7.4.6 There are no statutory indicators identifying the condition of signs and bollards. In 2006 we undertook ultrasound testing on 440 illuminated traffic sign posts installed before 1980. Although a small number had developed holes at ground level no major structural problems were encountered. The general condition of illuminated traffic signs posts was found to be good. It has been our policy for nearly 20 years that base-light type illuminated traffic bollards are installed.

With all the electrical equipment enclosed within the base unit this provides greater safety in the event of accident damage or vandalism.

Non-illuminated Traffic Signs

7.4.7 There is no inventory of non illuminated signs and hence no condition information. We have surveyed all non-illuminated signage in the City Centre including the Inner Ring Road and the data has been input into our asset management system. Each sign has been allocated an 'N' number and is linked to its respective photograph. We are continuing to survey remaining areas of the City and aim to complete by December 2011.

Festive Decorations

7.4.8 The city's decorations are inspected before use each year and their associated across street support wires are strength tested before use. Any equipment, electrical or decorative, found to need maintenance work is replaced or refurbished before the event.

Subway Units

7.4.9 Subway lighting unit are group lamp changed, cleaned and checked on an annual basis and are generally in good condition. The number of units has decreased over the past ten years as several subways have been decommissioned as part of highway improvement and developer schemes.

Reflector Posts

7.4.10 A survey undertaken in December 2005 highlighted those reflector posts missing or damaged. As there are insufficient funds available within the traffic sign maintenance budget only those found missing or badly damaged were replaced.

Feeder Pillars

7.4.11 Feeder pillars are in generally good condition, the only problem area being with some of the older pillars where door hinges and locks have been found defective. These are replaced or repaired as discovered. Inspection of pillars and the updating of the circuit diagram information contained within the pillar is takes place every two years.

Network Cabling

7.4.12 We have a considerable network of underground cable which has caused no major problems and is electrically tested every 6 years. The new cable inventory component within the Mayrise inventory allows for greater circuit information to be held and for links to be established to images and files. It is proposed to input more information into this component over the next few years as resources allow.

Improvement action: "To input more information into the new cable inventory component within the Mayrise inventory."

High Masts

7.4.13 There are a total of 19 high mast units within the city at two locations. Annual maintenance is undertaken following the guidelines specified by the mast manufacturers. The masts have been found to be in good condition however,

we are currently looking at companies that provide a non-destructive structural test and including certificate/report. Additionally, several lanterns are having bowls and reflectors replaced during 2011.

7.5 Asset Valuation

7.5.1 The drivers for asset valuation are discussed in Chapter 13. The gross replacement cost of this asset group is not available yet. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the 'Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting' published by CIPFA in 2010) for Highway Infrastructure Asset Valuation along with the appropriate depreciation methodology. See Chapter 13 for further information.

7.6 Asset Lifecycle Options and Asset Life

7.6.1 Creation/Acquisition

7.6.1.1 For this asset grouping, creation or acquisition of assets arises through improvement projects implementing the Council's transport strategy and private sector led new developments that include new highway infrastructure. The implementation plan that includes creation and acquisition of street lighting assets are included in Chapter 14.

7.6.2 Routine and Reactive Maintenance

7.6.2.1 Routine maintenance is the regular ongoing day-to-day work that is necessary to keep assets operating, including instances where portions of assets fail and need immediate repair to make the asset operational again. This includes planned and reactive maintenance. Planned maintenance includes activities such as condition inspections and safety inspections and planned preventative maintenance such as bulk lamp replacement and painting. Reactive maintenance relates to corrective maintenance to put right minor failures, such as replacing light bulbs and attending to damaged columns or units, responding to inspections, complaints and emergencies. Leicester's routine maintenance arrangements are described in the following paragraphs.

Condition Inspections and safety inspections – illuminated street lighting

7.6.2.2 The whole of the illuminated street lighting network is visually inspected at night every 2 weeks to identify defective lamps. Orders are then sent to the maintenance contractor the next day to rectify any faults. Data is recorded in relation to the number of defective lamps, average number of days to repair an outage and the information is used to assess future works. We have commenced a programme of daytime safety inspections that will be undertaken annually that will identify a pre-determined list of maintenance and safety defects that are not apparent during night-time inspections.

7.6.2.3 Visual inspection of concrete columns is undertaken every 5 years and in 2011 we will be surveying the remaining 1735 columns. Any columns found to be unsafe will be replaced as a matter of urgency.

Electrical Inspection and Testing

- 7.6.2.4 Electrical Test and Inspection is undertaken on illuminated equipment, feeder pillars and cable networks every 6 years to comply with BS 7671. Results are then analysed and orders sent to rectify any defects.

Structural Surveys – street lighting columns, steel signposts

- 7.6.2.5 Structural Ultrasound checks are currently carried out on steel columns over 25 years old. The findings are used to produce a replacement programme. Information gathered from the quantity so far tested show that around 50% have suffered a loss of at least a third of their wall thickness due to deterioration. Any columns found to be structurally unsafe have been replaced as part of the replacement programme. It is intended that a 6 yearly programme of structural testing of columns and signposts, as recommended in the Well-lit Highways – Code of Practice, be instituted to obtain clear residual life measures. We commenced ultrasound testing of steel signposts during 2006. In 2010 we tested 985 steel columns that were installed in 1985 ie. 25 years old. In all, 65 were in a deteriorated condition that requires them to be replaced. We intend to continue with this programme for all columns installed up to 1990 as after this time steel columns were galvanised making them less susceptible to corrosion. In addition we are trying to source a company to carry out non-destructive structural tests on high masts including certification.

Improvement action: “To implement a six yearly programme of structural testing of steel street lighting columns.”

Improvement action: “To develop and implement a programme of ultrasound testing of steel signposts.”

- 7.6.2.6 Since the commencement of the condition assessment programmes a national risk analysis method for street lighting columns has been introduced and has been incorporated into the Mayrise system. Additional risk factors need to be inputted that take account of factors such as traffic flow, road environment, ground conditions, pedestrian density etc. These all have a bearing on asset life. Longer term it will be necessary to undertake this data gathering exercise and inputting to update existing entries.

Improvement action: “To collect additional risk factor data and input to Mayrise system to help in preparing replacement programmes.”

- 7.6.2.7 It is recognised that we need to review the information gathered during maintenance visits so that the condition of all enclosures, including the general structural condition of lighting columns, illuminated traffic signposts, feeder pillars etc. should be recorded on the operative report.

Improvement action: “To revise maintenance visit operative report to included gathering of all relevant condition data.”

Planned Preventative Maintenance

- 7.6.2.8 Planned preventative maintenance of the street lighting assets mainly consists of bulk lamp replacement, painting and regular cleaning.

Reactive Maintenance

- 7.6.2.9 Reactive maintenance consists of responding to ‘one-off’ maintenance requirements, such as a dark lamp, which is often customer driven or identified

during night inspections and emergency responses where work is not costed prior to instruction. For example, there is a need to quickly rectify and/or make safe damage to columns or posts arising from road traffic accidents.

Routine Maintenance Standards

7.6.2.9 The routine maintenance standards for this asset grouping are shown in Tables 7.6 and 7.7.

Table 7.6 Routine Maintenance Standards - Street Lighting		
Activity Type	Activity	Service Standard
Preventative	Bulk change of lamps, clean and check (BCC)	Street lights - 2/4 yearly Subway lamps - annual Illuminated Bollards - annual Illuminated Signs - replaced on failure Refuge Beacons - annual Belisha Beacons – 3/6 months Gantries / Direction signs - 24 months
	Clean and check only Repainting	Illuminated Bollards – monthly Illuminated signs – 12 months Refuge Beacons – 6 months Gantries / Direction signs – 6 months 5 – 10 yearly depending on post type
Condition monitoring	Visual inspection	Fortnightly night time
	BCC visual inspection	Street lighting columns – 2/4 yearly
	Electrical test inspection	All illuminated equipment - 6 yearly
	Column structural testing	Steel columns over 25 years old – 6 yearly
Corrective	Minor programmed repairs	Non-specified, derived from BCC inspections and repair data
Reactive	Outage repairs	Street lighting - 5 working days Subway lighting - 5 working days Illuminated signs - 5 working days (Excludes Electricity supply faults)
	Repairs due to vandalism and emergencies Capacitor replacement	Emergency call out – Make safe 1 Hr On failure

The Street Lighting Group, as well as other local authority lighting sections in the region, were presented with a Unmetered Electricity Connections Agreement by the Distribution Network Operator in April 2006. The standards of service outlined in this agreement are shown in Table 7.7.

Activity	Maximum response time
Emergency repair	2 hours
Fault repair – High Priority	1 working day
Fault repair – Single Unit	15 working days
Fault repair – Multiple units	5 working days
New works –1-10 Connections	15 working days
New works –11-50 Connections	25 working days
New works – >50 Connections	By agreement
Quotation based on Charge Schedule	5 working days
Quotation for Non-Standard works	By agreement

7.6.3 Renewal/Replacement

7.6.3.1 Renewal or replacement work restores the highway asset to its “as new” capacity and condition. It should be noted that there is a clear distinction between renewals and replacements. Elements of the asset e.g. electrical equipment can be renewed but it is intended that asset replacements effectively occur only when entire columns or lighting installations are replaced. Furthermore, these will only be deemed replacements when they are made like for like. Therefore, a replacement column or group of columns that, for example, improves the lighting standards would be considered to be an upgrading of the asset. This work is considered to be part of the creation/acquisition/upgrading plan.

7.6.3.2 The proposed renewal programme is based on the replacement of the remaining concrete columns and replacement of steel columns that have failed the on-going targeted steel column ultrasound testing programme. We propose to continue to replace our remaining concrete columns with new steel columns by 2011 as they are beyond their design life. We have found that new steel columns give longer service life and provide better VFM than new concrete columns, as concrete columns suffer structural deterioration. We are investigating the feasibility of improving community safety lighting in our accessibility priority areas first. This will be achieved by improvements as part of highway schemes, revenue and capital maintenance funded and our Community Safety Lighting works programme.

7.6.3.3 We intend to convert our High Pressure Sodium (HPS) and Low Pressure Sodium (LPS) lighting to newer and more efficient CosmoPolis or Light Emitting Diode (LED) light source, saving up to 40% on our energy usage and thus reduce our carbon footprint, providing a safer night time environment with white light and an estimated eight year payback period from savings in energy, carbon tax and maintenance costs. We are investigating a Central Management System (CMS) to enable dimming, part night switching, energy monitoring and control, constituting further reductions in energy usage, carbon emissions, maintenance costs and reduction in night patrols.

7.6.3.4 The undertakings that represent renewal/replacement work are shown in Table 7.8.

Table 7.8 Renewal/Replacement Activities – Street Lighting/Illuminated Signs		
Asset Type	Renewal	Replacement
Street lighting	Cable repairs Electrical component renewals	Column and whole unit replacements

7.6.3.5 The methodology for identifying forward renewal/replacement programmes is shown in Table 7.9.

Table 7.9 Renewal/Replacement Programmes - Street Lighting/Illuminated Signs		
Activity Type	Programme	Basis for Programme
Renewal	Cable repairs: Annual activity	Based on results of electrical testing inspections of 1/6 of equipment.
	Inspections	Based on BCC/Repair/survey visits to assets
	Annual improvement programmes	Based on identified need using request register data
Replacement	Electrical component renewals: Annual activity Column/whole unit replacements: 1 yr programme plus annual activity	Annual programme within available budgets produced from results Mayrise and Request Register data. Priority given to most severe defects. Replacements also identified from specific structural examinations. Annual activity derived from replacements due to column knockdown due to traffic damage.

7.6.4 Upgrading

7.6.4.1 For this asset grouping, upgrading or improvement beyond the existing asset condition can be achieved as part of transport, lighting or safety improvement schemes or as a result of new developments where the street lighting asset on the existing public highway is replaced with an asset of high specification, for example a unit of higher lighting level.

Lighting Request Register

7.6.4.2 All requests for improved lighting are analysed and the location surveyed where necessary. Validated requests are added to our requests database. This information is used as one of the inputs in determining lighting improvement programmes.

7.6.5 Disposal

7.6.5.1 Disposals of street lighting assets are generally consequential to the decisions to improve the transport network through the works programmes, stopping up of the highway as part of redevelopment schemes and replacement of existing assets, such as concrete columns, through the replacement programme. An

example of this was the disposal of subway lighting when the subway under the Central Ring Road near Newark Street was de-commissioned.

7.6.5.2 Lamps and other electrical equipment are re-cycled in accordance with the Waste Electrical and Electronic Equipment Directive. During the maintenance contractor selection process the contractor satisfied the Council's Eco Management Audit System representatives that the contractor has a method statement for the storage and disposal of lamps and electrical equipment.

7.7 Performance Gaps

7.7.1 The currently identified performance gaps for this asset grouping are the areas identified for improvement actions. These improvement actions have been collated at the end of this chapter.

7.8 Optimisation and Maintenance Budget Considerations

7.8.1 Maintenance budgets are broken down into sub groups as follows: - Routine maintenance, Repair, Vandalism and Accident damage. For street lighting electrical equipment there is a further category called Renewals for the replacement of deteriorated equipment. Traditionally maintenance budgets have only been given an increase by the rate of inflation each year. While some savings have been made where improvement works have been undertaken due to the greater reliability of new equipment, this has been countered by the increasing age of the overall installation together with their increase in number. This is particularly noticeable with traffic signs where a considerable increase in their number as a result of spending on traffic management schemes has not resulted in a corresponding increase in the maintenance budget.

7.8.2 The recent programme for the installation of white lighting in the city centre will result in an increase in maintenance spending as these lamps are more expensive and have a shorter life.

7.8.3 Upgrading is funded as part of transport improvement schemes, revenue funded maintenance, and the Community Safety Lighting programme.

7.8.4 The revenue maintenance budgets for the year 2010-11 are shown in Table 7.10.

Table 7.10 Street lighting and illuminated signs(2010-11)	
Activity	Budget (£000)
Street lighting Maintenance	411
Traffic Signs Maintenance	179
Totals	590

7.8.5 The indicative revenue energy budget is shown in Table 7.11.

Table 7.11 Street Lighting and Illuminated Signs Energy	
Activity	Budget (£)
Energy	2.0 M

7.8.6 Capital funding from the Local Transport Plan capital programmes for upgrading and replacements is approximately £90,000 per annum.

7.9 Risk Management

7.9.1 Management of the street lighting asset has been informed by and standards developed through on-going risk assessment and management. Risk management is carried out using the Leicester City Council specific Risk Management Toolkit as explained in section 3.9. The risk assessment exercise for this asset grouping is carried out annually and following a significant event. The risk register is included in Appendix A.

7.10 Forward Works Programme (Implementation Plan)

7.10.1 The forward works programme consists of new or upgraded installations as part of transport improvement schemes, developer's schemes and the replacement programmes described in section 7.6. Please refer to chapter 14.



Gallowtree Gate Christmas 2006

7.11 Service Delivery

Service Delivery Arrangements – Street Lighting Maintenance

7.11.1 The Public Lighting Group is responsible for the management and maintenance of assets in this asset grouping. David Webster Ltd, maintains the street lighting asset through the Street Lighting Term Maintenance Contract, a schedule of rates type term contract. The contract has been tendered and successfully secured by the incumbent since 1994. The present term of the contract is 6 years, running from 2004 – 2010 plus two one year extensions. We are currently in the first year extension period (2010-2011) and will be applying for the second extension (2011-2012) to enable procurement of new Term Contract which should include installation of CMS system. Although traditionally an Institution of Civil Engineers form of contract the relationship between Public Lighting Group and David Webster Ltd has progressed to a “Work Partnership” where both parties seek to improve the service delivery and reduce costs by removing duplication in the service delivery.

7.11.2 Service Delivery Arrangements – Distribution Network Operator Services
 The Public Lighting Group, as well as other local authority lighting sections in the region, were presented with a Unmetered Electricity Connections Agreement by the DNO in April 2006. The standards of service outlined in this agreement are shown in Table 7.6 (earlier in this chapter). Bi-monthly meetings are held between Public Lighting staff and DNO representatives to try and resolve any issues regarding standards of service. The DNO acknowledge that they do not deliver the standards of service they have set out for themselves and that they must make improvements. This is a national issue with DNO’s which has been brought to the attention of OFGEM by the County Surveyor’s Society Lighting Group.

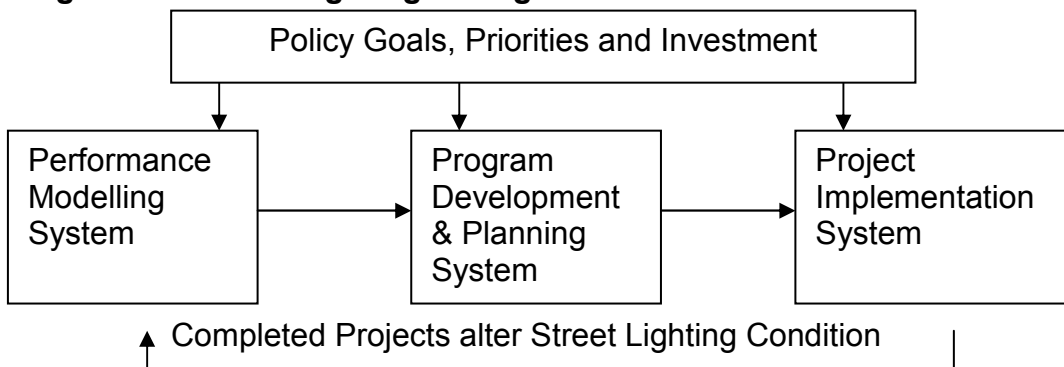
7.11.3 Service Delivery Arrangements – Procurement of Energy
 Since 1998 the Council has traded on the Half-Hourly electricity market for the supply of energy. This has been undertaken using the expertise of the Energy Team at Eastern Shires Purchasing Organisation to procure the best price available. It is the Council’s policy to enter into agreements with energy suppliers using green energy only. We have recently purchased software that allows us to monitor the performance of Photo-Electric Cell Array Unit (PECU Array) which is used as an Equivalent Meter by the Meter Administrator and combined with our inventory data allows them to calculate the consumption in KWhs. This will allow us to detect any photocell in the array that is not functioning properly at an early stage and arrange for the Meter Administrator to replace it so that correct information is used in the energy calculation.

7.11.4 Service Delivery Locations
 Both the Public Lighting Group and David Webster Ltd are located at St Margaret’s Depot, Slater Street. Both parties share the same office and depot building.

7.12 Asset Management Practices

7.12.1 Our street lighting management process essentially comprises of modeling, programme development and planning, and implementation. The process ensures that goals and objectives are fulfilled and that condition changes are recorded. This process is outlined in Figure 7.1 below.

Figure 7.1 Street Lighting Management Flow Chart



7.12.2 The Performance Modelling System in the main involves the Public Lighting Group and Transport Strategy Section and essentially incorporates the following activities.

- Receiving guidelines
- Interpreting the guidelines and drafting relevant strategies
- Arranging for the condition surveys
- Interpreting the condition data and drafting forward works programmes
- Ensuring that all high level objectives are achieved

7.12.3 The Programme Development and Planning System in the main involves Transport Strategy, Public Lighting Group, and Design & Project Management Sections, and essentially incorporates the following activities.

- Receiving works briefs
- Develop works programmes
- Undertake options study

7.12.4 The Project Implementation System in the main involves Public Lighting Group, David Webster Ltd and Design & Project Management Section , and essentially incorporates the following activities.

- Design the works
- Deliver agreed works programmes

7.13 Service Level Performance Monitoring Appendix

7.13.1 Levels of service monitoring is explained in section 2.9. In addition to the level of service monitoring we will use an “operational level” suite of indicators to help us manage performance in striving to achieve the desired levels of service. The current indicators and targets we use for this asset grouping are provided in Table 7.12

Table 7.12 – Street Lighting Operational Level Performance Indicators					
PI Ref	Description	11/12	12/13	13/14	14/15
Serviceability					
TAMP SL 1	Street Lighting Stock Condition Indicator	41%	42%	43%	44%
TAMP SL 2	Percentage of Street lamps not working as planned	0.30%	0.30%	0.30%	0.30%
TAMP SL 3	Number of failed or faulty Distribution Network Operator service connections per annum	190	190	190	190
TAMP SL 4	Percentage bulk change annual programme completed on time	100%	100%	100%	100%
Safety					
TAMP SL 5	Percentage of night time inspections completed on time	100%	100%	100%	100%
TAMP SL 6	Percentage electrical inspections completed on time	100%	100%	100%	100%
Sustainability					

TAMP SL 7	Annual reactive maintenance expenditure as a percentage of planned maintenance	55%	55%	55%	55%
Customer Service					
TAMP SL 8	LLTP47 Average number of days to repair a street lighting fault	4.00	4.00	4.00	4.00
TAMP SL 9	Percentage of complaints and requests for service responded to within 10 days	90%	90%	90%	90%
TAMP SL 10	Percentage New Roads & Streetworks Act Notices responded to on time	100%	100%	100%	100%

7.14 Improvement Plan

7.14.1 Improvement actions identified for this asset grouping have been collated into Table 7.13

Table 7.13 Street Lighting Improvement Actions					
Paragraph Reference	Improvement Action	Priority	Lead	Target Date	Est. Cost
7.3.1	To continue collecting non-illuminated equipment data outside the inner ring-road and input to Mayrise database.	3	JC	Nov 2011	Staff time
7.4.12	To input more information into the new cable inventory component within the Mayrise inventory	3	JC	May 2011	Staff time
7.6.2.5	To implement a six yearly programme of structural testing of steel street lighting columns.” Improvement action: “To develop and implement a programme of ultrasound testing of steel signposts.	1	MV	May 2011	Tbe
7.6.2.6	To collect additional risk factor data and input to Mayrise system to help in preparing replacement programmes	4	MV	May 2011	Tbe
7.6.2.7	To revise maintenance visit operative report to included gathering of all relevant condition data	1	MV	Sept 2011	No extra cost

Chapter 8 Traffic Signals and Associated Equipment Life Cycle Management Plan

8.1 Introduction

8.1.1 This asset grouping includes all equipment operated by Traffic Management and mostly falls into 4 categories:

- **Safety Critical Equipment.**
Traffic and pedestrian signals,
- **Network Management and Monitoring Equipment**
CCTV cameras, permanent volumetric and classified vehicle counters.
- **Network Information Equipment**
Variable Message Signs, car park and Star Trak signs (real time information signs at bus stops).
- **“Office” or “In-station” systems**
The systems, such as the UTC, RMS, TISDB, and CCTV systems, that manages and co-ordinates the operation of the street equipment and the associated communication network linking the signals to the UTC system.



Car Park Variable Message Signs and Screens in the Urban Traffic Management Centre

Intelligent Transport System

8.1.2 The Urban Traffic Management Centre provides us with the opportunity to maximise journey-time savings both for buses (through selective vehicle detection software) and all traffic (through SCOOT). The improved real time in-journey information that our systems provide is a key element of both our congestion and accessibility strategies. Continued integration of these systems has culminated in the “Intelligent Transport System” (ITS) program that provides an umbrella for the implementation of all transport schemes, projects and policies. Individual components or types of equipment cannot therefore be taken in isolation without considering the effect on other elements of the asset grouping.

8.2 Maintenance Strategy

8.2.1 The aim of our strategy is to maintain and operate the traffic control equipment to a safe and efficient standard, optimising the capacity of the network, minimising traffic congestion and ensuring that the benefits gained from the recent significant investments continue to be realised. There are also other Intelligent Transport Systems that form a key role in the strategy, such as the Traffic Information Service and associated databases, Car Park Signing System and Traffic and Travel Websites. All of these systems will need to be upgraded as advances and developments in systems and technology take place. This particularly applies to the renewal of computer software and hardware.

Similarly the Traffic Control System is supported by a communication network that, whilst needs to be maintained, also needs to be updated to reflect new initiatives around the developments in digital communications, which should produce reductions in ongoing revenue commitments. This also applies to the CCTV system which is a vital component in using the Traffic Control System to manage the network.

The strategy involves using latest signal equipment will be a combination of Extra Low Voltage (ELV) and Light Emitting Diodes (LED) signals which will reduce electricity consumption and in turn help to reduce CO2 emissions.

8.2.2 The main aims of our maintenance strategy are:

- For traffic signals - the number of installations over 20 years old is reduced during the next five years.
- Safety critical street equipment is renewed or replaced before the safety of the travelling public is compromised.
- The control and monitoring systems (including software and hardware) within the Urban Traffic Control Centre are maintained with up to date revisions and technological developments.
- Non-safety critical equipment is renewed before it deteriorates beyond economic maintenance.

8.2.3 Our proposed renewal programme is based on the replacement of those sites which will become life-expired or which develop an excessive fault rate during the period. The indicator and target for installation condition are under development and will include an analysis of the fault history and maintenance records for all older installations. The strategy involves a renewal programme that will be achieved as part of the Integrated Transport and Capital Maintenance programmes and developer funded schemes.

8.3 Inventory ***Recording of Information and Information Systems***

8.3.1 Detailed data on the numbers and types of equipment are stored electronically on a series of spreadsheets or databases listed below. Each of these is stored on the Authority's network server. A rigorous backup regime is in place and electronic copies are also kept at a different location.

There are 356 installations in the City, including junctions, pelican, puffin, pedestrian and toucan crossings. These contribute to the overall management of traffic and congestion reduction. Over the past 5 years 66 installations have been replaced, approximately 70% of which were capital funded.

Lifetime of installations is 15 years. There are still 69 installations in the City which are 15 or more years old and the table below shows the age profile of installations.

Age of Installation	21 years	20 years	19 years	18 years	17 years	16 years	15 years
No of Installations	6	6	10	11	7	19	10

8.3.2 Data is held for the following main components of this asset grouping.

‘Signals’ - All on street traffic signal equipment

‘Signs’ - All Star-Trak, variable message and other signs

‘Comms’ - All data transmission lines (cross-referenced to ‘Signals’)

‘Count’ - All traffic monitoring sites

‘Cameras’ - All CCTV cameras

‘Miscellaneous’ – All other street equipment including automatic bollards

Systems’ - Details of the many separate systems are held in individual spreadsheets. A consolidated version is to be developed during 2011/12

Improvement action: “To develop the consolidated version of Systems inventory.”

A further database exists of all faults reports and clearances.

8.3.3 A Traffic Information Systems Database upgrade has been commissioned and an Asset Management module will be installed and populated with traffic signals data during the 2010/11. This database is to be a component of ‘Comet’, the Urban Traffic Control System front-end software. Considerable work has been carried out to ensure that only verified and correct data will be input into the new database.

Improvement action: “To complete implementation of the new asset management database.”

8.3.4 A hard copy file is kept at the Control Centre of each signal installation. This includes the controller specification, site installation/cable layout drawings and other site-specific information. The Council’s maintenance contractor holds the electronic version of the controller specification.

8.3.5 An annual inspection regime is set up that also includes a requirement to confirm the relevant data sets so the reliability of the signals data is therefore high. However, the process of compiling this TAMP has identified that a number of data sets are either superseded or un-necessary and these have been deleted. All annual inspection sheets are stored for seven years. Annual inspection sheets dated pre-July 2010 are stored in hard copy form at the control centre with the maintenance contractor holding a duplicate set. Since

July 2010 annual inspection sheets are stored electronically at the control centre with the maintenance contractor holding a duplicate set.

- 8.3.6 Table 8.1 gives a summary of the levels of confidence in the data held (Level of confidence is classed 1 to 10 with 10 being high confidence):

Table 8.1 Inventory Data – Levels of Confidence (1 to 10 high figure is high confidence)	
Asset Inventory Grouping	Level of Confidence
Traffic Signals Data	9
Count Site Data	5
SCOOT Data	7
Pollution Monitor Data	10
Miscellaneous Equipment Data	9
Signs Data	10
Real Time Bus Information Signs	9
CCTV Data	10

Inventory – assets by type

- 8.3.7 Tables 8.2, 8.3 and 8.4 below detail the main components of this asset grouping.

Table 8.2 Traffic Signal Assets by type (Jan 2011)					
Installation Type and Numbers					
Junctions	Pelicans (single/double)	Puffins (single/double)	Toucans (single/double)	<u>Other</u>	Total
161	125	0	69	0	355

Table 8.3 Other Main Street Assets by type (Jan 2011)	
Installation Type and Numbers	
CCTV Cameras	129
Pollution Monitor Sites	10
Fixed Volumetric Vehicle Count Sites (flows)	132
Fixed Classified Vehicle Count Sites (flows)	11
RTPI signs	236
Variable Message signs	26
Meteorological Stations	1
Car Park Occupancy Equipment	4
Fixed Speed Sites	8
Red Light Running Sites	9
Terminal Management System Signs (Bus Stn)	24
Automatic Rising Bollards	10
Flood scheme variable message signs	4
Flood scheme graphs	2
Flood scheme remote monitoring system station	1

Table 8.4 Control Centre ITS Assets (Jan 2011)	
NOTE – The systems capability of the Control Centre is extensive. It is not possible to list, categorise and explain each of the systems and sub-systems uses.	
System Name	(Nos.)
UTC system	1
Remote Monitoring Systems	2
Siespace	1
COMET	1
Fault Management System,	1
Star Trak system	1
Traffic Information System	1
Airviro/Airweb	2
CCTV	3
UTMC Common Database Website Adaptor	1
Vehicle Counting Systems	4
Data Communication Systems	7
Terminal Management System	1
TSS Web Sites	2
Instrumented City Delivery System	1

8.4 Current Asset Condition

8.4.1 There are no statutory indicators identifying the condition of traffic signals, pedestrian and cycle crossings and associated equipment but the statutory indicator BVPI 165 is a measure of the percentage of pedestrian crossings with facilities for disabled people. This is reported in the Leicester’s Local Transport Plan 2011 – 2026.

8.4.2 In determining whether a set of traffic signals requires replacement, the main parameter used is age, though the fault history is inspected. It is recognised that other considerations may affect their continued safe working. Whilst it is recognised that the comparatively short life of traffic signals ensures that there is not generally an age related safety issue from dangerous equipment, it is proposed to develop a Condition Inspection Regime and determine a condition indicator score for each installation including controller, poles and cabling that will more accurately determine the replacement programme and this will require an extension to the existing inspection regime.

Improvement action: “To develop a Condition Inspection Regime including controller, poles and cabling as an extension to the existing inspection regime.”

Improvement action: “To determine a Condition Indicator Rating for each installation and a traffic signal stock condition index.”

8.4.3 Chart 8.1 shows the current age profile of traffic signals and shows the peaks and troughs of installations arising from transport improvement schemes. Such capital investments have not historically been accompanied by an increase in

the maintenance revenue budget. Recent transport improvement and safety schemes have included a number of signal renewals. The recommend design life of signals is 15 years. Taking into account the total funding for all highway assets, technical resources available to carry out renewals and the need to minimise disruption to traffic, our aim is to achieve no signals being older than 20 years, subject to the Condition Indicator Rating, by 2020.

Chart 8.1 Age Profile of Traffic Signals

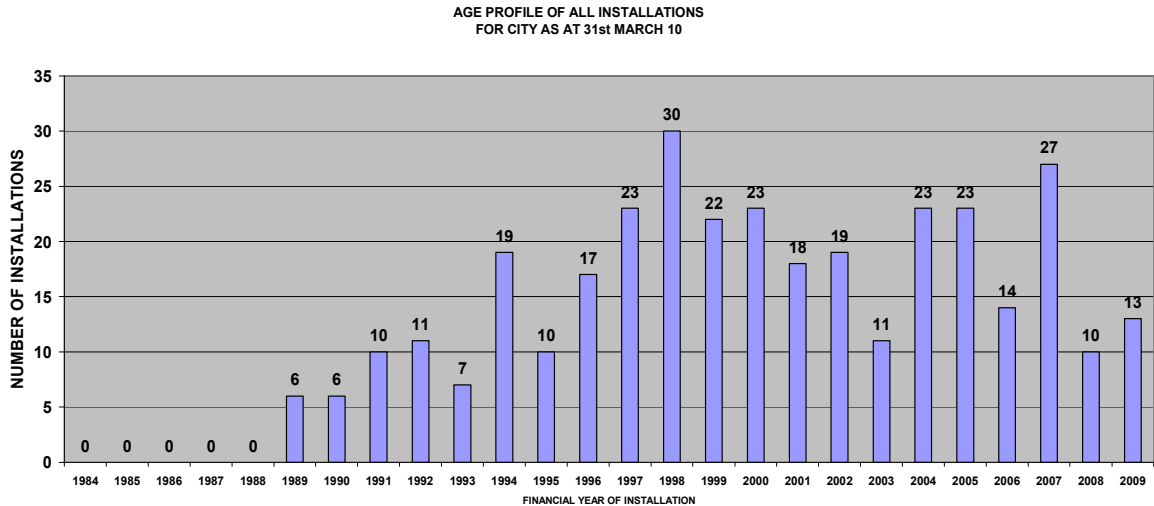


Table 8.5 Annual cost of required replacements by age profile

		Accepted maximum age (years)					
		15 years	16 years	17 years	18 years	19 years	20 years
Number of sites over age as at	01/04/2011	10	19	7	11	10	6
Number of sites over age as at	01/04/2012	27	10	19	7	11	10
Number of sites over age as at	01/04/2013	50	27	10	19	7	11
Number of sites over age as at	01/04/2014	80	50	27	10	19	7
Number of sites over age as at	01/04/2015	102	80	50	27	10	19
Number of sites over age as at	01/04/2016	125	102	80	50	27	10
Number of sites over age as at	01/04/2017	143	125	102	80	50	27
Number of sites over age as at	01/04/2018	162	143	125	102	80	50
Number of sites over age as at	01/04/2019	173	162	143	125	102	80
Number of sites over age as at	01/04/2020	196	173	162	143	125	102
Ave no. required per year up to 2020		20	17	16	14	12	10
Annual cost at (say) £25k per replacement		£500,000	£425,000	£400,000	£350,000	£300,000	£250,000

Vehicle Monitoring Sites

8.4.4 We have 110 permanent automatic volumetric vehicle flow sites which provide traffic data. Many of them are up to 30 years old and are in urgent need of renewal to maintain the accuracy and supply of data. There is currently no funding identified for their replacement. To update these with modern and accurate equipment to provide data will require at least 20 sites per year being replaced. During the next 12 months we will conduct a Data Monitoring Review, re-asses the existing site locations (to ensure they are still valid) and examine any other sites that are needed. This re-assessment will include a complete overview of what data, both historic and real-time, is required by the Authority and how best this can be acquired. Additionally, 18 classified count sites were

installed in 2004. The lifespan of these is expected to be 10 years but it assumed that some at least will need renewal by 2011. At this stage this has been estimated as around 4 or 5. Volumetric vehicle counts are increasingly being derived from the SCOOT UTC system. This involves no additional on street equipment, thus minimising equipment costs, and even allows for the de-commissioning of existing equipment. In addition, traffic data is increasingly being provided by the Department for Transport for monitoring progress of implementing our Congestion Strategy as part of monitoring the effectiveness of the Leicester's Local Transport Plan.

Improvement action: “To determine what traffic count data is required to help optimise the capacity of the highway network using the Urban Traffic Control systems and what is required to monitor the Central Leicestershire Local Transport Plan and then to determine the assets required and appropriate replacement/ acquisition/disposal programme.”

8.4.5 **Meteorological Station and Roadside Pollution Monitors**

The Meteorological Station used to provide data for air quality modelling is in good condition. The 8 Leicester City Council owned roadside pollution monitors were renewed during 2006 and hence are in good condition and are all currently operating effectively. Since its installation in 1995 the Met Mast receives an annual visit for calibration and maintenance of the equipment. Data from the analysers is checked daily and fortnightly calibrations of the equipment are carried out by LCC employees. The analysers are also serviced two times a year by Enviro Technology (service contractor). This service contract includes a 5-day response period to identify and remedy site faults/malfunctions.

CCTV

8.4.6 There are now 129 CCTV cameras installed within the City boundary, approximately 21 of which are 15 years or older.

Star Trak and Terminal Management System Signs

8.4.7 We are in the process of de-commissioning Star Trak as its life has expired and we are investigating replacement new system.

Variable Message Signs

8.4.8 As with Star Trak signs, Variable Message signs are on a long lead time and replacement before complete failure is a necessity. A precautionary replacement of 10% of the whole has been included as an estimate.

8.5 Asset Valuation

8.5.1 The drivers for asset valuation are discussed in Chapter 13. An initial asset valuation has been undertaken. This has to be developed further including calculations of depreciated values. Currently the figures are based on known gross replacement costs (ie for equipment) or a standard rate (for say, ducting). It is proposed to update this during 2011/12. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the 'Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting' published by CIPFA in 2010) for Highway Infrastructure Asset Valuation along with the appropriate depreciation methodology. See Chapter 13 for further information.

8.6 Asset Lifecycle Options and Asset Life

8.6.1 Creation/Acquisition

8.6.1.1 For this asset grouping, creation or acquisition of assets arises through improvement projects implementing the Council's transport strategy and private sector led new developments that include new highway infrastructure. For forward works programmes please refer to chapter 14.

8.6.2 Routine Maintenance

8.6.2.1 Routine maintenance is the regular ongoing day-to-day work that is necessary to keep the assets operating. In terms of traffic signals it is largely governed and covered by the Design Manual for Roads and Bridges (TD 24 - All Purpose Roads Inspection and Maintenance of Traffic Signals and Associated Equipment). It includes planned and reactive maintenance. Planned maintenance includes activities such as condition inspections and safety inspections and planned preventative maintenance such as grass cutting. Reactive maintenance relates to corrective maintenance to put right minor failures that pose a health and safety hazard, responding to inspections, complaints and emergencies. Leicester's routine maintenance arrangements are described in the following paragraphs.

Condition and Safety Inspections – traffic signals

8.6.2.2 All street equipment is subject to an annual inspection for both physical condition and to ensure timings are set correctly.

Planned Preventative Maintenance – traffic signals

8.6.2.3 Planned preventative maintenance to traffic signal installations are covered by maintenance agreements that ensure appropriate attendance and repair should a fault occur plus at least one preventative maintenance visit per annum. Any remedial work identified is either carried out at the time or referred back if it is outside the contract. The costs of such contracts are in direct proportion to equipment types and numbers and the required fault response times.

8.6.2.4 In-station equipment is also mostly covered by maintenance agreements though such systems have the added costs of more regular hardware upgrades and software licenses. Software costs have been mostly ignored in the projected costs

Reactive Maintenance

8.6.2.5 Reactive maintenance to traffic signals consists of responding to 'one-off' maintenance requirements (which is often customer driven) and emergency responses where work is not costed prior to instruction. Traffic Signal faults are categorised as 'Urgent', 'Non-Urgent' or 'Lamp'. The type of fault will trigger an appropriate response time depending on the safety implication. The engineer attending the fault is required to check for any other unreported faults thereby encouraging multiple repairs and preventing return visits.

Routine Maintenance Standards

8.6.2.6 The routine maintenance standards for this asset grouping are provided in Table 8.6

Table 8.6 Routine Maintenance Service Standards – safety critical services		
Activity Type	Activity	Service Standard
Preventative	Maintenance	Bulk replacement of traffic signal lamps and clean 6 monthly
Condition Monitoring	Condition inspections	Annual
	Emergency repairs – traffic signal faults	Attendance within 4 hours. Repair within further 4 hours.
	Repair of communication lines	Next day
	Restoration of electricity supply (see Note 1)	24 Hours
	Repair following accident damage	Same or following day dependant on extent of damage

Note 1 The restoration of electricity supplies is often not within the control of the authority but is encouraged by having a good working relationship with the Supplier.

Note 2 The earth loop impedance check is not currently carried out in accordance with TD 24/97 as carrying out this work entails switching the signals off for some time. Given the current replacement programme this has a higher risk factor than not carrying out the tests, which themselves stresses the connections and potentially inducing more faults than were previously present.

8.6.3 Renewal/Replacement

8.6.3.1 Renewal or replacement work restores the highway asset to its “as new” capacity and condition. For the purpose of preparing the replacement programme the assets are grouped as discussed in the following paragraphs, which detail the requirements to be considered in developing the replacement programme which itself is part of the forward works programme in the longer term.

**Group 1 - In-station Equipment
Urban Traffic Control Systems**

8.6.3.2 The Urban Traffic Control SCOOT computerised system was replaced with PC SCOOT in 2009/10. The funding of this replacement came from the Local Transport Plan capital programme.

CCTV

8.6.3.3 A new digital in-station system (Mosaic) was installed in 2007/2008 operating on its own discrete network (funded from Community Safety and the Chamber of Commerce). However, the old analogue CCTV in-station system which is

becoming obsolete and non-maintainable, is still required to be maintained in order to continue running legacy systems.

Group 2 - Communication Equipment

8.6.3.4 Of the almost 400 Outstation Transmission Units (OTU's and OMU's) in service that connect street equipment to the Urban Traffic Control system, at least 100 will require replacement through obsolescence by 2011. The costs for the in-station transmission units are included in the Urban Traffic Control system. BT transmission lines are considered an asset. However, their impact is felt through the rental in revenue costs rather than any replacement value. All BT lines have been included in the traffic signals entry, whatever system they are nominally allocated to, as many lines are shared between systems.

8.6.3.5 The provision of analogue transmission lines is becoming increasingly problematical and costly as BT seeks to reduce its analogue portfolio. An entirely different solution to real time communications for the Urban Traffic Control System is currently being investigated (January 2011). This may be a high cost problem that cannot be budgeted for until the requirements and specification of digital lines for the next generation of systems become known.

Group 3 - Outstation Equipment

Traffic Signals

8.6.3.6 Traffic Signal controllers have a recommended lifespan of 15 years (DfT Traffic Advice Note TA 84/01), though TR2206 (Specification for road traffic signals) states "the equipment manufactured to this specification shall have a minimum design life of 10 years with suitable maintenance without degradation". The recommendations for signal maintenance and upgrading also mirror those of the TCUG (Traffic Control User Group) and the CSS (County Surveyors Society). There is evidence that controllers will function for longer than this but then suffer a series of major failures. In addition to the disruption that such incidents cause, failing to adhere to the 15-year recommendation may result in claims against the Authority if an accident occurs. Underground cables may last longer than the controller but newer controllers are more susceptible to changes in cable characteristics. Poles, heads and controllers may last 15 years.

8.6.3.7 In determining whether a set of traffic signals requires replacement, the main parameter used is age, though the fault history is inspected. Whilst it is recognised that the comparatively short life of traffic signals ensures that there is not generally an age related safety issue from dangerous equipment, it is proposed to develop Condition Inspection Regime for each installation including controller, poles and cabling that will more accurately determine the replacement programme and this will require an extension to the existing inspection regime (see 8.4.2).

8.6.3.8 The parameters (weighting to be determined) for developing the replacement program are expected to be:

- Age
- Fault History

- Equipment Condition
- Cable Condition
- Suitability of new technologies

Improvement action: “To develop parameters to be used in determining a prioritised traffic signal replacement programme.”

CCTV, Star Trak and Variable Message Signs

8.6.3.9 There are now 129 CCTV cameras installed within the City boundary. Of these approximately 21 are currently over 15 years of age. A replacement programme is to be drawn up identifying a prioritisation regime.

Improvement action: to prepare a replacement programme

8.6.4 Upgrading

8.6.4.1 For this asset grouping, upgrading or improvement beyond the existing asset condition can be achieved as part of transport improvement projects and new developments where agreements with developers include the developer funding system improvements on the highway adjacent to the new development. Upgrading (as distinct from replacement) is carried out on a regular basis through a number of work programs:

- Increasing the number of SCOOT nodes and Regions thereby improving the traffic flow by best use of the systems installed.
- Continual re-validation of SCOOT regions ensuring the model is kept up to date.
- Installing additional pedestrian/cycle/bus facilities at junctions that previously had none.
- Upgrading existing pedestrian facilities to comply with BVPI 165 (facilities for the disabled at traffic signals).
- Updating the systems software when a new version becomes available
- Changing non-UTC sites to the MOVA control allowing greater flexibility and control.

8.6.5 Disposal

8.6.5.1 Disposal occurs when equipment is removed or decommissioned by sale, demolition or relocation. Removal of signals will normally only occur as a result of other safety or engineering works. All removed equipment is assessed for re-use or re-cycling. This mainly refers to serviceable electrical equipment that can be re-installed elsewhere or used for spares. Re-cycling of signal heads is problematical due to the prohibitive cost of separating the variety of plastics used.

8.6.5.2 The removal of traffic signals, especially with pedestrian facilities, is rare due to safety or political constraints but may occur when pedestrian facilities are subsumed into a signalised junction or roundabout. There are no traffic signal sites currently earmarked for disposal.

8.7 Performance Gaps

8.7.1 The performance gaps for this asset grouping, at this stage, are the areas identified for improvement actions. These improvement actions have been collated at the end of this chapter.

8.8 Optimisation and Maintenance Budget Considerations

8.8.1 In 2000/2001 the budget allocated for equipment renewals was £218,600. Subsequently as part of the annual process of revenue budget reviews, the traffic signals renewal budget was reduced to meet the corporate departmental savings requirement. From this date to 2005/06 funding levels available for equipment renewals were reduced to £30k p.a. although some funding was available through the LTP Integrated Transport Programme for improvement schemes. In 2005/06/07/08/09/10 £150,000 per year Capital Maintenance monies has been made available for traffic signal replacements which is now facilitating long term planning. During 2010/11, only £30k was made available. An approximate amount of £310k will be required every year for the next 4 year period from 2011-15 for signal maintenance. However an indicative amount of £320k for 2011/12 and £270K for 2012/13 has been allocated from the Capital Maintenance budget for traffic signal renewals.

8.8.2 In any given year almost 95% of the signals and system revenue budget is non-elective, being bound up in maintenance, transmission or other contracts. There is therefore very little freedom to target obsolete equipment or systems through the normal revenue streams.

8.9 Risk Management

8.9.1 Risk management is carried out using the Leicester City Council specific Risk Management Toolkit as explained in section 3.9. The risk assessment exercise for this asset grouping is carried out annually and following a significant event. The risk register is included in Appendix A.

8.10 Forward Works Programme

8.10.1 The forward works programme consists of new or upgraded installations as part of transport improvement schemes and the replacement programmes described in section 8.6. Please refer to Chapter 14 for the forward works programmes.

8.11 Service Delivery Service Delivery Arrangements

8.11.1 The Transport Systems Group is responsible for the management and maintenance of assets in this asset grouping. The maintenance of traffic signals is through the Traffic Signal Maintenance Contract. The next Traffic Signal Maintenance Contract is in preparation and is designed to encourage the contractor to produce year-on-year reductions in both the number of faults and the response to them by the introduction of Performance Payments.

Improvement action: “To prepare new Traffic Signal Maintenance Contract.”

8.11.2 Secure long term operations/maintenance contracts are in place for the other main areas of work:

- Systems – UTC, CCTV, Star Trak, Variable Message Signs
- Software – With supplier
- Communications – BT and O2

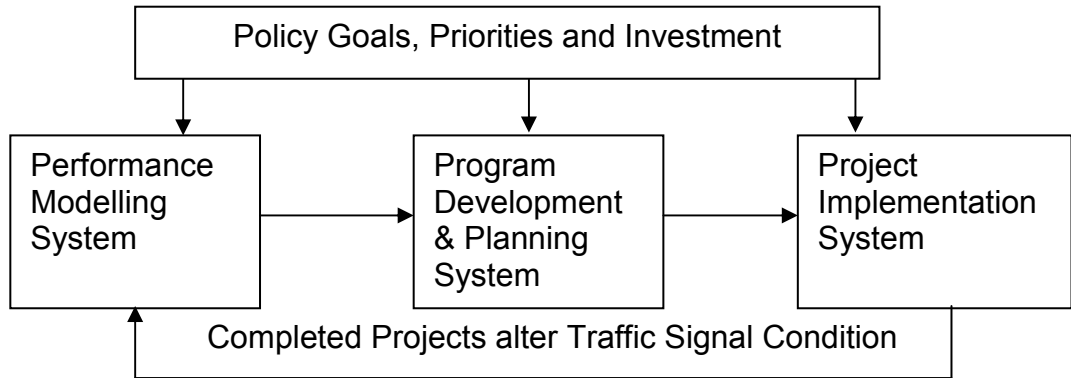
Service Delivery Locations

8.11.3 The Transport Systems Group is located at the Urban Traffic Control Centre in York House, off Granby Street. The maintenance contractors are East Midlands based.

8.12 Asset Management Practices

8.12.1 Our traffic systems management process essentially comprises of modelling, programme development and planning, and implementation. The process ensures that goals and objectives are fulfilled and that condition changes are recorded. This process is outlined in Figure 8.1 below.

Figure 8.1 Traffic Systems Management Flow Chart



8.12.2 The Performance Modelling System in the main involves the Transport Strategy and Traffic Management Sections and essentially incorporates the following activities.

- Receiving guidelines
- Interpreting the guidelines and drafting relevant strategies
- Arranging for the condition surveys
- Interpreting the condition data and drafting forward works programmes
- Ensuring that all high level objectives are achieved

8.12.3 The Programme Development & Planning System in the main involves Transport Strategy, Design & Project Management, Traffic management Sections, and essentially incorporates the following activities.

- Receiving works briefs
- Develop works programmes
- Undertake options study

8.12.4 The Project Implementation System in the main involves Highways Maintenance, Design & Project Management and Traffic Management Sections, and essentially incorporates the following activities.

- Design the works
- Deliver agreed works programmes

8.13 Service Level Performance Monitoring

8.13.1 Levels of service monitoring are explained in section 2.9. In addition to the level of service monitoring we will use an “operational level” suite of indicators to help us manage performance in striving to achieve the desired levels of service. This suite will be expanded, as appropriate, as we develop our asset management approach. The current indicators and targets we use for this asset grouping are provided in Table 8.7

Table 8.7 Traffic Signals Operational Performance Indicators					
PI Ref	Description	11/12	12/13	13/14	14/15
Serviceability					
TAMP TS1	Traffic Signal Stock Condition Index	tbe	tbe	tbe	tbe
Safety					
TAMP TS 2	Percentage condition inspections completed on time	100%	100%	100%	100%
TAMP TS 3	Percentage Category 1 defects repaired on time	100%	100%	100%	100%
Sustainability					
TAMP TS 4	Annual reactive maintenance expenditure as a percentage of planned maintenance	tbe	tbe	tbe	tbe
Customer Service					
TAMP TS 5	Percentage of complaints and requests for service responded to within 10 days	85%	90%	90%	90%
TAMP TS 6	Percentage New Roads & Streetworks Act Notices responded to on time	100%	100%	100%	100%

8.14 Improvement Plan

8.14.1 Improvement actions identified for this asset grouping have been collated into Table 8.8

Table 8.8 Traffic Signals & Associated Equipment Improvement Actions					
Para Ref	Improvement Action	Priority	Lead	Target Date	Est. Cost
8.3.2	To developed consolidated version of Systems inventory	3	SP	June 2011	Staff time
8.3.3	To complete implementation of the new asset management database	2	SP	June 2011	Staff time
8.4.2a	To develop a Condition Inspection Regime including controller, poles and cabling	1	SP	Dec 2011	£1k

	as an extension to the existing inspection regime				
8.4.2b	To determine a condition indicator score for each installation and a traffic signal stock condition index	1	SP	Dec 2011	Tbe
8.4.4	To determine traffic count data required to optimise capacity of the highway network using the Urban Traffic Control systems and what is required to monitor the Central Leicestershire Local Transport Plan and then to determine assets required and appropriate replacement programme.	1	SP/ GS	Dec 2011	Staff time
8.6.3.8	To develop parameters to be used in determining a prioritised traffic signal replacement programme	2	SP	Dec 2011	Staff time
8.11.1	To prepare new Traffic Signal Maintenance Contract	2	SP	Aug 2011	Staff time

Chapter 9 - Trees and Landscaping Lifecycle Management Plan

9.1 Introduction

9.1.1 The trees and landscaping asset grouping includes street trees and shrub borders, grass and landscaped verges (the last three referred to as “soft” verges). Trees and landscaping contributes to the Council’s objective of ‘Improve our environment to make local neighbourhoods and the city centre places for people to be proud of’. In addition the grouping contributes to the Local Transport Plan over arching objective of “To improve the quality of life for all.”

9.1.2 Maintenance of the tree population enhances amenity and imparts benefits such as visual enhancement of the landscape, boundary demarcation and the provision of shelter and screening. Wider benefits of contributing to biodiversity, reducing the speed of run off during periods of heavy rain and helping address climate change by absorbing carbon dioxide and giving out oxygen are derived from our trees. Unfortunately, street trees do cause some level of inconvenience due to leaf fall, root growth in footways and occasional damage to buildings.



Highway trees can add colour in the urban environment on St Margaret’s Way (A6), a key route into Leicester

9.1.3 Grass verges and areas are a particular problem in an urban area due to the parking of vehicles on them and the subsequent damage. The Council’s policy is to replace grass verges, subject to funding available, with permeable verge hardening if a verge is very badly damaged and constitutes a safety and

environmental problem. Similarly, grassed areas will be permeably surfaced if there is insufficient parking area available and funding is available.

9.2 Maintenance Strategy including Policy

9.2.1 The aim of the maintenance strategy is to maintain the trees stock in good condition and replace with appropriate species where necessary. This is complimentary to the Council's Eco Management Audit System (EMAS) commitment to sustain the trees and landscaping resource.

9.2.2 Our maintenance strategy for trees and landscaping consists of default observations by our highway inspectors as part of the highway safety inspections, described in Chapter 4 (routine maintenance section), inspections by Trees and Woodlands Officers who carry out an arboricultural inspection on a cyclical basis, with time periods between each inspection dependant on traffic and public use volumes found on each site. Routine maintenance involves pruning or removal to deal with trees that are causing a problem or that display signs of ill health.

Street Tree Policy

9.2.3 Our street tree policy covering installation, management, removal and replacement of street trees is included in the Leicester City Council Tree Policy which is included in Appendix B3.

9.3 Inventory Trees

9.3.1 There are approximately 21,000 trees planted in footways and verges. The trees inventory data is held on a database called 'EZYTREEV' held at the Trees & Woodlands Section offices at 90 Leycroft Road. The system records detailed information on individual trees, including work needs. The database allows a considerable number of classifications to be expressed. For example, location, ward area, size, species, age range and condition and amenity value based on the CAVAT system of tree valuation.

9.3.2 An Excel Spreadsheet is used to store and manage work programmes and related financial information. A further database within the EZYTREEV programme is used to manage individual enquiries and requests relating to the asset.

9.3.3 The inventory data was checked during the 2005/2006 annual inspection and so there is high level of confidence in this data. Of 21,000 trees 19,579 have been inspected at 519 different streets. It is estimated there are now less than 100 streets with trees within the city database about which detailed information on the trees has yet to be fully recorded, this is due to the low incidence of problems arising at these sites. It can be stated with confidence that the number of unrecorded highway trees is less than 5% of the total, possibly as low as 2%.

Landscaping

- 9.3.4 The total area of highway soft verge is 166 hectares. Inventory data is held on the 'Down to Earth' Database. This holds site details records and is used as a financial management and works programming tool.
- 9.3.5 Of the 166 hectares of soft landscaping, 153 hectares are classified as grass, while the remaining 13 hectares as shrub border. These classifications contain a number of feature elements. Some examples are meadow, amenity grass of various categories, annual bedding and rose beds.

9.4 Current Asset Condition *Trees and Landscaping*

- 9.4.1 There are no statutory indicators identifying the condition of trees and landscaped areas. For trees condition might be taken to mean the general health of the tree stock. For Leicester we can describe our tree stock condition as overwhelmingly fair to good. As the general maintenance criteria stated in the Landscaping Joint Service Agreement are being met the landscaping asset is considered to be in good condition.

9.5 Asset Valuation

- 9.5.1 The drivers for asset valuation are discussed in Chapter 13. The gross replacement cost of this asset group is not available yet. The baseline valuation for this asset grouping will be undertaken during the financial year 2011/2012. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the 'Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting' published by CIPFA in 2010 for Highway Infrastructure Asset Valuation along with the appropriate depreciation methodology. See Chapter 13 for further information.

9.6 Asset Lifecycle Options and Asset Life

9.6.1 *Creation/Acquisition*

- 9.6.1.1 For this asset grouping, creation or acquisition of assets arises through improvement projects implementing the Council's transport strategy and private sector led new developments that include new highway infrastructure. Forward works programmes of schemes that may lead to creation and acquisitions of this asset grouping are included in Implementation Plan.

9.6.2 *Routine Maintenance*

- 9.6.2.1 Routine maintenance is the regular ongoing day-to-day work that is necessary to keep the assets operating. This includes planned and reactive maintenance. Planned maintenance includes activities such as condition inspections and safety inspections and planned preventative maintenance such as grass cutting, and risk reduction tree pruning such as pollarding. Reactive maintenance relates to corrective maintenance to put right minor failures, such as broken branches that pose a health and safety hazard, responding to inspections, complaints and emergencies. Leicester's routine maintenance arrangements are described in the following paragraphs.

Condition Inspections – trees and landscaping

9.6.2.2 The Council recognises that knowing about the condition of its tree stock is key to resolving the conflicts and problems the resource can cause. It is also key to its ability to manage trees in accordance with other policy objectives. This former point is reinforced by the outcome of case law in particular. The implication is that trees require periodic inspection by a competent person.

9.6.2.3 The need however for inspection that is frequent enough to allow for timely identification of problems can be balanced against the nature of a site, in particular against degree of risk posed to individuals and property that exists at a site. Hence, our inspection cycles are aimed at trees growing on adopted highway, every 3 to 4 years being our current standard. We will however review this standard in the light of budget reductions and climate change implications

Improvement action: “To review frequency of arboricultural inspections in the light of budget reductions and climate change implications.”

9.6.2.4 The condition of landscaping is regularly monitored to check if maintenance is required. We will however review this standard in the light of budget reductions and climate change implications

Improvement action: “To review frequency of landscaping inspections in the light of budget reductions and climate change implications.”

Safety Inspections – trees and landscaping

9.6.2.5 Safety inspections are undertaken as part of the condition inspections. In addition, any obvious safety problems will be identified by highway inspectors as part of the footway safety inspections and reported to the tree maintenance provider. Soft verges are inspected as part of the footway inspections.

Planned Preventative Maintenance – trees

9.6.2.6 Planned preventative maintenance to trees consists of cyclical general maintenance at specified roads (cycle periods range from 3 to 8 years) and annual pedestrian route clearance. At the present trees at 316 streets are subject to cyclical general maintenance. This list is constantly being extended. The list has arisen through a need to respond to problems that are known to occur at regular intervals. Typically £88,000 (based on 1/3rd of available annual tree budget) is allocated to this programme although the level of planned maintenance work varies each year.

9.6.2.7 All highway trees are subject to a periodic need for pruning to clear pedestrian routes. Some specimens, such as mature lime, require pruning every year. A specimen programme termed ‘lifting and suckering’ is set up for this operation. This programme costs £58,500 per annum.

Planned Preventative Maintenance – landscaping (use low growth natural species wild flower meadow)

9.6.2.8 To facilitate maintenance management of soft verges the areas of verges have been collated into five management areas of highway grass verge and five management areas of shrubs verges. Typically, £470,500 in total is allocated to maintaining these areas each year. Maintenance specifications for the various types of grass verge and shrubs areas have been developed over several

years and consultation exercises. These are summarised in Table. 9.1 During the preparation of this TAMP we have identified the need to review the specifications due to budget reductions.

Improvement action: “To review the landscaping maintenance specifications following budget reductions”

Table 9.1 Landscape Maintenance Specification Types.		
Site	Description	Specification Ref.
Highways grass	Herbaceous/grass bed – A	290
	Amenity grass (E)	700
	Amenity grass (F)	710
	Amenity grass (G)	740
	Amenity grass (H)	760
	Ornamental grass - B	860
	Ornamental grass (D)	900
	Meadows - A	960
	Litter general - C	1140
	Highways shrubs	Annual bedding – A
Herbaceous borders - A		280
Ornamental shrub beds - A		300
Ornamental shrub beds - C		340
Rose beds - B		380
Rose beds - C		400
Amenity shrub beds - A		420
Amenity shrub beds - B		440
Amenity shrub beds - C		460
Hedgerow - A side & top		1020
Hedgerow - A sides & top		1030
Ornamental hedge - A		1040
Footpath Hedge- A		1050
Live interior planter - A		1260
Paths, hard surfaces - B		1440

Reactive Maintenance

9.6.2.9 Reactive maintenance to trees consists of responding to ‘one-off’ maintenance requirements which is often customer driven and emergency responses where work is not costed prior to instruction. For example, there is a need to quickly clear damage caused arising from road traffic accidents. Around £23,000 is allocated for responding to ‘one-off’ requests and site maintenance issues. Emergency work typically costs £35,000 per annum. This reserve is set a side at the start of each financial year. The reserve also supports emergency responses made “out of hours”. Occasionally severe storms put pressure on this allocation, causing overspends.

Routine Maintenance Standards

9.6.2.10 The routine maintenance standards for trees are provided in Table 9.2

Activity Type	Activity	Service Standard
Preventative	Maintenance	To Specification
Condition Monitoring	Safety Observations	As detailed in the Footway inspection regime – see Chapter 4
	Arboricultural inspection	Once every 3-5 years – in highway Once every 3-5 years – in public space
Reactive	Emergency repairs	Non specified, responsive, 24 hour cover
	Ad hoc Inspections	Non specified, responsive, 10 days response time for customer requests

9.6.2.11 The routine maintenance standards for landscaping are provided in Table 9.3

Activity Type	Activity	Service Standard
Preventative	Maintenance	To Specification appropriate for area
Condition Monitoring	Default Safety observations, Regular monitoring	As detailed in the Footway inspection regime – see Chapter 4 Regular Monitoring
	Overhanging shrubs, long grass	Non specified, condition and judgment based
Enforcement	Enforcement action	As identified through safety and ad-hoc inspections
Reactive	Emergency repairs	Non specified, responsive
	Ad hoc Inspections	Non specified, responsive

9.6.3 *Renewal/Replacement*

9.6.3.1 Renewal or replacement work restores the highway asset to its “as new” capacity and condition. Through EMAS the Council has the objective of at least sustaining its stock of street trees. This means maintaining tree numbers and/or area of land given over to trees by compensatory replacement although this may not be at the location of the removed trees. In some cases it may be possible to increase tree numbers at a particular location which will compensate losses not made good previously. Replacement trees will be suitable for use in highways and not necessary “like for like” as many existing trees are not suitable highway trees. Renewal work to soft verges will only be undertaken in exceptional circumstances.

9.6.4 *Upgrading*

9.6.4.1 For this asset grouping, upgrading or improvement beyond the existing asset condition can be achieved as part of new developments where agreements with developers include the developer improving trees and landscaping on the highway adjacent to the new development.

9.6.5 *Disposal*

9.6.5.1 Disposals of trees and soft verges are generally consequential to the decisions to improve the transport network through the works programmes. Trees in poor health are removed. Our Trees Policy states that where it is necessary to

remove trees they are quickly replaced by planting in nearby streets or parks where possible.

9.7 Performance Gaps

9.7.1 The performance gaps for this asset grouping are the areas identified for improvement actions. These improvement actions have been collated at the end of this chapter.

9.8 Optimisation and Maintenance Budget Considerations

9.8.1 Historically assessment of the condition of the assets and demands placed on it are not considered in establishing the budgets. The process for establishing budgetary needs is based upon the historical precedence, with an allowance for the inflation. This has worked satisfactorily in the past, as the trees and landscaping items do not require expensive maintenance actions. At the present there is an informal process for ranking tree works, based on the condition or the demand on a low, medium or high priority basis for this asset grouping. Currently the majority of the work is done on an annual planned basis with an element of reactive maintenance, this is likely to change to a majority element of reactive work over planned maintenance work.

Tree Management Service

9.8.2 The total cost provided to manage the highway tree resource is currently running at about £300,000 per annum, where £235,000 is supported by the highways authority. This figure is in the order of £150,000 less than the required amount.

Landscaping Management Service

9.8.3 The estimated total cost of the scheduled landscaping maintenance (including soft highway verge area) during the year 2010/2011 is £470,500.

9.9 Risk Management

9.9.1 Risk management is carried out using the Leicester City Council specific Risk Management Toolkit as explained in section 3. The risk assessment exercise for this asset grouping is carried out annually and following a significant event. The risk register is included in Appendix A.

9.10 Forward Works Programme

There is no dedicated forward works programme for planting additional trees or creating new landscaping areas. Trees are planted and landscape areas created as part of other transport, public realm schemes or housing developments. The maintenance forward works programme is the planned preventative maintenance programme described earlier.

9.11 Service Delivery

Service Delivery Arrangements

9.11.1 The Council maintains the trees and landscaping through annual Joint Service Agreements (JSAs) between “purchaser” and “provider” sections within the Council. The Regeneration, Highways & Transportation Division is the purchaser. The Council’s Parks and Green Spaces Service is the provider.

Service Delivery Locations

9.11.2 The purchaser and provider sections are based at Castle Park Depot and Abbey Park, and operate from various ancillary facilities.

9.12 Asset Management Practices

9.12.1 The current asset management practices are defined in the Joint Service Agreements. These are:

Tree Management Service

9.12.2 Tree management service is provided to the following specification.

- All tree works to be carried out in accordance with British Standards 3998:1989 ‘Recommendations for Tree Works’ and 4428:1989 ‘General Landscape Operations’.
- Management to be carried out in accordance with the agreed management plans.
- Corporate complaints and enquiry standards and procedures to be followed. The management of these being delegated to the service provider.

Landscaping Management Service

9.12.3 Landscape management service is provided to the following specification.

- Details of the ground maintenance monitoring and compliance procedures.
- Information and documentation necessary to manage and administer the service, including detailed site plans, maintenance schedules, bills of quantities and specifications.
- A detailed make up of the monthly charge.
 - Standards specified are derived from BS 7370: Part 3: 1991 and BS 7370: Part 4: 1993.

9.13 Service Level Performance Monitoring

9.13.1 Levels of service monitoring is explained in section 2.9. In addition to the level of service monitoring we will use an “operational level” suite of indicators to help us manage performance in striving to achieve the desired levels of service. This suite will be expanded, if appropriate, as we develop our asset management approach over the next five years. The current indicators and targets we will use for this asset grouping are provided in Table 9.4

PI Ref	Description	11/12	12/13	13/14	14/15
TAMP TL1	Tree Stock Condition	Good	Good	Good	Good
TAMP TL 2	Percentage arboricultural inspections completed on time	100%	100%	100%	100%
TAMP TL 3	Percentage of complaints and requests for service responded to within 10 days	90%	90%	90%	90%

9.14 Improvement Plan

9.14.1 Improvement actions identified for this asset grouping have been collated into Table 9. 5

Table 9.5 Trees and Landscaping Improvement Actions					
Paragraph Reference	Improvement Action	Priority	Lead	Target Date	Est. Cost
9.6.2.3	To review frequency of arboricultural inspections in the light of budget reductions and climate change implications	1	AA	Sept 2011	Staff time
9.6.2.4	To review frequency of landscaping inspections in the light of budget reductions and climate change implications	1	AA	Sept 2011	Staff time
9.6.2.8	To review the landscaping maintenance specifications following budget reductions	1	AA	Sept 2011	Staff time

Chapter 10 - Winter Service Lifecycle Management Plan

10.1 Introduction

- 10.1.1 The particular highway network management requirements during the winter period are not “maintenance”, in the traditional sense, but specialist operational services. Hence, we have adopted the terminology of “Winter Service”. For planning and operational purposes the Winter Service operates from 1st October to 30th April every year.
- 10.1.2 Our Winter Service operation has successfully kept the city’s highway network operational, despite the severity of the weather over the last two winters. The frost and snow has, however, damaged the surface of our roads. Our salt stock has a maximum holding of 2,700 tonnes which proved resilient during the extreme weather and we did not have to source emergency supplies. We have bought new snowploughs for our six gritters and we replace one of the gritters each year. We have equipped our gritting lorries with satellite navigation and GPS tracking. We have also purchased three footway gritting trolleys to enhance our service provision in times of snow.
- 10.1.3 We use a specialist road gritting weather forecast service and have a new weather station in the City. Staff have been trained in interpreting weather data from our supplier. In addition, our staff regularly attend regional severe weather exercises run by the Highways Agency and we work very closely with our partners in the Local Resilience Forum and the Council’s Emergency Management Unit. We have also worked closely with our Customer Services and Communications Teams to ensure we handle customer enquiries efficiently and provide the right level of information to the public.



10.2 Maintenance Strategy

- 10.2.1 The aim of our winter service strategy is to provide a service that, as far as reasonably possible, permits the safe movement of traffic including buses (and pedestrian access to important bus and rail hubs) and keeps delays and accidents caused by adverse weather conditions to a minimum on roads within Leicester. This will be achieved by providing a consistent and well co-ordinated service in the City area and by deploying resources in an efficient and effective manner.

10.2.2 It is the Council's policy, as the Highway Authority, to comply with the requirement of the Highways Act 1980 Section 41(1A) including Section 111 of the Railways and Transport Act 2003, to clear snow and ice from the highway in times of significant snowfall so far as is reasonably practicable, so that safe passage along the highway is not endangered by snow or ice. This does not mean that all roads and footways in the City have to be treated as soon as ice forms or snow falls.

10.2.3 Full details of the policy and routes to be treated and priority footway/pedestrian areas, depending upon circumstances and actions required to fulfil the service, are contained in the Winter Service Operational Plan. This plan is produced annually, each September, for the coming season. A copy is accessible at www.leicester.gov.uk. The Winter Service includes:

- Preventative Measures i.e. precautionary salting/gritting.
- Salting/gritting following the formation of snow and/or ice.
- Clearance of snow and/or ice.
- Provision of salt bins in appropriate locations.

10.3 Inventory and Hierarchies

10.3.1 The assets employed for Winter Service consist of the Castle Park Depot at 90, Leycroft Rd, Beaumont Leys, 1 weather station on St Margarets Way, 6 gritting lorries (equipped with Sat Nav & GPS units), 4 snow ploughs, 3 footway gritting trolleys, a loading shovel, 180 grit bins and the salt store (storage 2,700 tonnes). Inventory details are included in the Winter Service Operational Plan.

Winter Service Hierarchy - Carriageways

10.3.2 The winter service hierarchy has been developed over many years and is shown briefly as follows.

1. The primary gritting route receives precautionary gritting and consists of main roads, major commuter routes, access to bus stations, hospitals and key locations and known trouble spots and other important bus routes.
2. The secondary gritting routes cover other important links but they receive no precautionary salting treatment. The extent to which these roads are dealt with in icy conditions will depend on the severity of the conditions, availability of resources and the length of time the conditions prevail.

Winter Service Hierarchy - Footways, Pedestrian Areas and Cycleways

10.3.3 No precautionary salting shall normally be carried out to footways, pedestrian areas or cycleways apart from City Centre Category 1a (Gallowtree Gate, East Gates, Haymarket, Humberstone Gate West and High Street) plus St Nicholas Place Bus terminus and Granby Street Super Crossing. Here precautionary treatment may take place if overnight forecast temperatures are below zero extending beyond 8.00am. Snow clearance for defined footways and pedestrian areas will commence when resources come available from higher priority treatments.

10.3.4 The gritting networks are:

- Primary Gritting Network - 285,911 m. (Appendix 5 of the Winter Service Operational Plan)
- Secondary Gritting Network - 61,907 m. (Appendix 6 of the Winter Service Operational Plan)
- Footpath & Pedestrian Areas -118,706 m². (Appendix 7 of the Winter Service Operational Plan)

10.4 Current Asset Condition

Winter Service Depot

10.4.1 The Castle Park Depot at 90 Leycroft Rd is considered to be in very good condition and fit for purpose. The depot was built in 2003.

Gritters

10.4.2 The Council owns the gritter fleet. The gritters are maintained and serviced by our Fleet Transport section. They are serviced and calibrated every year prior to the winter service period. Sufficient vehicles, however, always remain operational to carry out any unseasonal precautionary treatments. All vehicles are fitted with plough sub-frames that can be fitted with variable angle ploughs that can plough snow either to the left, right or straight ahead. All spreaders are calibrated in accordance with BS1622 prior to the Winter Service period. Gritter drivers are provided with radios (hand held or cab mounted) or mobile phones. We have recently placed GPS tracking and satellite navigation into each of the gritters incorporating the revised routes.

Snow Ploughs, Loading Shovel and Trolleys

10.4.3 The snow ploughs and trolleys are maintained by our Fleet Transport section and are serviced and calibrated annually ready for the winter service. Hence they are considered to be in good condition. The loading shovel is serviced twice a year by Fleet Transport.

Salt Bins

10.4.4 Salt Bins are provided in the City at known trouble spots at road junctions or roads with steep gradients and heavily used footways with steep gradients (see para 3.5 and Appendix 8 of the Winter Service Operational Plan). They are installed at approved locations and are checked and restocked if necessary during the winter period.

Salt

10.4.5 The Council's Highway Maintenance Service maintain stock levels and arrange for sufficient salt to be delivered to the Castle Park Depot during the summer period. Additional salt may be ordered in the event of continuing severe weather. The minimum quantity of rock salt complying with BS3247 stocked at Leycroft Road Depot at the commencement of each season is to be 2500 tonnes. The stockpile is monitored during the season and replenished to ensure adequate salt availability throughout the winter period.

10.5 Asset Valuation

10.5.1 The drivers for asset valuation are discussed in Chapter 13. The gross replacement cost of this asset group is not available yet. The baseline valuation for this asset grouping will be undertaken during the financial year 2011/2012. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the 'Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting' published by CIPFA in 2010 for Highway Infrastructure Asset Valuation along with the appropriate depreciation methodology. See Chapter 13 for further information.



10.6 Asset Lifecycle Options and Asset Life

Creation/acquisition

10.6.1 We have bought new snowploughs for our six gritters and we plan to replace one of the gritters each year. Driver training is kept up to current standards and we have recently placed satellite navigation into each of the gritters incorporating the revised routes. We have a new weather station in the City and staff have been re-trained in interpreting weather data from our supplier. We have purchased three footway gritting trolleys to enhance our service provision in times of snow.

Over the next 5 years we intend to increase the effectiveness of our winter service by continuing the gritter replacement programme. We will also be introducing in-cab "Spargo" gritting control technology into each of the gritters to enable gritting spread rates to be monitored and adjusted in the cab and provide an a linked record of spreading to the GPS data. This will increase the robustness of our defence against claims from 3rd parties and will also enable the drivers to quickly identify if there is a problem with the spreading of grit from the back of the lorry.

The footway gritting trolleys have proved successful and we will also be purchasing further units to allow us to grit footways more efficiently and reduce over-salting that sometimes occurs when hand spreading. Similarly, a stockpile

of snow boards is to be maintained for use by staff employed on clearing deep snow.

Routine Maintenance

10.6.2 Routine maintenance activities and service standards for the winter service asset are detailed in Table 10.1.

Activity Type	Activity	Service Standard
Reactive	Ad hoc maintenance and upgrades	As required
Condition Monitoring	Depot condition surveys and maintenance	Maintain depots and facilities for use by contractor in response to winter service requirements.
Preventative	Annual condition and renewal programme for gritters	Maintain workable fleet of vehicles to cover all salting routes with 100% spares.
Preventative	Annual inspection and repairs of snow ploughs	Ensure LCC snowploughs serviceable

**Renewal/replacement
Gritters**

10.6.3 One gritter is renewed every year by buying a new body and a used chassis. Therefore the target maximum age of a gritter is 6 years. The body and the chassis are bought following the corporate procurement procedures.

Upgrading

10.6.4 A significant upgrading activity will be to incorporate technology in the gritter vehicles which will record when spreading is taking place and the rate of spread. It will also allow the driver to monitor the spreading and quickly identify any problems.

Improvement action: “To install in-cab “Spargo” control equipment in the gritter vehicles”.

By sourcing further footway gritting trolleys, we will be able to improve activities relating to the spreading of grit to footpaths and areas where lorries cannot access for safety reasons.

Improvement action: “To source additional footway gritting trolleys”.

By sourcing and maintaining as stock of snow boards, staff employed on carrying out clearing of deep snow will be able to do this more efficiently than when using traditional shovels.

Improvement action: “To source additional snow clearing boards”.

Disposal

10.6.5 There is no planned disposal programme at the present. However, the gritter fleet disposal will be done based on replacement of the worst condition vehicle and implementation of the upgrading programme.

10.7 Performance Gaps

10.7.1 Any performance gaps are identified and actions put in place to address those gaps during the annual review and preparation of the Winter Service Operational Plan.

10.8 Optimisation and Maintenance Budget Considerations

10.8.1 In the last 2 years, around £250,000 per annum has been spent on Winter Service operations. The budget allocation is £200,000 and the additional £50,000 cost reflects the extra resources which needed to be deployed to deal with the severe weather experienced during the 2009 and 2010 winters. It also reflects significant increase in the cost of road salt for gritting. The average annual salt/grit requirement is approximately 2000 tonnes. Additional expenditure is currently funded from other existing budget headings of the Council.

10.9 Risk Management

10.9.1 Risk management is carried out using the Leicester City Council specific Risk Management Toolkit as explained in section 3.9. The risk assessment exercise for this asset grouping is carried out annually and following a significant event. The risk register is included in Appendix A.

10.10 Forward Works Programme

10.10.1 For the Winter Service the forward works programme is in effect implementation of the Winter Service Operational Plan.

10.11 Service Delivery

Service Delivery Arrangements

10.11.1 Winter Service is provided by City Highways. City Highways are the operational team in our Highways Maintenance Service and are part of the Regeneration, Highways & Transportation Division. The service is undertaken from the Council's Castle Park Depot. The depot was purpose built in 2003, to accommodate our highway maintenance and street cleaning services. Winter Service is provided in accordance with the assessment of need, organisation and procedures detailed in the Winter Service Operational Plan.

10.12 Asset Management Practices

10.12.1 The existing asset management practices are essentially those detailed in the Winter Service Operational Plan. The plan is reviewed on an annual basis every summer.

10.13 Service Level Performance Monitoring

10.13.1 A consistent level of winter service over the City area is desirable to ensure the safety of highway users. Prior to the Winter Service Period, liaison meetings are held, if required, to discuss operational arrangements and lines of communication for the coming winter. Performance of the Winter Service, including the Winter Service Operational Plan, is reviewed at the end of the Winter Service Period. The amended Winter Service Operational Plan will be issued to listed holders by the middle of September each year.

10.14 Improvement Plan

10.14.1 Any significant improvement actions are identified during the annual review of the Winter Service. We will also be taking on any of the many initiatives that are being developed for winter service nationally that are appropriate for our authority.

The 2009 and 2010 winter seasons resulted in difficulties nationally regarding the supply of road salt during the severe weather. The supply chain was unable to meet demand and many authorities experienced extreme difficulties obtaining new supplies. The lead to a national guidance being issued on salt conservation. Consequently, there is a need to establish a formal policy for salt conservation, should this situation arise in Leicester.

Table 10.4 Winter Service Improvement Action					
Paragraph Reference	Improvement Action	Priority	Lead	Target Date	Est. Cost
10.6.4	To install in-cab "Spargo" control equipment in the gritter vehicles	1	AA	Oct 2011	TBC
10.6.4	To source additional footway gritting trolleys	1	AA	Oct 2011	£3000
10.6.4	To source additional snow clearing boards	1	AA	Oct 2011	£500

Chapter 11 – Street Furniture Lifecycle Management Plan

11.1 Introduction

11.1.1 The street furniture asset grouping includes the following items:

Fencing & Miscellaneous Walls	Bus Stop Flags
Planters	Cycle/Motor Cycle Racks
Roadside Seats	Miscellaneous Poles
Street Name Plates	Council Information Panels
Bollards (Non-illuminated)	Tree Pits
Bus Shelters	Safety Barriers

11.1.2 Street Furniture is provided to enhance the street scene, to provide information and to give a general amenity to users. Provision of street furniture contributes to the corporate objective of ‘Improve our environment to make local neighbourhoods and the city centre places for people to be proud of’. In addition, provision of street furniture contributes to the Local Transport Plan overarching objective of “To improve the quality of life for all”.

Fencing & Miscellaneous Walls (including pedestrian guard rails)

11.1.3 Historically we have fencing and walls to maintain or delineate the highway or to provide an acoustic barrier. Safety fencing and pedestrian guardrails are used to provide protection to the highway user. We have fencing/walls at 73 locations; some of which are in joint ownership or interest. We do not have inventory information for the pedestrian guardrails that we maintain.

Improvement action: “To collect pedestrian guardrail inventory information”.

Planters

11.1.4 Planters are included in the highway to improve the environment. There are various types of planter including, wood, concrete and plastic ones. There are 70 highway planter sites.

Roadside Seats

11.1.5 There are currently 350 seats of various shape, sizes and materials provided in the highway for the public to use.

Street Name Plates

11.1.6 Street name plates are provided at the end of streets and at any junctions along the length of the street. There are approximately 15,300 street nameplates in the city. They are provided for direction purposes facilitating people getting to services such as doctors surgeries for example. Nameplates can be in the highway or on private property such as on a house. The nameplates themselves can be of a variety of materials, some are painted, some pressed and there are special ones for conservation areas.

Bollards (Non-illuminated), miscellaneous poles

11.1.7 There is a large, but unknown, quantity of bollards and miscellaneous poles in the highway. They are made of a variety of materials to many different

designs and quality. The main purpose of installing a bollard in the highway is to highlight an unexpected item, such as the nib of a parking bay, to prevent continuing damage to the highway or for safety reasons.

Improvement action: “To develop guidance regarding standards and maintenance for bollards and miscellaneous poles.”

Bus Shelters

- 11.1.8 The City now has 560 bus shelters of varying styles. 450 of these are provided through a contract with JC Decaux. The contract with Decaux provides quality shelters and a high standard of maintenance throughout the City. Shelters are popular facilities as they provide not only some shelter from the weather, but also in many cases seating, which is particularly appreciated by elderly travellers. The need for shelters is supported by the fact that a number of requests for shelters at new sites are received every year. The style of shelter introduced and position is dependant on a number of factors such as pavement width, road conditions and safety.

Bus Stop Flags

- 11.1.9 The City has over 1400 bus stops and those which do not have JC Decaux shelters have a pole and flag. This is required to clearly denote the location of the bus stop. Most routes in Leicester are stop based rather than hail and ride as this provides benefits on service delivery and allows better stop facilities, such as level access kerbing and route information, to be introduced. In addition to the practical advantages it is a requirement that at any registered stop a pole and flag be introduced, with the flag bearing both the bus logo and the “bus stop” text.

Cycle/Motor Cycle Racks

- 11.1.10 Cycle Racks are provided in convenient and public locations that provide surveillance and secure posts for the use of bike locks. ‘Sheffield Racks’ are the approved design and one rack provides parking for two cycles (one either side). There is an unknown quantity of cycle racks across the city. There are currently 100 racks in the City Centre on thirteen streets and plans for 200 additional racks as part of current street improvement work. The City Centre Bike Park (Town Hall Square) provides public cycle parking space for 100 bicycles for a small charge. An unknown quantity of cycle racks is also provided within public car parks.
- 11.1.11 There are approximately 2,200 registered motorcycles, scooters and mopeds in Leicester City. There is a need for designated secure parking for these vehicles as national crime figures show that PTWs are three and a half times more likely to be stolen than any other vehicles on the road. The introduction of secure PTW parking in Bowling Green Street and Horsefair Street has been shown by Police figures to reduce the number of ‘on street’ parking thefts in the City Centre to virtually nil. There are currently 59 on street secure parking spaces in Leicester.
- 11.1.12 In addition to the need for motor cycle racks, the lack of storage for helmets and leathers was a concern that was raised in a motorcycle rider survey that was undertaken in the city in 2000. As a result, 14 secure lockers were

purchased from MOTOLOC and are located in Bowling Green Street, Abbey Street and Newarke Street car park.

Council Information Panels-CIP (City Centre)

11.1.13 JC Decaux provide 35 CIP’s under their contract with the City Council. The panels have provision for advertising on one side and a pedestrian map, produced in cooperation with the Transport Development Section, on the other. The CIP’s also dispense the map to members of the public for a nominal charge. The Panels are placed around the City at sites agreed between ourselves and JC Decaux as suitable locations for advertising and the maps. Planning permission has to be obtained for the CIP’s as they are lit advertising panels.

Tree Pits

11.1.14 Tree pits are considered as street furniture and hence included in this asset grouping although they are maintained as part of the highway maintenance regime (described in Chapter 4).

Safety Barriers

11.1.15 We have many lengths of safety barrier providing protection for highway users. We do not have inventory information for them.
Improvement action: “To collect safety barrier inventory information.”

11.2 Maintenance Strategy

11.2.1 The main objective of the strategy is to keep the street furniture in a fit for purpose condition and ensure it contributes positively to the street scene and to delivering the objectives of our transport strategy. Our maintenance strategy generally consists of regular inspections by our highway inspectors as part of the highway safety inspections, described in Chapter 4 (routine maintenance section) and maintenance service providers. Routine maintenance to the street furniture is a combination of routine maintenance and replacements. Once we have collected outstanding inventory information we will review our maintenance to include planned maintenance to all assets.
Improvement action: “To develop an improved street furniture maintenance strategy.”

11.3 Inventory

11.3.1 Street furniture inventory data is held in Word and Excel format in various locations by the various sections responsible for the management and maintenance of street furniture. A summary of inventory data is included in Table 11.1.

Table 11.1 Summary of Street Furniture Inventory				
Asset Classification	Number/size of assets	Format	Data Storage Location	Data Status (Level of Confidence)
Fencing & Miscellaneous Walls	73 locations	Word	Highway Maintenance Leycroft Road	High

Pedestrian Guardrails	Not known	To be decided	Highway Maintenance Leycroft Road	Low
Planters	70	Word	Highway Maintenance Leycroft Road	High
Roadside Seats	350	Word	Highway Maintenance Leycroft Road	High
Bollards (Non-illuminated) and Miscellaneous Poles.	Non known	Not held	Highway Maintenance Leycroft Road	Low
Bus Shelters	560	Transoniq Database	York House, Sustainable Transport Team	Medium
Bus Stop Flags	1400+	Transoniq Database	York House, Sustainable Transport Team	Medium
Cycle Racks Cycle Lockers Motorcycle Racks M/C lockers	200+ 20+ 24 14	Hard Copy File No Record Word Word	York House NWC A6 NWC A6	Low
Council Information Panels (City Centre)	35	Hard Copy File	York House, Sustainable Transport Team	High
Street Nameplates	15,300	Excel	Highway Maintenance Leycroft Road	High
Safety Barriers	Not Known	To be decided	To be decided	Low



New street furnitures at Hotel Road (2008/09)

11.3.2 An Asset Information Strategy is to be developed for this asset grouping. This will assist in addressing the following items.

- Identify all relevant information held in different formats.
- Identify missing information required.
- Identify priority for the collection of the missing information.
- Decide on the means and time frame for the information collection.
- Decide on the database requirements.
- Formulate proposed data management procedures.

Improvement action: “To develop and implement a Street Furniture Asset Information Strategy.”

11.4 Current Asset Condition

11.4.1 There are no statutory indicators identifying the condition of street furniture.

Fencing, Miscellaneous Walls, Pedestrian Guardrails, Safety Barriers

11.4.2 The condition of these assets is not known and maintenance is reactive when repairs required are identified by our highway inspectors or reported by the public.

Planters, Roadside Seats, Street Nameplates, Bollards (non-illuminated), Tree Pits, Miscellaneous Poles

11.4.3 The Planters are generally in good condition and the roadside seats stock is in a fair condition overall. The street nameplates are in a fair condition overall as are the bollards (Non-illuminated). The tree pits are generally in good condition

Bus Shelters

11.4.4 JC Decaux provide a high level of maintenance and cleaning on the shelters they provide. Each JC Decaux shelter is visited for cleaning every two weeks and they also provide a demand responsive service for further visits. The condition of the Council owned shelters is reasonable and they are cleaned once a month. Budgetary constraints prevent the cleaning regime equalling the service provided by JC Decaux.

Bus Stop Flags

11.4.5 Bus stop flags are generally kept in a good condition.

Cycle/Motor Cycle Racks and Lockers

11.4.6 Condition of existing on-street cycle racks is generally good. The motorcycle racks are in good condition: the racks in Bowling Green Street and Horsefair Street were introduced in the late 1990's, while the racks in Abbey Street were introduced in 2003. The motorcycle lockers are in good condition, having been introduced in early 2005.

Council Information Panels

11.4.7 The condition of the information panels is generally good. They are maintained under contract with JC Decaux and cleaned every two weeks.

11.5 Asset Valuation

11.5.1 The drivers for asset valuation are discussed in Chapter 13. The gross replacement cost of this asset group is not available yet. The baseline valuation for this asset grouping will be undertaken during the financial year 2011/2012. The valuation will be undertaken by using the valuation principles, basis and rules recommended in the 'Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting' published by CIPFA in 2010 for Highway Infrastructure Asset Valuation along with the appropriate depreciation methodology. See Chapter 13 for further information.

11.6 Asset Lifecycle Options and Asset Life

11.6.1 Creation/Acquisition

11.6.1.1 For this asset grouping, creation or acquisition of assets generally arises through improvement projects implementing the Council's transport strategy, private sector led new developments that include new highway infrastructure and requests from the public.

11.6.2 Routine Maintenance

11.6.2.1 Routine maintenance is the regular ongoing day-to-day work that is necessary to keep the assets operating. This includes planned and reactive maintenance. Planned maintenance includes activities such as condition inspections and safety inspections and planned preventative maintenance such as cleaning of bus shelters. Reactive maintenance relates to corrective maintenance to put right minor failures, such as damaged pedestrian barriers, responding to inspections, complaints and emergencies. Leicester's routine maintenance arrangements are described in the following paragraphs.

Condition Inspections and Safety Inspections – Fencing & Miscellaneous Walls, Planters, Street Nameplates, Pedestrian Guardrails, Safety Barriers, Bollards (non-illuminated), Miscellaneous Poles.

11.6.2.2 These assets are only inspected when a defect is identified by Council officers, highway inspectors or a member of the public reports a defect.

Improvement action: "To develop inspection regimes for safety barriers and pedestrian guardrails."

Condition Inspections and Safety Inspections – Road-side Seats

11.6.2.3 Roadside seats are inspected on an annual basis. They are inspected to ensure they are structurally sound, secured to a firm base or foundation, satisfactorily decorated and individually numbered.

Condition Inspections and Safety Inspections – Bus Shelters

11.6.2.4 The JC Decaux shelters are inspected fortnightly when they are cleaned. Council owned bus shelters are inspected monthly when they are cleaned.

Condition Inspections and Safety Inspections – Bus Stop Flags

11.6.2.5 Flag inspections are part of our Bus Information Strategy. We aim to visit and inspect each flag twice per year.

11.6.2.6 Condition Inspections and Safety Inspections – Cycle/Motor Cycle Racks and Lockers

There is no formal maintenance inspection of cycle racks across the City. Cyclists and advocate groups are encouraged to report ad hoc problems via the Customer Services Helpline on a one-off basis. Motorcycle racks and lockers are only inspected when a defect is identified by a member of public. **Improvement Action: “To include cycle rack and locker inspection on an inspection regime.”**

11.6.2.7 Condition Inspection and Safety Inspections – Council Information Panels

The Council Information Panels are inspected fortnightly when they are cleaned.

11.6.2.8 Condition Inspections and safety inspections –Tree Pits

Tree pits are inspected as part of the highway inspection regime described in Chapter 4.

Planned Preventative Maintenance–

11.6.2.9 Planned preventative maintenance to street furniture generally consists of cleaning and painting. For example, the bus shelters are cleaned fortnightly (JC Decaux shelters) or monthly (City Council owned shelters).

Reactive Maintenance

11.6.2.10 Reactive maintenance to street furniture consists of responding to ‘one-off’ maintenance requirements which is often customer driven and emergency responses where work is not costed prior to instruction. For example, there is a need to quickly clear damage caused arising from road traffic accidents for safety reasons.

Routine Maintenance Standards

11.6.2.11 The routine maintenance standards for Fencing & Miscellaneous Walls, Planters, Road-side Seats, Street Nameplates, Bollards are provided in Table 11.2

Table 11.2 Routine Maintenance Service Standards – Fencing & Miscellaneous Walls, Planters, Road-side Seats, Street Nameplates, Bollards		
Activity Type	Activity	Service Standard
Condition Monitoring	Safety inspections	Road-side Seats – annual and on request. Fencing, Walls, Planters, Street Nameplates, Bollards, Pedestrian Guardrails, Safety Barriers, Miscellaneous Poles – on request
Reactive	Emergency repairs	Non specified, responsive
	Ad hoc Inspections	Non specified, responsive

Routine Maintenance Standards

The routine maintenance standards for Bus Shelters are provided in Table 11.3

Table 11.3 Routine Maintenance Service Standards – Bus Shelters		
Activity Type	Activity	Service Standard
Preventative	Maintenance	Cleaning fortnightly or monthly
Condition Monitoring	Safety inspections	Fortnightly or Monthly
	Condition inspections	Fortnightly or monthly
Reactive	Emergency repairs	Non specified, responsive
	Ad hoc Inspections	Non specified, responsive

Routine Maintenance Standards

The routine maintenance standards for Bus Stop Flags are provided in Table 11.4

Table 11.4 Routine Maintenance Service Standards – Bus Stop Flags		
Activity Type	Activity	Service Standard
Preventative	Maintenance	Not applicable
Condition Monitoring	Safety inspections	
	Condition inspections	
Reactive	Emergency repairs	Non specified, responsive
	Ad hoc Inspections	Non specified, responsive

Routine Maintenance Standards

The routine maintenance standards for Cycle/Motor Cycle Racks are provided in Table 11.5

Table 11.5 Routine Maintenance Service Standards – Cycle/Motor Cycle Racks		
Activity Type	Activity	Service Standard
Preventative	Maintenance	To Specification
Condition Monitoring	Safety inspections	To be developed
	Condition inspections	To be developed
Reactive	Emergency repairs	Non specified, responsive
	Ad hoc Inspections	Non specified, responsive

Routine Maintenance Standards

The routine maintenance standards for Information Boards are provided in Table 11.6

Table 11.6 Routine Maintenance Service Standards – Information Panels		
Activity Type	Activity	Service Standard
Preventative	Maintenance	Cleaned fortnightly
Condition Monitoring	Safety inspections	Fortnightly
	Condition inspections	Fortnightly
Reactive	Emergency repairs	Non specified, responsive
	Ad hoc Inspections	Non specified, responsive

11.6.3 Renewal/Replacement

11.6.3.1 Renewal or replacement work restores the highway asset to its “as new” capacity and condition. We do not have a street furniture renewal programme. Defective street furniture requiring replacement is identified

through highway inspections and members of the public reporting to the Council.

11.6.4 Upgrading

11.6.4.1 For this asset grouping, upgrading or improvement beyond the existing asset condition is very rare as street furniture is disposed of and replaced with new and this is deemed as asset creation.

11.6.5 Disposal

11.6.5.1 Disposals of street furniture are generally consequential to the decisions to improve the transport network through the works programmes, or major city centre development projects or at the request of the public relating to crime prevention for example.

11.7 Performance Gaps

11.7.1 The performance gaps for this asset grouping will be addressed through the improvement actions tabulated at the end of this chapter.

11.8 Optimisation and Maintenance Budget Considerations

11.8.1 The following amounts were allocated for the respective element of the asset for the 2010/2011 financial year. They include the provider’s charges where appropriate.

Fencing and Miscellaneous Walls	£5,000
Planters	£5,000
Roadside Seats	£10,000
Street Nameplates	£35,000
Bollards (Non-illuminated)	included in Chapter 4
Bus Shelters contract	included in supply
Bus Stop Flags	£5000
Cycle/Motor Cycle Racks	none
Council Information Panels contract	included in supply
Tree Pits	included in Chapter 4
Pedestrian Guardrails & Safety Barriers	£10,000

11.9 Risk Management

11.9.1 Risk management is carried out using the Leicester City Council specific Risk Management Toolkit as explained in section 3.9. The risk assessment exercise for this asset grouping is carried out annually and following a significant event. The risk register is included in Appendix A.

11.10 Forward Works Programme (Implementation Plan)

Fencing & Miscellaneous Walls, Planters, Roadside Seats, Street Name Plates, Bollards (Non-illuminated), Cycle/Motor Cycle Racks, Tree Pits, Pedestrian Guardrails, Safety Barriers, Miscellaneous Poles

11.10.1 Repair or replacement to these assets is reactive and hence there is not a forward works programme.

Bus Shelters

11.10.2 Introduction of the JC Decaux shelters is now complete and we are planning to install council owned shelters in response to requests. We will also carry

out further refurbishment of existing council shelters to bring them to a higher standard as budget permits.

Bus Stop Flags

- 11.10.3 Most of the flags in the city have been replaced in the last two years, the remaining flags will be identified and replaced over the next three years. Changes and improvements are rolled out on an ongoing basis in response to bus route changes.

11.11 Service Delivery

Service Delivery Arrangements

- 11.11.1 The Council maintains the street furniture through a variety of service delivery arrangements including provision by in-house providers and private sector contractors.

Fencing & Miscellaneous Walls, Planters, Roadside Seats, Bollards (Non-illuminated), Tree Pits

- 11.11.2 The reactive maintenance is arranged by the highway inspectors and carried out by City Highways.

Street Name Plates

- 11.11.3 The reactive maintenance is arranged by the highway inspectors and carried out by the Housing Works Department.

Pedestrian Guardrails, Miscellaneous Poles

- 11.11.4 The reactive maintenance is arranged by the highway inspectors and is carried out by the street lighting maintenance contractor.

Safety Barriers

- 11.11.5 The reactive maintenance of safety barriers is arranged by the Bridges Team.

Bus Shelters

- 11.11.6 JC Decaux maintain the bus shelters through a fifteen year duration contract that began in 2005.

Bus Stop Flags

- 11.11.7 Flag inspections are part of our Bus Information Strategy. We aim to visit and inspect each flag twice per year. Replacements and repairs are ordered via street lighting contractors as required

Cycle/Motor Cycle Racks and Lockers

- 11.11.8 Formal maintenance arrangements need to be established for cycle racks, motorcycle racks and lockers.

Improvement action: “ To establish maintenance arrangements for cycle racks, motorcycle racks and lockers”.

Council Information Panels

- 11.11.9 JC Decaux maintain the Council Information Panels.

Service Delivery Locations

Cycle/Motor Cycle Racks Lockers

- 11.11.10 The purchaser section is based at New Walk Centre. The provider section is based at 16 New Walk. The building maintenance contractors are based in the East Midlands.

Fencing and Miscellaneous Walls, Planters, Roadside Seats, Street Name Plates, Bollards (Non-illuminated)

- 11.11.11 The highway inspectors operate from 90 Leycroft Road as does the maintenance contractor, City Highways The street nameplate provider is based at the Housing Depot, Blackbird Road.

Pedestrian Guardrails

- 11.11.12 The purchaser and provider sections are based at St Margaret's Depot.

Safety Barriers

- 11.11.13 The purchaser is based at York House, the provider at Leycroft Road Depot.

11.12 Asset Management Practices

Fencing & Miscellaneous Walls, Planters, Roadside Seats, Street Name Plates, Bollards (Non-illuminated), Cycle/Motor Cycle Racks and Lockers, Tree Pits, Pedestrian Guardrails, Safety Barriers, Miscellaneous Poles

- 11.12.1 Information on the above assets is held on various databases. However we do not have clear asset management procedures for these assets so this will be addressed as an improvement action below.

Improvement Action: "To review the street furniture asset management practices"

Bus Shelters

- 11.12.2 Bus shelter information is held on a database in the sustainable transport group. In due course this will be used to update our information of the national "Naptan" database.

Bus Stop Flags

- 11.12.3 At present bus flag information is altered on street in response to bus route changes. The location of flags is held on the bus stop database, however service information on the flag is not yet included.

Improvement Action: "To include bus service information in the bus stop database."

11.13 Service Level Performance Monitoring

Fencing & Miscellaneous Walls, Planters, Roadside Seats, Street Name Plates, Bollards, Cycle/Motor Cycle Racks, Information Boards, Tree Pits

- 11.13.1 There is currently no monitoring of the provider's performance of the above services.

- 11.13.2 The bus information strategy includes performance monitoring in that the information on the flag must be correct. Where bus service changes take

place the flag need to be replaced immediately to display the correct service(s) from that stop. The Council maintains a comprehensive list of service timetables and publishes a bus service map twice per year, working closely with the bus companies on these matters.

11.14 Improvement Plan

11.14.1 Improvement actions identified for this asset grouping have been collated into Table 11.7

Table 11.7 Street Furniture Improvement Actions					
Paragraph Reference	Improvement Action	Priority	Lead	Target Date	Est. Cost
11.1.3	To collect pedestrian guardrail inventory information	2	MV	Dec 2011	Staff time
11.1.7	To develop guidance regarding standards and maintenance for bollards and miscellaneous poles	3	MP	Dec 2011	Staff time
11.1.15	To collect safety barrier inventory information	2	AT	Dec 2011	Staff time
11.2.1	To develop an improved street furniture maintenance strategy	3	AA	Dec 2011	Staff time
11.3.2	To develop and implement a Street Furniture Asset Information Strategy	4	AA	Dec 2011	Staff time
11.6.2.2	To develop inspection regimes for safety barriers and pedestrian guardrails	1	AT/MV	Dec 2011	Staff time
11.6.2.6	To include cycle rack and locker inspection on an inspection regime	1	MP	Dec 2011	Staff time
11.11.8	To establish maintenance arrangements for cycle racks, motorcycle racks and lockers	1	MP	Dec 2011	Tbe
11.12.1	To review the street furniture asset management practices	4	MP	Dec 2011	Staff time
11.12.3	To include bus service information in the bus stop database	4	AW	Dec 2011	Staff time

Chapter 12 – Highway Drainage Lifecycle Management Plan

12.1 Introduction

12.1.1 Highway drainage is an essential part of any highway. It provides a route for rainwater falling on the footway or carriageway to drain away in a safe manner and is designed to prevent water from remaining on the surface and causing a danger to drivers and passengers of vehicles who may be injured if the driver of the vehicle loses control when driving through deep water. Pedestrians or the public waiting for public transport on the footway could also be splashed by passing vehicles if excessive water remains on the surface.

12.1.2 Leicester City has been identified as one of the ten most at risk areas in England & Wales from surface water flooding, with over 15200 properties at risk. This is flooding arising from heavy rainfall where the surface water run-off has not yet entered the main river network. The impact of climate change means the risk from this type of flooding is likely to increase over time. Where heavy and pro-longed rainfall is unable to drain away efficiently, localised flooding in streets and adjacent properties will occur. The highway network and highway drainage system is therefore a significant source, pathway and receptor of floodwater. Accordingly the ongoing development and maintenance of highway drainage assets and drainage arrangements will play a critical role in helping to reduce the risk of flooding from surface water in the future. This will be a key element of the Local Flood Risk Management Strategy we are developing.

Standing water

12.1.3 Water should not be allowed to remain on the highway, as it will damage the integrity of the highway construction through infiltration. Standing water accelerates the chemical and structural deterioration of the carriageways and footways, as well as posing safety risks. Icing under low temperatures and splashing of water by passing traffic are major sources of public dissatisfaction. As we are committed to encourage cycling and walking, removing problems caused by poor highway drainage is a high priority. There is also a danger of the freeze thaw cycle breaking up the surfacing and sub layers of the highway. The highway could also become unsafe if standing water freezes in cold weather forming a layer of ice.

Floods

12.1.4 In extreme circumstances excessive water can wash away the road construction, embankments or retaining walls, undermine bridge piers and if not identified early enough, this could lead to the eventual collapse of the structure. Adjacent properties could also be affected and suffer significant levels of flood damage. This would have a significant impact on the local population, public services and the local economy generally.

12.2 Maintenance Strategy

12.2.1 Our Maintenance Strategy covers the three areas of safety, serviceability and sustainability. The safety of our drainage assets are covered by visual inspection as part of our highway safety inspections. We also respond to reports from the public which will normally be followed up by a site visit to

determine the exact nature of the problem. We intend to undertake programmed condition inspections of our drainage assets once the assets have been identified over an area of the city. This will be based around a specific drainage area or catchment. We will strive to achieve sustainability of our highway drainage assets through surveying and modelling so as to determine its fitness for purpose and to understand how it performs under storm conditions. Should inadequacies in the systems become apparent schemes will be put together with options for addressing them. This could involve repairing or replacing drainage assets or introducing new ones. This work will of course be limited to the amount of funding available but we would build up a list of schemes to be done which would be placed in a priority order based on the number of people and properties which are effected by the under performance of the assets. Highway maintenance would want to influence the type of highway drainage asset that may be designed by a developer for future adoption by the highway authority. This will mean getting involved in the planning process. More sustainable methods of highway drainage will want to be promoted such as the use of swales, soak-a ways and other Sustainable Urban Drainage Systems(SUDS).

Improvement Action: “To undertake programmed condition inspections of our drainage assets once the assets have been identified over an area of the city.”

12.3 Inventory

12.3.1 Inventory data consists of five data sets:

- i) Scanned plans showing gully locations held as a layer in City StreAtZ.
- ii) Gully locations plotted on MAPinfo using GPS data,
- iii) Severn Trent Water’s sewer maps on which some highway drains and culverts are shown and to which we have access.
- iv) Historic flood information that contains details of properties and sections of highway that have been flooded in the past 20 years,
- v) A paper plan showing the main tributaries of the River Soar and the locations of flow controls and storm detention areas in the city. Many of which are now maintained by the Environment Agency.

Highway drainage assets will consist of gullies, connection pipe work and main drains of various sizes, inspection chambers of various sizes including manholes, piped brick or stone built culverts, open ditches and drains, perforated pipes filter drains and swales with associated control chambers and pipes.

Improvement Action: “To continue to develop the highway drainage asset inventory”

12.4 Asset Condition

12.4.1 The condition of our highway drainage assets has not yet been formally recorded but they are in a variable state of repair across the city. As yet there is no formal inspection regime except that the drainage assets visible from the highway are inspected as part of the highway inspection safety audit.

12.5 Asset Valuation

12.5.1 We are not able to value the asset as all the highway drainage infrastructure has not all been surveyed. It can only be estimated from the length of adopted highway across the city.

12.6 Asset Life Cycle Options and Asset Life

12.6.1 Most of the highway drainage infrastructure has evolved over centuries. Some has been installed as part of new road construction work others have been retro fitted to established highways and others have been constructed as part of new developments providing housing and industrial areas for an increasing population. Routine maintenance consists of removing silt from road gullies street by street across Leicester. We have started a scheme to replace old type cast iron ‘hopper’ gullies with newer gullies and frames that are less prone to blocking due to fallen leaves. A remote CCTV camera is sometime used to investigate any unresolved blockages and defect in the pipes under ground. We currently do not carry out any routine inspections of underground highway pipes and culverts.

12.7 Surface Water Management Plan

12.7.1 We have commissioned consultants to produce a Surface Water Management Plan Study (part one, two and three) for the City of Leicester by September 2011. This work includes the preparation of flood risk and flood hazard maps to show the sources, pathways and receptors of surface water flooding. The work will take into account the built environment and make due allowance for surface water drainage capacity. The outputs from the study will indentify those areas at high risk of surface water flooding and provide recommendations on the development of long term mitigation measures. These are expected to include improvements to the highway drainage assets and the maintenance regime. This information will also inform the activities of highway maintenance staff during a severe storm and help to target advice to local residents of what they can do to protect themselves and their property during and after heavy rain.

12.8 Performance gaps:

12.8.1 Highway drainage has been an area that has been neglected for some time due in part to the transfer of responsibility to public sewers from the local authority to the water companies. Therefore it is inevitable that the maintenance of our highway drainage assets is not as comprehensive as we would like. We have started to address this and are undertaking a number of improvement actions, including the collection of up to date asset inventory and condition data, the production of our Surface Water Management Plan and the appointment of a Flood Risk Manager to better co-ordinate flood risk management activities with highway maintenance.

12.9 Optimisation and maintenance budget considerations

12.9.1 The highway maintenance budget includes an allowance for highway drainage maintenance. We secured additional funding from the DfT (in conjunction with Nottingham and Derby City Councils) to build up our asset inventory and improve the asset management regime (DAMP Project). We also obtained funding from Defra to produce a Surface Water Management Plan study, the

results from which we will use to identify works to be included in a programme of works to tackle flooding hotspots in the city.

12.10 Risk Management:

12.10.1 The Surface Water Management Plan Study will also identify areas at risk from flooding in the city and highlight the work of greater necessity and therefore higher priority and where the consequences of doing nothing are too great.

12.11 Forward works programme

12.11.1 See highway maintenance strategy and please refer to chapter 14.

12.12 Service Delivery

12.12.1 The majority of the Highway Drainage improvement and maintenance service is delivered by the Highway Maintenance section based at Castle Park Depot, 90 Leycroft Road. Specialist sub contractors are brought in as and when required for CCTV work and specialist jetting and no-dig repairs to underground drainage. A consultant has been appointed to deliver the Surface Water Management Plan Study report by September 2011. It will include the production of fluvial and pluvial hydraulic models and reports on the drainage area of the whole city by March 2011. A Strategic Flood Risk Assessment (to PPS 25 Level 2) for the whole area is also being produced. The Surface Water Management Plan Study will also deliver the Preliminary Flood Risk Assessment (stages 1 and 2) for Leicester City required under the Flood Risk Regulations 2009 by June 2011. These products will help us undertake our role of Lead Local Flood Authority under the new Flood and Water Management Act 2010 and assist us as we develop a Local Flood Risk Management Strategy for Leicester.

12.13 Asset Management Process:

12.13.1 The asset management process consists of assessing the performance of the assets, prioritising areas for investment, making sure investment takes place and reviewing the outcome. Any investment should achieve a balance between routine maintenance and system improvements.

12.14 Service Level Performance Monitoring

12.14.1 We intend to monitor our performance with respect to highway drainage maintenance in a number of ways. The number of gullies we maintain over a twelve-month period, the number of complaints we receive on highway flooding.
Improvement Action: “To monitor our performance with respect to highway drainage maintenance.”

12.15 Improvement Plan

12.15.1 The Highway Drainage Asset improvement plan will be further developed from the outcome of the Surface Water Management Plan etc. and the DAMP project work. Improvement actions identified for this asset grouping have been collated into Table 12.1

Table 12.1 Drainage Assets Improvement Actions					
Paragraph Reference	Improvement Action	Priority	Lead	Target Date	Est. Cost
12.2.1	To undertake programmed condition inspections of our drainage assets once the assets have been identified over an area of the city.	1	MF	Sept 2011	Staff time
12.3.1	To continue to develop the highway drainage asset inventory.	1	MF	Ongoing	Staff time
12.14.1	To monitor our performance with respect to highway drainage maintenance.	1	MF	Sept 2011	Staff time

Chapter 13 – Financial Management

13.1 Asset Management Finances

13.1.1 The Council makes asset management investments using finances from a variety of sources. Different assets attract finances from different sources. Table 12.1 below illustrates finance sources for the asset groupings included in the respective lifecycle management plans detailed in the preceding Chapters.

Asset	Method	LCC Revenue	LCC Capital	LTP Capital	Developer
Chapter 4 Carriageways & Footways	Planned	✓	✓	✓	
	Reactive	✓			
	Improvement	✓	✓	✓	✓
	Creation		✓		✓
Chapter 5 Highway Structures	Planned		✓	✓	
	Reactive	✓			
	Improvement		✓		
	Creation			✓	✓
Chapter 6 Car Parks & Bus Station	Planned	✓			
	Reactive	✓			
	Improvement	✓	✓	✓	
	Creation		✓		
Chapter 7 Street Lighting	Planned	✓		✓	
	Reactive	✓	✓		
	Improvement			✓	
	Creation				✓
Chapter 8 Traffic Signals	Planned	✓			
	Reactive	✓			
	Improvement			✓	
	Creation			✓	✓
Chapter 9 Trees & Landscaping	Planned	✓			
	Reactive	✓			
	Improvement	✓	✓	✓	
	Creation	✓	✓		✓
Chapter 10 Winter Service	Planned	✓			
	Reactive	✓			
	Improvement	✓			
	Creation				
Chapter 11 Street Furniture	Planned	✓			
	Reactive	✓			
	Improvement	✓		✓	
	Creation	✓	✓		✓
Chapter 12 Drainage Assets	Planned	✓	✓		
	Reactive	✓			
	Improvement	✓	✓		✓
	Creation	✓	✓		✓

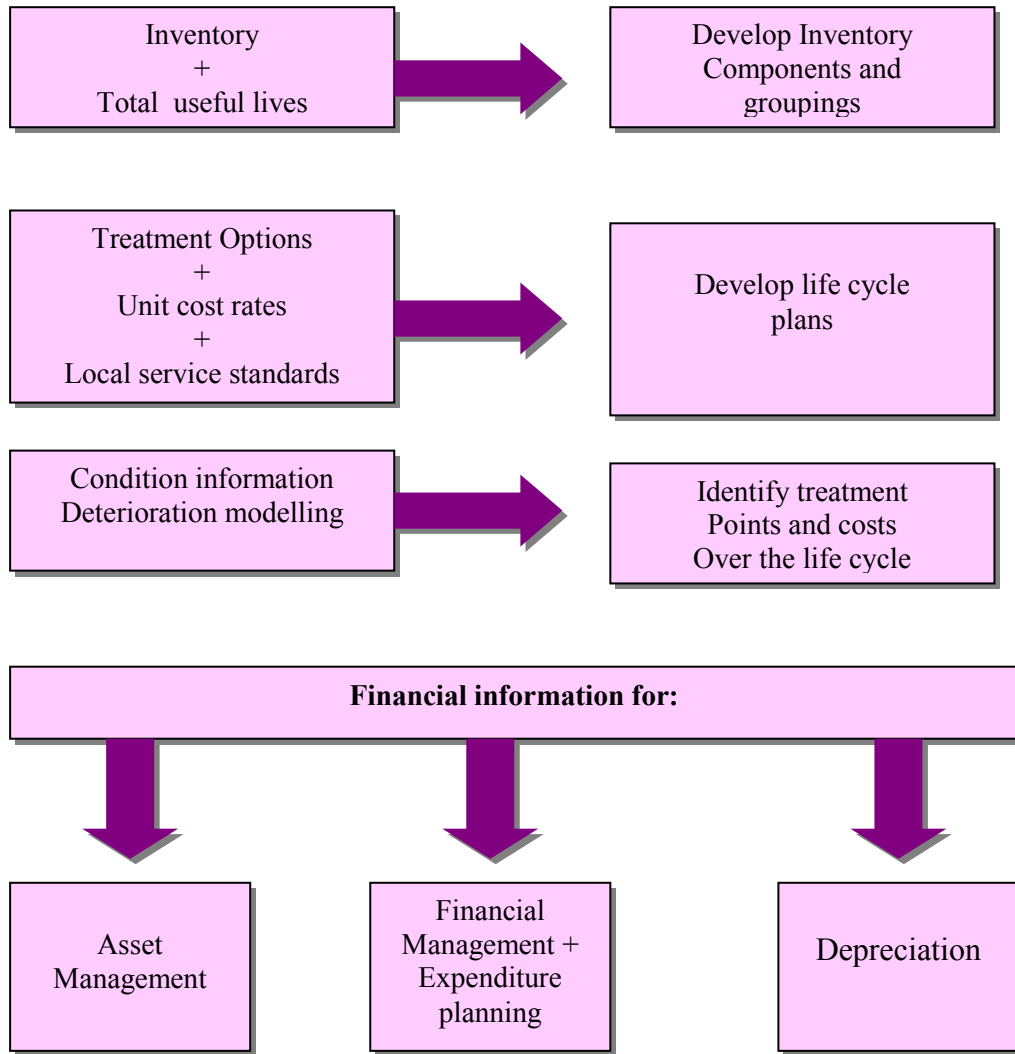
13.2 Financial Statements and Projections

13.2.1 The indicative total budgets available to improve, operate and maintain Leicester City's transport assets are summarised in Table 12.2.

Budget/Programme	11/12	12/13	13/14	14/15
Integrated Transport Capital	£2.8			
Capital Maintenance Programme	£2.1			
Traffic Management & Control Revenue	tbe			
Highway Maintenance Revenue	tbe			
Road Safety & Speed Management Revenue	tbe			
City Council Capital Programme	tbe			

13.3 Asset Valuation

- 13.3.1 The valuation of the assets will be undertaken by using the valuation principles, basis and rules recommended in the ‘Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting’ published by CIPFA in 2010.
- 13.3.2 The purpose of this Code is to support an Asset Management Plan (AMP) based approach to the provision of financial information about local authority transport infrastructure assets. The Code’s approach to generating financial information and provides some advice on how this can be used to support better decision making and the delivery of efficiency savings.
- 13.3.3 This Code therefore uses a different accounting approach. Depreciated Replacement Cost (DRC) is a method of valuation that provides the current cost of replacing an asset with its modern equivalent asset, less deductions for all physical deterioration and impairment. Gross replacement cost (GRC) is based on the cost of constructing an equivalent new asset, and the difference between the gross and depreciated cost is the cost of restoring the asset from its present condition to ‘as new’.
- 13.3.4 Annual depreciation is calculated by identifying all the capital treatments needed to maintain assets or key components over their life cycles and then spreading the total cost evenly over the number of years in the life cycle. Calculated in this way, annual depreciation not only represents the annual consumption of service benefits but also provides a measure of what on average needs to be spent year on year to maintain the assets in a steady state.
- 13.3.5 The financial information model advised by this code is shown in figure 13.1 (extracts taken from CIPFA code of practice on transport infrastructure assets - 2010)



13.4 General

13.4.1 The following are key drivers for the Highways Asset Valuation.

- **To emphasise the need to preserve the highway infrastructure** by placing a monetary value on it, by monitoring how it is changing with time and by investing in the preservation of the asset base. However, it is important to recognise that the asset value represents only the monetary value of the assets and not the ‘worth’ of the assets to the society.
- **To support improved asset management** by implementing improved highway asset management practices to demonstrate sustainability of the assets.
- **To support the Whole of Government Accounts** by providing better information on costs, assets, liability, consumption and investment every year.

Principles, Basis and Rules

13.4.2 The following valuation principles, basis and rules, as recommended in the ‘Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting’ published by CIPFA in 2010 are adopted.

- **Basis of Valuation** will be the Depreciated Replacement Cost, established by deducting the Accumulated Depreciation & Impairment from the Gross Replacement Cost.
- **Modern Equivalent Asset** concept will be used in valuing the existing assets of technologically obsolete construction form.
- **Heritage Assets and Other Assets Important to the Character of the Area** will be valued individually using engineering judgement and experience and the concept of Modern Equivalent Asset.

13.4.3 **Depreciation Methodology**

The current asset value is determined by undertaking a Depreciated Replacement Cost (DRC) valuation. A DRC valuation is a method of assessing asset value which provides the current cost of replacing an asset after deducting an allowance for the wear and ageing arising from the consumed service life of the asset. The DRC is derived from:

$DRC = \text{Gross Replacement Cost (GRC)} - \text{Accumulated Consumption (AC)}$,
where

- GRC = the cost of replacing an existing asset with an equivalent new (modern equivalent) asset. The GRC does not make any provision for improvements to the capacity of the asset.
- AC = the consumption of an asset during its life due to ageing, usage, deterioration, damage, a fall in the Level of Service and obsolescence

Current Status

In 2009/10 a GRC was required to be completed by all Councils as part of their WGA returns. Table 13.2 shows the figures submitted by Leicester City Council.

Table 13.2 WGA for highway assets (2010)

Carriageway	£543,508,550
Footways	£109,610,605
Linear items	£307,569,245
total	£960,688,401
Carriageway/footway gross replacement cost (94.7)	£909,771,916

13.5 **Asset Inventory**

13.5.1 The Asset Inventory will be developed in accordance with the CSS Framework for Highway Asset Management, covering the needs of the Asset Valuation. To support the asset valuation, the asset inventory will include the **Asset Register** (Table 13.3) listing assets in our ownership and **Valuation Data** recording features that influence the asset values.

13.5.2 Inventory information is collected through various surveys and provided by people involved in the acquisition, creation, maintenance and disposal of the assets. The two types of inventories being collected are:

- Highway inventory - lengths, widths, surface type, construction type, speed limits, radius of bends, and number of lanes.
- Feature inventory - number of and locations of roundabouts, road and footway drainage items, street name plates, street furniture and hard/soft verges.

13.5.3 The highways Maintenance Group is responsible for activities for the collection of inventory, condition and maintenance strategies and other respective asset managers are responsible for collecting various transport assets like (traffic signal, street lighting etc). Roads and footway widths are being collected through annual surveys and a stringent timetable is set for inventory information by CIPFA for asset valuations. The key dates being:

- 2009-10 provide Gross Replacement Cost (GRC) figures
- 2010-11 provide Depreciated Replacement Costs (DRC) figures To do once all data sets have arrived, expected completion by end Feb 2011
- 2011-12 provide full dry run GRC and DRC balances
- 2012-13 provide WGA full financial statements
- The vast majority of the GRC value is based on Carriageway and Footway areas
 - Existing model allows for default widths and no footway information **(but not from 2011/12)**
 - It will be essential to have reliable length and width information for carriageway and footways from 2011/12

13.5.4 To inform the **Asset Classification** key cost drivers that influence the Unit Rates and Gross Replacement Cost are identified. In the main they include asset type, construction form, usage and location. Accordingly the assets are classified with three levels, Asset Type, Asset Group and Asset Components, as shown in Table 13.4

13.5.5 We have recently (March 2007) joined the Midlands Services Improvement Group (MSIG), which initially included the shire authorities. MSIG has a working group addressing the valuation requirements and it has so far established some unit rates for calculating the broad brush valuation. In doing this exercise, a distinction is drawn in unit rates between the rural and urban authorities. It is anticipated that as more guidance becomes available, MSIG working group will be developing more detailed valuation framework for use by its member authorities. We have used the initial rates to determine our initial valuation of £1.1 billion Gross Replacement Cost (Table 13.3).

Improvement action: “To complete asset valuation

Table 13.3 Asset Register with Gross Replacement Cost (GRC) (Based on unit rates as at April 2007, excluding land costs)		
Asset	Quantity	GRC Value (£000's)
Principal Roads	65 km	89,838
Classified Roads	67 km	69,449
Unclassified Roads	656 km	433,026

Footways	1300 km	104,000
Rights of Way	34 km	2,704
Lighting Columns	32,048 no	32,048
Wall Mounted Fittings	966 no	966
Subway Fittings	788 no	788
Lighting Units	34,467 no	3,447
Illuminated Signs	4,874 no	2,437
Illuminated Bollards	1,862 no	1,862
Traffic Signals	321 no	32,100
Culverts	24 no	31,000
Footbridges	46 no	15,000
Bridges	106 no	128,000
Gantries	12 no	2,000
Tunnel	1 no	2,000
Subway	10 no	20,000
Retaining Walls	16 no	4,000
Street Trees	21,000 no	63,000
Verges	138 hectares	20,700
Street Furniture	Unknown	10,000 (estimated)
Winter Service Equipment	Item	1,000
Car Parks & Bus Station	Item	50,635
	TOTAL	1,130,000

The classification has three levels. These are defined in the CIPFA code of practice on transport infrastructure assets -2010 as follows:

Level 1: Asset types – broad categories based on the general function of the assets. They divide the asset base into categories that may be suitable for reporting in the financial statement and provide an appropriate basis for high-level management information.

Level 2: Asset groups – used to distinguish between assets that have a similar function and form.

Level 3: Components – distinguished between components that, at least when systems become well developed, may require individual depreciation and impairment models, such as different service lives and/or rates of deterioration.

Table 13.4 – classification of assets by type and group

Level 1 Asset type	Level 2 Asset group	Level 3 Components that level 2 implicitly covers
Carriageway	Area (square metre) based elements <ul style="list-style-type: none"> ▪ Flexible pavements ▪ Flexible composite pavement ▪ Rigid concrete pavement ▪ Rigid composite pavements 	<ul style="list-style-type: none"> ▪ Pavement layers ▪ Other surface types, e.g. paved ▪ Central reservation, roundabouts, lay-by, traffic island, etc ▪ Earthworks (embankments and cuttings, retaining walls height <1.35m) ▪ Traffic calming

	Linear elements (see section 6.7.2.2)	<ul style="list-style-type: none"> ▪ Kerbs ▪ Line markings ▪ Road studs <p>Road drainage elements (gullies, drains, etc, but not ,large structures)</p>
Footways and cycletracks (attached to the road or segregated)	<ul style="list-style-type: none"> ▪ Footways ▪ Pedestrian areas ▪ Footpaths ▪ Cycletracks 	<ul style="list-style-type: none"> ▪ Pavement Layers ▪ Other surface types, eg block paving, unbound materials
Structures	<ul style="list-style-type: none"> ▪ Bridges (span >1.5m) ▪ Cantilever road sign ▪ Chamber/cellar/vault ▪ Culverts (span >0.9m) ▪ High mast lightning columns (height >20m) ▪ Retaining walls (height >1.35m) ▪ Signs/signal gantries and cantilever road signs ▪ Structural earthworks, eg strengthened/reinforced soils (all structures with an effective retained height of 1.5m or more) ▪ Underpass/subway: pedestrian (span of 1.5m or more) ▪ Underpass: vehicular ▪ Special structure 	All elements identified on the CSS inspection pro forma Smaller water-carrying structures are considered as road drainage
Highway lighting	<ul style="list-style-type: none"> ▪ Lighting columns ▪ Lighting unit attached to wall/wooded pole ▪ Heritage columns ▪ Illuminated bollards ▪ Illuminated traffic signs 	<ul style="list-style-type: none"> ▪ Column and foundations ▪ Bracket ▪ Luminaires ▪ Control equipment, cables ▪ Control gear, switching, internal wiring cabling (within ownership)
Street furniture	<ul style="list-style-type: none"> ▪ Transport ▪ Highway ▪ Streetscene/amenity 	<ul style="list-style-type: none"> ▪ Traffic signs (non-illuminated) ▪ Safety fences ▪ Pedestrian barriers ▪ Street name plates ▪ Bins ▪ Bollards ▪ Bus shelters ▪ Grit bins ▪ Cattle grids ▪ Gates ▪ Trees/tree protection, etc ▪ Seating ▪ Verge marker posts ▪ Weather station
Traffic management systems	<ul style="list-style-type: none"> ▪ Traffic signals ▪ Pedestrian signals ▪ Zebra crossings ▪ In-station ▪ Information systems 	<ul style="list-style-type: none"> ▪ Different types ▪ Complete installation ▪ Variable message signs ▪ Vehicle activated signs ▪ Real time passenger information

	<ul style="list-style-type: none"> ▪ Safety cameras 	
Land	<ul style="list-style-type: none"> ▪ Freehold land ▪ Right land 	Features on the land are not taken into account in the valuation

13.6 Accounting and Financial System

13.6.1 Assets created during the year are recorded in the Corporate Asset Register through the Agresso software. At the year end, asset managers report asset under construction to the Corporate Finance Team reporting the asset valuation for the accounting purposes.

13.6.2 In spring 2007 a corporate review of all asset management systems was undertaken with a view to linking various existing systems to automate the asset valuation exercise. It is intended that transport asset management valuation will link into any corporate system that is implemented as a result of the review.

13.7 Improvement Plan for Asset Valuation

13.7.1 The improvement plan for this chapter is included here:

Table 13.5 Valuation Improvement Plan					
Paragraph Reference	Improvement Action	Priority	Lead	Target Date	Est. Cost
13.5.5	To complete asset valuation.	1	RMK	March 2012	Within staff budget

Chapter 14 – Forward Works Programme

14.1 Introduction, Purpose and Rationale

- 14.1.1 our forward works programme is part of the Leicester's Local Transport Plan (LTP) Part B – Leicester's First Implementation Plan 2011 to 2015 and is detailed there in. The main purpose of this implementation plan is to act as a detailed business plan for implementing the interventions that will deliver the transport policies and strategies of the Leicester's Local Transport Plan-3 and Transport Asset Management Plan. It sets out the targets we are aiming to achieve, the LTP Programme to meet those targets and explains how we will be managing and monitoring progress over the next four years. Indicators and targets specifically relating to management and maintenance of our highway and transport assets are detailed in the corresponding chapters of Transport Asset Management Plan.
- 14.1.2 The programmes have been developed to maximise value for money and efficient delivery. We have analysed the best value for money solutions, against the targets, from the options available. Following a number of iterations, and having considered what realistically might be achieved on the ground, we have developed a programme to maximise the value delivered for the capital and revenue money likely to be available against the required outcomes.
- 14.1.3 The focus of the overall LTP3 programme will be on sustainable transport that will help grow the economy, protect and create jobs, whilst reducing carbon emissions and helping to improve air quality, encouraging active and safe travel and improving accessibility, with well maintained assets.

Appendix A

**Strategic and Operational Level Asset Risk Registers and the
Forward Works Programme Risk Register**

Transport Asset Management Plan Strategic Level Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Severe weather leading snow or ice on highway, fallen trees blocking highway, flooding blocking highway causing disruption to highway users and damage to property	Team Leader Transport Strategy (Asset Manager)	Team Leader Highway Asset Management	High	Med	High	Winter Service Operational Plan, Departmental Emergency Plan	High	Med	High	Worse	Prepare strategy to deal with increasing likelihood of local flooding Review trees routine maintenance standards
2	Disruption to highway users due to works in the highway	Head Of Traffic management (Traffic Manager)	Team Leader Traffic Operations	High	High	High	Network Management Procedures, scheme specific traffic management measures	Low	Low	Low	Better	Continue to develop network management procedures and implementing Traffic Management Act - on-going
3	Death or injury to highway user as a result of a significant defect in the highway infrastructure	Team Leader Transport Strategy (Asset Manager)	Individual Asset Grouping Asset Managers	Med	High	High	Design Standards. Routine Maintenance Procedures and Standards, Competent staff	Med	High	High	Worse	Continue to implement routine maintenance procedures
4	Major restriction in availability of the highway due to poor condition of a highway network element ie bridge	Team Leader Transport Strategy (Asset Manager)	Individual Asset Grouping Asset Managers	High	High	High	Routine Maintenance Procedures and Standards, renewals and replacement programmes, emergency procedures	High	Med	Med	Worse	Continue to implement renewals and replacement programmes when budgets allow

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
5	Defective maintenance works leading to the need for remedial works leading to disruption to highway users	Team Leader Transport Strategy (Asset Manager)	Individual Asset Grouping Asset Managers	Med	Med	Med	Robust procurement strategy and supplier selection procedures in place, robust maintenance contracts in place	Low	Med	Low	Same	Complete implementation of remaining maintenance contracts – Traffic Signals – Group Manager Transport Systems
6	Aquisition of sub-standard transport and highway infrastructure	Head of Transport Strategy	Team Leader Transport Strategy (Asset Manager)	Med	High	High	Robust highway development control procedures in place, well trained highway development control staff employed, robust legal agreements used	Low	Low	Low	Same	
7	Successful injury claim against the Council as a result of defective highway	Head Highway Maintenance	Team Leaders Highway Asset Management	Med	High	High	Routine Maintenance Procedures and Standards, renewals and replacement programmes, emergency procedures, robust claims processing procedure	Med	High	High	Worse	Continue to implement routine maintenance procedures and claims procedure, keep under review - Head of Highway Management, on-going

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
8	Collapse of or major fire at building adjacent to highway leading to road closure leading to disruption to highway users	Head of Traffic Management (Traffic Manager)	Team Leader Traffic Operations	High	High	High	Network Management Procedures	Med	Med	Med	Same	Continue to develop network management procedures and implementing Traffic Management Act - Team Leader Traffic operations - on-going
9	Collapse of or major fire at Highways and Transportation building leading to reduced network management capability leading to disruption to highway users and bus users	Head of Traffic Management (Traffic Manager)	Team Leader Traffic Operations	Med	Med	Med	Building security and safety management measures	Med	Low	Low	Same	Preparation of and implementation of Business Continuity Plan (current Strategic Service Plan Improvement Project - Group Manager Transport System)
10	Not implementing new legislation to given timescale	Divisional Director	Relevant Head of Service	High	Med	High	Quality Management System, competent staff, membership of technical working groups	High	Low	Med	Same	
11	Department for Transport awarding reduced funding for maintenance leading to reduced level of service to highway users	Divisional Director	Head of Transport Strategy	High	High	High	Quality Management System, "Excellent" Central Leicestershire Local Transport Plan, Transport Asset Management Plan prepared, competent staff,	High	High	High	Worse	
No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		

Appendixes

12	Difficulty in recruiting and/or retaining appropriate staff leading to reduced level of service	Divisional Director	Head of Transport Strategy	High	High	High	Corporate Recruitment Procedures, Some career graded posts Training & Development Procedure,	High	Low	Med	Worse	Review need for graduate engineer and technician training schemes
13	Inadequate construction resource leading to essential schemes not being constructed.	Head of Design & Project Management	Team Leader Project Management	High	High	High	Framework & Term Maintenance Contracts in place.	High	High	High	Worse	
14	Social issues (including crime & disorder) affecting accessibility and safety of the highway network.	Service Director Regeneration, Highways & Transportation	Heads of Service	High	High	High	Corporate procedures based on powers available to the authority.	Med	Med	Med	Worse	
15	Unsafe working practices or lack of training on construction site leading to death or injury to staff	Heads of Service	Team Leaders, staff	High	Med	High	Training, PPE, routine inspection & scheme specific risk assessments, compliance with Health & Safety at Work Act, codes of practice, other legislative, local and special requirements including CDM Regulations.	High	Med	High	Worse	

Carriageway and Footways Asset Management Risk Register January 2011

Appendix No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Incomplete asset inventory leading to reduced ability to manage the asset effectively	Head of Transport Strategy	Team Leader Highways Asset Strategy	High	High	High	Competent staff Programme of condition surveys	Med	Med	Med	Same	Asset Grouping improvement actions
2	Not taking advantage of developments in technology leading to less efficient management of the network leading to reduced level of service.	Head of Transport Strategy	Team Leader Transport Strategy	High	High	High	Quality Management System promoting continuous improvement culture	Med	Med	Med	Worse	Asset grouping improvement actions.
3	Out of date network hierarchies leading to poor management of the network leading to reduced level of service.	Head of Transport Strategy	Team Leader Transport Strategy	Med	Med	Med	Road classification procedure	Med	Med	Med	Worse	
4	Sudden collapse of highway causing accidents, congestion, disruption and pollution.	Divisional Director	Head of Highway Maintenance	High	Med	High	Routine maintenance standards and procedures, design standards Emergency Plan	Med	Med	Med	Same	On-going implementation of routine maintenance and renewals and replacement programmes
5	Inappropriate selection of materials and treatments leading to increased whole life costs.	Head of Transport Strategy	Team Leader Transport Strategy	High	Med	High	Competent staff	High	Med	High	Worse	Develop material and treatment selection procedures including budget costings.
6	Inappropriate/poor road markings causing accidents and congestion.	Head of Transport Strategy	Team Leader Transport Strategy	Med	Med	Med	Design standards, Competent staff	Med	Med	Med	Worse	Develop inspection procedure.
7	Environmental - damage to environment by use of harmful materials and lack of using recycled materials.	Head of Highway Maintenance & Head of Transport Strategy	Operations Manager City Highways	High	Med	High	Environmental Management Audit System and recycling targets.	High	Med	Med	Worse	Monitor recycling targets.
No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
8	Dangerous highway defect causing accident, injury or damage to property.	Head of Highway Maintenance	Team Leaders Highway Asset Management	High	High	High	Routine safety inspections & safety defect intervention levels.	Med	Med	High	Worse	Regular review of inspection frequencies and intervention levels.

Appendixes

9	Mud or other substances on the highway causing accidents, complaints.	Head of Highway Maintenance	Team Leaders Highway Asset Management	Med	Med	Med	Routine inspections and reporting facilities	Med	Med	Med	Worse	
10	Damage to verges due to vehicle parking and overriding.	Head of Highway Maintenance	Team Leaders Highway Asset Management	High	Med	High	Statutory enforcement procedure.	Med	Med	Med	Same	Develop verge hardening programme for trouble spots and off-street parking.
11	Blocked gullies leading to localised flooding and ponding.	Head of Highway Maintenance	Team Leaders Highway Asset Management	High	High	High	Routine maintenance standards and procedures	Med	Low	Med	Better	Prepare flooding strategy including review of gully cleaning arrangements.
12	Missing out defects during safety inspection leading to repairs being not undertaken leading to increased possibility of accident.	Head of Highway Maintenance	Team Leaders Highway Asset Management	Med	Med	Med	Experienced staff and regular planned inspections.	Low	Med	Low	Same	
13	Repairs not completed on time or satisfactorily leading to customer injuries/dissatisfaction.	Head of Highway Maintenance	Team Leaders Highway Asset Management	High	Med	High	Random sample checking and making City Highways aware of problems.	High	Med	High	Worse	Ensure City Highways have adequate works checking procedures.
14	Unlicensed skips, scaffolds, hoardings or materials on highway causing obstruction, accidents.	Head of Highway Maintenance	Team Leaders Highway Asset Management	High	Med	High	Regular inspection, knowing items licensed and complaints service.	High	Low	Med	Same	Maintain adequate staff resources.

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
15	Building works adjacent to the highway leading to damage to the highway	Head of Highway Maintenance	Team Leaders Highway Asset Management	High	Med	High	Contact form developed for distribution with planning applications & building regulation applications routine safety inspections complaints system.	Med	Low	Low	Better	Continue to ensure before and after conditions are recorded.
16	Vehicles driving from road to driveway over footway where no vehicular crossing leading to damage to the highway	Head of Highway Maintenance	Team Leaders Highway Asset Management	High	Med	High	Footway crossings offered, work in progress reduced price, letters sent to 'offenders', routine safety inspections.	Med	Low	Low	Better	
17	Dangerous utility apparatus in highway causing accidents.	Head of Highway Maintenance	Team Leaders Highway Asset Management	High	Med	High	Routine safety inspections, complaints service, S81 details sent to utilities.	High	Low	Med	Better	
18	Utility companies digging up highway soon after maintenance schemes completed.	Head of Highway Maintenance & Head of Traffic Management	Team Leaders Highway Asset Management + Traffic Operations Team	High	Med	High	NRSWA co-ordination meetings & enforcement of Section 58 Notices.	High	Low	Med	Better	
19	Utility company reinstatements not completed to specification leaving dangerous defects and leading to deterioration of the highway.	Head of Highway Maintenance & Head of Traffic Management	Team Leader Traffic Operations Team	High	Med	High	Sample inspections & supervision of utility works.	High	Low	Med	Same	Increase percentage of Category C inspections
20	Safety inspections not completed on time leading to urgent repairs not being done and likely injuries.	Head of Highway Maintenance	Team Leaders Highway Asset Management	High	Med	High	Database generated inspection schedules, outstanding inspections known.	High	Low	Med	Same	.

Highway Structures Asset Management Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Bridge works causing disruption to highway users and impacting on business,(claims & litigation)	Head of Design & Project Management	Team Leader (Bridges)	High	Med	High	Planning, timing, liaison with stakeholders, letter drops, public notices, media & radio broadcasts	Med	Med	Med	Same	
2	Vandalism:Risk to Health & Safety, injury, effect on budget and works programmes.	Head of Design & Project Management	Team Leader (Bridges)	Med	Med	Med	Emergency action from incident reporting, safety inspection Incident reporting recorded on BMX database	Low	Med	Low	Better	Seek improvement in procurement & completion of emergency works.
3	Bridge condition deteriorating leading to reduced load carrying capacity leading to reduced availability of highway network	Head of Design & Project Management	Team Leader (Bridges)	Med	Low	Low	Routine maintenance standards and procedures, renewals works programme	Low	Low	Low	Same	
4	Flooding, scour, undermining, high winds and other natural events leading to structural damage	Head of Design & Project Management	Team Leader (Bridges)	Med	Low	Low	Removal of vegetation,silt,debris as reported in routine inspections. Reactive works following winds and other natural causes.	Low	Low	Low	Worse	Need regular clearing of watercourses, drainage systems. Implement routine underwater inspection of major river bridges.

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
5	Unauthorised abnormal loads using bridge causing structural damage	Head of Design & Project Management	Team Leader (Bridges)	Med	Med	Low	Abnormal load movements managed through notifications , fax, paper copies, look up charts & maps. Rely on the old HB model.	Med	Low	Low	Same	Develop electronic database. Investigate ESDAL system. Reassess all road bridges for abnormal loads in accordance with BD86 for the SV models which more closely model heavy vehicles than the old HB model.
6	Bridge strikes causing structural damage, road closures	Head of Design & Project Management	Team Leader (Bridges)	Med	Med	Low	Co-ordination of abnormal load movements, headroom signage	Med	Low	Low	Same	Headroom signage to be completed
7	Loose or displaced elements, falling objects leading to personal injury	Head of Design & Project Management	Team Leader (Bridges)	High	Med	High	Routine maintenance standards, Reactive works arising from general vigilance, incident reporting, non-routine & routine inspections	Med	Low	Low	Same	Consider regular superficial inspections
8	Retaining wall collapse resulting in injury, route closures	Head of Design & Project Management	Team Leader (Bridges)	Med	Low	Low	Reactive works arising from general vigilance, incident reporting, non-routine & routine inspections	Med	Low	Low	Same	Identify all highway walls and implement routine inspections.

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
9	Embankment & cutting: collapses with risk of injury & route closure	Head of Design & Project Management	Team Leader (Bridges)	High	Low	Med	Rely on general vigilance	High	Low	Med	Same	Identify all embankments & cuttings and implement inspections
10	Sign/signal gantries, tee-posts, high mast lighting: collapsing leading to injury	Head of Design & Project Management	Team Leader (Bridges)	High	Low	Med	Rely on general vigilance, internal & external reporting	High	Low	Med	Same	Implement inspection regime.
11	Road over rail incursions: serious risk to Health & Safety of rail and road traffic	Head of Design & Project Management	Team Leader (Bridges)	High	Med	Med	Risk rankings in place. Safety fencing provided on 1 bridge. 3 bridges at risk but not in Railtrack's priority list for funding.	High	Med	Med	Same	Need further inspection, assessment and action plan
12	Substandard parapets, barriers: personal injury from inadequate containment of vehicular impact	Head of Design & Project Management	Team Leader (Bridges)	Med	Med	Med	Accept risk of substandard parapets, barriers. (A563 bridge parapets & crash barriers replaced).	Med	Med	Med	Same	Repair/replace defective elements.
13	Environmental impact: Pollution/damage from noise, vibration, explosives, blasting, dust. Damage to environment from waste disposal and pollutants entering air, water or land.	Head of Design & Project Management	Team Leader (Bridges)	Med	Med	Med	Compliance with EMAS, legislative and local requirements, CDM Regulations. Method Statements.	Low	Low	Low	Better	Seek any further improvements through design, specification, use of sustainable & environmentally friendly materials
14	Loss of skilled staff impacting on quality of service,	Head of Design & Project Management	Team Leader (Bridges)	Med	Med	Med	Training, employment of temporary skilled/unskilled staff	Low	Med	Med	Worse	

Car Parks Asset Management Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Major fire or bomb explosion leading to a multi storey car park out of use	Team Leader Parking	Parking enforcement contractor	High	Low	Med	Evacuation procedure	Med	Low	Low	Same	
2	Loss of essential front line parking staff and key management staff due to illness etc. leading to reduced ability to provide service and process fines	Team Leader Parking	Parking enforcement contractor	Med	Med	Med	High quality office environment, office health and safety plan, Council has Temporary Staffing Agency and External Agency Staff Contract. Contractor can bring in outside staff in an emergency.	Med	Low	Low	Same	
3	Loss of IT Langdale Systems leading to parking fines not being logged and recorded. Payment systems going down	Team Leader Parking	Team Leader Parking	High	Low	Med	Back up systems in place on a separate site to ensure Langdale System continues to operate. Temporary alternative payment arrangements.	Med	Low	Low	Same	

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
4	Reduced funding to maintain and replace equipment	Head of Transport Development	Team Leader Parking	High	Low	Med	Car Parks Life cycle management plan	Med	Low	Low	Same	Improvement actions
5	Parking enforcement contractor financially insecure leading to bankruptcy and no longer able to manage the car parks on a day to day basis	Team Leader Parking	Team Leader Parking	High	Low	Med	Regularly check financial health of contractor, regularly meet with contractor in managing contract	Med	Low	Low	Same	
6	Reduced usage of the car parks due to a loss of stakeholder confidence ie. state of cleanliness or an insecure or unsafe facility	Team Leader Parking	Head of Cleansing Services and Director of parking enforcement contractor	High	Low	Med	Routine maintenance standards	Med	Low	Low	Same	Customer satisfaction surveys every three years to identify areas for attention
7	Reduced access to the car parks due to works in the highway leading to reduced income	Team Leader Parking	Highways Management	Med	Med	Med	Highway Network Management Procedures.	Med	Low	Low	Same	
8	Collapse of car park entrance gantry leading to accident leading to death or serious injury	Team Leader Parking	Team Leader Building Maintenance	High	Low	Med	Routine Maintenance Stds in place. Any defects or remedial repairs are referred for immediate action	High	Low	Med	Same	

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
9	Risk of attack on user of car park leading to death or injury	Team Leader Parking	Team Leader Parking	High	Low	Med	Routine Maintenance Stds in place, good level of lighting, CCTV system. Security patrols and Parking Attendants presence to deter attacks	Med	Low	Low	Same	
10	Risk of pedestrians being hit within the car parks by circulating vehicles	Team Leader Parking	Parking Enforcement Contractor	High	Low	Med	Risk minimised through design of the car parks ensuring that the car parking bays and circulation routes are clearly marked. Max` speed limit signs and pedestrian routes clearly signed.	Med	Low	Low	Same	
11	Risk of Fire and danger to pedestrians in the car park.	Team Leader Parking	Parking Enforcement Contractor	High	Low	Med	Fire extinguishers, fire & emergency exits signed. Fire alarms and annual fire drill. Full training given to parking management staff.	Med	Low	Low	Better	

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
12	Bomb Threat	Team Leader Parking	Parking Enforcement Contractor	High	Low	Med	Bomb threat procedures in place and training given to parking management staff to deal with any threats involving clearing the car parks.	Med	Low	Low	Same	
13	Payment machines breaking down resulting in lost income and customer inconvenience.	Team Leader Parking	Parking Enforcement Contractor	High	Low	Med	Routine maintenance standards.	Med	Low	Low	Same	
14	Mechanical/ electrical problems with lifts, roller shutters, fire doors, lighting, CCTV, payment machines etc. causing problems to the parking service	Team Leader Parking	Team Leader Building Maintenance	Med	Low	Low	Routine maintenance standards.	Med	Low	Low	Same	Customer satisfaction surveys every three years to identify areas for attention
15	Structurally unsafe multi-storey car parks leading to closure	Team Leader Parking	Team Leader Parking	High	Low	Med	Routine maintenance standards.	Med	Low	Low	Same	
16	Environmentally unfriendly and Dirty car park deterring customers.	Team Leader Parking	Head of Cleansing Services	Med	Med	Med	Comprehensive cleaning regime.	Med	Low	Low	Better	Customer satisfaction surveys every three years to identify areas for attention

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
17	Deterioration of electrical and mechanical equipment together with overall car park infrastructure over a period of years.	Team Leader Parking	Team Leader Buiding Maintenance	High	Low	Med	Routine maintenance standards and replacement programme	Med	Low	Low	Same	

St Margaret's Bus Station Asset Management Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure	
1	Bus hitting user leading to death or serious injury, or other breach of Duty (HSAWA)	Team Leader Sustainable Transport	Team Leader Sustainable transport	High	Low	Med	Risk minimised through design of bus station, trained drivers, doors separating passengers from buses until boarding	Med	Low	Low	Same
2	Risk of attack on user of bus station leading to injury	Team Leader Sustainable Transport	Bus station manager	Med	Med	Med	CCTV in place, bus station manager on site, bus drivers café now on site leading to more presence. Security staff employed on site with flexible contract, log of incidents kept to plan cover and review action	Med	Low	Low	Same
3	Wet floor in bus station leading to slip leading to injury	Team Leader Sustainable Transport	Team Leader Building Maintenance	Med	Low	Low	Routine Maintenance Stds in place. Cleansing SLA in place. Daily "walking" H&S inspections	Low	Low	Low	Same
4	Fire or bomb incident	Team Leader Sustainable Transport	Bus station manager	High	Low	Med	Station H&S plan includes bomb and fire procedures. PAT tests, CCTV. Leases forum includes H&S	Med	Low	Low	Same

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure	
5	IT failure leads to loss of timetable information, CCTV	Team Leader Sustainable Transport	Team Leader, TSS	Low	Low	Low	Routine maintenance contract in place	Low	Low	Low	Same
6	Management staff unavailable, leading to loss of tactical and strategic leadership	Section Head Transport Development	Team Leader Sustainable Transport	High	Low	Med	Recruitment and selection procedure, Transport Development business plan	Low	Low	Low	Same
7	Financial loss resulting from stakeholder loss of business/bankruptcy	Team Leader Sustainable Transport	Public Transport Co-Ordinator	High	Low	Med	Bilateral meetings with Arriva, Nat. Express, staff business awareness, Bus Operations Group	Med	Low	Low	Same
8	Passenger Satisfaction falls	Team Leader Sustainable Transport	Public Transport Co-Ordinator	Med	Low	Low	Bus information Strategy, passenger surveys, Bus station H&S plan (cleaning SLA) Security protocols	Low	Low	Low	Better
9	Loss of stakeholder confidence	Team Leader Sustainable Transport	Public Transport Co-Ordinator	High	Low	Med	Leasees Forum, Bus Operations Group, Cleansing SLA	Med	Low	Low	Better
10	Loss of building access due to bad weather	Team Leader Sustainable Transport	Head of Highway Management	Med	Low	Low	Winter Service Operational Plan	Low	Low	Low	Same
11	Loss of building access due to accident or works on adjacent highway	Team Leader Sustainable Transport	Team Leader Traffic Operations	Med	Low	Low	Leicester City Council Highway Network Management Procedures	Low	Low	Low	Better

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure	
12	loss of building access due to disease	Team Leader Sustainable Transport	Head of Cleansing Services	High	Low	Med	Legionella management plan. Station H&S plan	Low	Low	Low	Same
15	External emergency leading to closure of faciity	Team Leader Sustainable Transport	Public Transport Co-Ordinator	High	Low	Med	Leicester City Council Major Emergency Plan	Low	Low	Low	Same

Street Lighting Asset Management Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Collapse of steel lighting column leading to death or serious injury	Head of Highway Maintenance	Team Leader Street Lighting Maintenance	High	Med	High	Routine Maintenance Stds including ultrasound testing, daytime visual inspections	Med	Low	Low	Same	
2	Collapse of steel traffic sign post leading to death or serious injury	Head of Highway Maintenance	Team Leader Street Lighting Maintenance	Med	Low	Low	Routine Maintenance Stds including ultrasound testing, daytime visual inspections	Med	Low	Low	Same	
3	Collapse of concrete lighting column leading to death or serious injury	Head of Highway Maintenance	Team Leader Street Lighting Maintenance	High	Med	High	Routine Maintenance Stds including daytime visual inspections	High	Low	Med	Better	Complete concrete column (with steel) replacement programme
4	One or more street lights go dark leading to pedestrian or vehicle accident leading to death or injury	Head of Highway Maintenance	Team Leader Street Lighting Maintenance	High	Med	High	Routine Maintenance Stds including night time visual inspections	Med	Low	Low	Same	
5	Exposed live electrical connection leading to death or serious injury	Head of Highway Maintenance	Team Leader Street Lighting Maintenance	High	Med	High	Routine Maintenance Stds including night time visual inspections	High	Low	Med	Same	Replace remaining cast iron columns

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
6	Failure of REC supply to a number of lighting units leading to pedestrian or vehicle accident resulting in death or serious injury	Head of Highway Maintenance	Team Leader Street Lighting Maintenance	High	Med	High	Routine Maintenance Stds including night time visual inspections. Regular operations meetings with REC	Med	Low	Low	Better	Monitor performance of REC against SLA targets.
7	Failure of authority owned supply cable to a number of lighting units leading to pedestrian or vehicle accident resulting in death or serious injury	Head of Highway Maintenance	Team Leader Street Lighting Maintenance	High	Low	Med	Routine Maintenance Stds including electrical testing, night time visual inspections	Med	Low	Low	Same	Agreement required with contractor for levels of service on repairing underground cable faults
8	Unauthorised attachment of traffic equipment to lighting columns not structurally capable of accepting additional weight leading to collapse resulting in death or serious injury.	Head of Highway Maintenance	Team Leader Street Lighting Maintenance	High	High	High	Guidance to traffic engineers to contact public lighting group for authority before fixing equipment to columns	High	Low	Med	Worse	Further training of traffic engineers of safety issues when installing equipment
9	Delay in contractor switching off authority owned supply to allow emergency services safe access to vehicle RTA outside of normal working hours due to incomplete cable network information.	Head of Highway Maintenance	Team Leader Street Lighting Maintenance	Med	Med	Med	Emergency procedures	Med	Low	Low	Same	Update new cable component within inventory system. Consider labels within all equipment giving circuit and isolation information.

Traffic Signals & Associated Equipment Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Electricity power supply to Traffic Control system and other systems at York House fails leading to signals defaulting to standard timings leading to traffic delays and potential hardware damage due to accompanying un-controlled systems shut-down.	Head of Traffic Management	Team Leader Maintenance & Systems Support	Med	Med	Med	Higher quality incoming mains supply has been installed and adequate provision of UPS equipment to allow orderly shut down.	Med	Low	Low	Same	Secondary mains supply with auto switch-over circuit to be considered (£20k). Provision of Standby generator an option.
2	Long term Traffic Control System failure leading to signals defaulting to standard timings leading to delays to traffic	Head of Traffic Management	Team Leader Maintenance & Systems Support	High	High	High	Comprehensive maintenance contracts in place. Critical spares held where practicable	High	Low	Med	Same	
3	Long term Star Trak System failure leading to real time information not being available leading to bus passengers using other mode of travel leading to increased congestion	Head of Traffic Management	Team Leader Maintenance & Systems Support	Med	Med	Med	Comprehensive maintenance contracts in place. Critical spares held where practicable	Med	Low	Low	Same	

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
4	Systems servers fail leading to loss of data, leading to delays to traffic	Head of Traffic Management	Team Leader Maintenance & Systems Support	Med	Med	Med	Regular hardware replacements to mitigate failures. Back up procedures in place with on site and off site data storage	Med	Low	Low	Same	
5	Major catastrophe leading to unavailability of building	Head of Traffic Management	Head of Service Traffic Management	High	Low	Med	Building security in place. Fire alarm system in place and regularly tested and maintained. Regime of regular fire inspections in place.	High	Low	Med	Same	Business Continuity Plan being prepared – improvement project SSPIP 7
6	Inadequate capital and revenue funding for maintenance commitments to support an expanding service leading to systems and equipment being unsupported by maintenance contracts	Divisional Director	Head of Transport Strategy	Med	Med	Med	Transport Asset Management Plan prepared to evidence need for adequate funding	Med	Low	Low	Same	
7	Failure of major maintenance contracts leading to equipment not being maintained.	Head of Traffic Management	Team Leader Maintenance & Systems Support	Med	Med	Med	Reputable companies sourced for contracts	Med	Low	Low	Same	

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
8	Non-availability of specialist skilled staff	Head of Traffic Management	Head of Traffic Management	Med	High	High	Staff training measures in place	Med	Med	Med	Worse	
9	Breakdown of Service Level Agreements with client Authorities and commercial partners leading to loss of confidence and likely overall budget deficit	Head of Traffic Management	Head of Traffic Management	High	Med	High	Provision of quality service with frequent review meetings held to ensure bi-lateral understanding of required delivery	High	Low	Med	Better	Prepare robust business case to client s
10	Loss of communication network	Head of Traffic Management	Team Leader Maintenance & Systems Support	Med	Low	Low	Little influence on national strategy of telecommunications companies hence Installation of own network begun	Med	Low	Low	Same	
11	Failure to carry out Network Management Duty leading to imposition of a Traffic Director by the DfT	Divisional Director	Head of Traffic Management	High	Low	Med	Network Management Procedures	High	Low	Med	Same	Completion of Traffic Management Action Plan
12	Street equipment becomes live endangering the public	Head of Traffic Management	Team Leader Maintenance & Systems Support	High	Med	High	Regular Earth Loop Impedance tests carried out	High	Low	Med	Same	

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
13	Collapse of traffic signal or other street equipment leading to death or serious injury	Head of Traffic Management	Team Leader Maintenance & Systems Support	High	Med	High	Appropriate inspection and eqpt replacement regime in place	High	Low	Med	Same	
14	Fault causing traffic signals to cease working leading to pedestrian or vehicle collisions with potential of serious injury or death	Head of Traffic Management	Team Leader Maintenance & Systems Support	High	Med	High	Good quality contracts in place. Appropriate warnings of failure on street to users. Use of temporary signals of failure considered long term	High	Low	Med	Same	Establish new maintenance contract. Buying Solutions Framework Contract pending

Trees and Landscaping Asset Management Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Collapse of tree leading to death or serious injury	Head of Highway Maintenance	Team Leader Trees and Woodlands	High	Low	Med	Routine Maintenance Standards in place, surveys carried out	High	Low	Med	Same	
2	Collapse of tree due to high winds causing death or serious injury	Head of Highway Maintenance	Team Leader Trees and Woodlands	High	Low	Med	Routine Maintenance Standards in place	High	Low	High	Same	Review tree routine maintenance standards
3	Collapse of tree leading to road blocked leading to disruption to traffic	Head of Highway Maintenance	Team Leader Trees and Woodlands	Med	Low	Low	Routine Maintenance Standards in place, Traffic Management Act Action Plan being implemented	Med	Low	Low	Same	Complete implementation of Traffic Management Act action plan
4	Incorrect information on Inventory leading to delays in maintenance/repair and subsequent accident	Head of Highway Maintenance	Team Leader Trees and Woodlands	Med	Med	Med	Competent staff	Med	Low	Low	Same	
5	Vehicle hitting tree/planter leading to death or serious injury.	Head of Highway Maintenance	Team Leaders Trees and Woodlands, Team Leader Highway Asset Management	High	Low	Med	Highway design standards. Tree removed if problem, Planters only installed at safe locations	High	Low	Med	Same	

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
6	Overhanging trees/shrubs obstruct or cause accident on the highway	Head of Highway Maintenance	Team Leader Highway Asset Management	Med	Low	Low	Routine Maintenance Standards in place	Med	Low	Low	Same	Review landscaping maintenance specifications
7	Footway trip due to tree roots causing an accident	Head of Highway Maintenance	Team Leader Highway Asset Management	Med	Med	Low	Routine Maintenance Standards in place	Med	Low	Low	Same	
8	Slippery road/footway due to leaf fall causing accidents	Head of Waste Management	Group Manager, Cleansing Services	Med	Med	Med	Routine Maintenance Standards in place	Low	Med	Low	Lower	
9	Flying stones from grass mower when cutting causing accidents	Head of Parks and Green Spaces	Parks Manager	Med	Low	Low	Good Practice Guidelines in place, Trained Staff	Low	Low	Low	Same	
10	Cut grass on footway causing complaints from residents and possible accidents.	Head of Parks and Green Spaces	Parks Manager	Low	Med	Low	Good Practice Guidelines in place, Trained Staff	Low	Med	Low	Same	
11	Grass mower has accident causing injury	Head of Parks and Green Spaces	Parks Manager	Med	Low	Low	Good Practice Guidelines in place, Trained Staff	Low	Low	Low	Same	
12	Uneven grass verge causes trip accident.	Head of Highway Maintenance	Team Leader Highway Asset Management	Med	Med	Med	Routine Maintenance Standards in place	Med	Med	Med	Same	

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
13	Overgrowth of footway causes obstruction/tripping on footway	Head of Highway Maintenance	Team Leader Highway Asset Management	Low	Low	Low	Routine Maintenance Standards in place,	Low	Low	Low	Same	
14	Antisocial behaviour in shrub borders	Head of Highway Maintenance	Team Leader Highway Asset Management	Low	Low	Low	Shrub borders cut back or removed if necessary	Low	Low	Low	Same	Review landscaping maintenance specifications
15	Waste/litter in shrub borders causes pest infestation in borders and adjacent properties	Head of Highway Maintenance	Team Leader Highway Asset Management	Low	Low	Low	Borders cleaned when bushes pruned, Regular Monitoring	Low	Low	Low	Same	Review landscaping maintenance specifications
16	Inspection and Maintenance regimes not carried out or not carried out correctly leading to accidents	Head of Highway Maintenance, Head of Parks and Green Spaces	Team Leader Highway Asset Management, Parks Manager, Group Manager Cleansing Services	Med	Low	Low	Inspection and maintenance regimes in place, Staff trained	Low	Low	Low	Same	Reviews due to TAMP
17	Under investment in the trees and landscaping inspection and maintenance regime leading to accidents	Head of Highway Maintenance	Team Leader Highway Asset Management, Parks Manager, Group Manager Cleansing Services	Med	High	High		Med	High	High	Same	Reviews due to TAMP

Winter Service Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Ice or snow on road contributing to poor road condition leading to accident leading to personal injury	Head of Highway Maintenance	Group Manager Highway Maintenance	High	Low	Med	Winter Service Operational Plan, Gritting regime	Med	Low	Low	Same	Continuing review of Winter Service Operational Plan
2	Run out of salt to treat roads and footpaths leading to possible accidents	Head of Highway Maintenance	Group Manager Highway Maintenance	High	Low	Med	Winter Service Operational Plan, Large stock held, Short order period, levels monitored	Med	Low	Low	Same	GPS, more accurate monitoring method
3	Network treatment not completed due to gritter breakdown,gritter driver unavailable, gritter has accident, gridlock on highway network. All leading to possible accidents	Head of Highway Maintenance	Group Manager Highway Maintenance	Med	Med	Med	Gritters serviced, 200% gritter cover, Drivers on standby, Early weather reports	Med	Low	Low	Same	Consider using GPS
4	Failure to meet statutory duty resulting in a successful claim against the authority.	Head of Highway Maintenance	Group Manager Highway Maintenance	Med	Med	Med	Winter Service Operational Plan, Annual Review meeting, Appropriate training	Med	Low	Low	Better	

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
5	Not complying with the Winter Service Operational Plan leading to a successful claim against the authority.	Head of Highway Maintenance	Group Manager Highway Maintenance	Med	Med	Med	All staff aware of Winter Service Operational Plan, Annual Review meeting, Competent staff	Med	Low	Low	Better	
6	Under investment in the Winter Service leading to a successful claim against the authority.	Head of Highway Maintenance	Group Manager Highway Maintenance	Med	Low	Low	Arrangements to transfer funding if necessary.	Med	Low	Low	Same	
7	Salt from gritter causes accident/damage to another vehicle	Head of Highway Maintenance	Group Manager Highway Maintenance	Med	Low	Low	Low speeds, Experienced Drivers	Low	Low	Low	Same	Alternative materials, GPS
8	Precautionary gritting only carried out on roads not footways resulting in a claim	Head of Highway Maintenance	Head of Highway Maintenance	Low	Low	Low	Winter Service Operational Plan, Annual Review meeting, training	Low	Low	Low	Same	
9	Incorrect inventory/network information in Winter Service Operational Plan resulting in an accident	Head of Highway Maintenance	Head of Highway Maintenance	Med	Low	Low	Winter Service Operational Plan, Annual Review meeting, Appropriate training	Med	Low	Low	Same	GPS
10	Negative impact of salt on the local environment resulting in a claim for damage	Head of Highway Maintenance	Head of Highway Maintenance	Low	Low	Low	Gritters well maintained, Gritting only carried out when necessary, Experienced Drivers.	Low	Low	Low	Same	Alternative materials, GPS

Street Furniture Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Collapse of road-side seat or defective road-side seat leading to injury	Head of Highway Maintenance	Team Leader Highway Asset Manager	Med	Med	Med	Routine maintenance standards in place	Med	Low	Low	Better	
2	Collapse of fence or wall leading to death or injury	Head of Highway Maintenance	Team Leader Highway Asset Manager	High	Low	Med	Routine maintenance standards in place	Med	Low	Low	Better	
3	Damaged/Defective street furniture eg bollard, causing obstruction/trip/danger leading to injury	Head of Highway Maintenance	Team Leader Highway Asset Manager, Bridges, Lighting Maintenance	Med	Low	Low	Routine maintenance standards in place	Low	Low	Low	Same	Prepare guidance on bollard maintenance
4	Missing street furniture eg bollard leading to accident/injury	Head of Highway Maintenance	Team Leader Highway Asset Manager, Bridges, Lighting Maintenance	Med	Med	Med	Routine maintenance standards in place	Med	Low	Low	Better	
5	Manufacturer of street furniture not known leading to delay in maintenance/repairs of street furniture and increased risk of possible accidents	Head of Highway Maintenance	Team Leader Highway Asset Manager, Bridges, Lighting Maintenance, Sustainable Transport	Low	Med	Low	City Centre Maintenance and Management Plan, Bollards Working Party	Low	Med	Low	Same	Develop Street Furniture Asset Information Strategy. Review street furniture asset management practices

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
6	Vehicle hitting street furniture leading to injury	Head of Highway Maintenance	Team Leader Highway Asset Manager, Bridges, Lighting Maintenance, Sustainable Transport	Med	High	Med	Street Furniture erected according to good practice requirements eg location and visibility.	Med	High	Low	Same	
7	Incorrect and /or lack of information on street furniture inventory leads to delays in maintenance/repair and possible accidents.	Head of Highway Maintenance	Team Leader Highway Asset Manager, Bridges, Lighting Maintenance, Sustainable Transport	Low	Low	Low		Low	Low	Low	Same	Develop Street Furniture Asset Information Strategy. Review street furniture asset management practices. To include bus service information on bus stop database
8	Accident due to tripping over tree pit/tree roots	Head of Highway Maintenance	Team Leader Highway Asset Manager	Low	Med	Low	Routine maintenance standards in place, Budget Available	Low	Low	Low	Same	
9	Lack of street nameplate leading to delays in access by Emergency Services etc	Head of Highway Maintenance	Team Leader Highway Asset Manager	Low	Low	Low	Funding available for reactive/proactive repairs	Low	Low	Low	Same	
No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
10	Accumulation of litter/waste in planters causing pest problems for borders and adjacent properties.	Head of Highway Maintenance /Waste Management	Group Manager, Cleansing Services, Parks	Low	Med	Low		Low	Med	Low	Same	

Appendixes

			Manager									
11	Anti social behaviour due to location of planters, road side seats, bus shelters etc	Head of Highway Maintenance /Transport Strategy	Team Leader Highway Asset Manager, Bridges, Sustainable Transport	Low	Low	Low	Street Furniture can be moved/removed , Well maintained Street Furniture	Low	Low	Low	Same	
12	Street Furniture Inspection and maintenance regime either not carried out correctly or at all leading to accidents/claims	Head of Highway Maintenance /Transport Strategy	Team Leader Highway Asset Manager, Bridges, Sustainable Transport	Med	Low	Low	Trained staff, Refresher training courses, Database for some inventories. Inspection and maintenance regimes in place for most street furniture	Low	Low	Low	Same	Develop inspection and maintenance regimes for guard rails, safety barriers and motorcycle racks and lockers.
13	Under investment in the street furniture inspection and maintenance regime	Head of Highway Maintenance /Transport Strategy	Team Leader Highway Asset Manager, Bridges, Sustainable Transport	Med	Low	Low		Med	Low	Low	Same	

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
14	Defective Council owned bus shelter leading to obstruction in the road or footpath leading to injury and/or disruption	Head of Transport Strategy	Team Leader Sustainable Transport	Med	Low	Low	Routine maintenance standards in place	Med	Low	Low	Same	
15	Defective JCDecaux bus shelter leading to obstruction in the road or footpath leading to injury and/or disruption	Head of Transport Strategy	Team Leader Sustainable Transport	Med	Low	Low	Contractual maintenance standards in place	Low	Low	Low	Same	Review in 2018 when the contract with JCDecaux expires
16	Defective cycle stand in the Highway causing obstruction and/or leading to injury	Head of Highway Maintenance	Team Leader Highway Management	Low	Low	Low		Low	Low	Low	Same	Routine maintenance standards to be put in place

Leicester Local Transport Plan Programmes and Initiatives Risk Register January 2011

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
1	Adverse political/media/public reaction to scheme(s), particularly Quality Bus Corridor and Park and Ride, leading to abandonment or delay	LTP Capital Programme Senior Responsible Owner	LTP Capital Programme Manager Is	High	High	High	Bi-monthly joint City/County Cabinet Lead Member Meetings attended by City and County Programme Managers, Cabinet Lead Member weekly briefings attended by Project Executives and Project Managers as appropriate,	High	Low	Med	Same	Project Executive and/or Project Manager attends Area Committee meetings covered by Wards that scheme is in, press releases, respond to letters in local paper - all as and when appropriate during scheme progression
2	Consultation delays scheme(s)	Project Executive	Project Manager	High	Med	High	Project Manager follows Consultation Strategy/Guidance, Ward Councillors consulted early,	High	Low	Med	Same	Local public meeting arranged to clarify objections and overcome local issues as and when required as scheme progresses

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
3	Local re-prioritisation of funding leading to reduced funding for schemes	Service Director	Head of Transport Strategy	High	High	High	Regular reporting of large schemes to Council Cabinet, regular reporting of progress in delivery programmes to Cabinet Lead Member for Transport, Regular stakeholder consultation such as LTP Day involving Cabinet Lead Member,	High	Med	Med	Same	
4	Reduced funding from Developers for transport improvement projects and funding of new bus services	Head of Transport Strategy - Mark Wills	Team Leader Travel Planning & Dev Control	Low	Low	Low	Involved in Section 106 Agreement negotiations Highway Development Control Quality Management Procedure	Low	Low	Low	Better	

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
5	Statutory processes cause scheme delays and costs	Project Executives	Project Manager	Med	Med	Med	Early identification of schemes likely to be affected and legal support engaged early, robust project management arrangements, Early Contractor Involvement Strategy being employed on larger schemes	Med	Low	Low	Same	
6	Legislation changes causing delays to schemes or initiatives	Project Executives	Project Managers	Med	Low	Low	Quality Management Systems flags up changes, amends briefs, re-programme schemes	Med	Low	Low	Same	

Appendixes

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
7	Failure to agree target costs/risk share with contractor causing scheme delays	Project Executives	Project Managers	Low	High	Med	Robust procurement strategy in place, framework contracts steering group established, appropriate contract conditions, robust project management arrangements in place.	Low	Med	Low	Same	
8	Breakdown in joint working between City and County Councils leading to scheme abandonments or delays	Service Director	Service Director	High	Low	Med	Bi-monthly joint cabinet lead member meetings, officer LTP steering group meetings. Joint City-County project boards when appropriate.	High	Low	Med	Same	
9	Hospitals, University, Businesses in the Central Transport Zone don't want travel plans... however; many have to undertake Travel Plans as part of the planning process. Also when the period for the Travel Plans finishes (5-years) they do not continue to do voluntary Travel Plans.	Head of Transport Strategy	Team Leader Travel Planning & Development Control	High	High	High	We are using the planning process to secure development in the right place and has travel plans,	High	Low	Med	Same	Further strengthen planning conditions re travel plan requirements, encourage businesses to join City/County/Hospitals liftshare scheme launched in May 2007. More Travel Plans/Travel Packs conditions are being put into the planning process.

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
10	Difficulty in attracting and retaining technical staff leading to scheme delays	Service Director	Head of Highway Management	High	Med	High	Recruitment and Retention Strategy in place.	High	Med	High	Same	Need to revive graduate and technician training scheme, framework contract for consultancy services to be established,
11	Poor project management of schemes leading to delays and cost overruns	Head of Transport Strategy	Team Leader Business Support	High	Med	High	PRINCE2 training for project managers rolled out, new LTP construction procurement strategy in place.	High	Low	Med	Same	
12	Utilities schemes affect our programmes	Traffic Manager (Service Director)	Team Leader Traffic Operations -	Med	Med	Med	Network co-ordination in place and strengthening in response to Traffic Management Act.	Med	Low	Low	Better	Further adopt Traffic Management Act procedures as regulations allow

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
13	Abbey Lane Corridor Scheme delayed	Project Executive - Team Leader Procurement and Programme Management	Project Manager -	High	High	High	Robust project management arrangements in place,	High	High	High	Same	Proposed inclusion of works in the 2011/12 programme

No	Risk description	Owner	Manager	Inherent Risk			Measures in place to manage	Residual risk			Status	Further action
				Impact	Likelihood	Exposure		Impact	Likelihood	Exposure		
14	Breakdown in co-operation of utilities	Traffic Manager (Service Director)	Team Leader Traffic Operations -	Med	Med	Med	Traffic Management Act action plan including works moratorium guidelines.adopted , regular co-ordination meetings with Utilities	Med	Low	Low	Same	
15	Delay in implementing Residents Parking Schemes	Project Executive -	Project Manager -	High	High	High	Robust project management arrangements in place Section 106 funding secured from major developments.	High	Med	Med	Same	.Recruitment of more TRO staff

Appendix B

Specific Asset Management Policies

1. Leicester City Council Street Naming Policy 2011
2. 6C's Regional Design Guide (Htd) available at www.leicester.gov.uk
3. Leicester City Council Tree Policy September 2007
4. Leicester City Council Vehicular Crossings Policy 2011
5. Leicester City Council Gating Order Policy 2008

Appendix B1

Leicester City Council's Street Naming Policy 2011

1 Background

- 1.1 Leicester City Council is responsible for the administration of street naming and property numbering and naming functions. It has a duty to ensure that street names are properly displayed. This duty applies to both adopted and private streets. The Transport Strategy Section undertakes the duty relating to street naming and the Planning Policy and Design Section deals with property numbering and naming. This policy relates to the street naming function.
- 1.2 Street naming powers are contained in Section 65 of the Town Improvements Clauses Act 1847 and Sections 17 to 19 of the Public Health Act 1925. The powers contained within the Public Health Act 1925 are used by the council. These powers are listed in the council's Scheme of Authorisation as being delegated to the Head of Transport Strategy and Head of Highway Maintenance.

2 Purpose

- 2.1 The purpose of street naming is to provide unique addresses within the city, and ideally the greater Leicester area, in order to facilitate the easy identification of properties and locations.

3 The Policy

- 3.1 Names must not have the same or similar spelling or pronunciation to any already in use within the city or the greater Leicester area.
- 3.2 Names must not be difficult to pronounce or awkward to spell.
- 3.3 Names must be suitable for use, have dignity and not be easily altered to be offensive.
- 3.4 Names reflecting previous land use or historic local connections are encouraged.
- 3.5 A theme is encouraged for naming streets in new developments.
- 3.6 Existing themes are to be followed as far as practicable where additional streets are added to the established areas or developments.
- 3.7 A person must be deceased before a street can be named after them. However, in the face of overwhelming public support, a street may be named after a living person but this will require approval of the Cabinet Lead for Regeneration and Transport.
- 3.8 Renaming will not be considered unless there is some overriding need. Any renaming will require approval of the Cabinet Lead for Regeneration and Transport.
- 3.9 Street names should end with an appropriate suffix. For example, on most developments the use of 'Road' for a thoroughfare or 'Close' for a cul-de-sac would be appropriate. The use of alternative suffixes, however, may be considered in order to provide a more descriptive name or exclusive address.

Appendix B2

6C's Regional Design guide (Htd)

Available at www.leicester.gov.uk

Appendix B3

Leicester City Council Tree Policy September 2007

1. Introduction

- 1.1 For the purposes of this document the word “tree” refers to both trees and woodlands.
- 1.2 This policy relates to the management of trees owned by the Council.
- 1.3 The Council has enforcement powers under various Acts of Parliament giving it a measure of influence over how some trees in private ownership are managed and maintained. These matters fall outside of the bounds of this policy.
- 1.4 The Council’s Trees and Woodlands Section is the appointed agent for managing and/or maintaining all of the trees it owns, or is otherwise directly responsible for.
- 1.5 Reference documents listed in the policy are those that are current at the time of writing. Any subsequent revisions will be regarded as having replaced those referred to.
- 1.6 This policy is informed by the following central government guidance.
 - DETR Circular 36/78 Trees and Forestry

2. Objectives

- 2.1 Historically the Council’s primary aim in maintaining a population of trees has been to enhance amenity. This is a broad term and covers a range of imparted benefits such as visual enhancement of the landscape, boundary demarcation, provision of shelter and screening.
- 2.2 It is now recognised however that trees also play a significant part in promoting biodiversity and in reducing air pollution, in part through carbon sequestration. Given this they are important tools in supporting the Council’s broader environmental objectives, as determined through adoption of the Eco- Management and Audit Scheme (EMAS).
- 2.3 Through EMAS the Council has the objective of at least sustaining its stock of trees. This means maintaining tree numbers and/or the area of land given over to trees. In detail the picture is dynamic. Individual trees are removed for various reasons over time. To help sustain the stock compensatory replacement is regarded as necessary, although this may not be at the location of the removed trees. In some cases it is possible to take the opportunity to increase tree numbers at a particular location. This should be taken up as a means for compensating for losses that may not have been made good elsewhere.
- 2.4 There is no specific policy to increase the tree stock numbers over all however adherence to this as a practice is seen to support the Council’s broader environmental objectives.

3. Installation of Trees

- 3.1 Installation of trees is usually through City Council funded capital projects. These can have a landscape development aspect that includes the establishment of trees. Other capital projects may be concerned solely with landscape development or tree planting. In all cases

tree planting, including specification details and layout, must be appropriate for the location. During the planning stage provision should be made for the cost of ongoing maintenance of planted trees. This should include a lengthy defects liability period of four years or more, to be borne by the contractor or their agent.

3.2 Specifications should aim to meet or better the relevant advice given in the following British Standards:

- BS 4428:1989 Code of practice for general landscape operations
- BS 3936: Part 1:1992 Nursery Stock. Specification for trees and shrubs
- BS 4043:1989 Transplanting root-balled trees

3.3 The Council's appointed client is responsible for initiating, funding and managing any tree-planting element of a capital project. The Trees and Woodlands Section is not normally the client for such a project. It may however be expected to take over responsibility for maintenance of newly established trees at the end of the defects liability period. The Trees and Woodlands Section should be consulted over relevant design details during the planning stage.

4. Management of Trees

Responsibility for the Management of Trees

4.1 Various land holding departments and service areas retain stocks of trees. For the majority the land holding service retains responsibility for tree management. Any delegation of this responsibility within each of these services is established through local agreement or custom.

4.2 Three service areas: Housing Department, Highways and Parks & Green Spaces Services have delegated maintenance responsibilities for their trees (those growing on verges and public open spaces) to the Council's Trees and Woodlands Section.

4.3 In all cases the responsibility for the tree stock reverts to the relevant land holding service once any maintenance or management work that the Trees and Woodlands Section is able to commission (given resource constraints) is completed.

Resources

4.4 Materials, Equipment and Staffing

Using delegated budgets and other income the Trees and Woodlands section purchases and manages any materials, equipment, machinery, staffing, training and contractors required for the provision of tree management and maintenance services to the Council.

4.5 Financing of Works

Service areas requiring the support of the Trees and Woodlands Section fund the execution of works. The Highways Group and Parks and Green Spaces Services allocate budgets at the start of each year to support their requirements in this area. The Trees and Woodlands Section is required to aim to contain expenditure within these budgets.

4.6 Operational Efficiency

The Trees and Woodlands Section will seek to deliver cost effective services. It will use all appropriate means to reduce charges and costs.

Staff and Public Safety During Works to Trees

4.7 Tree work involves the use of cutting machinery and working at height, often in combination. As a result such work is inherently hazardous. The Trees and Woodlands Section maintains a system of dynamic and task specific risk assessments and safe working guides. These are used to ensure the maintenance of staff and public safety during works.

4.8 Regulations and authoritative guides are used to inform risk assessments and safe working guides, and the working practices that arise from these. The following list includes the main sources of guidance and regulation. An exhaustive list is held within the relevant section of the Safety Plan of the Council's Parks and Open Spaces Service.

- Arboriculture and Forestry Advisory Group Guides Nos.103-805
- Control of Substances Hazardous to Health 2002
- Arboricultural Association Guide to Good Climbing Practice 2005
- Lifting Operations and Lowering Equipment Regulations 1998
- Personal Protective Equipment at Work Regulations 1992
- Provision and Use of Work Equipment Regulations 1998
- Safety at Street Works and Road Works, A Code of Practice 2001
- Work at Height Regulations 2005
- Control of Pesticide Regulations 1986 (Amendment 1997)

Standards

4.9 In order to ensure a standard of management that promotes and compliments its objectives, the Council strives to adhere to nationally recognised tree management practices. It therefore aims to meet or better the standards promoted in guides produced by the British Standards Institute and other authoritative bodies, listed as follows.

- BS 3998:1989 Recommendations for tree work
- BS 4428:1989 Code of practice for general landscape operations
- BS 3936: Part 1:1992 Nursery Stock. Specification for trees and shrubs
- BS 4043:1989 Transplanting root-balled trees
- BS 5837:2005 Trees in relation to construction
- NJUG 10 1995 'utility services in proximity to trees
- NHBC Standard, Chapter 4.2 1995 Building Near Trees

4.10 The Countryside Commission and Forestry Commission produce various authoritative guides on the management of small woodlands in particular. These are used as reference material as required.

Legal Constraints

4.11 In some circumstances the Council can be obliged in law to adhere to certain constraints, in terms of the way it manages parts of its stock of trees. The following are examples of legislation that may apply such constraints:

- Wildlife and Countryside Act 1981 (also Amendment Act 1991)
- Town and Country Planning Act 1990
- Forestry Act 1967

The Council will adhere to all relevant legal constraints.

Resolving Conflict and Problems

4.12 Primary Issues

As both a good neighbour and a landowner inviting the public access and use its land, the Council aims to manage its trees in a way that removes the conflict and hazard its trees can cause. The Council recognises there are three levels of conflict that can arise between individuals and trees.

- i) Where its trees become a danger the Council is obliged to address this. The Council will address all such dangers as soon as it becomes aware of them. To that effect it will maintain staffing, equipment and reporting systems that allow it to respond appropriately at all times of the day.
- ii) Nuisance in law requires that trees have a material affect on a complainant. Damage to buildings is an example. The Council will seek to resolve all such problems as soon as it can do so practically.
- iii) Inconvenience is a lesser problem, where a concerned party may not be eligible for redress in law. An example of this may be irritation caused by leaf litter. While the Council will act as a good neighbour and seek to address such concerns it is in this area that it is most likely to be obliged to consider whether some of the other policy objectives referred to in this document take precedence. It may also be obliged to consider whether the requirement to manage within resource constraints precludes action. In cases where a practical response to a request to address an inconvenience is declined the Council will advise the requesting party of its decision and the reasons for it. Ultimately the requesting party has the option of an appeal to the Local Government Ombudsman. The Council will assist them with this.

The Council recognises that in owning a stock of trees they are likely to cause some level of inconvenience to some individuals at certain times. On balance it takes the view that this can be acceptable given the benefits trees impart to the wider community and given the Council's broader policy objectives.

4.13 Legal Framework

Case and Statute Law help to define the Council's responsibility with respect to the issues discussed in 4.5.1. The principle relevant statute is as follows:

- The Occupiers Liability Act 1957/1984

Other Acts however have been used in high profile prosecutions relating to problems caused by trees, for example,

- The Health and Safety at Work Act 1974

Case law continues to develop and is too complex to attempt to adequately refer to here. For ease of reference the Arboricultural Information Exchange maintains a dynamic list of relevant cases on its web site. Refer to, www.aie.org.uk. The Council will heed relevant developments in law and will seek to respond adequately to the implications of these.

4.14 Knowledge of the Stock

The Council recognises that knowing about the condition of its tree stock is key to resolving the conflicts and problems the resource can cause. It is also key to its ability to manage trees in accordance with other policy objectives. This former point is reinforced by the outcome of case law in particular. The implication is that trees require periodic inspection by a competent person.

4.15 There is no guidance or ruling on how often trees should be inspected to meet the requirements of the law. The need however for inspection that is frequent enough to allow for timely identification of problems can be balanced against the nature of a site, in particular against the degree of risk posed to individuals and property that exists at a site. It is recommended therefore that the following inspection cycles be aimed at.

- Trees growing on adopted highway, every 2 years.
- Trees growing in public open spaces, every 3 years
- Trees growing in schools, every 2½ years
- Trees growing at sites of limited public access, every 4 years
- Trees growing on tenanted/leased land, n/a (unless specifically advised it is assumed this responsibility is delegated to the tenant)

Individuals who can demonstrate that they hold arboricultural expertise will carry out all formal inspections.

Arisings

4.16 The works to the Council's trees produces around 5,000 m³ of timber products each year. In order of greatest volume first these are woodchip, firewood, stems that could be milled, mixed waste (stones/soil/woodchip), stumps. The Council aims to manage these materials in a way that maximises reuse. It recognises however that it is also obliged to manage the materials in question in accordance with relevant legislation. In particular the following,

- Environment Protection Act 1990 (Amended 1995)

The Council will balance its reuse aims against its obligations in law.

5. Removal of Trees

5.1 Significant pruning or felling of trees, even for safety reasons, can be the subject of significant local concern. When a request is received to fell a tree or removal of trees is necessary as part of a capital project advice must be taken from the Trees and Woodlands Section. If it is decided that the tree should be felled (due to disease, unsuitability of location etc) the adjacent property owner and Ward Councillors must be informed prior to the work being carried out. Any tree within a Tree Preservation Order can only be felled or trimmed with the permission of the Trees and Woodlands Section. If the tree is within a conservation area planning permission will be required to fell the tree.

Appendix B4

Leicester City Council Vehicular Crossings Policy 2011

1 Background

1.1 A vehicular crossing is an area of lowered footway and kerb which is used to give access to vehicles from a road, across the footway and onto a driveway or parking area. Where vehicles cross the footway and verge without using a crossing constructed for that purpose it is likely that the verge and footway will be damaged.

1.2 The Road Traffic Act 1980 (as amended) Section 34 (3) states *“It is not an offence under this section to drive a mechanically propelled vehicle on any land within 15 yards of a road, being a road on which a motor vehicle may lawfully be driven, for the purpose only of parking the vehicle on that land.”*

1.3 However, the Highways Act 1980 Section 184 (1) states: *“Where the occupier of any premises adjoining or having access to a highway maintainable at the public expense habitually takes or permits to be taken a mechanically propelled vehicle across a kerbed footway or a verge in the highway to or from those premises, the highway authority may, subject to section (2), serve a notice on the owner and the occupier of the premises-*

(a) stating that they propose to execute such works for the construction of a vehicle crossing over the footway or a verge as may be specified in the notice; or

(b) imposing such reasonable conditions on the use of the footway or verge as a crossing as may be specified.”

1.4 In practice most vehicular verge and footway crossings are constructed after application by an occupier to Leicester City Council as Highway Authority.

1.5 Leicester City Council assesses applications for vehicle crossings and ensures that they are built to a standard that will be approved by the Highway Authority.

1.6 Under section 72 of the Highways Act 1835 it is an offence to drive a vehicle on a footway. This precludes the use of a pedestrian dropped kerb or a neighbouring vehicle crossing to access a property.

2 Purpose

2.1 The purpose of providing vehicular crossings is to

- to prevent damage to the verge and footway and subsequent costs
- provide off road parking
- reduce congestion on the highway network and reduce carbon emissions
- possible accident reduction
- achieve customer satisfaction by providing increased accessibility, security and reduced insurance premiums
- source of income to LCC
- to comply with Section 184 of the Highways Act 1980

3 The Policy

- 3.1 Occupiers of premises will be encouraged to apply for the construction of a vehicular crossing as S184 (11), without the need to serve notice as S184 (2).
- 3.2 Crossings will be constructed providing that applications are approved Leicester City Council as the Highway Authority.
- 3.3 Leicester City Council will charge a commercial rate to construct crossings.
- 3.4 Applications for crossings will be assessed by Leicester City Council.
- 3.5 Crossings will be constructed in accordance with Leicester City Council's procurement policy.
- 3.6 Leicester City Council Officers will supervise the construction of crossings to ensure that the standards required by the Highway Authority are achieved.
- 3.7 Assessment of applications and approval of construction will be carried out with reference to
 - Section 184 of the Highways Act 1980
 - Leicester City Council Vehicular Crossings Applications – Management Guidance Notes
 - Current highway design and planning standards
 - Current legislation
- 3.8 Section 184 of the Highways Act 1980 deals with the requirements that the Council, as well as owners and occupiers must comply with in regard to the construction of vehicular crossings. Leicester City Council will comply with these requirements.

Appendix B5

Leicester City Council Gating Order Policy 2008

1.0 BACKGROUND

- 1.1 From 1 April 2006, new powers to gate a highway in order to prevent crime or anti social behaviour from occurring were made available to local authorities under Section 2 of the Clean Neighbourhoods and Environment Act 2005. This has been achieved by inserting new sections 129A to 129G in the Highways Act 1980, which will enable councils to restrict access to a public highway by gating it (at certain times of the day if applicable), without changing the status of the highway.
- 1.2 Regulations have also been prescribed, The Highways Act 1980 (Gating Orders) (England) Regulations 2006, governing the order-making process.

2.0 CONDITIONS FOR MAKING A GATING ORDER

- 2.1 Gating is intended to be used as a temporary deterrent on highways which are giving rise to high levels or persistent occurrences of crime or anti social behaviour.

3.0 PROCESSING A GATING ORDER APPLICATION

- 3.1 All applications for gating orders will be investigated by the Head of Community Safety in Adults and Housing. Should the Head of Community Safety recommend that a gating order is required they will forward the application with a report detailing their investigations to the Head of Transport Strategy, Regeneration and Culture.
- 3.2 The report prepared by the Head of Community Safety should contain sufficient evidence to demonstrate that premises adjoining or adjacent to the highway are affected by crime or anti social behaviour; and the existence of the highway is facilitating the persistent commission of criminal offences or anti social behaviour. The evidence provided should be endorsed by crime statistics supplied by Leicestershire Constabulary.
- 3.3 Upon receipt of the report the Head of Transport Strategy will consider what impact the proposed gating would have upon users of the highway network with reference to the Council's statutory Local Transport Plan and the Council's statutory Rights of Way Improvement Plan.
- 3.4 The Head of Transport Strategy will prepare a report for consideration by the appropriate Cabinet Leads, in consultation with the respective ward councillors. The report will outline the need for the order, as previously prepared by the Head of Community Safety, and the impact the order will have upon highway users.
- 3.5 Upon receipt of the report the appropriate Cabinet Leads will decide whether or not to make the order. If it is decided to make the order the Head of Transport Strategy will issue a Delegated Powers Certificate instructing the Head of Legal Services to commence the order making process.

4.0 MAKING THE ORDER

- 4.1 The order making process will be undertaken by The Head of Legal Services.
- 4.2 Justification for making the order, with supporting evidence, will be prepared by the Head of Transport Strategy prior to making the order so anyone who makes representations can be given a comprehensive reply and reasons for proposing the gating order.
- 4.3 A consultation process will be undertaken prior to the order being put in place. This process will involve engagement with all the relevant agencies that are required by statute and will involve an opportunity for public views to be put forward.
- 4.4 Details of any unresolved objections will be discussed with appropriate Cabinet Leads, and the respective ward councillors. The Cabinet Leads will decide whether or not to enact the order.
- 4.5 The Order will normally be for 12 months duration after which the need or otherwise to continue the order will be considered by the Head of Transport Strategy in conjunction with the Head of Community Services.

5.0 FUNDING

- 5.1 The Head of Community Safety will arrange for funding to meet the costs associated with the gating order, the physical works required to implement the order and the eventual revocation of the order and removal of the gates.
- 5.2 The Head of Community Safety will also allocate sufficient resources and funds for the administration of keys, routine maintenance work to the gates and repairs as a result of misuse or abuse.

6.0 REVOCATION OF THE ORDER & REMOVAL OF GATES

- 6.1 It is not intended that gates resulting from Gating Orders should be installed as a permanent highway feature. A decision to revoke the order and remove the gates may therefore, be considered whenever there are significant changes in the local circumstances surrounding the order.
- 6.2 The conditions which led to the gating of the highway will be reviewed every 12 months with the option that the gates be removed subject to assessing the current situation against the gating policy.
- 6.3 The decision to revoke the order will be made by The Crime and Disorder Corporate Planning Group following consideration of a report from the Head of Transport Strategy on the new circumstances and other evidence submitted in support of the order.