

Leicester's Local Transport Plan

"Planning for people not cars"
2011-2026



Part A **The Transport Strategy**





March 2011

Leicester's Local Transport Plan 2011 – 2026

'Planning for people not cars'
Part A – the Transport Strategy

Regeneration, Highways and Transportation
Leicester City Council
A Block New Walk centre
Leicester LE1 6ZG
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FOREWORD

The last few years have been particularly exciting times for Leicester. We have made significant progress in delivering major shopping, leisure, business and housing regeneration. The whole of the Leicester community can all share in the successes of projects such as Highcross, Curve, Phase One of the New Business Quarter and innovative new housing at Freemans Meadow. Many have been award winning and all have earned the city widespread recognition. They have been underpinned by a transformation of the streets and spaces in the city centre and some excellent transport schemes such as Enderby Park and Ride, Upperton Road Viaduct Regeneration Scheme, Humberstone Road Quality Bus Corridor Scheme and many walking and cycling initiatives to create a cleaner, safer and more attractive environment.

These changes have been an enormous boost for the prosperity, attractiveness and reputation of the city during recent difficult times, with bus patronage and cycling continuing to grow, congestion under control and reduced road accident casualties. This represents the firm foundations of an ambitious long term strategy. We have been working with our partners to create One Leicester: a 25 year journey to create a city of confidence, prosperity and beauty for all its residents, users and investors.

But there are challenging times ahead for all of us. The current economic difficulties are deep, unprecedented and global. We will continue to work with others to help meet One Leicester 25 year targets, but we must also work hard and creatively to find local solutions, to minimise the negative impacts of the recession and continue to deliver positive change.

We need to deliver new housing of the right type and in the right places. We must try to create the physical conditions that will attract major inward investment but ensure that local people can benefit from the growth of new businesses, jobs and training facilities. At the same time we need to protect and use our important and valued assets and resources to create thriving, attractive, safe places with facilities that people want and need, both in the city centre and in local neighbourhoods.

Leicester's Transport Strategy will continue to be key to achieving these objectives in the pursuit of triple win solutions – "economy, health and environment". Our Transport Strategy has been influenced and has influenced One Leicester and our supporting key strategies, such as our Core (land use planning) Strategy, as well as recognising Leicester's ability to help deliver regional and national goals. This Local Transport Plan updates our current strategy to meet the challenges and opportunities ahead.

In order that we can continue to respond to changing conditions, and grasp new opportunities, we will continually monitor our progress as the strategy is delivered. We intend to review and update the strategy in about five years, to ensure that it continues to be as appropriate and effective as possible.

Councillor Abdul Osman
Cabinet Lead for Regeneration and Transport
Leicester City Council



ANY VIEWS OR COMMENTS? PLEASE CONTACT US:

Garry Scott
Leicester City Council
Block A, New Walk centre
Leicester, LE1 6ZG
Tel: 0116 252 6526
e-mail: Garry.Scott@leicester.gov.uk

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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

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EXECUTIVE SUMMARY

Welcome to Leicester's third Local Transport Plan (LTP3) covering the period to 2026. The LTP3 is split into two: Part A (the strategy part) and Part B (the implementation part, initially covering a four year period). These main documents are supported by five key operational plans as detailed at the end of the contents pages.

We have risen to the challenge of preparing the LTP3 during a time of great change due to a new government with new ideas, taking into account the current national priority of reducing the budget deficit and the important localism agenda replacing national and regional directives – particularly demonstrated by our comprehensive consultation showing strong local support for our proposals. The result is an LTP well aligned with current and emerging government priorities and meeting local requirements.

The development of LTP3 recognises the fact that transport is not an end in itself but one of a combination of factors contributing to sustainable economic growth and social inclusion. It has been developed in partnership and co-ordinates planning and action across many agendas, including education and skills, health, housing, regeneration, and infrastructure planning and development. It seeks sustainable improvements in economic performance, an inclusive society, a better environment and a better quality of life. It has been designed to support new homes and new jobs, whilst protecting existing.

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.

Successful delivery of our local transport plan will enable us to take a really big step forward towards realising this ambition. It will also enable us to make more rapid progress in delivering attractive alternatives to car travel and to cater for some of the highest levels of housing growth in the country to 2026 and beyond whilst:

- » Keeping congestion under control and improving accessibility for all, but particularly for deprived groups, to support a new prosperity with economic growth and new jobs
- » Encouraging more people walking, cycling and using public transport to reduce carbon emissions
- » Providing a transport system that facilitates for a safer and healthier way of life

Locally this translates into many more residents walking and/or cycling the shorter journeys in and around the city and using the bus for longer journeys, particularly into Leicester city centre, instead of using the car.

To help us achieve all of this, having clarified and defined our transport challenges, we have adopted five local transport goals with one overarching goal:

- » Economic Growth Supported – Leicester is more prosperous
- » Carbon Emissions Reduced – Leicester’ carbon footprint is reduced
- » Equality of Opportunity Promoted – Leicester’s people are more confident
- » Better Safety, Security and Health – Leicester’s people are more healthy, safe and secure
- » Population Growth is supported – Leicester’s Population is increased in a sustainable manner
- » Overarching Goal - Quality of Life and a Healthy Natural Environment are Improved - Leicester is a more attractive place

In order to deliver our goals, we have developed transport objectives to focus our transport strategies.

- » 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

The Quality of Life objective is overarching to each of the other objectives and will be intrinsically delivered through all of our interventions. The strategy chapters 4 – 9 are then based on each objective in turn, there being no separate chapter for Quality of Life.

We have carried out an extensive consultation that has demonstrated that there is strong support for our proposals. The results show that while congestion reduction is clearly considered to be the most important objective, road safety, maintenance and air quality are not far behind.

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.

Our immediate focus for the first implementation plan period will be to commence the delivery of a package of city centre bus improvements in order for us to realise the key transport outcomes for Leicester. Encouraging walking and cycling will also be part of the strategy. The harder measures will be underpinned by softer measures taken forward by a smarter choices company or similar, should a strong business case emerge.

We are allocated capital money by government for both integrated transport schemes and for maintenance for spending review periods. We will also bid for additional funding as opportunities arise, such as for example, from the local sustainable transport fund and use our own sources as may be available and appropriate. The known funding profiles are shown in Part B.

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The Local Transport Plan Part B is a separate document -

‘Planning for People not Cars’ Part B - Leicester’s First Implementation Plan 2011 to 2015, ‘Delivering our Transport Goals’

In addition the Local Transport Plan includes five operational plans:

[Annex 1.](#) Leicester City Council Transport Asset Management Plan 2011 to 2015

[Annex 2.](#) Leicester City’s Rights of Way Improvement Plan 2011 to 2021

[Annex 3.](#) Leicester’s Network Management Plan 2011 to 2015

[Annex 4.](#) Leicester’s Air Quality Action Plan 2011 to 2021

[Annex 5.](#) Leicester’s Local Flood Risk Management Strategy (under development)

INTRODUCTION

1. Leicester's Local Transport Plan, "The Plan", sets out how transport will be contributing to and facilitating 'One Leicester', Leicester's Sustainable Community Strategy, and contributing to national transport goals. It has been developed in accordance with national transport planning guidance and shaped by Strategic Environment Assessment (including Health Impact Assessment) and Equality Impact Assessment. We have used our extensive experience and expertise regarding Leicester's transport system developing this Plan, as well as undertaken wide ranging consultations with a variety of stakeholders including residents, businesses, councillors, special interest groups, bus companies, the county council and District councils in developing this transport strategy.
2. Leicester's top level local priorities are set in One Leicester, prepared by the Leicester Partnership and published in 2008. This Plan is not solely about Transport; it shows how an effective and sustainable transport system can make a huge contribution to the quality of life in Leicester. We have actively looked for opportunities to add value to the work of other public services, for example, by helping people to be more active and adopt healthier lifestyles, therefore, reducing the level of chronic illnesses resulting from inactivity and reducing the burden on the National Health Service.
3. The Plan has been prepared by Leicester City Council in close collaboration with Leicestershire County Council; building on our successful first and second local transport plans. Leicestershire has produced a separate Local Transport Plan which is a comprehensive plan for the whole county. Therefore where there is overlap between the two plans details can be found in both Plans. This Plan covers the geographical area within the Leicester City Council boundary and pays particular attention to issues relating to transport in Leicester and the surrounding conurbation. The Plan covers a period of fifteen years which is in line with the council's Core Strategy (land use planning).
4. This document is the Local Transport Plan Part A. It details the transport strategy in chapter 3 and in the chapters thereafter, the transport policies and individual strategies that comprise our overall transport strategy. Quality of Life is very important to us and we believe that it needs to be reflected in everything we do. The Quality of Life objective is overarching to each of the other objectives and will be intrinsically delivered through all of our interventions, particularly those delivering health, air quality, built environment and environmental improvements. Thus there is no separate chapter for Quality of Life. So that we can measure our progress we have included a series of targets we are aiming to achieve and explained how we will be monitoring and reporting our progress. The Transport Strategy will be delivered during the first four years through the Local Transport Plan Part B - Leicester's First Implementation Plan 2011 to 2015, Delivering our Transport Goals. The implementation plan explains how we have set our targets and how we will fund and manage our programme of schemes, services and initiatives to achieve the targets. We will regularly review progress and consider the need for an update every twelve months. Further editions will be published over time to cover the full LTP period.

5. Our Transport Strategy and Implementation Plan are supported by five key operational plans. They are all closely aligned to our transport strategy, our targets and the Local Transport Plan Programme. The key operational plans are:

[Leicester City Council Transport Asset Management Plan 2011 to 2015](#)

Our Transport Asset Management Plan explains how we manage all our highways and transport assets to help deliver the Local Transport Plan goals. It details roles and responsibilities of our asset managers, levels of service and targets for our asset managers to help ensure we “sweat” our assets. The second edition was adopted by full council in January 2009. It has been updated to a third edition in parallel with the preparation of this Local Transport Plan.

[Leicester City’s Rights of Way Improvement Plan 2011 to 2021](#)

A statutory requirement of the Countryside and Rights of Way Act 2000 our Rights of Way Improvement Plan sets out how our network of Rights of Way will contribute to the Local Transport Plan. The first Rights of Way Improvement Plan was adopted by full council in October 2007. It has been updated to the second plan, in parallel with the preparation of this Local Transport Plan.

[Leicester’s Network Management Plan 2011 to 2015](#)

The second edition of our Network Management Plan explains how we meet our Network Management Duty imposed by the Traffic Management Act 2004.

[Leicester’s Air Quality Action Plan 2011 to 2021](#)

As vehicle exhaust emissions are the largest single source of air pollution in Leicester we integrated Leicester’s Air Quality Action Plan with our second local transport plan (2006 to 2011). It has been updated in parallel with the preparation of this Local Transport Plan.

[Leicester’s Local Flood Risk Management Strategy \(under development\)](#)

Leicester’s Local Flood Risk Management Strategy is being prepared in compliance with the Flood and Water Management Act 2010. We anticipate the Strategy being adopted by the council in 2012.

6. Our Plan does not lose sight of the fact that we, the city council, are a major user of the transport network as we deliver our services to the public. We have a proud track record of reducing our own workplace transport demand and the effects of transport – for many years we have taken steps such as early adoption of flexible working hours to allow staff to travel to work outside the peak hours, restricting workplace car parking availability to essential and disabled users only, making public transport season ticket loans available to staff, removing the car mileage payments that rewarded larger engines.

7. We know that we still have much to do; that our Staff Travel Plans do not yet cover all of our offices and staff. Our Sustainable Community Strategy plans to deliver more services locally. Our improved customer contact centres allow many more people to get what they need without having to travel to one of our main offices.
8. We plan to carry out annual evaluation and assessment of progress, through our Quality Management System and stakeholder consultation strategy. This will ensure that this Plan remains current and responsive both to One Leicester and to new opportunities and challenges arising as the national economy begins to grow again.

Chapter 1:

Setting the Scene for Leicester



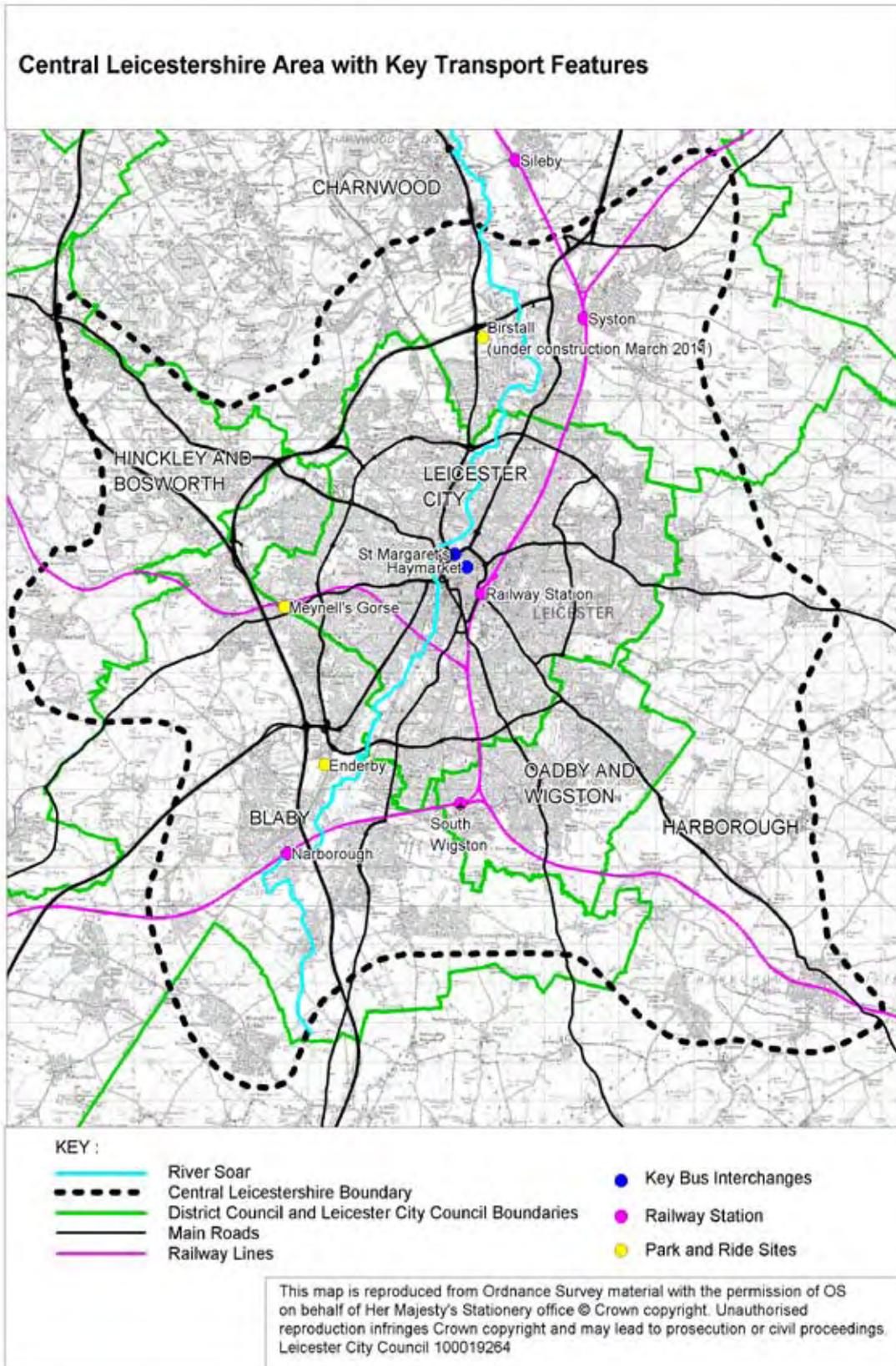


1. Leicester – Some Basic Facts

- 1.1 Leicester is the ninth largest city in England (outside of London) with a population as recorded in the 2001 census of approximately 280,000 and is the largest city in the East Midlands. It is at the core of Central Leicestershire, the “Leicester travel to work area”. Central Leicestershire is the greater Leicester urban area including the suburbs and immediately surrounding small towns and villages in the county. The area includes Leicester City Council and Oadby and Wigston Borough Council, most of Blaby District Council, and parts of Harborough District Council, Hinckley and Bosworth Borough Council and Charnwood Borough Council. All of these councils are the local planning authorities. The population of Central Leicestershire at 2001 was around 525,000. The area is shown on the map adjacent to this page.
- 1.2 According to the latest published estimates, the resident population of Leicester was 294,700 in mid-2008, and has been rising sharply (around 1% per year) since 2004. Leicester’s population is also marked by its diversity, with an estimated 39% of the population from an ethnic minority background, and high rates of population churn and turnover. We believe the actual population of Leicester is around 338,000 as the underlying 2001 Census data undercounted the city’s population¹.
- 1.3 Following the contraction of the traditional manufacturing industries, regeneration plans are progressing well to create new jobs and new homes. Our major new city shopping centre “Highcross” opened in 2008. Our Cultural Quarter is developing really well with the opening of our flagship theatre Curve opening in 2008 and the Digital Media centre opening in 2009. Our New Business Quarter is beginning to take shape with the opening of Carlton Square in 2009 and our Abbey Meadows Science Park, anchored by the National Science Space centre now has the highway infrastructure in place. The Waterside Regeneration Area is just starting to take shape with the Sanvey Gate Junction Improvement Scheme due to complete in April 2011. The outline planning application for Ashton Green, a 3500 home sustainable urban extension is being progressed.
- 1.4 The past ten years of LTP activity has provided us with a substantial record of transport statistics. We also have a substantial evidence base for the Regional Economic Strategy and the Regional Spatial Strategy. Together these show that there has been considerable economic diversification, recovery and growth since the historical Leicestershire industrial base of textiles and engineering fell victim to global competition. Employment growth into the service sector and the establishment of major new commercial areas around the outskirts of Leicester, especially around M1 junction 21, has brought with it a huge growth in the ownership and use of private cars. The economic regeneration of the city centre has brought greater transport pressures but also substantial opportunities to improve the network – for example the Highcross shopping centre development contributed to the pedestrianisation of High Street and the repaving of much of the central shopping area, making walking and cycling much more attractive (and safer) options. Commercial footfall studies show that there has been a substantial increase in pedestrian activity in these improved areas.

¹Leicester Local Transport Plan 3 Evidence Base, Chapter 2

Map1.1



2. “One Leicester” - Local Goals and Challenges

2.1 The Leicester Partnership’s Sustainable Community Strategy, ‘One Leicester’, adopted in 2008, sets out a 25 year vision for the city.

The vision is to transform Leicester into Britain’s 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.

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. The exercise of setting local priorities has essentially been done through the development of the Sustainable Communities Strategies (SCS) by the Local Strategic Partnerships (LSPs).

2.2 In the city and the immediate suburbs the local priority is to reduce car use and bring back the personal contact and sense of community which the over-dominance of roads has broken down. The density of urban traffic means that road casualties, air pollution and journey times are all too high. The evidence base for One Leicester shows clearly how economic prosperity has not been delivered in deprived communities; especially in West Leicester and the most deprived areas of Beaumont Leys, Braunstone, Saffron, St. Matthews, Stocking Farm / Abbey Rise and New Parks – which are amongst the top 3% most deprived areas in England. Transport needs to improve equality of opportunity by helping people from these areas access education, employment and training opportunities.

2.3 The relatively accurate demographic data from the 2001 Census is now very dated; it is vital that the 2011 Census campaign is successful if we are to plan properly for the future. Based on the ONS household projections which look at past trends, we have to increase the number of houses in Central Leicestershire by 25% by 2026; although we have had access to Growth Fund resources to provide some of the infrastructure, we will need a much clearer idea of what households will expect if we are to maximise the use of sustainable transport modes in these new developments – and reduce the need to travel in the first place.

2.4 While the Leicester Urban Area has the population densities to support frequent bus services and a choice of local facilities such as post offices and pharmacies, the trend for centralising and the closure of many small shops, has led to an increase in travel. Some of the modern suburban estate developments have never had shops in the first place (e.g. Thorpe Astley), forcing people to travel even for basic needs, or have greatly outgrown local facilities (e.g. Broughton Astley).

2.5 From its evidence base One Leicester sets out three clear goals:

Confident people - People of Leicester will feel confident about themselves, their neighbourhoods, their city and their future. We want the people of Leicester to become more confident – in themselves, their communities and their city.

Greater prosperity - We see Leicester as an ambitious and progressive city with renewed prosperity, where everyone meets his or her individual potential. We want there to be greater prosperity in Leicester, so everyone can reach their potential, no-one is trapped by poverty and people are more active and healthy.

Beautiful place - Our vision is of a beautiful, vibrant, clean and green city that is a great place for people to live, but that does not create an unacceptable burden on the planet. And we want Leicester to be a truly beautiful place, with less traffic, clean and tidy streets, excellent green spaces and high quality buildings.

2.6 One Leicester identifies the city's key challenge:

“If we are to improve the city for everyone, we know we must take action to deal with the concerns that most worry our citizens, while addressing the main challenge that faces us today and in the future – damage to our environment”.

and continues to identify the main challenges to meeting our goals:

People - we have nearly double the national average of people claiming benefits and nearly a quarter of our workforce are without formal qualifications. A third of businesses in the city report skills shortages and a staggering two thirds of residents in the city have some difficulty reading and writing English. Average household incomes in Leicester are 20% below the national average and we have higher than average long-term unemployment. There are still too many people in Leicester who are disadvantaged, without the opportunity to achieve their potential. In the immediate future there are likely to be increased pressures on public services, with less money available in real terms.

Prosperity - one factor in Leicester's economic decline has been the continued loss of economically successful people from the city, either out into the county or elsewhere. Despite having two universities in the city, we retain fewer graduates than other cities of our size. Two major issues that we must tackle are the persistently poor levels of educational attainment in our schools and the high levels of inequality in life expectancy and health – both within the city and when compared to many other parts of the country. People in Leicester live, on average, two years less than in the rest of the country and, shamefully, that figure is much worse in some disadvantaged parts of the city. Poor health, particularly in poorer communities in the city, is mainly driven by social and economic disadvantage and is worsened by lifestyle factors such as smoking, poor diet and lack of physical activity.

Place - we produce waste and use energy at a rate beyond the capacity of the planet to cope. In sustainability league tables, we find ourselves below other cities in the region. The combined impacts of climate change and rising

energy prices mean that we must reduce our ‘carbon footprint’ and use precious resources much more carefully. We are already doing much to improve our energy efficiency, but we need to increase the scale of our activities if we are to become a truly environmentally sustainable city. Leicester is not often described as a beautiful place. The city is seen as gloomy and grey, with the ‘concrete necktie’ of the ring road turning the city into a disparate jumble of disconnected parts. Fly tipping and litter spoil some of our open spaces and less than a third of residents are satisfied with the cleanliness of our streets. Leicester’s roads are congested at peak times and the public transport system is both inadequate and insufficiently connected. Yet we have many fine examples of green spaces – and people want more. Those who know Leicester love New Walk, the pedestrian walk created over two hundred years ago. We need to create more tree-lined avenues, like New Walk, that are devoted to people rather than cars.

2.7 One Leicester contains seven key priorities to help meet the goals, those highlighted being particularly relevant to transport as an enabler:

- » 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

2.8 Each strategic priority is co-ordinated by a partnership board; no one priority covers Transport so this Plan supports, influences, and adds value to, the work of all seven boards. One Leicester is at the heart of this Plan. Reviewing the One Leicester goals, in conjunction with considering Leicester’s contribution to national transport goals, to give us our Local Transport Goals is explained in Chapter 3 of this Plan.

Working with Partners

2.9 Several forums, such as the Quality Bus Partnership (QBP), the Freight Quality Partnership (FQP), the Leicester and Leicestershire Motorcycle Forum (LLMF), Cycle City Workshop and Special Interest Groups (SIG), which were initially established to inform transport strategy in the first LTP, have continued to meet regularly to advise on implementation. A list of our consultation working is shown in [Table 1.1](#) below. We also meet on an ad hoc basis with the Leicester and Leicestershire Chamber of Commerce and Leicestershire Business Voice. Some initiatives which arose directly from our work with the LLMF include: completion of a comprehensive motorcycle survey, an anti-diesel spillage campaign, production of information cards to allow motorcyclists to inform us of potential hazards and the implementation of improved motorcycle parking facilities. Arising

from the FQP was a freight signing strategy, a freight map, an industrial estate survey and a freight website. Arising from the QBP – the need for bus improvements in the city centre. This has led to a series of additional consultation meetings focused on the need for city centre bus improvements. Arising from the Cycle City Workshop and SIG meetings is the need to maintain the emphasis of cycling policy to focus on cycle training, promotion and awareness events rather than concentrating exclusively on infrastructure improvements. These forums have helped us to formulate the objectives and measures for this LTP.

Table 1.1

Consultation and Partnership working carried out on a regular basis	
Consultation	Frequency
Leicester and Leicestershire Local Transport Day	Annually
Group Discussions *	Annually
Transport Interest Groups	Half-yearly
City Older Persons' Forum	Quarterly
Disabled Persons Forum	Quarterly
Leicester and Leicestershire Motorcycle Forum	Quarterly
Leicester and Leicestershire Freight Quality Partnership	Quarterly
Cycle City Workshop	Bi-Monthly
Central Leicestershire Quality Bus Partnership	Bi-Monthly
Local Access Forum	Monthly

* Group discussions entail 12 sessions annually with the following groups:

- Young adults aged 16-22
- Inner city residents
- Council tenants
- Residents of higher cost housing
- Older people / people with disabilities
- Owners / managers of retail outlets
- Business owners / managers
- Car commuters to the city centre
- Parents of children aged 7-15
- county residents (residents outside the Central Leicestershire LTP area)
- Car commuters to other areas
- Black and minority ethnic residents including new community residents

3. Joint Working and Governance

3.1 It is becoming ever more important that local authorities, other agencies and the private sector work together for the greater good. Transport, economic development and land use planning, in particular, have to be co-ordinated if they are to be successful when users and providers pay little attention to inter-authority boundaries. The Sub-National Review put much more onus on the Principal or top tier Local Authorities to provide regional leadership. Leicester City Council is a Unitary Authority; it provides all local government services in its area

and is the housing, planning, education and transport authority. Leicestershire County Council is our adjacent upper tier authority and is the education and transport authority, but is not the planning or housing authority; that role belongs to the districts.

- 3.2 Leicester and Leicestershire are part of the 3 cities and 3 counties (often referred to as the 6Cs) New Growth Point comprising the Housing Market Areas of Derby, Leicester and Nottingham. Each HMA has its own local governance structure, which for Leicester and Leicestershire, is the Leicester and Leicestershire Sub Regional Economic Development Partnership. This comprises Leicester City Council, Leicestershire County Council, Blaby District Council, Charnwood Borough Council, Harborough District Council, Hinckley and Bosworth Borough Council, Melton Borough Council, North West Leicestershire District Council, Oadby and Wigston Borough Council.
- 3.3 The city and county councils have taken on the leadership role, and as two of the “9Cs” (the three cities and six counties of the east midlands) have made a substantial contribution to the successful functioning of the region. The districts are included in decision making through regular meetings and the appointment of representatives to ensure their democratic mandate is heard. They have been involved in joint work on the Local Development Frameworks and in the development of transport strategies, and also have a vital role in demanding, agreeing and collecting developer contributions to supporting transport infrastructure.

Leicester and Leicestershire Local Enterprise Partnership

- 3.4 Leicester and Leicestershire’s Local Enterprise Partnership (LEP) was approved by government in October 2010 to take forward economic regeneration. Leicester and Leicestershire had previously been one of the few areas in the country to sign a Multi Area Agreement with government. The partnership has a clear focus on economic development and an emphasis on increasing employment, improving skills and stimulating business growth. Transport is key to Leicester achieving these wider ambitions in a low carbon way and without negative impacts on the environment. As part of the LEP Development a new joint governance structure is currently under development to drive forward economic development in the sub-region. This will consider the future role of Prospect Leicestershire, the economic development company formed in early 2009, together with certain aspects of the east midlands development agency.

4. Wider Planning – our Local Development Frameworks (LDF)

- 4.1 Under the planning system introduced in the Planning and Compulsory Purchase Act 2004 each Local Planning Authority must prepare a Local Development Framework to provide clear and up to date planning guidance for the delivery of new development. The LDF is made up of a number of separate planning documents of which the Core Strategy is the most important. It should set out a spatial vision for the area and a spatial planning strategy showing how the planning authority has determined the most sustainable sites for new housing development, supported by evidence including transport modelling. Core

Strategies must be in conformity with the Regional Spatial Strategy (RSS). However the Localism Bill December 2010 confirms the Coalition Government's intention to abolish RSS.

4.2 The RSS allocates some 80,400 houses to the Leicester and Leicestershire HMA of which nearly half are within or adjoining the Leicester Principal Urban Area (PUA). By the end of 2010 three Core Strategies had been adopted in the Leicester and Leicestershire HMA, by Hinckley and Bosworth and Oadby and Wigston Borough Councils and by Leicester City Council. As part of the 3 Cities and 3 Counties New Growth Point, which aims to deliver higher housing growth than the national average, they show how the RSS housing numbers will be delivered on the ground. This Growth Point Status requires us to meet the DfT Regional Network challenge

"Deliver the transport improvements required to support the sustainable provision of housing, and in particular the PSA target of increasing supply to 240,000 net additional dwellings per annum 2016".

4.3 Leicester's LDF Core Strategy sets out the vision, objectives and spatial strategy for the City to 2026. It identifies a need for 25,600 new homes between 2006 and 2026. The Core Strategy was submitted to the Secretary of State in December 2009 and was examined in public in April 2010 by a Planning Inspector. The strategy was deemed "sound" and was adopted by the council in November 2010.

4.4 This Plan has been prepared in parallel with the Core Strategy and they have influenced each other to ensure that sustainable transport infrastructure is delivered to support new housing. Growth Fund monies have supported transport modelling to ensure that the most sustainable locations are chosen for new developments and appropriate transport interventions identified. Masterplanning of new developments will ensure that sustainable transport infrastructure is provided from the start.

5. National Context – Future of Urban Transport and Climate Change

5.1 Between 2006-2008, the Government produced a number of reports that have had an effect on local transport delivery.

5.2 The Eddington Transport Study recognised the role of a good transport system in enabling economic prosperity. However, it also recognised that congestion, pollution and increased greenhouse gas emissions were unwanted side effects of transport growth.

5.3 The Stern Review discussed the economics of climate change. It stated that without any interventions, it would have a huge impact on the global economy. The review stated that developed countries needed to cut their CO2 emissions by between 60-80 percent by 2050.

5.4 The then government's response to the recommendations made in the Eddington and Stern Reviews was through the consultation paper, 'Towards a Sustainable Transport System' (TaSTS). The Department for Transport accepted the

Eddington recommendations of a four-stage evidence-based process for deciding which transport interventions should be funded.

5.5 The previous government's Delivering a Sustainable Transport System (DaSTS) (November 2008) document has five enduring goals. The key goals are:

- » To support national economic competitiveness and growth, by delivering reliable and efficient transport networks;
- » To reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of tackling climate change;
- » To contribute to better safety, security and health and longer life expectancy by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health;
- » To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society; and
- » To improve quality of life for transport users and non-transport users, and to promote a healthy natural environment.

5.6 Paragraph 2.6 of the DaSTS report sets LTPs the challenge of developing a holistic approach which can be used in conjunction with demand modelling and carbon budgets to develop infrastructure solutions:

“Making the most of the opportunities for reducing emissions from city and regional and national networks will also be important. For example, a package of measures for an urban area may involve public transport investment, demand management, promotion of smarter travel choices and the use of land use planning to reduce the need to travel. Substantial work will be needed to inform consideration of the best package of measures for each network, including the impact of greenhouse gas emissions”.

5.7 Central Leicestershire is at the centre of England. It includes the M1 and the M5 / M42 / A46 strategic national corridors. It is close to the A14 Haven Ports. It also adjoins East Midlands Airport, which is the largest UK pure freight operation. The bringing forward of the A46 Newark – Widmerpool improvements confirms its importance in the national investment programme.

5.8 We, therefore, need to both support the intra-regional connectivity of the Derby – Leicester – Nottingham conurbation, and protect the inter-regional strategic corridors. This will be by supporting the infrastructure necessary to get more people using intercity trains and longer distance bus routes, and by ensuring that freight and passenger traffic have a reliable and effective local road network which is a better route choice than diverting onto strategic Highways Agency routes for one or two junctions.

5.9 DfT published draft statutory guidance for consultation in December 2008 for future LTPs; the final guidance was published on 16th July 2009, together with a note on joining up transport with other local priorities. Together with the Local Transport Act 2008, it requires a separation between Strategy and Implementation. Key to the new LTP guidance is the ability to prioritise local transport policies according to the areas needs; as one of the ten largest cities

in England, Leicester will be prioritising tackling urban transport issues such as congestion and carbon emissions and achieving substantial modal shift to more sustainable transport.

Climate Change and Carbon reduction

- 5.10 The Climate Change Act 2008 requires greenhouse gas emissions across the UK economy to be reduced by at least 80% on 1990 levels by 2050 and 34% on 1990 levels by 2020. It also introduces a system of “carbon budgets”, which limit UK emissions over successive five year periods. With the transport sector representing 21% of total UK domestic greenhouse gas emissions, action to move towards a low carbon transport system will be a key component in meeting our obligations under carbon budgets. The Government’s strategy; “Low Carbon Transport: A Greener Future” acknowledges the scale of the challenge for transport and sets out the actions that the Department for Transport is taking.
- 5.11 The DfT Carbon Reduction strategy was followed in March 2010 by its Transport Carbon Reduction Plan. Also in March 2010 the DfT published “Building Resilience to Climate Change: An Adaptation Plan for Transport 2010 – 2012”. Whilst we are already pursuing many of the actions and initiatives proposed in these national plans at our local level we have considered the plans very carefully in helping us develop this Local Transport Plan. For example, We are interested in the “promoting lower carbon choices” strand. Our compact urban area is ideal for small fleet trials of low carbon technology; we are already looking at diesel / electric hybrid buses, and would be very interested in trialling of hydrogen fuel cell technology to help assess both its carbon benefits and practicality, as there is already a national centre of excellence at Loughborough University. We are also part of the Midlands’ Plugged in Places programme.

National Urban Congestion Target

- 5.12 The former national PSA target for tackling congestion is applied to the nine largest urban areas outside London, of which Leicester is one. Our first Urban Congestion Target Delivery Plan was presented to DfT in April 2007. Our second and current edition was published in February 2010. Nationally, the aim is firstly to contain the increase in congestion and manage the networks with an increased volume of traffic, limiting the increase in peak hour journey times to below the related increase in vehicles. While this “management” phase is going on, infrastructure projects have been delivered to assist in increasing modal choice and leading to long term and sustained reductions in car use, especially single occupant cars at peak periods.
- 5.13 Emda’s 2007 study “economic costs of congestion” estimated that the annual economic cost of congestion in Leicester and Leicestershire was some £153.5m. In the case of LTP2, the key projects were the Enderby and Birstall Park and Ride schemes on radial corridors. These provide substantial public transport improvements for commuters and visitors into the city, offer real modal choice, and are fundamental to reducing congestion.

5.14 So far, Leicester has succeeded in meeting the PSA target of accommodating an expected increase in travel of 1.5% within a 6.25% change in journey times. Chapter 4 shows how we plan to continue tackling congestion and reduce its economic and environmental costs.

A Safer Way – making Britain’s roads the safest in the world

5.15 DfT published a consultation document in April 2009; it contained many proposals which we would hope to continue implementing in LTP3, for example the 20 mph speed limit in primarily residential areas and around schools. Although these actions consume substantial resources (for example in following the statutory Traffic Regulation Order process) and will require a long-term programme and the active support of the police, they will be required to tackle the stubborn core of drivers who put others at risk. We especially want to further protect vulnerable road users such as children, pedestrians and cyclists.

The National Active Travel Strategy

5.16 DfT published the Active Travel Strategy in February of 2010. Its aim is establish walking and cycling at the heart of local transport and public health strategies and plans, and to encourage health and transport partners to work together to make walking and cycling the preferred mode of local transport in the 21st century.

6. Regional Context – Leicester in the East Midlands

6.1 The East Midlands is currently the fastest growing of the English Regions; having under-performed for some years, it is now benefiting from its strategic position in the centre of England. The level of traffic has been growing by 2% per annum, the highest of any English Region. The Regional Economic Strategy (RES) “A Flourishing Region” for the East Midlands was developed by the East Midlands Development Agency in 2006 following extensive consultation with partners. Transport and logistics was a key priority. Transport has been recognised in raising the productivity of the region.

6.2 The 2009 Regional Spatial Strategy (RSS or Regional Plan - soon to be abolished) set out land use policies and included the Regional Transport Strategy which called for measures to:

- » Encourage behavioural change
- » Reduce the need to travel
- » Restrict unnecessary car usage
- » Manage the demand for travel
- » Significantly improve the quality and quantity of public transport
- » Encourage cycling and walking for short journeys.

Local planning is now recognised by the government as being of much greater importance than regional level planning. This is illustrated by the closing down

of the regional government office and the East Midlands Development Agency, and the creation of the Leicester and Leicestershire Enterprise Partnership. The government also intends to deactivate both the RSS and the RES.

7. Three Cities Context

- 7.1 Leicester is one of the Three Cities of the East Midlands; together with Derby and Nottingham it forms the economic powerhouse of the East Midlands with more than a third of the population. The Three Cities sub-area is recognised as being distinctive and quite different from the rest of the Region. Both the Regional Economic Strategy and Regional Spatial Strategy divided the Region into identical sub-areas to reflect their differing characteristics.
- 7.2 The Three Cities and the Three Counties have made a commitment to co-operate instead of compete. Local leadership understands that what is good for one city is good for all, and that working together for the good of what is effectively a tri-centric city-Region. Together we approach the size and economic power of a Leeds or a Manchester, with six universities we have the potential to out-perform them.
- 7.3 Elements of the Three Cities sub-regional strategies which are particularly relevant to strategic transport planning are the housing growth (and the New Growth Point) and economic development plans. Although sub-regional connectivity is not a specific LTP3 programme, it is vital to the economic and cultural life of Leicester that our residents have good public transport links to the opportunities available in Nottingham and Derby, and that our businesses and attractions in turn have access to the workforce and spending power which lives elsewhere in the Three Cities.
- 7.4 It is also important to our city-region's ability to compete with Birmingham, Leeds and Manchester that we can aggregate our higher-level skills, and together offer the service and business capacity of a larger city-region. Our fast national strategic links with London and Sheffield on the M1 and Midland Main Line are also vital to punching our weight economically and improving our contribution to the national economy.

8. Sub-Regional Context – Leicester and Leicestershire Anticipated housing growth in the Leicester and Leicestershire HMA

- 8.1 Leicester and Leicestershire is a discrete HMA; meaning that in all the Leicestershire Districts the majority of people see Leicester as their principal place of employment and location of top level services such as hospitals and universities. This naturally means there is already a substantial amount of in-commuting to Leicester city; which will further increase as the city centre regeneration programme provides more employment opportunities. The Park and Ride schemes are the first line in reducing commuter pressure on the city main road network, improvements to all local bus services being at the heart of our Congestion Management Strategy. Our proposed infrastructure works to transform the quantity and quality of bus infrastructure in the city centre then becomes vital to receive the significant increase in bus trips without completely choking the city centre.

9. The Leicester Urban Area – Central Leicestershire

9.1 Central Leicestershire, consisting of Leicester and the surrounding Urban Area, is the immediate travel to work area having a current population approaching 520,000 people, with an expectation of exceeding 600,000 residents well before 2026. It is one of the 10 largest conurbations in England; it has a very tight and compact urban road system with high densities of population, and is an ideal testbed for sustainable urban transport systems. Its transport issues are fundamentally urban; congestion and the noise, air pollution and poor quality of life it causes.

9.2 Central Leicestershire is expected to achieve 25% housing growth by 2026; partly by more intensive urban development but also by bringing forward at least three new greenfield urban extensions on the urban fringe (at Ashton Green, Blaby and South Charnwood). These settlements will each be at least large enough to sustain their own new secondary school, and will contain between 3,000 and 5,500 new homes. There will be excellent opportunities to introduce “smart choices” sustainable travel programmes from the start; the urban regeneration and increased densities of the remaining new homes in existing urban areas will give the required passenger density to sustain high frequency public transport services.

9.3 The growth in housing will be a challenge to the capacity of our road network. It also presents a real opportunity to achieve modal change and to persuade the new residents of the urban extensions to limit unsustainable travel. The local planning authorities intend to masterplan the urban extensions. This will ensure that, before people move into the houses, the following will be in place:

- » The required infrastructure for sustainable transport choices such as public transport, footpaths and cycle routes, together with broadband connectivity
- » Local shops, local schools and local employment sites, to limit the need to travel
- » Personalised travel planning, company travel plans, car clubs, maps and travel information, including alternatives to the car on a local basis, delivered through a smarter choices company or trust

This will prevent unsustainable travel habits forming from the outset.

10. Leicester’s Climate Change Strategy

10.1 The city of Leicester recognises the implications that climate change has for the continuing prosperity and the environmental and social well being of the city. A Climate Change Strategy for the city was first published in 2003 and the Leicester Partnership updated this in 2009.

10.2 The Strategy highlights the Partnership's 'One Leicester' priority to reduce Leicester's carbon emissions and the target of halving the 1990 levels by 2025. Delivery of the target is managed as part of the Council's Eco Management and Audit Scheme (EMAS), through a Climate Change Action Programme. This programme has incorporated relevant measures from the delivery programme for LTP2 and it is intended to continue this approach for measures in the LTP3 Implementation Plans.

11. Leicester City Council - a Lead Local Flood Authority

11.1 Leicester City Council is a Lead Local Flood Authority tasked with, for example, preparing preliminary flood risk assessments, maps and plans for surface water flooding, flooding from ordinary watercourses and other causes of flooding not the responsibility of the Environment Agency. We also have to produce a Surface Water Management Plan (SWMP) and a Strategic Flood Risk Assessment. The work in preparing these will be heavily linked to the production of the Preliminary Flood Risk Assessment required by December 2011. This will come together as the fifth operational plan of this LTP.

12 Tackling health inequalities in Leicester – A Strategic Approach

12.1 The Leicester Partnership is leading a strategic approach to tackling health inequalities in Leicester. There are a number of plans to deliver this approach, including:

- » Local Area Agreement
- » Leicester City Council Corporate Plan
- » One Healthy Leicester – NHS Leicester City Commissioning and Investment Strategy 2009/10-2013/14
- » Leicester Partnership Health Inequalities Improvement plan
- » NHS Leicester City Operational Plan

12.2 Reducing the health inequalities both within the city and in comparison with the rest of the country is an urgent priority. Areas where we need to take action were highlighted by the 2009 Audit Commission report. Achieving the One Leicester vision will require us to prioritise those people most in need and those activities which will reduce inequalities between communities and individuals. This means making sure that our money and our people across all partner organisations work together to tackle the big issues.

12.3 The headline issues about Leicester's health inequalities include that transport can influence:

- » A growing life expectancy gap between Leicester and the rest of England. On average a man in Leicester will live 2.4 years less and a woman 2.1 years less than the average for England.
- » Differences in life expectancy between different areas of the city. The difference between the wards with the highest and lowest life expectancy is

7.4 years for men and 7.6 years for women.

- » Around 25% of Leicester adults are obese and a further 36% overweight. Levels of physical activity are low, with only 18% of adults doing 30 minutes of moderate activity on 3 days a week.
- » Circulatory diseases cause 35% of all deaths in Leicester.

12.4 The NHS Leicester City Commissioning and Investment strategy elements are:

- » **A daily dose** - developing a shared vision which brings together organisations and individuals and includes driving up the quality of universal services that have an important impact on health, particularly in poorer communities.
- » **Prevention is better than cure** - many of the proposed actions focus on prevention and early detection of the conditions which cause many of the health inequalities in the city – such as cardiovascular disease, respiratory disease, infant mortality and cancer.
- » **Supporting healthier lifestyles** - reducing health inequalities is not just about stopping people doing things – it's also about encouraging people to take more physical activity by planning and delivering the right facilities, as well as continuing to improve education, skills and the city's economy, all of which contribute to a healthier society.

Hitting the right targets - because the health challenges we face are spread unevenly throughout the city, it's vital that we collect and use up to date information to help us to target services effectively, and that we work closely with local communities so they can help shape services which will work for them.

13 Tackling inequalities through design

13.1 Leicester City Council is developing a strategic approach to ensure that Leicester becomes a place which everyone can access safely, easily and with dignity. The council's inclusive design action programme will be included in highway's project delivery manual.

Chapter 2:

Leicester's Transport System Now and in the Future



1. Leicester's Transport System – a brief description

- 1.1 Central Leicestershire is at the centre of England and enjoys excellent road access to the rest of the region and the UK via the M1 and M69 motorways, both part of the UK's strategic road network.
- 1.2 The Midland Mainline railway passes through the city centre north to south and provides an excellent service to London, Loughborough, Nottingham and Derby. With the opening of the channel tunnel rail link to St. Pancras, Leicester now has direct access to the European high speed rail network. There are also rail lines west to Birmingham and east to Peterborough and Stansted Airport. East Midlands Airport is located in the north west of Leicestershire, accessed via the M1 and is the largest UK freight airport for dedicated freight aircraft.

Leicester's System

- 1.3 The current mixed use car, bus and freight transport system is based on a classic city centre hub and spoke (radials) arrangement. There is an inner ring road (mainly dual carriageway) and an outer ring road (mainly single carriageway), incomplete in the south east. There are few physical barriers such as wide rivers, steep topography and at grade railways. Thus the road network has few links without junctions and accesses. Much of the dual carriageway in Leicester makes up the city's inner ring road and radial approaches to it. These have closely spaced busy junctions which cause slow traffic speeds. These speeds are low compared with other English urban areas confirming that Leicester has a very tight and compact urban road system. National cycle routes cross the city and it is on the national canal network.

Urban Traffic Control

- 1.4 The city council's Traffic Management Section manages the urban traffic control centre and "keeps traffic moving", through the council's Network Management Plan, in accordance with the Network Management Duty.

Bus Services

- 1.5 There is a comprehensive bus service by three main companies during the working day Monday to Saturday. This is rather patchy and infrequent in the evenings and on Sundays. The council financially supports a number of non-commercial services. The city centre is very accessible by bus during the morning peak (7:30am to 9:30am) as 87.2% of Leicester's households, without cars, are within 400 metres of a bus stop offering a 30 minute journey time by bus into the centre and, 97.8% have similar access to a bus offering a 45 minute journey time (based on the October 2009 network)².
- 1.6 Our Central Leicestershire Quality Bus Partnership was established in 1999. The members of the main steering group are Leicester City and Leicestershire County Councils, First Bus, Arriva and Trent Barton. The main steering group meets quarterly and discusses issues which are not commercially sensitive. It is supported by the Bus Operations Group and the Bus Information Strategy Group. In addition to these multi-party meetings, the councils meet the two main operators (First and Arriva) quarterly in bi-lateral meetings at which commercially sensitive issues can be discussed.
- 1.7 We have two permanent park and ride sites. The site at Enderby, south-west Leicester, is a 1,000 space car park and 10 minute frequency into and around Leicester city centre. The site at Meynells Gorse, west Leicester, has a 500 space car park and 10 minute frequency into and around Leicester city centre. A third site, with 1,000 spaces and a 10 minute frequency running from Birstall, north of Leicester, is currently under construction. We are looking at linking the Enderby and Birstall services to improve efficiency of the service, and also to provide a link between the railway station and bus station. There is also a Saturday-only site at County Hall.

The East Midlands Parkway Railway Station

- 1.8 The East Midlands Parkway railway station near the A453 trunk road just north of M1 junction 24 was opened in 2009 as a network rail project. As well as improving access to East Midlands Airport (EMA), the parkway station provides the opportunity for park and ride by train to Leicester.

²This work uses the Government's approved software ACCESSION, and the journey time quoted represents the complete journey from the house into the city centre, not just the time spent travelling on the bus.

Freight

1.9 Our freight strategy has been guided by our successful Leicester and Leicestershire Freight Quality Partnership (FQP) that has been making steady progress since its inception. This has raised awareness of freight issues between members, enabled the councils to understand the practical problems of the operators and enabled a freight signing strategy to be developed and implemented. We have been able to influence the Regional Freight Strategy such that a Regional Freight Group was established in 2006, of which we were members, to deliver support for Freight Quality Partnerships, disseminate best practice and coordinate actions. With the demise of the region and the introduction of the localism agenda, local partnerships such as our FQP will take on key roles.

Parking

1.10 Our city centre parking regimes aim to reduce long stay spaces as a demand management measure. This is to reduce commuter parking and thus car trips made in the peak period. Our policy has been no net increase in off-street parking places in the Central Transport Zone. The on-street charging zone and the areas covered by residents' parking controls have and continue to be expanded. We introduced decriminalized parking enforcement (DPE) over the whole of the city council area on 1st January 2007.

1.11 There is a mixture of city council and privately owned car parks in Leicester hence the city council doesn't have direct control over car park pricing and control of parking as a really effective demand management tool. Since 2008 we have seen a significant increase in temporary surface level car parks on cleared regeneration sites as a reflection of the recession. This is having a detrimental effect on managing congestion and in particular the use of our park and ride services. The city council is currently (2010) preparing a city centre car parking supplementary planning document to help address unauthorised temporary car parks and the ensuing detrimental effects on transport services and the wider city economy. Surplus income from the city council's car parking operations is re-invested in transport services such as subsidised bus services.

Walking

1.12 Walking is a healthy and important method of getting around, as well as being an element of most other journeys e.g. walking to/from bus stops or car parks. Ensuring well surfaced, lit and signed links to schools, local shops, health care facilities and employment areas – both through footways, crossing points and the networks of public Rights of Way and permissive paths owned by the council – has been a priority over the last two local transport plan periods. Child pedestrian training is provided to school children. Promotional campaigns such as 'Let's Walk Leicester' are run in conjunction with local health campaigns to reduce the number of Leicester residents who are overweight through inactivity.

Cycling

- 1.13 The East Midlands Personal Travel Survey told us that 29% of the 1,045 sample Leicester households had access to a bike while the average journey was 1.9 miles. We have seen an 81% increase in cycling in Leicester since 2004. National census and school travel plan information data for Leicester suggests a growing popularity of cycling and a significant suppressed demand, particularly amongst young people.
- 1.14 There are already more than 60 miles of signed cycle routes across the city which the Cyclists' Touring Club's cycle benchmarking exercise confirmed as being high quality. However, there is a disparity of off-road/quiet route provision between the western and eastern halves of the city: the west side being much better served. A key objective is to complete NCN 77 the 'Green Ringway'. This part-completed orbital route will be finished, either using existing quiet roads or new sections of off-road route. The Green Ringway mirrors the route of the Outer Circle bus route.
- 1.15 We have expanded our work with schools, employers and adult training organizations to ensure that new (and returning) cyclists have access to affordable cycle training that meets the new National cycle standards. In 2009/10 we provided cycle training for 1,300 school children and 750 adults.

Rights of Way Network

- 1.16 Leicester city has 33.2km of rights of way recorded on its definitive map and is cataloguing a network of permissive paths (which are not, or may not be, Rights of Way) with the intention of reviewing their status during the preparation of the next Rights of Way Improvement Plan (RoWIP). Most of the main routes have been walked and assessed for quality and accessibility. A lot are surfaced, in line with their main purpose for cyclists and pedestrian traffic and many are lit. The city's Local Access Forum (LAF) was formed in November 2004. It advises the city council on the enhancement of the city's Rights of Way and the development of its RoWIP. Although a small group, the Forum includes people with enormous knowledge and experience of the Rights of Way in the city and the county, and Rights of Way law and practice. The council adopted and published its first Public Rights of Way Improvement Plan in October 2007. The second edition has been prepared in parallel with this Local Transport Plan. The RoWIP is a mechanism for improving and developing the network of Rights of Way to facilitate use by a wide variety of potential users.

Leicester, Leicestershire and Rutland Road Safety Partnership

1.17 Much of our recent success in improving road safety can be attributed to the work of the Leicester, Leicestershire and Rutland Road Safety Partnership. Formed in 1998, its purpose is to help reduce casualties in the Leicestershire Police area through joint working between city, county and Rutland councils, representatives from the NHS, Highways Agency and Leicestershire Police. The aim of the Partnership is:

'To provide a safer environment on the roads of Leicester, Leicestershire and Rutland using education, enforcement and engineering to enable all road users to travel in confidence, free from fear of death or injury'

Successes to date have been achieved through:

- » Road safety education (Education)
- » Safer routes schemes (Engineering and Education)
- » Traffic calming schemes (Engineering and Enforcement)
- » Local Safety schemes (Engineering)
- » The Safety Camera Partnership (Enforcement)

1.18 Although locally we have made good progress in making the city's roads safer, the number of people being killed and seriously injured remains a problem. Road casualties are still the main cause of accidental death or injury in Leicester. Our consultation tells us that although most people recognise that measures have already been taken to reduce accidents, further improvements are necessary as accident statistics can never be low enough.

2. The Strategy for Leicester's Transport System So Far

2.1 Our first Local Transport Plan 2001-2006 was heavily influenced by the 1994 Central Leicestershire strategic transport study known as CALTRANS. The nine transport objectives that evolved from CALTRANS were reviewed in line with the 1998 Transport White Paper 'A New Deal for Transport: Better for Everyone' and in the light of the results of consultation. Six objectives developed from the process:

- » To improve ACCESS to employment, leisure, education, housing, health care and shopping.
- » To support the local ECONOMY and encourage economic growth in suitable locations, with particular regard to the city centre.
- » To improve all aspects of transport SAFETY and security.

- » To encourage and develop the more SUSTAINABLE transport modes of walking, cycling and public transport and where appropriate bring about a reduction in travel overall.
- » To promote SOCIAL INCLUSION by improving accessibility for those without access to a private motor vehicle, for those disabled people and for women, for older people, for ethnic minorities and for the unemployed.
- » To improve QUALITY OF LIFE by reducing the pollution, noise, congestion, delay and severance caused by traffic.

2.2 We used our experience in implementing the schemes, policies and objectives, to revise and create objectives and programmes for our second Local Transport Plan. That process was heavily influenced by our engagement with the Department for Transport between November 2003 to March 2004, by the statutory local transport guidance in December 2004 and by the regional spatial and economic strategies, particularly those applying to the Three Cities sub-area. Building on the initial work with the Department for Transport on the transport shared priorities and having considered all the factors that were to influence transport for the future our five key objectives for our second local transport plan (2006 to 2011) were:

- » **Tackling Congestion** - we will manage the increasing demand for travel by facilitating proportionally more bus, walking and cycling trips whilst improving network efficiency and the effective allocation of road space.
- » **Delivering Accessibility** - we will improve access to everyday services, places of work, leisure and shopping, particularly for those neighbourhoods and groups likely to suffer from social exclusion, by working with partners to better plan the location and operation of services and the transport that serves them, including buses, walking and cycling.
- » **Safer Roads** - we will continue to reduce the number of people killed or hurt on our roads, particularly looking after children, cyclists and pedestrians, by working with partners to implement road safety initiatives and by implementing schemes.
- » **Better Air Quality** - we will reduce air pollution caused by traffic by encouraging and facilitating more people to travel by public transport, walking and cycling.
- » **Better Road, Footway and Cycle Route Condition** - we will improve the condition of our roads, footways and cycleways by spending more money on maintenance, and spending this money more effectively.
- » **An over-arching objective to contribute at every opportunity, through each key area above, to the improvement of the Quality of Life for all** – improving public spaces, security, safety and health, helping with neighbourhood renewal and regeneration, reducing noise and greenhouse gases.

2.3 We have been very successful in meeting these objectives evidenced by the fact that we are on track to meet 29 of our 36 targets. Our most notable achievements have been to keep congestion under control, achieve a substantial rise in the number of cycling trips made, the continuing reduction of the number of people killed and seriously injured on our roads and to maintain the status quo regarding the condition of our main roads and busiest footways. We have seen the opening of the Enderby Park and Ride service in November 2009, the completion of the Humberstone Road Quality Bus Corridor Scheme in 2010 and the opening of the Upperton Road Viaduct replacement scheme in December 2008. We have of course delivered many schemes and services to continually improve highways and transport services in Leicester.

3. Leicester's Transport System – a performance report Overview

3.1 A snapshot of the 34,500 people entering the city centre across the inner ring road each weekday in the peak period of 7–10am, in 2010 is:

- » Car/LGV = 36.4% (12,600)
- » HGV = 0.5% (170)
- » Bus = 41.5% (14,300)
- » Pedal cycle = 1.4% (480)
- » Motorcycle = 0.2% (70)
- » Pedestrian = 20.0% (6,900)

The average car occupancy is 1.34 persons per car³. In addition there are around 2,200 passenger arrivals at the Leicester railway station each day between 7-10am. This represents 6.4% of the 34,500 figure above although train passengers go on to destinations other than those within the inner ring road.

Analysis of Leicester's Transport System

3.2 Despite reductions in the amount of traffic on the roads, speeds (on average) have remained between 27/8kph in the AM peak between 2006 and 2010 (average speeds have fallen by 2kph in the PM peak over the same period). The average peak hour car delay per vehicle per km on the ten radial routes has nearly halved between 2006 and 2010. This suggests that traffic is generally flowing more smoothly, but not necessarily any faster.

³7-10am, Inner Ring Road Cordon, 2010

Similar observations have been made in other large cities. A study commissioned by the DfT suggested that this was due to a reduction in capacity on the road network as road space was given over to bus lanes, pedestrian areas and an increased number of traffic lights and pedestrian crossings. This means that, despite reductions in traffic levels, the road network remains close to capacity in the peak hours. Conditions can quickly deteriorate due to any planned or unplanned events in critical locations. Congestion is particularly sensitive to unplanned events on and in the vicinity of the inner ring road. The shoulder hours (e.g. 7–8am and 9–10am for the am peak) do have spare capacity but again unplanned events have a disruptive impact. Automatic traffic count data for the Central Transport Zone (CTZ) shows that (while the proportion of traffic travelling in the peak hours remains stable) there has been a shift from the preceding hour (7-8am or 4-5pm) into the succeeding hour (9-10am or 6-7pm) over the LTP2 period. In other words, there has been a shift towards travelling into the city later and leaving later. This could be a result of more flexible working, a shift from trips for employment to trips for shopping or entertainment purposes (the Highcross centre has been trying to promote the development of a more “late-night shopping” culture in the city).

- 3.3 The 6Cs Congestion Management Study (2008) collected a range of data to measure the levels of congestion on the inbound radial routes of Nottingham, Derby, Leicester as well as three market towns in Leicestershire. It found that overall Leicester had the greatest average delay per mile, with the delay being particular high on the radial roads.
- 3.4 The 2001 Census provides a useful source of data in understanding the volumes and patterns of journeys to work. The DaSTS draft report (East Midlands Three Cities Agglomeration and Accessibility Study, May 2010) has provided useful analysis of the travel and transport characteristics in the area, which includes Leicester. The report identified the workplace location of people who lived in the Leicester urban area. It found that (in 2001) of the 208,011 workers who lived in the Leicester urban area, 177,067 (85%) also worked in Leicester. Only a very small proportion (less than 1%) worked in either the Derby or Nottingham urban areas. The top three workplace locations outside the sub region for Leicester were West Midlands (1.2%), Northamptonshire (0.9%) and Warwickshire (0.7%).
- 3.5 Additionally, the report identified the residential location of people who worked in Leicester. Of the 232,133 who worked in the Leicester urban area, 177,067 (76%) also lived there, and 93% of all workplaces in Leicester were taken by residents of the Leicester HMA. Only a very small proportion of employment places in Leicester were filled by people living in Derby or Nottingham. The top three residential locations outside the sub region were Northamptonshire (0.7%), Warwickshire (0.7%) and West Midlands (0.5%).
- 3.6 The Ptolemy Transport model is a land use transport model that covers the East Midlands area and has been calibrated and validated to a 2006 base. Trip matrices from the model have provided an additional source of information. Overall, the analysis has confirmed (using the 2001 Census data) that the proportion of people who live in Leicester and work in one of the other two cities

is very low. A similar conclusion has been drawn looking only at commuting trips by car.

The study also found that:

- » 83% of commuting trips are contained within the Leicester Urban Area, only 65% of employer's business trips are self contained.
- » 93% of the personal business trips that start in Leicester, also end in Leicester;
- » For all trip purposes, 89% of trips within the Leicester urban area remain within it, with 1% to Nottingham and less than 0.5% to Derby; 10% are made to other destinations; and
- » The car is the dominant form of transport within Leicester (accounts for more than half of trips), with approximately 40% of trips being made by walk / cycle. The analysis suggests that a significant proportion of trips of less than 5km by car could potentially be targeted in behavioural change programmes aimed at increasing walking and cycling.

3.7 The study has also found that, using the Ptolemy model which has forecast the in change in the distribution of commuter trips between 2006 and 2026, intra-urban trips will continue to dominate the proportion of trips made to destinations outside the three urban areas. For Leicester, this is expected to increase from 16% to 22%.

What people said about transport during the development of One Leicester

3.8. Leicester's roads are congested at peak times and the public transport system is both inadequate and insufficiently connected. Yet we have many fine examples of green spaces – and people want more. Those who know Leicester love New Walk, the pedestrian walk created over two hundred years ago. We need to create more tree-lined avenues, like New Walk, that are devoted to people rather than cars.

The 2009 Comprehensive Area Assessment– Leicester's transport performance

3.9 The 2009 Comprehensive Area Assessment (CAA) showed strengths, weaknesses, and areas for improvement:

“The council is reducing congestion. Around four in ten households in Leicester don't own a car. More people travel to work by bus, bike or on foot than the national average. Fewer use a car or the train. Even so, traffic congestion is the third highest priority for improvement for local people. The council is making it easier for people to use buses and bikes and to walk. Satisfaction with bus services is high and improving. A new bus corridor on one of the main routes into the city is being developed.”

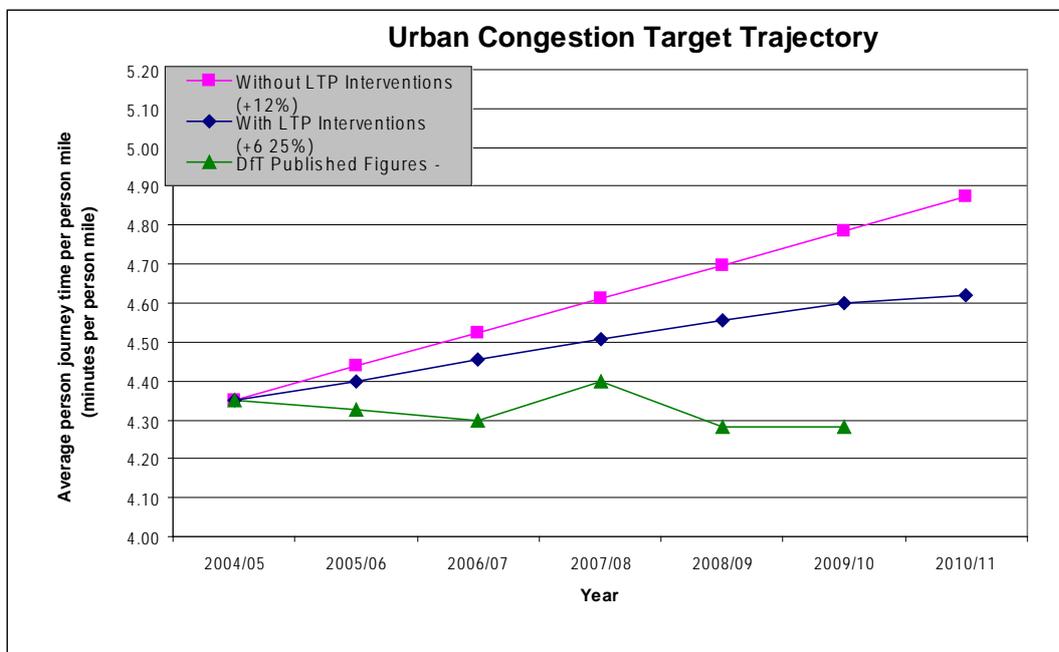
Second Local Transport Plan – a performance report

3.10 We have made excellent progress in delivering the five objectives in our second Local Transport Plan (2006-11).

Tackling Congestion

3.11 We have been making good progress with our Tackling Congestion objective. Towards the end of the LTP2 period, we were on track with 10 out of our 12 performance indicators. Congestion (Graph 2.1) has been reduced from a 2004/05 baseline journey time of 4.35 minutes to 4.28 minutes per person mile in 2009/10. The 2010/11 target for all eleven routes is 4.62 minutes with LTP interventions. We have met our congestion targets and this has led to additional reward funding of £1.8m from the Government's Congestion Performance Fund.

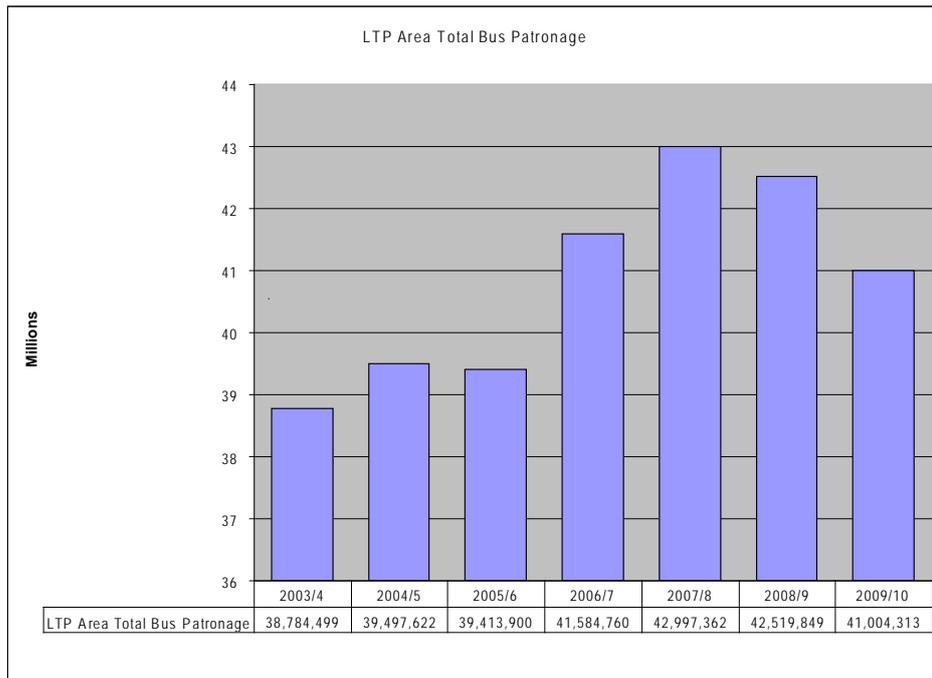
Graph 2.1 – Urban Congestion Target Trajectory



3.12 The Enderby Park and Ride scheme was delivered ahead of programme and we completed London Road and Humberstone Road Quality Bus Corridor schemes and improvements made to Pork Pie Island. Our evidence from the delivery of the QBC schemes shows a reduction in AM peak congestion and improved journey time reliability for buses (for example in London Road). This has also led to an increase in bus patronage. Overall, we have been making good progress with increasing our bus patronage (graph 2.2), despite the reductions since the onset of the economic recession (with unemployment possibly having an impact on the number of work journeys people make).

3.13 However, we were behind on our car mode share of journeys to school due to a lack of resources. In the latter part of LTP2 we have been expanding our Road Safety Education Team which we were able to progress with other interventions, such as piloting a 'Star Walkers' schemes, although the impacts of our interventions have not been able to catch up with our target.

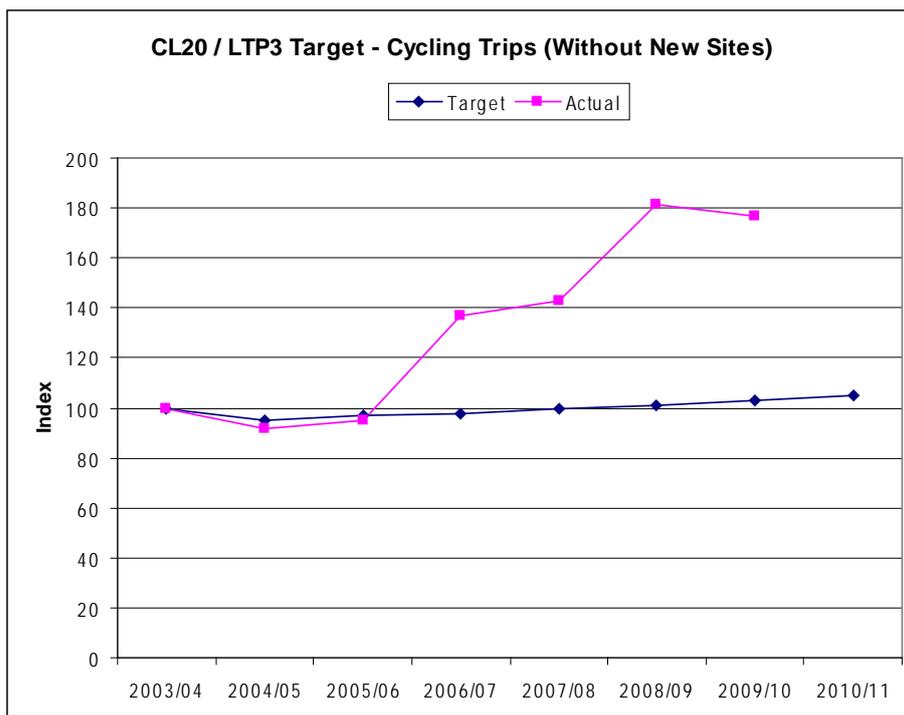
Graph 2.2 – Growth in Bus Patronage



Delivering Accessibility

3.14 Towards the end of the LTP2 period, we were on track with all of our accessibility indicators. We have been recording strong increases in cycling levels (77% increase from 2003/04 – 2009/10). This could be attributed to improved recording of cycling numbers and increased promotion of cycling events (graph 2.3). We have organised annual Sky Ride events since 2009 (a mass family friendly bike ride). 8,000 participants took part in 2009. There has also been steady growth in the number of pedestrians entering and using the city centre.

Graph 2.3 – Number of Cycling Trips (2-Way 12Hr Totals, annualised index)

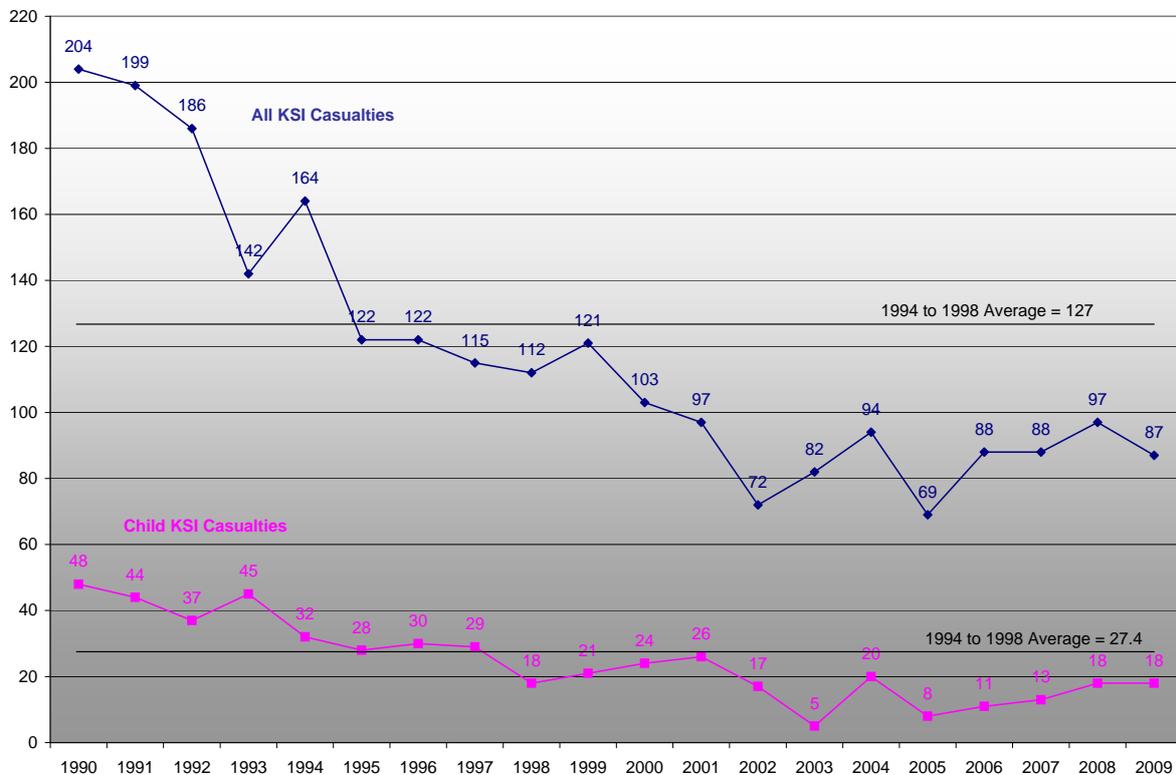


3.15 Our Rights of Way Improvement Plan was formally adopted in 2007. We were awarded the Natural England's Rights of Way Improvement Plan award for the Improving Accessibility for All category. However, progress with the 'Access to Work' indicator remains static as measured through Accession software.

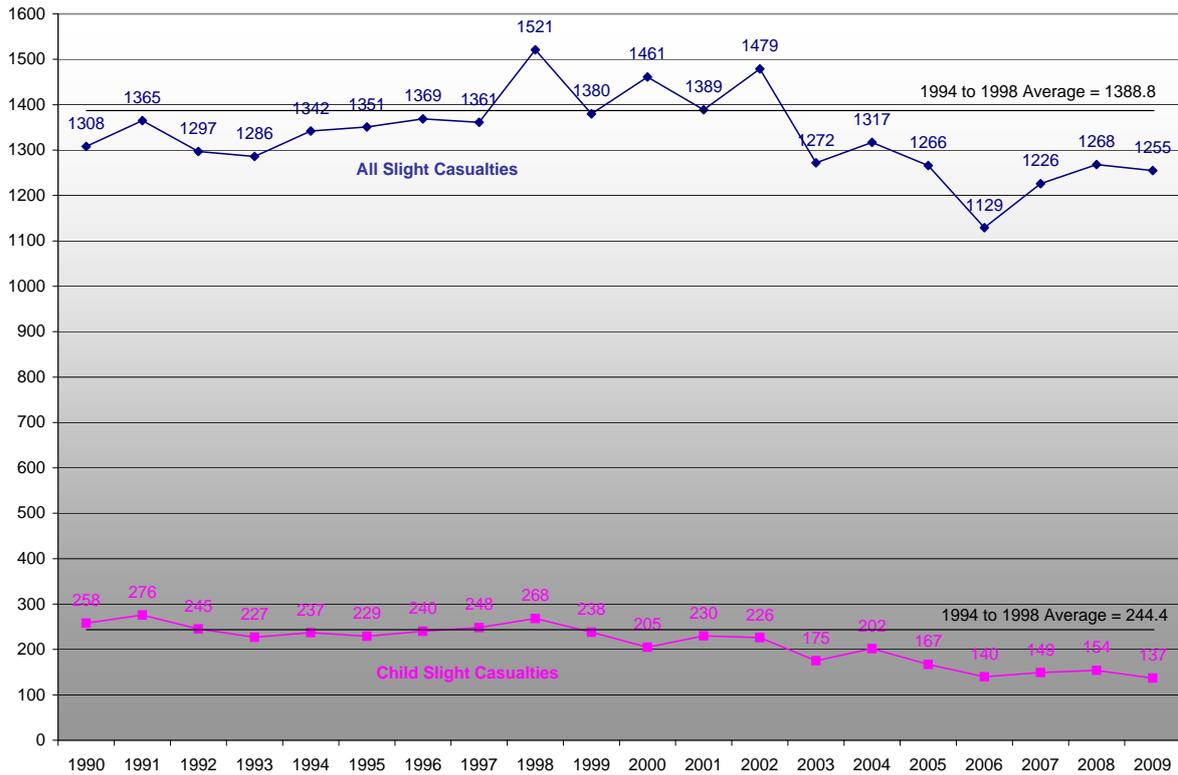
Safer Roads

3.16 Our Safer Roads Strategy has been focussed on reducing road casualties through local safety schemes and speed management activities as well as continuing road safety education, training and publicity campaigns. We were on track with three out of five indicators at the end of the LTP2 period. Our slight casualties have been reduced in line with our target. However, progress against the total killed and seriously injured and child killed and seriously injured targets have not been going so well. The former having stalled at 88 in both 2006/07 and 2007/08 and risen to 91 in 2009. Although this is still an improvement on the 1994/98 baseline of 127 (graph 2.4) and 1994/98 baseline of 244 for slight injured casualties (graph 2.5). Our Killed and Seriously Injured cycle casualties have risen parallel with an increase in the numbers of cyclists on the roads. Further investigation is required with the nature of the collisions involving cyclists. We have received positive feedback from the Department for Transport "health check" of our road safety work.

Graph 2.4 Total killed and seriously injured - KSI Casualties Graph



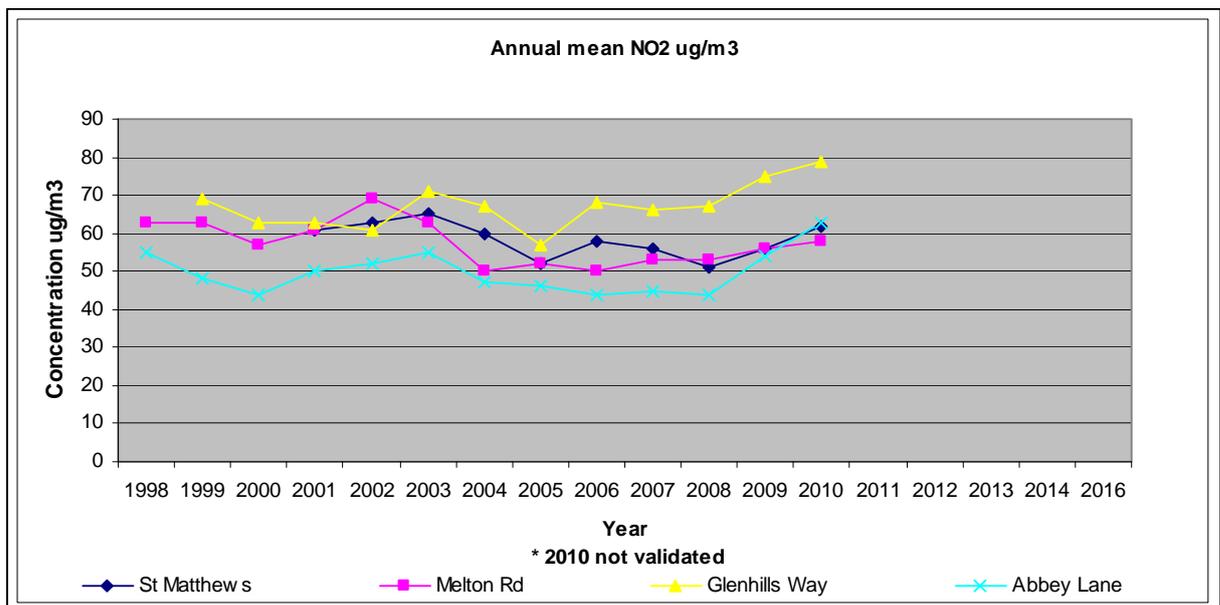
Graph 2.5 Slight injured casualties



Air Quality

3.17 We have been tackling our identified air quality areas. We are on track with six out of our seven air quality indicators at the end of the LTP2 period. We are making slow progress towards our main target, particularly on the back of our congestion strategy. We deploy a network of nine fixed, high grade monitoring stations. Four out of the nine sites are used to measure the LTP2 indicator as shown below [Graph 2.6](#). Leicester's Air Quality Management Area was extended (adjacent to the A6 north of Leicester) in 2008.

Graph 2.6 – Nitrogen Dioxide Annual Mean Data



3.18 At the November 2009 EPUK Conference, Leicester was amongst five local authorities chosen as good examples of air quality action planning. Leicester's managing of congestion through urban traffic management and control was highlighted as effective action to improve air quality.

Better Road, Footway and Cycle Route Condition

3.19 We have been providing proactive, effective and efficient methods of managing our assets to meet our wider transport authority objectives. We are on track with three of our five indicators at the end of the LTP2 period. We were unable to meet our unclassified road condition target [Graph 2.7](#). Whilst the council continues to spend all of its capital maintenance allocation on maintaining transport assets, the council's revenue budget for highway maintenance has been reduced. We have prioritised spend mainly onto the classified road network and busy footways network as we believe this best supports our other objectives.

3.20 The LTP2 capital maintenance block funding allocation has enabled a substantial programme of work to be delivered via our Bridge Maintenance and Street Lighting programme. Due to the reduction in revenue funding for unclassified roads and the delay in our bridge maintenance programme this has resulted in a re-programming of some maintenance projects. The Upperton Road Viaduct Scheme is one of our success stories as it is was delivered to programme and comfortably within budget.

Graph 2.7 Road Condition Indicators

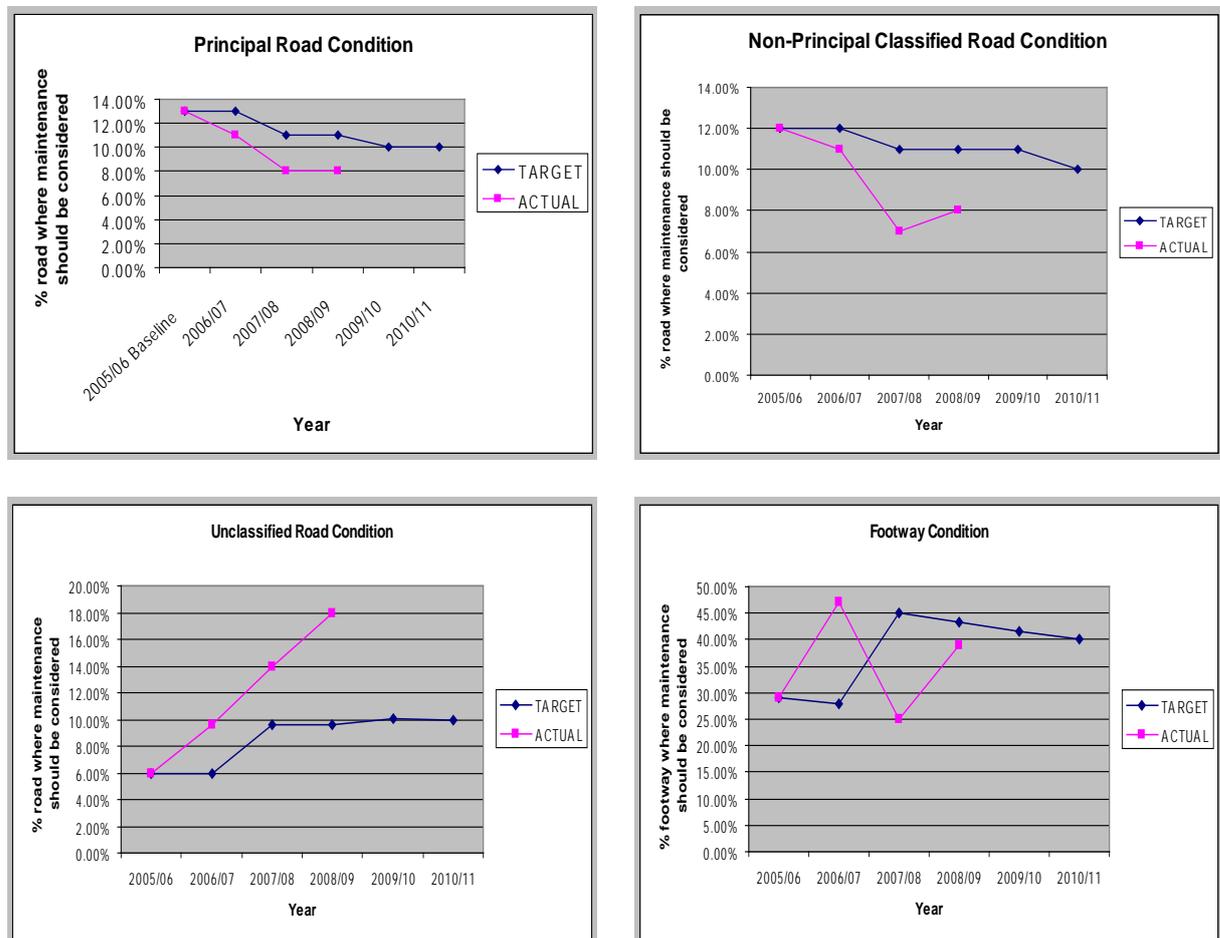
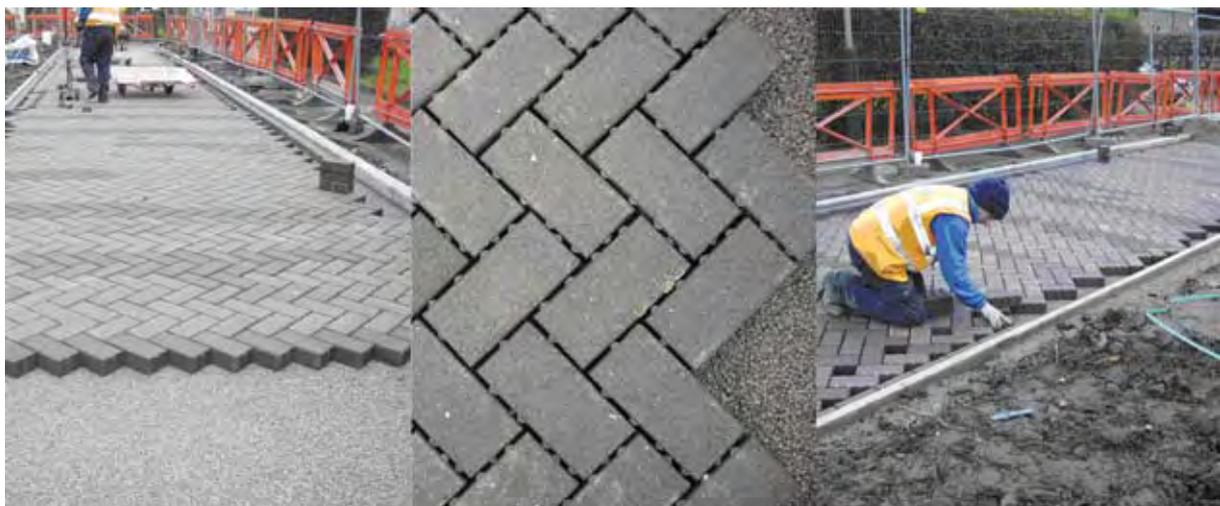


Photo 2.1: Upperton Road Viaduct Scheme



3.21 Local Environment Works have helped to achieve neighbourhood renewal schemes. For example, Abbey Rise. Abbey Rise is close to the flood risk area and permeable paving was used to replace the existing paving for car parking. Although small scale this is the first example of the use of permeable paving within the city.

Photo 2.2: Construction of permeable paving in Abbey Rise



3.22 Running through all the LTP2 objectives has been the overarching objective to contribute, at every opportunity, to the Improvement of the Quality of Life for all – improving public spaces, security, safety and health, helping neighbourhood renewal and regeneration, reducing noise and greenhouse gases. Our progress towards this includes:

- » Huge £19 million investment and improvement in the city centre public realm through the city centre Development Project.
- » Gateway and public realm improvement resulting from the Upperton Road Viaduct Scheme [Photo 2.1](#).

4. Constraints and Opportunities

4.1 We have been faced with a number of constraints whilst delivering our transport vision and objectives for Leicester throughout the LTP2 period. However, whilst these challenges are present, a number of possible opportunities can also be exploited. The constraints and opportunities are outlined below.

Leicester's Transport Related Constraints

- 4.2 Commercially operated bus network - our bus network is operated by the private sector. The two main operators in Leicester are First and Arriva. As these are commercial services, we do not have direct control over the fares set or the routes. The price of fares and the frequency and routes served by the operators can be a barrier in accessing destinations / opportunities. This could be overcome by considering the option of Quality Bus Contracts that will help to control parts of the network to include frequencies, fares, standards and hours of operation.
- 4.3 Compact city centre - the layout of Leicester is concentric with few natural barriers meaning the person trips are reasonably evenly spread out on the key radial routes. Our key radial routes are not generally of sufficient width to accommodate additional transport infrastructure, such as trams, without a measurable decrease in capacity for general traffic. This constraint could be reduced by making better use of the road space.
- 4.4 Commercially operated car parks - many of our city centre car parks are privately owned and hence we have very little influence on the level of prices set. Some car parking pricing structures are attractive for commuter parking and thus car trips are made in the peak period. Due to the economic recession, brownfield land in the city centre is currently been left undeveloped and is being used for temporary private car parks. We have been collecting car parking data to establish if additional off street car parking spaces are required. If there is not a case for additional car parking, this will strengthen the link between transport and land use planning to influence the development of future car parks.
- 4.5 No more kerb space in city centre for buses - there is a forecast increased demand on the transport system due to the growth in housing and the need for a step change improvement in public transport to underpin Leicester's future. The city council is concerned at the quality of some existing bus facilities and the

potential for accidents. There is no kerbspace left to accommodate additional bus services in the city centre and existing facilities are either not well placed or generally of poor quality. We need to make bus travel much more attractive to entice car users away from car use.

- 4.6 Recession leading to reduced capital and revenue funding - the impact of the recession will possibly mean that we will have a reduced amount of capital and revenue funding available. We have to manage our transport system to make the best and most efficient use of the funds available. For example, this means using an evidenced based approach to focus investment in areas and interventions where we can achieve the maximum benefits and best value for money.
- 4.7 Limited number of disused rail routes for conversion to off-road cycleways and footways - we have a large network of permissive paths (including cycle tracks), however, there are a limited number of potential routes available for future conversion.
- 4.8 Public Transport Interchanges - Leicester's key interchange points between the local and national transport system are London Road railway station and St Margaret's bus station. These interchange points are located on either side of the city. It is not always easy or convenient to travel from one area on the edge of the city to another.

Leicester's Transport Related Opportunities

- 4.9 The government announced in October 2010, a new funding stream, the Local Sustainable Transport Fund. This is £560m over four years and is a mixture of capital and revenue funding. We will take the opportunity to bid for some of these funds to help us progress many of our initiatives and schemes.
- 4.10 Making better use of our Transport Assets - we own a number of transport assets which we could make better use of and expand. For example, on our highway network we have a number of bus lanes which could be expanded further. After study results from our London Road Quality Bus Corridor scheme show an increase in bus patronage with a reduction in bus journey times.
- 4.11 Build upon our success with cycling - we have developed good cycle promotion through Cycle City coupled with key projects (such as Cycle Champions, Bikes4all and Bikelt) that has helped to increase the number of people cycling by 77% between 2003/04 and 2009/10. Due to the increase numbers of people cycling, there is the potential to develop and build upon our existing infrastructure and parking facilities and improve our bike parking and cycle signing.
- 4.12 Good Joint Working Relations - a major strength of our LTP is the partnership working between the city and county councils. For example: the joint development and implementation of Park and Ride. We have recently been working closely with the bus companies on the development of a Smart and Integrated Ticketing Strategy which aims to introduce smart ticketing on major urban areas by 2015. We have been awarded £1.1m to pursue our proposals. There is efficiency of joint working and opportunities through the sharing of

learning with the Leicester and Leicestershire, Rutland Road Safety Partnership (LLRRSP). For example a 'Wasted' Road show, a hard-hitting event aimed to make young people think seriously about the responsibilities of driving.

- 4.13 Transport will be a key focus of the Local Enterprise Partnership and it is essential we participate in any emerging working groups likely to be comprised of the city and county councils, adjacent district councils, bus operators, business representatives and the Highways Agency. This puts us in a strong position to bid for funds in public/private sector partnership and work together on delivering initiatives such as travel planning. In addition we have a strong working relationship with the Director of Public Health. There are further opportunities to link the work we do with other service areas (such as Sport Services) to help tackle the problem of obesity and the health and wellbeing of the residents in Leicester.
- 4.14 Many short car journeys in and around Leicester could be converted to walking or cycling trips. Some 50% of journeys to work are less than five kilometres in length. Additionally, we need to encourage the 36% of Leicester commuters who do not use public transport, walk or cycle to access employment as almost all residents of Leicester live within 400m of a bus stop and 82% of Leicester's residents work within Leicester.
- 4.15 Use of the planning process to help implement our LTP Strategy - the Leicester Urban Area study has indicated that there will be an increase in the number of homes. We need to cater for this new growth but we need to ensure that we have sustainable travel. We have the opportunity to achieve our goals and objectives through the mechanisms of the planning process. Furthermore, our Core Strategy is looking to provide more service and knowledge based jobs and currently the majority of the workforce is in public administration, education and health. Therefore, there is potential to encourage commuter trips by sustainable modes of transport.

5. Looking to the future – challenges for transport, the need to intervene The Government's Challenges for Transport Authorities

- 5.1 The Department for Transport, through the national strategy "Delivering a Sustainable Transport System" (DaSTS) published a set of five key goals, as discussed in Chapter 1 section 5 of this Plan. Through the same strategy, DfT has published challenges to the development of the UK's future transport policy and infrastructure. These challenges are set out below grouped under the national goals.

Goal – Support Economic Growth

- » Ensure a competitive transport industry by simplifying and improving regulation to benefit transport users and providers and maximising the value for money from transport spending
- » Reduce lost productive time including by maintaining or improving the

reliability a predictability of journey times on key local routes for business, commuting and freight

- » Improve the connectivity and access to labour markets of key business centres
- » Deliver the transport improvements required to support the sustainable provision of housing, and in particular increasing supply to 240,000 net additional dwellings per annum 2016
- » Ensure local transport networks are resistant and adaptable to shocks and impacts such as economic shocks adverse weather, accidents, terrorist attacks and impacts of climate change

Goal – Reduce Carbon Emissions

- » Deliver quantified reductions in greenhouse gas emissions consistent with the Climate Change Bill and EU targets
- » Deliver quantified reductions in greenhouse gas emissions within cities and regional networks, taking account of cross-network policy measures.

Goal – Promote Equality of Opportunity

- » Enhance social inclusion by enabling disadvantaged people to connect with employment opportunities, key services, social networks and goods through improved accessibility, availability, affordability and acceptability.
- » Enhance social inclusion and the regeneration of deprived or remote areas by enabling disadvantaged people to connect with employment opportunities, key local services, social networks and goods through improving accessibility, availability, affordability and acceptability.
- » Contribute to the reduction in the gap between economic growth rates for different English regions.

Goal – Contribute to Better Safety, Security and Health

- » Reduce the risk of death, security or injury due to transport accidents.
- » Reduce social and economic costs of transport to public health, including air quality impacts in line with the UK's European obligations.
- » Improve the health of individuals by encouraging and enabling more physically active travel.
- » Reduce the vulnerability of transport networks to terrorist attack.
- » Reduce crime, fear of crime and anti-social behaviour on city and regional transport networks.

Goal – Improve Quality of Life and a Healthy Natural Environment

- » Manage transport-related noise in a way that is consistent with the emerging national noise strategy and other wider Government goals.
- » Minimise the impacts of transport on the natural environment, heritage and landscape and seek solutions that deliver long-term environmental benefits.
- » Improve the experience of end-to-end journeys for transport users.
- » Sustain and improve transport's contribution to the quality of people's lives by enabling them to enjoy access to a range of goods, services, people and places.
- » Reduce the number of people and dwellings exposed to high levels of noise from road and rail networks consistent with implementation of Action Plans prepared under the Environmental Noise Directive.
- » Support urban and rural communities by improving the integration of transport into streetscapes and enabling better connections between neighbourhoods and better access to the natural environment.
- » Improve the journey experience of transport users of urban, regional and local networks, including at the interfaces with national networks and international networks.

Challenges and Opportunities for Transport at Regional Level

5.2 Of particular use has been the work commissioned by the Regional Assembly for the RSS partial review; the Atkins⁴ statement of transport conditions and issues published in October 2008 listed very clearly the pressures that the East Midlands faces over the next 20 years:

- » A 26% increase in the regional population from 4.4m in 2007 (ONS mid year estimate) to 5.5m in 2031 (ONS projection 2006)
- » Leicester and Leicestershire, which already has 21% of the regional population, is projected to have an increase of some 216,000 people to achieve a total population of 1,149,000 by 2031; of which over half will be in Central Leicestershire
- » The East Midlands had the second highest rate of traffic growth in the country between 1996 and 2006; at 18% this is a trend that will be hard to reverse
- » There has been significant growth in the logistics and distribution industry because of the good road links and Leicester's central location in England

⁴"East Midlands RSS Partial Review – A Statement of Conditions & Issues" – Atkins Transport Planning on Behalf of the East Midlands Regional Assembly, October 2008

- » Leicester's net commuter inflow is significant at some 43,000 commuters daily; the existing network in the PUA is the economic cost of congestion is the highest in the region at an estimated £153.5m per year
- » Central Leicestershire is well provided for in terms of public transport through the principal bus and rail network; has an accident rate that is equal to or better than the national average; and despite requiring Air Quality
- » Management Areas in the city and in Blaby, carbon emissions too are equal to or better than the national average
- » There is potential for behavioural change; in particular the suburban areas of Groby, Thurmaston and Blaby show the key demographic and accessibility characteristics which suggest that they are likely to be positive towards behavioural change measures. Walking and cycling levels are similar to the regional average at 10.7% and 3.4% respectively; there is potential for further increase if development is concentrated around the Leicester Urban Area

5.3 At the end of 2008 the DfT invited each of the English regions to take the lead on identify challenges to achieving their goals, and potential solutions on the city and regional networks through a four stage process. In the first stage, each region identified how the goals and challenges manifested themselves locally and identified work programmes to better understand the challenges and identify a programme of transport investment to overcome them. These 'Stage 1 submissions' were made in June 2009.

5.4 The East Midlands Stage 1 DaSTS Submission identified nine prioritised desired travel outcomes (goals) and eleven challenges (barriers to achieving those travel outcomes) for the region as a whole. These were set within the context of the five national DaSTS goals. The challenges for the East Midlands were determined through a process of policy review, collation of available evidence and contributions from stakeholders, including Lincolnshire and Nottinghamshire county councils. During the preparation of the East Midlands Stage 1 DaSTS Submission work was undertaken to collate available evidence relating to the eleven regional challenges. Evidence was collated from a range of national (e.g. DfT), regional (e.g. the HA) and local (e.g. LTA) sources.

5.5 Four of the eleven regional challenges are specifically applicable to Derby, Leicester and Nottingham:

- » Minimising existing and future traffic congestion and rail crowding on strategic links and in urban areas (EM1).
- » Enabling growth and dealing with the additional demand for travel brought about mainly by regeneration and growth (EM2).
- » Overcoming gaps and weaknesses in the existing transport networks and maintaining accessibility (EM3).

- » Reversing long-standing travel behaviour and dependency on travel, particularly by private car in a post-industrial society (EM11).

Leicester's Specific Challenges for Transport Leicester and Leicestershire Multi Area Agreement

5.6 Transport was recognised as a cross-cutting delivery measure in the Multi Area Agreement and the following transport priority actions are identified in the Infrastructure theme:

- » Ensure that all people have access to employment and housing opportunities
- » Tackle congestion hotspots in the M1 J21 area and on major routes into Leicester and Loughborough and improve air quality.
- » Provide better public transport to connect communities in the sub-region with employment opportunities and leisure activities.
- » Provide people in urban and rural areas with viable, attractive, affordable and accessible public transport choices.

One Leicester

5.7 One Leicester identifies the city's key challenge:

"If we are to improve the city for everyone, we know we must take action to deal with the concerns that most worry our citizens, while addressing the main challenge that faces us today and in the future – damage to our environment". and continues to identify the main challenges as indicated in section 2.6 earlier under the headings of.

- » People
- » Prosperity
- » Place

6. Leicester's Transport Challenges

6.1 Leicester's transport challenges have been identified by analysis of the preceding sections of this chapter and have been consulted on during 2010. The key challenges for transport are provided in Table 2.1 grouped by national transport goal.

Table 2.1 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 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 in 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 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



Chapter 3: The Transport Strategy



1. Transport Supporting One Leicester and the National Transport Strategy

- 1.1 The three key drivers for our transport strategy are the challenges identified in Chapter 2 sections 3, 4, 5 and 6 arising from analysis of current transport system performance and future challenges identified by One Leicester, Leicester City Core Strategy 2009 (land use planning) and the Government's national transport strategy "Delivering a Sustainable Transport System". The Leicester City Core Strategy 2009, and the core strategies of the adjacent district council planning authorities, have been influenced by and have influenced this transport strategy. The interaction between transport and land use is a two-way relationship. On the one hand, future travel demands will be shaped by future land uses while, on the other hand, changes in the disposition of land uses will be influenced by changes in accessibility provided by the transport system. We also contributed to the Leicester and Leicestershire infrastructure assessment and the economic assessment which in turn have both influenced the core strategies. The infrastructure assessment considers the infrastructure implications of housing and jobs growth. This is particularly important for Leicester as development under current policies is concentrated in urban areas. We have made sure that the assessments take into account the important role and need of transport to facilitate development and the protection and creation of jobs.
- 1.2 We have considered our One Leicester goals and priorities for action (Chapter 1 section 2) and how they align with and support the national transport goals (Chapter 1 section 5) and vice versa as illustrated in Table 3.1. This assessment indicates that there is a clear synergy and mutual support between the national and local goals. We have also considered the current transport system performance and future challenges discussed in Chapter 2 sections 3, 4 and 5 and from this process we have developed our transport vision and seven strategic transport objectives to focus our on-going sustainable transport strategy for Leicester.
- 1.3 [Table 3.1](#) below shows how this strategy fits into the national and regional context and is driven by One Leicester. The vision, the strategic transport objectives and the strategies to meet those objectives are explained in the following chapters.

Table 3.1 One Leicester and National Transport Goals

One Leicester Goals	Delivering a Sustainable Transport System Goals				
	Supporting Economic Growth	Carbon Reduction and Tackling Climate Change	Contributing to better safety, security and health	Promoting equality of opportunity	Improving quality of life and promoting a healthy natural environment
Confident people	X		X	X	X
Greater prosperity	X		X	X	
Beautiful place		X	X		X
One Leicester - Priorities for action					
Investing in our Children			X	X	X
Planning for People not Cars	X	X	X	X	X
Reducing our Carbon Footprint		X	X		X
Creating Thriving and Safe Communities	X		X	X	
Improving well being and health		X	X	X	X
Talking up Leicester	X	X	X	X	X
Investing in skills and enterprise	X			X	X

2. The Vision for Transport in Leicester

2.1 Our 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. Successful delivery of our local transport plan will enable us to take a really big step forward towards realising this ambition. It will also enable us to make more rapid progress in delivering attractive alternatives to car travel and to cater for some of the highest levels of housing growth in the country to 2026 and beyond whilst:

- » Keeping congestion under control and improving accessibility for all, but particularly for deprived groups, to support a new prosperity with economic growth and new jobs
- » Encouraging more people walking, cycling and using public transport to reduce carbon emissions
- » Providing a transport system that facilitates for a safer and healthier way of life

Locally this translates into many more residents walking and/or cycling the shorter journeys in and around the city and using the bus for longer journeys, particularly into Leicester city centre, instead of using the car.'

3. Local Transport Goals

3.1 Leicester's local transport goals derived as explained in paragraph 1.2:

- » Economic Growth Supported – Leicester is more prosperous
- » Carbon Emissions Reduced – Leicester' carbon footprint is reduced
- » Equality of Opportunity Promoted – Leicester's people are more confident
- » Better Safety, Security and Health – Leicester's people are more healthy, safe and secure
- » Population Growth is supported – Leicester's Population is increased in a sustainable manner
- » Overarching Goal - Quality of Life and a Healthy Natural Environment are Improved - Leicester is a more attractive place

3.2 In weighting the goals, we have balanced the One Leicester Goals with those of Prospect Leicestershire – the Economic Development Company for Leicester and Leicestershire. This task has been heavily influenced by the need to facilitate the increasing demand for travel in Central Leicestershire arising from the forecast housing growth and regeneration of the city centre. We have also taken into account the need to deliver opportunity for all and to enhance quality of life including air quality improvements. Our decisions have been informed by the results of consultation exercises that have shown that the priority attached by the public and stakeholders to each of our six key goals is very high and reasonably equal.

3.3 One Leicester identifies "If we are to improve the city for everyone, we know we must take action to deal with the concerns that most worry our citizens, while addressing the main challenge that faces us today and in the future – damage to our environment" as our key challenge – following extensive consultation. Hence, we have determined that the two goals of:

- » Economic Growth Supported – Leicester is more prosperous
- » Carbon Emissions Reduced – Leicester' carbon footprint is reduced

are the main focus for this Local Transport Plan when seeking to determine investment priorities and set targets for the five strategic transport objectives. This process has determined the shape of our holistic strategy.

4. Leicester's 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

4.1 We have considered the current transport system performance and future challenges discussed in Chapter 2 and clarified the specific transport challenges to help Leicester meet its goals. Having clarified the transport challenges and developed local transport goals we have developed Transport Objectives to focus our Transport Strategies. Our transport objectives are grouped together under each of our Local Transport Goals:

Leicester's local transport goals and objectives:

Goal: Economic Growth Supported – Leicester is more prosperous

- » Objective: To Reduce Congestion and Improve Journey Times

Goal: Carbon Emissions Reduced – Leicester's carbon footprint is reduced

- » Objective: To Reduce Carbon Emissions

Goal: Equality of Opportunity Promoted – Leicester's people are more confident

- » Objective: To Improve Connectivity and Access

Goal: Better Safety, Security and Health – Leicester's people are more healthy, safe and secure

- » Objective: To Improve Safety, Security and Health
- » Objective: To Improve Air Quality and Reduce Noise

Goal: Quality of Life and a Healthy Natural Environment are Improved - Leicester is a more attractive place

- » Objective: To Improve Quality of Life (Overarching Objective)
- » Objective: Manage to Better Maintain Transport Assets

Goal: Population Growth is supported – Leicester's Population is increased in a sustainable manner

- » Objective: To Reduce Congestion and Improve Journey Times

5. Making it happen – developing the transport strategies

Generating our Policy Options

- 5.1 A key part of developing this Plan and hence the transport strategies in the following chapters has been to develop a list of policy instrument options for assessment against the Transport Objectives detailed in the preceding section of this chapter. This is a list of policy instrument options that could potentially be implemented on top of a basic “do minimum” case. The “do minimum” case comprises the existing transport network and infrastructure, plus initiatives and schemes that are already in the implementation stage. Initiatives and schemes that are already in the implementation stage include; On-street parking, residents parking schemes and Park and Ride for example.
- 5.2 In line with national guidance, the generation of options was not restricted to conventional transport interventions. In particular, a number of options were identified that were policy-based options from outside the transport field but that could potentially have impacts on the transport challenges of interest. Some of these would require action at a national level if the potential impacts were to be realisable in Leicester (and other cities).
- 5.3 We have developed an option generation assessment process based on policy instruments. We have drawn on a much wider set of schemes than might conventionally be considered. There are a number of tools to help with this process, both at the strategy and scheme level, however we have utilised those arising from Distilliate’s KonSULT project.
- 5.4 Our appraisal methodology is based on the guidance on appraisal contained within Web TAG. The identified transport options have been assessed against various criteria including their costs and benefits, non monetised benefits, greenhouse gas, air quality impacts and value for money. This has helped to prioritise the measures to be included in the LTP.
- 5.5 Measures and packages of measures to include in the LTP are then considered, not only the results of options appraisal, but an assessment of affordability, deliverability and risk are also considered in order to produce a balanced Plan.
- 5.6 Costs and benefits are then taken into account in determining LTP targets and monitoring arrangements along with estimating realistic trajectories for achieving targets.

Distilliate’s KonSULT project

- 5.7 KonSULT is a knowledgebase on Sustainable Urban Land use and Transport (www.konsult.leeds.ac.uk).

- 5.8 KonSULT provides detailed information on individual policy instruments and it has recently been updated to support the development of the third round of UK Local Transport Plans. It has been developed with support from the European Commission, the UK Department for Transport, the Engineering and Physical Sciences Research Council and the Rees Jeffreys Road Fund.
- 5.9 It contains, amongst other things, information on the policy instruments that are available to urban transport planners.

What are policy instruments?

- 5.10 Policy instruments are the tools which can be used to overcome problems and achieve objectives. They include conventional transport methods such as new infrastructure, traffic management and pricing policies, but increasingly they also involve attitudinal changes and use of information technology. Equally importantly, land use changes can contribute significantly to the reduction of transport problems. Policy instruments can be implemented throughout a city (for example a fares policy), or in a particular area (e.g. a light rail line), or at a particular time of day (e.g. a parking restriction). In many cases they can be implemented at different levels of intensity (e.g. for fares or for service levels).

What is the range of policy instruments?

- 5.11 Using the policy instruments identified by KonSULT as a guide we have identified 35 policy instruments for Leicester. It should be noted however the Policy Instrument 8 (Buses/Services) and Policy Instrument 17 (Parking) have been subdivided to allow greater clarity of scoring through the option sifting and prioritisation exercise.

5.12 There are several ways in which policy instruments can be categorised: land use measures; infrastructure provision; management of the infrastructure; information provision; attitudinal and behavioural measures; and pricing. The full range of policy instruments considered appropriate for Leicester is shown in the list below:

- » Public Transport Focused Development
- » Bus Corridors
- » Bus Stations and Interchanges
- » Bus Stops
- » Ticketing
- » Bus Fares
- » Bus Information
- » Buses/Services – Quality Bus Partnership
- » Buses/Services – Lower Emissions
- » Buses/Services – Low Floor
- » Park and Ride
- » Public Transport Routing
- » Dial a Ride
- » Rail
- » Major Road Improvements (over £2m)
- » Roads
- » Traffic Management
- » Traffic Lights
- » Parking – Controls and Restrictions
- » Parking – New off-street
- » Charging (pricing)
- » Car Schemes
- » Low Emission Vehicles, Infrastructure and Initiatives
- » Street Lights
- » Freight
- » Land Use Measures
- » Working with Partners
- » Journey Planning
- » Campaigns
- » Conventional Signs and Markings
- » Variable Message Signs
- » Pedestrian Facilities
- » Training
- » Maps
- » Cycles
- » Motorcycles
- » Accident Remedial Measures
- » Maintenance

How can performance be assessed?

5.13 All of these policy instruments will affect the performance of the transport system in one or more of three ways:

- » By changing the demand for travel
- » By changing the supply of transport facilities
- » By changing the cost of provision and operation of the transport system.

5.14 Initial responses (e.g. changes in mode) may lead to secondary ones (e.g. increases in overcrowding). Each of these types of change will in turn affect performance against the objectives. It is this first principles assessment of the likely impact of a policy instrument which helps to assess its potential contribution.

Changes in demand

5.15 When faced with a new policy instrument, or with a change in an existing one, such as a fare increase, the individual traveller has a number of possible options:

- » Continue as before
- » Change the number of journeys made
- » Combine journeys
- » Change destination
- » Change departure time
- » Change mode (including mixing modes)
- » Change route
- » Change ownership of vehicles
- » Change home

5.16 The scale of response will depend on the circumstances. Those who are directly exposed to a change will respond more strongly than those for whom the impact is indirect. Those who have fewer alternatives will be more reluctant to change. Longer term responses may well be stronger, as people have more time to respond, but the more dramatic responses such as changing work or home will depend on how permanent the change in policy appears to be.

Changes in supply

5.17 Changes in the supply of transport can take a number of possible forms as shown below:

- » Changes in the capacity of the road or public transport network
- » Changes in the allocation of road capacity
- » Changes in permitted speeds
- » Changes in the access cost or time to public transport
- » Changes in the costs of use
- » Changes in the information available

5.18 Some of these changes will have a direct influence on travellers, while others will only affect them if they are perceived.

5.19 For most policy instruments, it will be clear how they affect supply, but the scale of their impact may be difficult to assess.

Changes in costs

5.20 The principal types of costs are capital costs of new infrastructure, operating and administration costs, and costs of maintenance and replacement. These will be offset for some instruments by income from users and from taxes. Changes in these costs and revenues are crucial in determining whether an individual policy instrument, or the overall strategy, is affordable. It is often the case that low cost instruments will offer greater value for money than major infrastructure projects. The main types of change in cost are shown below:

- » Changes in capital costs, usually through the costs of new measures
- » Changes in the cost of vehicle operation for users, which are included in the supply costs above
- » Changes in the operation costs for suppliers, including enforcement, administration, and public transport vehicle and driver costs
- » Changes in the cost of maintaining and replacing the transport infrastructure and services

Our Methodology – The Sifting and Prioritisation Framework

5.21 Once the list of policy instruments had been developed, we undertook a sifting and prioritisation exercise. The purpose of the sifting exercise was to identify policy instrument options for consideration for the longer term transport strategy. These are to be developed during this local transport plan period as and when appropriate, options for consideration for implementation during the first four years of this local transport plan period and options that should be discarded prior to prioritisation. The criteria used to discard options were:

- » Options that appeared unaffordable in the light of likely spending constraints and funding sources for the longer term
- » Options that did not align well with Leicester's Local Transport Goals
- » Options that were fundamentally counter to the current (Central Leicestershire) longer term transport strategy
- » Options that would not give good value for money
- » Options that are politically and/or publically unacceptable

Sifting Criteria Definitions

5.22 To help apply the sifting criteria above further definition was developed where appropriate. These criteria definitions are set out below in Table 3.1, with a red / amber / green classification against each criterion. The amber class was required as it was recognised that some options could only be defined in a broad sense at this stage - estimating costs presented particular difficulty with these. Where any option fell into the red category against any of these sift criteria, it was discarded from further consideration.

Table 3.2: Sifting Criteria Definitions

Criteria	Red	Amber	Green
1. Unaffordable in the light of likely spending constraints and funding sources for the longer term Public sector contribution to capital cost (including allowance for ongoing maintenance) is in excess of £3 million in any given year or local authority contribution to revenue cost is in excess of £250, 000 per annum	Very likely to exceed these thresholds	Anticipated to be similar to these thresholds but insufficient information on costs available at this stage of option development process	Very unlikely to exceed these thresholds
2. Funding Source	No potential funding source can be identified	Funding source likely to be identified	Clear funding source identified
3. Options that did not align well with Leicester's Strategic Transport Objectives	Option only delivers tangible positive impacts on one objective and has little other merit as part of a complementary package of measures or Option results in tangible negative impacts on more than one objective		Option delivers tangible positive impacts on more than one objective or has merit as part of a complementary package of measures and Option does not result in tangible negative impacts on more than one objective
4. Options that were fundamentally counter to the current (Central Leicestershire) longer term transport strategy	Impacts are fundamentally counter to the current (Central Leicestershire) longer term transport strategy	Impacts are neutral to the current (Central Leicestershire) longer term transport strategy	Impacts positively support the current (Central Leicestershire) longer term transport strategy



5. Options that would not give good value for money	Benefits anticipated to be less than costs	Benefits anticipated to exceed costs, or too little information	Benefits anticipated to significantly exceed costs
6. Politically and/or publically unacceptable	Very strong local political and/or public opposition expected	Some political, public, agency or stakeholder support but opposition expected or issues to be resolved	Strong political, public, agency and stakeholder support gained or expected
7. Options that could be delivered within the next four years	<p>No clear agreement on delivery mechanism.</p> <p>Majority private sector funding</p> <p>Prohibitive/unknown technical complexities</p> <p>High/unknown risk of approvals/ powers not being granted within time required to deliver within six years</p>	<p>Multiple delivery organisations but public commitment or lack of track record of delivery.</p> <p>Some private sector funding.</p> <p>Technology proven but details of option to be clarified.</p> <p>Powers in place, none required or no major issues expected within time required to deliver within six years or none required</p>	<p>Likely delivery agency identified and has experience in delivering similar interventions.</p> <p>Identified public funding source.</p> <p>Technology proven and feasible,</p> <p>Powers in, or could be put in place within time required to deliver within six years or none required</p>
8. Options that would be delivered beyond the next four years	<p>Very strong local, regional or national political and/or public opposition expected</p> <p>No clear agreement on delivery agency or likely delivery agency lacks track record of delivery in this type of intervention.</p> <p>Majority private sector funding</p> <p>Prohibitive/unknown technical complexities</p> <p>High/unknown risk of approvals/ powers not being granted</p>	<p>Some political, public, agency or stakeholder support but opposition expected or issues to be resolved</p> <p>Multiple delivery organisations but public commitment or lack of track record of delivery.</p> <p>Some private sector funding.</p> <p>Technology proven but details of option to be clarified.</p> <p>Powers in place, none required or no major issues expected</p>	

5.23 The prioritisation exercise was conducted alongside the sifting exercise to identify policy instrument options to form part of the packages of interventions that make up our transport strategies for the next four years and where appropriate option packages for appraisal, in the following chapter(s), that in turn make up our transport strategies. The basis of the prioritisation exercise was to score the options against Leicester's Transport Goals (see section 3 of this chapter) and affordability and deliverability criteria. The performance of each option was scored on the following five point scale:

- » -3 likely to have a very significant adverse impact
- » -2 likely to have a significant adverse impact
- » -1 likely to have some adverse impact
- » 0 likely to have a broadly neutral impact
- » +1 likely to have some positive impact
- » +2 likely to have a significant positive impact
- » +3 likely to have a very significant positive impact

The Sifting and Prioritisation Process and the evidence used

5.24 In order to undertake the sifting and prioritisation exercises, we made use of our extensive local knowledge including cost and deliverability of a wide variety of local interventions, the best available evidence from our local studies, regional and national studies in order to assess which class options should be placed in for the sifting exercise and what score they should be allocated in the prioritisation exercise.

For some options, significant feasibility, planning, design and appraisal work had already been done within the Leicester and Leicestershire area. For example, the 6Cs Congestion Management Study explored and investigated road user charging options and complementary measures.

5.25 Sifting and prioritisation was carried out on each policy instrument option using a standard pro forma developed by the transport strategy team. An example pro forma is provided as Table 3.2. The completed pro forma for each option considered is provided in a separate "Leicester's Local Transport Plan 3 Option Assessment Report". The list of policy options and results of the sifting and prioritisation exercise are provided in Table 3.2. Options that scored three or more "greens" in the sifting exercise, were identified as deliverable during the LTP3 period.

Table 3.3 Policy Option Sifting and Prioritisation pro forma

Option Assessment Summary		
Option Number: 9	Option Name: Park and Ride	
Description: New & Improved. For example: Provision of new park and ride service, car park on radial route into city, say 1,000 spaces		
Delivery partners: Leicester City Council, Leicestershire County Council, bus companies, Prospect Leicestershire, private developers and businesses		
Sift	Commentary	Assessment
Affordability	Scheme estimate £6 - 8m capital Revenue subsidy required in early years	
Funding Source	DfT – if major scheme bid, LTA and/or LTP Capital, developer contribution, private sector	
Options that did not align well with Leicester’s Transport Goals		
Options that were fundamentally counter to the current (Central Leicestershire) longer term transport strategy	Included in current longer term transport strategy	
Value for money	Cost benefit ratio of more than one to be established during the preparation of the scheme business case	
Political/public acceptability		
Within first four years of LTP3	Unlikely – takes 4-6 years to implement	
Implementation beyond four years	Scheme currently included in the Regional Funding Allocation 2 programme for completion in 2017	
Prioritisation		Score
To Reduce Congestion and Improve Journey Times – Congestion Strategy		3
To Reduce Carbon Emissions – Carbon Reduction Strategy		1
To Improve Connectivity and Access – Accessibility Strategy		2
To Improve Safety, Security and Health – Road Safety and Active Travel Strategy		0
To Improve Air Quality and Reduce Noise – Improving Air Quality and Reducing Noise Strategy		1
To Improve Quality of Life		0
Manage to Better Maintain Transport Assets		0
Total Score		7

Assessment Result: Policy fits well with the transport objectives and has very positive sifting assessment and good prioritisation score.

Transport Strategy: Scores highest for Reduce Congestion and Improve Journey Times

Comments:

The key objectives behind the development of park and ride services have been to reduce: 1) congestion within city centres and along the approach roads to city centres; and 2) the environmental externalities that have accompanied increasing traffic levels.

5.26 The option sifting and prioritisation exercises described in the preceding chapter have given the options to be included in the following transport strategy chapters. The options are grouped by Transport Objective at the beginning of each of the following strategy chapters. The options are explained in detail, along with a summary of the programme of interventions to deliver the strategies and targets set to help monitor progress.

**Table 3.4 – Policy Instrument Options and Option Assessment Results
Leicester’s Policy Instruments**

No.	Policy Instrument	Strategy	Score
		Primary large font	
24	Working with Partners Company Travel Plans School Travel Plans Cycling Health Education Bus Rail Taxi Business Environment	Congestion Low Carbon Accessibility Safety, Security & Health Air Quality	13
26	Campaigns To Promote Walking and Cycling Road Safety Education Campaigns Flexible Working Hours, Home Working Teleconferences, Teleworking Salary Sacrifice Branding	Congestion Low Carbon Air Quality Safety, Security & Health	13
1	Public Transport Focused Development Encouraging public transport use through Land Use Planning Development Densities and Mix Development Pattern	Congestion Low Carbon Accessibility Air Quality	10
30	Training Pedestrian Training Independent Travel/Valuing People Greener Safer Driver Training Safer Driving with Age (SAGE) Cycle Training Cycle Mechanic Projects	Safety, Security & Health Low Carbon Air Quality	10



3	Bus Stations and Interchanges New Improved	Congestion Low Carbon Accessibility	9
10	Public Transport Routing Bus rapid Transit Guided Bus Trolley Buses Trams Light Rail	Congestion Low Carbon Air Quality	9
18	Charging (pricing) Road user Workplace Parking Levy	Congestion Low Carbon Air Quality	9
23	Land Use Measures Developer Contributions Value Capture Taxes Planning	Congestion Accessibility Air Quality	9
25	Journey Planning Personalised (PJP) Individualised Marketing Trip Planning	Congestion Low Carbon Air Quality	9
28	Variable Message Signs Real-time Driver Information Systems Route Guidance Parking Guidance and Information Systems	Congestion Accessibility	9
35	Maintenance Roads Footway Cycle Routes Other TAMP	Safety, Security & Health Tamp	9
12	Rail New and Upgraded Rail Lines New Rail Stations New Rail Services on Existing Lines	Congestion Accessibility	8
16	Traffic Lights Urban Traffic Control (UTC) Systems Intelligent transport systems Information Technology Systems (ITS)	Congestion Low Carbon	8
29	Pedestrian Facilities Pelican Toucan Zebra Refuge Drop Kerbs Routes Link Footpaths Rowip Community Safety Lighting	Accessibility Safety, Security & Health	8
31	Maps General Cycle Walking Freight	Congestion Low Carbon Accessibility	8

32	Cycles Cycle Routes and Lanes Advance Stop lines Cycle Parking Cycle Hire Schemes	Accessibility Safety, Security & Health	8
34	Accident Remedial Measures Traffic Calming Local Safety Schemes 20mph Speed Limits Speed and Red Light Running Cameras Vehicle Activated Signs	Safety, Security & Health Congestion Quality of Life	8
2	Bus Corridors Quality Bus Corridors Bus Priority junctions Bus Lanes	Congestion Accessibility	7
5	Ticketing Off Bus Smart Card Interoperability Network	Congestion Accessibility	7
6	Bus Fares Decrease Structure Concessionary	Congestion Accessibility	7
7	Bus Information Static Real time passenger information	Congestion Low Carbon Accessibility	7
8 8a	Buses/Services QBP Contracted/Supported Relocation/Operational Times	Congestion Low Carbon	7
8 8b	Buses/Services Lower Emission	Low Carbon Air Quality	7
9	Park and Ride New Improved	Congestion Accessibility	7
14	Roads Junction Improvements High Occupancy Vehicle (HOV) lanes Red Routes	Congestion	7
15	Traffic Management Conventional Co-ordination of Streetworks Network Management	Congestion Maintain Assets	7



17 17a	Parking Standards Control of Car Parking Provision Control of Taxi Parking Provision On Street Charges Residents' Parking Schemes Parking Controls Physical Restrictions Regulatory Restrictions	Congestion	7
20	Low Emission Vehicles, Infrastructure and Initiatives Promotion Electric Car Charging Points Schemes/Zones Buses Taxis Low Carbon Signals Convert Street Lights to Low Carbon Other Low Emission Infrastructure such as low noise road surfacing, trees etc.	Low Carbon Air Quality	7
21	Street Lights Community Safety	Safety, Security & Health Low Carbon	7
22	Freight FQP Home Deliveries Lorry Routes and Bans Lorry parks Transshipment Facilities Rail Water	Congestion Low Carbon Air Quality	7
4	Bus Stops Additional Improved Level Access Bus Stops New Bus Shelters CCTV in Bus Shelters	Accessibility	6
13	Major Road Improvements (over £2m) New Roads Junction Improvements	Congestion Accessibility	6
19	Car Schemes Car Clubs Car Share including Ride Sharing Company Pool Cars	Congestion Accessibility	6
27	Conventional Signs and Markings Directional signs Freight signs Walking Cycling Markings	Congestion Safety, Security & Health	6
8 8c	Buses/Services Low Floor	Accessibility	5
11	Dial a Ride Service Levels	Accessibility Quality of Life	5

33	Motorcycles Routes and Lanes Parking	Accessibility	5
17 17b	Parking New Off Street	Accessibility	-4

6. How are we going to get there – delivering the Long Term Transport Strategy

6.1 In preparing our transport strategies we have used the “Eddington approach” (see Chapter 1 section 5). The Department for Transport accepted the Eddington recommendations of a four-stage evidence-based process for deciding which transport interventions should be funded:

- (i) Start by being clear on the policy goals and desired outcomes;
- (ii) Identify the key transport challenges drawing on detailed geographical analysis of pressures, and the improvements in performance sought, focusing on the ‘whole journey’ rather than particular stages or modes in a journey
- (iii) Consider the full range of possible actions for meeting the challenges and delivering the improvements, including different modal options, and policies for making more efficient use of existing capacity as well as small and larger scale capacity enhancements and packages of policy measures; and
- (iv) Prioritise limited public resources on those policies which most cost-effectively deliver Government’s objectives, taking account of the full social, environmental and economic costs.

6.2 The implications for this Plan are that we must and have been able to show through our planning and monitoring that we have prioritised the interventions which offer the best overall return, and that we have a robust performance monitoring and review system in place. Our strategy is based on deliverable and realistic improvements to transport. The following chapters explain the strategies for the first few years of Leicester’s journey. We have considered the challenges we face to meeting our local transport goals, set objectives and developed strategies to meet those objectives. We have set targets to focus our delivery and monitor our performance in meeting the goals. The targets for each goal are briefly explained in each chapter with the detailed analysis and explanations of the targets being provided in the accompanying Implementation Plans.

6.3 The strategy focuses on the development of an improved public transport network and significant new bus related infrastructure to accommodate the significant increase in the number of bus trips to Leicester city centre, in tandem with a series of demand management measures. This is backed up by a package of improvements to pedestrian and cycle routes, signing and the public realm. Demand management measures will include the intensive implementation of travel plans at businesses and schools, city centre parking regimes to reduce long stay spaces, expanding the on street charging zone, working with the hospitals to control on site parking, introducing decriminalized parking and

bus lane enforcement, expanding the areas covered by residents' parking controls, introducing more park and ride services, marketing and promotion of car alternatives including health and environmental benefits, all underpinned by easier access to buses. We recognise that there will be many non-bus trips and freight movements as well. We will continue to increase network efficiency to benefit all vehicles. The Local Transport Plan Programme to deliver all these interventions is detailed in our implementation plan.

6.4 The high level outcomes for the first stage 2011 - 2015 will be to continue to reduce the rate of growth of congestion and reduce carbon emissions from transport whilst accommodating the increasing demand to travel, to improve accessibility to jobs, services and leisure – particularly for deprived groups, and to encourage walking and cycling to improve health, whilst improving road safety. This will be achieved by introducing:

- » A step change in quality and quantity of bus facilities in the city centre
- » Inner city centre road alterations to allow for increased bus stopping and improved circulation
- » Small junction alterations to improve bus journey times and improve safety
- » A comprehensive and coordinated behavioural change and travel promotion package
- » A comprehensive and coordinated walking and cycling programme
- » A comprehensive and coordinated road safety programme

6.5 The high level outcomes for 2026 are inevitably more aspirational. The majority of the many new person movements created by new jobs, housing and increased leisure opportunities towards the start of this period will be by bus. The increase in bus passenger numbers along key corridors would allow us to consider Mass Rapid Transit (MRT) in the longer term. With the right conditions prevailing and a satisfactory business case emerging we would envisage supporting MRT in the shape of two tram routes each crossing Central Leicestershire through the city. These will link hospitals and universities, park and ride sites, heavy rail and a reconfigured quality bus network. A greater emphasis on orbital services would feed passengers into the tram system and increase accessibility. There will be safe and accessible pedestrian and cycle networks with a high quality public realm all bringing a high quality of life. Towards the latter part of the period, we would see frequent fast electric train links to other cities both in the UK and, via London St Pancras and the channel tunnel, to Europe.

6.6 Our current strategy is delivering measurable success. Put simply, our future strategy is to do much more of the same but focuses on transforming bus termini facilities and bus routing in the city centre to accommodate and help sustain the city's and the surrounding area's economic and housing growth and thus protect existing jobs and facilitate the creation of new jobs. This focus is backed up by a determined effort on the softer interventions particularly travel planning and

encouraging and facilitating growth in bus travel, walking and cycling.

7. What Our Communities Say

- 7.1 Leicester's transport strategy has and continues to be shaped by feedback from residents, businesses and key stakeholders in Leicester and beyond through our on-going consultation and involvement process. We have a proven track record on participation and consultation dating back to before the first LTP. We have developed a database of nearly 400 stakeholders (rising from 70 in 2000) representing the business community, public service providers, environmental groups, disabled groups, ethnic minority groups and district councils as well as interested individuals. We are able to consult our stakeholders on any issue (most recently all were sent copies of our consultation leaflet for this Plan) and all are invited to our annual Local Transport Day (LT Day).
- 7.2 Now into its thirteenth year, LT Day is an opportunity for stakeholders to put their views directly to those responsible for transport strategy in the Leicester area. 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. Following the event a booklet is produced outlining issues raised on the day and detailing ideas put forward during the workshop sessions. Responses to our feedback forms lead us to believe that this event is highly regarded by participants and the information we receive from the workshops serves as a barometer for us to gauge how closely our policies are aligned to informed public opinion.
- 7.3 Alongside the stakeholder database and LT Day, each year we carry out two major public consultation exercises – Public Ward Meetings and Focus Group Discussions. We use these exercises to find out how residents feel about the work we are doing and the direction they think we should be heading in. We have been doing this work since the inception of the first LTP and, as a result, 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. This knowledge has been useful in formulating this Plan.
- 7.4 A Transport Consultation Strategy has been developed which forms part of our Quality Management System. The aim of the strategy, which deals with both scheme-specific and strategic consultation, is to ensure that procedures are standardised and adhered to in all consultation exercises carried out by Highways and Transportation.
- 7.5 Through a mixture of organic growth, as in the case of the Stakeholder Database and the maintenance of existing partnerships, annual public consultation exercises, such as the Ward Meetings and Group Discussions, and directed expansion, such as the creation of links with the business community, we have built up a very comprehensive array of consultation / participation mechanisms. It is fair to say that through one or other of these mechanisms we have been able to receive feedback on our policies and implementation on a monthly basis. We believe this has meant that the design of our delivery programme has been

the result of an ongoing dialogue between the councils and our stakeholders, partners and the general public over the last ten years.

7.6 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. 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.

What the people of Leicester say

7.7 What our citizens require from their transport system has played an important part in putting this third local transport plan together. We have consulted with groups representing particular sections of our community, from the early stages of the development of the Plan and we have carried out extensive consultation with the general public. All their views and requirements have been paramount in the preparation of the Strategy and whilst there are conflicting needs and opinions, consideration has been given by officers and through consultation to come up with a strategy which best serves the current and future requirements of our city and our citizens. The consultation was carried out in three stages.

7.8 The first stage was to work with community groups to establish the problems/ challenges faced by these groups when travelling in and around Leicester, and what they would like transport to become in the future (the goals). This stage was carried out in conjunction with Leicestershire County Council, and stakeholders such as The Health Authority, The Police, The District Councils, The Business Council, Older People’s Forum, Young Peoples’ Forum etc were invited to discuss transport. A document called ‘Local Transport Planning in Leicester and Leicestershire’⁵ outlining the challenges, vision and goals was presented at forums and meetings and was emailed to stakeholders in June 2010. Of the 150+ groups consulted, 93% agreed wholly or in part with our proposed vision, 84% agree wholly or in part with the proposed goals, and 84% agreed wholly or in part with our objectives. The stakeholders consulted showed a willingness to work with the Local Authority to put the plan together and requested close relationships between the LTP and other strategies such as the Air Quality Action Plan, Core Strategy, Green Infrastructure Strategy etc. The original timeframe proposed for the plan was six years. However, many of the groups expressed concern that it was too short a period and that it should be in line with the Local Development Framework timescale and the Local Transport Plans of neighbouring authorities.

⁵Leicester’s third Local Transport Plan Evidence Base

Therefore the timescale was amended to 15 years. Challenges around using public transport to access employment were major concerns for both the long and short term and the encouragement of more active travel was considered an important short term objective. The Vision, Goals, Challenges outlined in Chapter 3 have been informed by this first stage of consultation.

7.9 The second stage was to identify what actions we will need to take to tackle the identified challenges and achieve the goals required by our citizens. We used the DISTILLATE, konSULT option generation tool to develop a list of options and then worked with stakeholders to make this standard list of options more appropriate to Leicester. This required more in depth work with stakeholders and community groups and we held 14 workshops with disability, cyclist and access groups; 12 focus group meetings⁶ (these are held annually with groups such as car commuters, business owners, older people, parents of young children) and; a Local Transport Day⁷ when 76 stakeholders attended, all to discuss the third local transport plan. The list of options considered for the third local transport plan are listed in the Options Assessment Report discussed in chapter 3, section 5. The options highlighted of particular importance by our stakeholders were working with partners, campaigns, better training for transport workers and users, more information provision. Generally there was more emphasis on softer measures than infrastructure provision although better integration of transport services was often mentioned. The options assessed in the Options Assessment Report have been informed by this stage of consultation.

7.10 The third stage was to prioritise the options and to develop the best packages of measures to implement over the next 15 years. It was at this stage that we sought the views of the general public. The consultation leaflet went out as the centre pages of LINK, Leicester's Community Newsletter reaching 32,000 households⁸. Along with this, local businesses, housing tenants and the stakeholders consulted in the first two stages were emailed a link to the leaflet and an online questionnaire. The leaflet and questionnaire asked the readers to rank the objectives in terms of importance and then identify which options they felt would be best to achieve the objectives. We received over 250 responses to the questionnaire. Whilst there was very little difference in the importance people gave to the objectives, 'Improving connectivity and access' along with 'reducing congestion and improving journey times' were given the most importance. 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 informatio
- » Maintain and extend existing bus services
- » Introduce trams
- » Support more low emission vehicles

⁶Leicester's Local Transport Plan, Discussion Group Meeting Consultations FINAL REPORT, November 2010

⁷Leicester's Local Transport Day 10th November 2010, FINAL REPORT

⁸Heading in the right direction, Leicester LINK, November edition

7.11 **Table 3.5** 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.

Table 3.5 Top Five Actions Identified from Public Consultation

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

8. Developing the Strategy with Partners

- 8.1 The Audit Commission report, following the Best Value Review of Highways and Transportation Services in 2002, recognised that we have good partnership working with the county council, bus operators, freight transport bodies, adjacent district councils, the police and others. We have continued to develop this work and our partners have been heavily involved in developing the strategy over the years. Delivering the strategy with our partners is explained in detail in the implementation plan.
- 8.2 The former MAA Transport Group met on a monthly basis and closely followed, discussed and influenced the development of this Local Transport Plan and that of Leicestershire county council. This was the main wider strategic group that has influenced the development of the plan. We have also continued to maintain regular contact with our Local Strategic Partnership and all have been involved in the development of the LTP strategy and been given the opportunity to comment on it.
- 8.3 We play an active part in the Leicester, Leicestershire and Rutland Road Safety Partnership and each of the members of the Partnership have helped each other develop their road safety strategies.
- 8.4 Leicester City Council has a Director of Public Health and Health Improvement shared with Leicester City NHS. This has led to an increased and more formal approach to joint working on road safety and active travel in particular.

9. The Strategic Environmental Assessment (SEA)

- 9.1 In July 2010 we consulted on the scoping report for this Plan's SEA. The approach taken in the report was to consider each of the proposed measures for achieving the LTP goals with regard to their likely environmental impact. The insights gained from the Scoping Report will allow us to amend LTP strategies to bring about positive environmental outcomes. The draft Environment Report was consulted upon in parallel to the main public consultation on this plan, between December 2010 and January 2011.
- 9.2 The SEA Final Report concludes that Leicester City's LTP3 policies will cause no significant adverse environmental or health effects, nor will they close down any options for the future. The LTP demonstrates sufficient ambition for a sustainable transport system to be considered good practice.
- 9.3 However, there are concerns that the substantial environmental and health gains made during the LTP2 period may be compromised because of the need to reduce expenditure, and that the progress envisaged by the 2008 One Leicester Sustainable Communities Strategy may not be achieved by the target date of 2013. There are particular worries in the areas of: promoting bus travel, cycling and walking as viable alternatives to the car; reducing traffic growth, congestion, pollution and carbon emissions; and in continuing to reduce road casualties and encouraging more active travel as part of promoting healthy lifestyles.

10. Health Impact Assessment

10.1 The health impact assessment has been carried out as part of the Strategic Environmental Assessment – see paragraph 9.1.

11. Equality Impact Assessment

11.1 For many years Leicester has been home to a diversity of peoples, many of South Asian, African Caribbean or African descent. During the period of LTP2, the nationality and ethnicity of new people arriving in Leicester has been changing. Specifically we now have significant groups of Slovaks, Portuguese and Zimbabweans living in Leicester. Harmonious relationships between all communities in Leicester are paramount for the safe and prosperous development of the city. The challenges that a multi-ethnic population presents are significant. Leicester also has people of differing needs in terms of provision of transport services to allow them to readily participate in everyday life. During the preparation of this plan we have actively engaged in people with disabled people, including those with learning difficulties and people with physical and sensory impairments. We have also been mindful of Leicester's higher than national average number of young people and the growing number of older people, and have included both groups in all stages of the consultation.

11.2 The city council was externally validated as having achieved level four of the Equality Standard for Local Government in April 2008. The Equality Standard was, however, replaced by the Equality Framework for Local Government in April 2009. The Equality Framework has three levels (compared to the Standard's five): developing, achieving and excellent. The council aims to be externally validated against the 'excellent' level in March 2011.

12. Consideration of Disabled People's Needs in Strategy Development and Delivery

12.1 We have and continue to consider the needs of disabled people specifically checking our proposals through the equality impact assessment process described above.

13. Hierarchies

13.1 In order to identify and address the needs of all road users and to maximise the benefits of the existing transport system, we developed in LTP2 a Road User Hierarchy (User Classification) and Road Hierarchies. These hierarchies are now established and they have proved most useful. In view of this we will continue to use these same hierarchies in LTP3. 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. We are currently assessing the whole city highway network for categorization. This is determined by functionality and scale of use, not necessarily just road classification. We may refine the categorisations and classifications in the light of experiences we gain

during this exercise.

14. User Hierarchy

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

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

14.2 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

Road Hierarchy

14.3 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

14.4 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.

14.5 In the context of the three types of Strategic Route as detailed above 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.

14.6 On Local Distributor Roads there is a need to accommodate motorised traffic but these roads will not be signed for through traffic and freight traffic will be 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.

14.7 Footway, cycle route and public rights of way hierarchies have also been defined in order, to assist with investment, surfacing choice, safety inspections and maintenance priorities. We have predetermined footway safety inspection intervention levels to help reduce casualties from trips and to ensure Value For Money (VFM). The hierarchies are as follows:

Footways

- 1a. Prestige Walking Zones
- 1b. Primary Walking Routes
2. Secondary Walking Routes
3. Link Footways
4. Local Access Footways

Cyclist Routes

1. Cycle route forming part of the carriageway
2. Cycle route not forming part of the carriageway
3. Cycle trails and leisure routes

Public Rights of Way

1. Longer Distance Footpath Routes
2. Strategic Footpath Routes
3. Leisure Footpath Routes
4. Bridleways
5. Other Access Routes

14.8 The categorisation of all the links of each network is currently progressing and maps are being produced clearly displaying the category of each link.

14.9 We identify the needs of all road users through comprehensive consultation strategies. Equality and safety design audits are carried out as part of any scheme design process. We have commenced a programme of equality impact assessments for all elements of service delivery. We carry out regular consultation events with the public, stakeholders and partners to identify need. The results of this consultation feed into our programme development. All customer contacts with us are recorded and also fed into the programme development. As examples, due to the increasing requests for pavement repairs, we have allocated more money to put them right and also allocated proportionately more to those pavements with high pedestrian volumes.

14.10 Footway, cycle route and public rights of way hierarchies have also been defined in order, to assist with investment, surfacing choice, safety inspections and maintenance priorities. We have predetermined footway safety inspection intervention levels to help reduce casualties from trips and to ensure Value For Money (VFM). The hierarchies are as follows:

Footways

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4. Local Access Footways

Cyclist Routes

1. Cycle route forming part of the carriageway
2. Cycle route not forming part of the carriageway
3. Cycle trails and leisure routes

Public Rights of Way

1. Longer Distance Footpath Routes
2. Strategic Footpath Routes
3. Leisure Footpath Routes
4. Bridleways
5. Other Access Routes

14.11 The categorisation of all the links of each network is currently progressing and maps are being produced clearly displaying the category of each link.

15 Winter Service Hierarchy

15.1 In order to address the needs of users during cold weather, we regularly review our winter service plan. The winter service hierarchy has been developed and is shown briefly as follows. It is kept under review and the highways to be treated are shown on the council's web site, in libraries and a print version is available.

Carriageways

15.2 The primary gritting route receives precautionary gritting and consists of main roads, major commuter routes and known trouble spots and other important bus routes.

The secondary gritting routes cover other important links but they receive no precautionary salting treatment unless requested by the police. 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.

The winter service plan has been developed in advance of the winter season to assist in determining priorities in such conditions.

Footways, Pedestrian Areas and Cycleways

15.3 Snow clearance work is carried out in order of priority using available resources:

1. City centre shopping areas
2. Outlying or non city centre shopping areas
3. Locations notified by the police on footways or pedestrian areas (with the relevant Incident Number)
4. Areas near schools, hospitals, old person's dwellings, and other areas of high pedestrian risk.

15.4 Footway, cycle route and public rights of way hierarchies have also been defined in order, to assist with investment, surfacing choice, safety inspections and maintenance priorities. We have predetermined footway safety inspection intervention levels to help reduce casualties from trips and to ensure Value For Money (VFM). The hierarchies are as follows:

Footways

- 1a. Prestige Walking Zones
- 1b. Primary Walking Routes
2. Secondary Walking Routes
3. Link Footways
4. Local Access Footways

Cyclist Routes

1. Cycle route forming part of the carriageway
2. Cycle route not forming part of the carriageway
3. Cycle trails and leisure routes

Public Rights of Way

1. Longer Distance Footpath Routes
2. Strategic Footpath Routes
3. Leisure Footpath Routes
4. Bridleways
5. Other Access Routes



Chapter 4:

Reduce Congestion and Improve Journey Times The Congestion Strategy





1. Introduction

The Goals we are helping to achieve in this chapter are:

National Goal: Economic Growth Supported – Leicester is more prosperous

Local Goal: Population Growth is supported – Leicester's population is increased in a sustainable manner

The four strategic challenges, identified in Chapter 2, addressed by our Congestion Strategy are:

1. 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
2. Tackling recurrent / non-recurrent delays on our transport system
 - » Accidents and incidents cause congestion on Leicester's arterial routes and ring roads
3. 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
4. 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



1.1 Following the identification of the strategic challenges we identified a number of Policy Instruments, utilising a similar methodology to that developed for Kon-SULT by University of Leeds, we undertook a sifting and prioritisation exercise. The purpose of the sifting exercise was to identify options for consideration for the longer term transport strategy to be developed during this local transport plan period as and when appropriate. The Policy Instruments that are considered to have the greatest impact on congestion are listed below:

The Policy Instruments

No.	Policy Instrument
1	Public Transport Focused Development
2	Bus Corridors
3	Bus Stations and Interchanges
5	Ticketing
6	Bus Fares
7	Bus Information
8	Buses/Services
9	Park and Ride
10	Public Transport Routing
12	Rail
13	Major Road Improvements (over £2m)
14	Roads
15	Traffic Management
16	Traffic Lights
17	Parking
18	Charging (pricing)
19	Car Schemes
22	Freight
23	Land Use Measures
24	Working with Partners
25	Journey Planning
26	Campaigns
27	Conventional Signs and Markings
28	Variable Message Signs
31	Maps
34	Accident Remedial Measures

The most effective Policy Instruments will be packaged and be included in the Implementation Plan.



1.2 The big challenge 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 by making more rapid progress in delivering attractive alternatives to car travel and to cater for some of the highest levels of housing growth in the country to 2026 and beyond and the corresponding increase in jobs. We need to keep congestion under control whilst growing the economy, protecting existing jobs and creating new jobs. We need many more residents walking and/or cycling the shorter journeys in and around the city and using the bus for longer journeys, particularly into Leicester city centre, instead of using the car.

1.3 We need a transport system to underpin the low carbon, high population, sustainable economy that we are striving to encourage. We need to ensure that Leicester and Leicestershire function sustainably on a daily basis and are attractive to private investment. Urbanisation is increasing, bringing forth agglomeration and other benefits, but we need to ensure that the associated tendency for increased congestion brought about by economic growth doesn't undermine our competitiveness and prosperity. Our focus in this chapter is on how we will facilitate an efficient and effective transport system by managing congestion and working towards more pleasant bus travel with reduced bus journey times, whilst supporting the increased demand to travel.

1.4 We have a strong record of partnership working, working across service boundaries and working towards a sustainable transport system focused on both the harder and softer interventions but we need to do more.

1.5 We need to ensure that the delivery of our congestion objective also contributes to the delivery of our air quality and carbon objectives by:

- » Managing distance travelled – total vehicle mileage
- » Emissions per vehicle-mile
- » Traffic flows past critical points (particularly where relevant human exposure occurs)

Other important factors also include traffic speed, levels of stop-start driving, driving style, gradient and vehicle maintenance.

1.6 We have over the last 12 years successfully worked hard to provide quality bus corridors from the suburbs located on the edge of the city and in the county area into the city centre. As a result we have increased bus patronage by 6% between 2003/04 and 2009/10, despite recent losses due to the economic position (in 2007/08 patronage in the LTP area was 11% higher than in 2003/04). The current indications, comparing the equivalent emerging figures for the current year against last year, are that bus patronage is again beginning to increase. Our success has, however, led to congestion of both buses and passengers within the city centre. The bus infrastructure in the city centre has generally become run down and inadequate to attract car users from their cars. There has been little investment over the last 15 years, since the Haymarket bus station was provided with temporary shelters that are still there. There is now a marked deficit in both the quality and quantity of bus infrastructure in the city centre. St Margaret's

bus station is an exception but not quite in the best location.

- 1.7 We have identified a need for public transport improvements in the city centre and our immediate emphasis is to develop a package of public transport measures that will reduce city centre congestion, improve quality of bus infrastructure and public realm and improve access to the city centre whilst demonstrating value for money. The scheme will include improvements in services, information systems, bus re-routing and passenger facilities. We will provide effective public transport infrastructure for the years ahead and in an affordable manner as an appealing and feasible alternative for car users and so attract car users from their cars.
- 1.8 Our research has led us to conclude that smarter choices have a significant contribution to managing congestion in Leicester but we do need to ensure we have quality alternatives to car travel that we can successfully promote. Our success will be limited without significant public transport improvements in the city centre.

2. The Current and Future Situation – The Challenges and Opportunities

The existing transport system in Central Leicestershire

- 2.1 As described earlier in chapter 2, the current mixed use car, bus and freight transport system is based on a classic city centre hub and spoke (radials) arrangement. The road network has few links without junctions and accesses. The inner ring road and radial approaches to it have closely spaced busy junctions which cause slow traffic speeds. This was evident from the urban speed surveys that DfT used to carry out on an occasional basis. DfT's fifth traffic speed survey for urban areas (2004) showed an average peak (7.30am - 9.30am) traffic speed of 15.5mph with off peak being 19.1mph.
- 2.2 This is also reflected in the results of the DfT's recently published (Nov 2010) assessment of flow-weighted average vehicle speeds for the weekday morning peak on locally managed 'A' roads, which ranked Leicester in 2009/10 as 9th from bottom with an average speed of 16.7mph. This put Leicester only just above the average for London as a whole and Nottingham (both with 16.5mph). These speeds are low compared with most other English urban areas (the overall average for England was 25mph).

Setting the scene

A Typical Day in Leicester

- » Travel focused on city centre
- » 245,000 people/day cross outer ring road
- » 120,000 people/day cross inner ring road
- » 80,000 walk by Clock Tower
- » No spare capacity into city at peak periods
- » No spare bus capacity in city centre

2.3 A snapshot of the 34,500 people entering the city centre located within the inner ring road each weekday in the peak period of 7–10am, counted in our 2010 cordon survey, is:

- » 41.5% (14,300) by bus
- » 36.4% (12,600) by car
- » 20% (6,900) walking
- » 1.4% (480) by cycle
- » 0.7% (240) motorbikes/scooters and HGV

2.4 The average car occupancy is 1.34 persons per car. There are around 2,200 passenger arrivals at the Leicester Railway Station each day between 7-10am. This represents 6.4% of the 34,500 figure above although train passengers go on to destinations other than those within the inner ring road. There has been no change in 'peak spreading' on the peak hour 8am – 9am of the 7am – 10am peak period, with a consistent factor of 0.40 – 0.41 over the last 20 years. But there has been a slight shift from the 7am – 8am (0.30 → 0.25) to the 9am – 10am period (0.30 → 0.34).

Current Performance

2.5 An analysis of available data has concluded that the radial routes have little spare capacity during the peak hours of 8–9am and 5–6pm. We have used junction delays and journey times backed up by feedback from consultation and the bus companies. Conditions can quickly deteriorate due to any planned or unplanned events in critical locations. Congestion is particularly sensitive to unplanned events on and in the vicinity of the inner ring road. The shoulder hours (e.g. 7–8am and 9–10am for the am peak) do have spare capacity but again unplanned events have a disruptive impact. The data shows that there has been limited peak spreading in recent years, whereby drivers take advantage of the better conditions in the shoulder hours. This is evident from our analysis of vehicle numbers entering the city centre each weekday.

2.6 There is a comprehensive bus service by three main companies, now supplemented by other smaller operators, during the working day Monday to Saturday. This is rather patchy and infrequent in the evenings and on Sundays. The councils financially support a number of non-commercial services. The Midland Mainline railway with an excellent service (as evident from our consultation) to London, Loughborough, Nottingham and Derby passes through the city centre north to south. There is a rail line to Birmingham branching off at Wigston and a passenger and freight line branching off to the east at Syston towards Melton Mowbray, Peterborough and Stansted Airport. The main line through Leicester station is also a key national freight route and there is a lightly used freight only line branching off to the west, north of the station. The East Midlands Airport (EMA) is located in the north west of Leicestershire. It is the leading UK airport for dedicated freight only aircraft.

Analysis

2.7 We have used a number of data sources and tools to help us in our analysis including cordon counts, automatic continuous counting data for vehicle volumes, journey time surveys, GPS data showing vehicle movements and journey times provided by DfT and the Ptolemy regional model. We have defined the peak as 7–10am inbound only.

Growth in Population and Housing

2.8 Both Leicester and Leicestershire, under current planning scenarios and core strategies are due to experience significant population and housing growth, as mentioned in chapter 2. The current figures are 45,000 new homes by 2026 in the Leicester urban area (Central Leicestershire) and 90,000 in Leicester and Leicestershire combined. This would give rise to a significant increase in travel to 2026 that could be of the order of a 20% increase. A similar rate of build is expected to 2031. With the change in national government these growth figures could be fluid at the time of LTP preparation. As a hypothetical example, if the build rate were say half, the numbers would still be big and would still give rise to a significant increase in travel and trips.

Cordons and Zones

2.9 We have four cordons and a screenline running north to south for data collection and analysis. The cordons contain the zones within their boundaries. These are illustrated on [Maps A, B & C](#) at the back of this document and are defined as follows:

- » Inner transport zone (ITZ) – the retail and commercial area within the inner ring road.
- » Central transport zone (CTZ) – an area covering the central employment zone.
- » Intermediate transport zone (IntTZ) – the area within the outer ring road.
- » Outer transport zone (OTZ) - the area within Central Leicestershire (not on plan) – the urban area of greater Leicester.

2.10 Comprehensive monitoring currently takes place on the ITZ just inside the inner ring road, on the CTZ and on the screenline, covering trips by all modes. Car and bus occupancy is only collected at a sample of sites for the IntTZ cordon. The CTZ lies further out from the inner ring road to encompass the whole of the central employment zone, including the shopping centre, main car parking areas and major employers such as the universities and the hospital.

Person Trips and Vehicle Flows

2.11 We have shown peak 7 – 10am inbound existing person trips and vehicular flows along each main radial on [Map D](#) which is located at the end of [Part A](#) after

page 257 (NOT AVAILABLE FOR DRAFT LTP). Similar data is shown for flows into the ITZ for both the peak and all day. Current vehicle flows were turned into car person trips using surveyed car occupancy rates. For total person trips into the ITZ we have added surveyed bus passengers. We also have access to the bus company data from their 'wayfarer' electronic ticket machines.

Working with Partners

2.12 This working is described in detail in chapter 1 section 3 and has particularly influenced the development of the congestion strategy.

Working with Partners – The Highways Agency Contribution

2.13 We actively engage with the Highways Agency (HA) to ensure that the HA policies mesh with, and bring added value to, the local strategies. We have meetings with HA staff on an ongoing basis and the HA is a member of the Leicester and Leicestershire Freight Quality Partnership. We have shared drafts of the LTP with the HA, whilst under preparation, and then made appropriate changes. Relevant policy issues have been to:

- » Develop a methodology and agree with HA the definition of highway boundaries and the future boundaries of responsibility
- » Identify, disseminate and co-ordinate HA and local authority issues including future schemes and developments

2.14 The Traffic Management Act 2004 imposes a network management duty to co-ordinate proactively with neighbouring authorities to ensure the network, as a whole functions efficiently. We engage with the HA to ensure that this is achieved.

Traffic Management – The Traffic Management Act (TMA)

2.15 We are exploiting this legislation to maximise the value that the existing transport network can add to our congestion strategy. We have a TMA duty to manage our network to secure the expeditious movement of traffic. This includes all road users including cyclists and pedestrians, and a duty for each transport authority to appoint a Traffic Manager. Congestion broadly falls into two elements: the varying demands on the physical network and congestion caused by planned and unplanned events – the latter is addressed in this section. We have a clear understanding of the challenges faced locally and we have already started to act to address these challenges, as explained below. Having considered the opportunities presented by the TMA, we see implementation of the various elements overlaying our congestion strategy at every opportunity. Our response to the duty follows.

2.16 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) and Road Hierarchies (see Chapter 3). 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 imple-

mentation. 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. The categorization of the city highway network is determined by functionality and scale of use, not necessarily just road classification.

- 2.17 We have good partnership working with the county council, bus operators, freight transport bodies, adjacent district councils, the police and others.
- 2.18 We work closely with neighbouring authorities and the HA to manage the network efficiently. We have an advanced traffic control centre in Leicester that controls most of the traffic signals in the city, the county and Rutland. It has direct links to the HA and the police. Key parts of the network are also covered by CCTV and the images are observed in the Leicester traffic control centre. Any problems are quickly identified and action taken to minimise the impact. The public are immediately informed if necessary by direct radio broadcasts to the local city and county area and Rutland. We have a joint LTP to ensure that the local network is considered in total regardless of administrative area. We also have the StarTrak real time bus information system that is fully integrated in the city/county to ensure that the bus network as a whole functions as efficiently as possible.
- 2.19 The appointed Traffic Manager at the city is a member of the senior management team in highways and transport. This ensures that the programme of schemes in this LTP supports the wider obligations of the TMA. Specifically, it supports the overarching duty to ensure the expeditious movement of all traffic and road users including bus passengers, cyclists and pedestrians. A significant example demonstrating the duty was in the replacement of the Upperton Road Viaduct. Following concerns raised during consultation, a temporary diversion route was provided during the 18 month construction of the scheme to ensure connectivity of both sides of the viaduct for vehicles, pedestrians and cyclists. Congestion levels would have increased considerably on what might have been the diversionary routes if we had not decided to provide the temporary road. This would also have impacted on emergency and other vehicles accessing the nearby regional hospital – the Leicester Royal Infirmary. Two regional universities – Leicester and De Montfort, and two regional sporting venues – Leicester Tigers Rugby Football Club and Leicester City Football Club, are also in the general area and accessibility would have been severely affected without the temporary route.
- 2.20 The organisational staff structures have been strengthened to allow a greater focus on tackling congestion and disruption. Enforcement at the city was strengthened by transferring the highway inspectors to the Traffic Operations Team and by increasing the staff resources to deal with traffic management. Enforcement has also been strengthened by the introduction of DPE throughout the city in January 2007 and the subsequent application for bus lane enforcement powers, although these powers have not yet been used. The taking out and exercising of additional powers for other moving traffic offences has not been progressed.
- 2.21 There are regular traffic bulletins on the main local radio station direct from the Leicester traffic control centre. Similar information is also available on the internet. There are updates on planned works and events in order to allow travellers



the option to re-plan their journeys. This minimises the impact for both themselves and others, by reducing the demand on that part of the network.

2.22 The city council hosts quarterly co-ordination meetings attended by all statutory undertakers and city highways representatives at which future works are tabled and programmed accordingly. Leicestershire County Council and HA staff attend these meeting to ensure that any cross boundary issues are taken into account. The city council network co-ordinator attends the equivalent meetings arranged by the county council. In addition to this forum which addresses physical works in the highway, the city council also manages monthly inter-departmental event co-ordination meetings in partnership with the emergency services and bus companies which deals with all other planned activities which could have an impact on the network. Thus a comprehensive database is available concerning network incidents, which is used as a basis for network management and control.

2.23 Inter-agency cooperation in relation to high level contingency and emergency planning is achieved by working closely with the emergency services. There are regular round table meetings including the police, the ambulance service, the fire and rescue service and the HA with council officers representing all frontline services (including Highways and Transportation) and the council's emergency planning officers. There are agreed council-wide and region-wide emergency procedures. These are set down in emergency procedure manuals that are kept by key officers at work and at home. Full scale desk top exercises take place from time to time to test the contingency planning arrangements. Any weaknesses are then addressed. This is also beneficial to general cross boundary working and cooperation as all the other agencies involved cover at least the geographical area including Leicester, Leicestershire and Rutland. Inter agency cooperation is also facilitated by having CCTV links between the Leicester traffic control centre, the police control room, the HA traffic control centre and the Leicester CCTV control centre. These links enable CCTV pictures from any of the four systems to be viewed in each control centre if circumstances warrant such action. The close co-operation is also evidenced by the Leicester traffic control centre and the Leicester CCTV control centre both being situated in the same building.

2.24 As part of our in house contingency and emergency planning, the impacts of catastrophic events on the transport systems have been considered. The transport network is now reliant on the proper operation of all the associated control and information systems known as intelligent transport systems (ITS). The loss of these systems would have a severe affect on the day to day functioning of Leicester. A risk analysis has been carried out and control measures have been put in place to minimise a catastrophic event occurring. We are now developing a business continuity plan for the scenario of a catastrophic event occurring. The implementation of the plan would minimise the impact of catastrophic events to both the community and the council.

2.25 Regional and National integration and co-ordination is also enhanced by the city council being involved at the regional level in activities relating to information dissemination about road works and traffic incidents. We share with the west mid-lands authorities, in real time, information about road works, traffic incidents and other events which could have an impact on the Highways Network. Information

is also shared with the National Traffic Control centre managed by the HA and a memorandum of understanding has been drawn up to cover the exchange of information and data.

- 2.26 The Elgin web site shows in a seamless way the streetworks carried out in the region. In practice this means that road users in the city and the surrounding county can see road works information across boundaries. The site is automatically updated on a daily basis via the NRSWA Streetworks Register that records all road works information in the city. Elgin addresses an eGov target and the Network Management Duty in relation to cross boundary issues and keeping the public informed.
- 2.27 Comprehensive monitoring of traffic growth is carried out and trends identified and reported on as part of the LTP process. Incremental changes in traffic volumes are handled automatically by the systems at the Leicester traffic control centre. There are associated control strategies for managing the network.
- 2.28 The councils' own works and activities are dealt with in the same way and with the same standards as with utilities. We participate in the East Midlands Highway and Utilities Committee meetings (EM HAUC).
- 2.29 We have adopted a road works protocol. Reports of disruptive works are taken to every meeting of the city's scrutiny committee and an up-to-date list is kept on the council's intranet for all staff to refer to (the information also appears on the internet). Regular radio bulletins contribute to the engagement of councillors and officers across disciplines by keeping the issues high-profile and keeping awareness high. The integration of the network management duty within our wider work has already been mentioned in relation to contingency and emergency planning. Highways and transportation is also represented on the city Events Group. This is a group that represents all departments and services. The group is responsible, for example, for the organisation of football and rugby matches, the Caribbean Carnival and other festivals. The principal event that is organised in Leicester each year is Diwali – the festival of lights. This is the largest such event outside India and inter-departmental working and inter-agency working are essential for the smooth running of such a potentially disruptive (to the highway network) event that takes place on the public highway. There are predetermined traffic plans, including traffic signal timings, to minimise the impact of such events. This is particularly helpful for football and rugby matches that occur regularly during the appropriate season.
- 2.30 We regularly monitor the arrangements that have been established and make any appropriate changes. The Traffic Manager at Leicester City Council is accountable for all the actions in highways and transportation and is responsible for implementing all of the above in a timely, effective and efficient way. He provides a focal point within the council and so as to champion the need to consider the network management duty in all areas of the council's work.

Traffic Lights – Network Management

2.31 We have been successful in coordinating traffic signals and optimizing traffic flows through traffic ‘regions’. We implemented a SCOOT region on East Park Road which resulted in a journey time reduction locally of 15% in the peak hours. This is a good method to maximize the use of existing assets, in this case the existing road space. We will be expanding the coverage and linkages further during this third LTP period and so contribute to managing congestion. We believe that journey times locally can be reduced by 5% by refining existing SCOOTs and 10% by new SCOOTs. This is based on our experiences locally. The programme will be driven by the congestion hotspots and informed by potential air quality improvements for nitrogen dioxide and the demands generated by new development. Research has shown that once traffic flows exceed 75% - 80% of capacity, the network flows can become unstable very quickly. Any hiccup 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.

Conventional Signs and Markings

2.32 National surveys have indicated up to 16% of traffic is lost at any one time. We are also aware that some through-traffic tends to pass through the city centre rather than using the outer ring road. We will improve signing to reduce lost traffic and ensure that traffic uses the most appropriate route. This will reduce vehicle mileage generally and enhance efficiency, particularly for the distribution sector. From the research we have undertaken, total vehicle mileage could be reduced by 1.5 % over the principal road network with improved and comprehensive signing. The efficiency of distribution depends on congestion levels. The FQP has focused on the need for improved freight signing. This helps with reducing congestion with less lost traffic and fewer large vehicles obstructing the road whilst asking for directions. It also helps with improving air quality as LGVs emit proportionally larger amounts of nitrogen dioxide than cars so any impact of improved LGV signing will particularly benefit nitrogen dioxide levels. It also helps accessibility by making commercial sites easier to get to. The indicator and target monitoring progress with the freight signing strategy is a proxy for better general signing as all traffic benefits from improved signing.

2.33 Signing and lining is an important strand of a number of our strategies:

- » General route signing (congestion).
- » Freight signing (accessibility).
- » Walking and cycling (congestion, safety, but mainly accessibility).

Public Transport Buses/Services – Quality Bus Partnership (QBP)

2.34 The Central Leicestershire QBP was established in 1999. The members of the main steering group are Leicester City Council and Leicestershire County

Council, First Bus, Arriva and Trent Barton. The QBP performs a valuable catalytic function which enables the working groups to actually take individual projects and activities forward. The main steering group meets quarterly and discusses strategic issues which are relevant to local authorities and public transport operators nationally and locally. It is supported by several working groups, including the Bus Operations Group, the StarTrak (real-time) Group and the Bus Information Strategy Group. In addition to these multi-party meetings, the councils meet the two main operators (First and Arriva) quarterly in bi-lateral meetings at which commercially sensitive issues can be discussed.

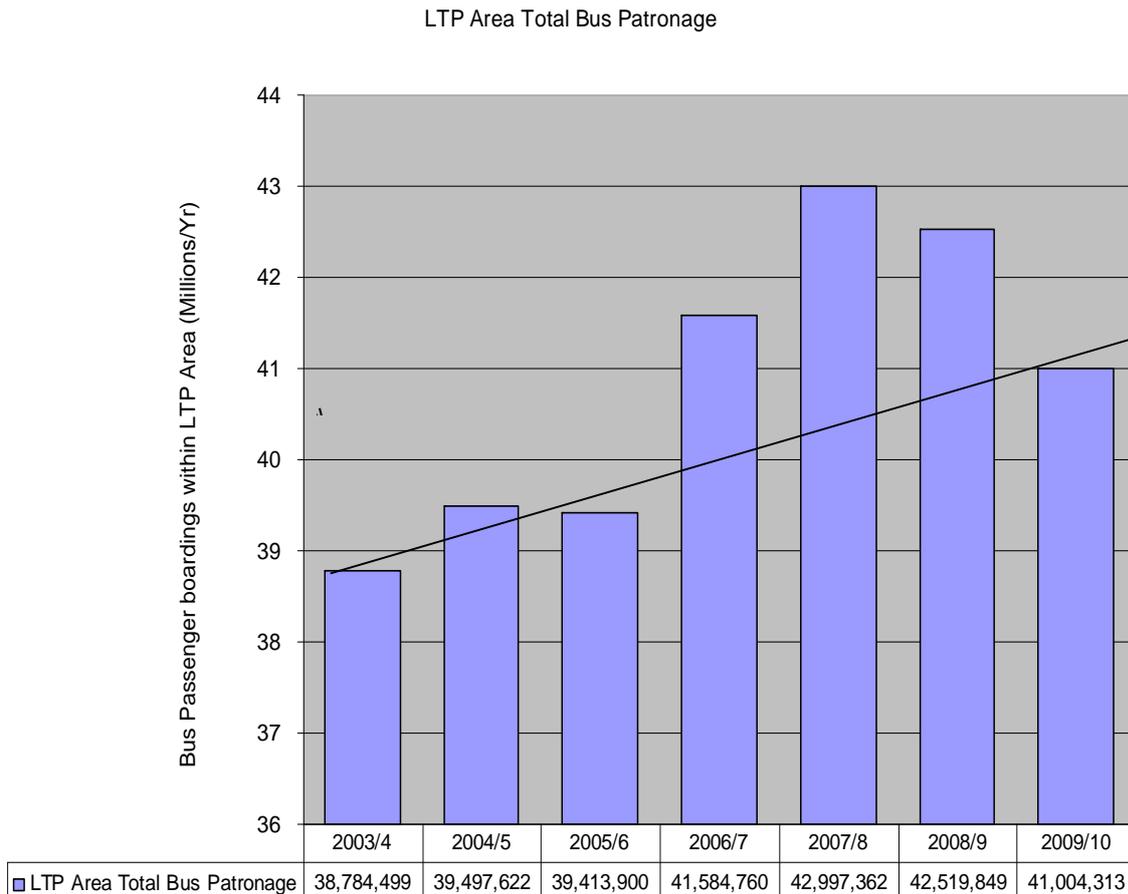
2.35 The QBP has been instrumental in supporting and helping to deliver the following:

- » A core commercial network which the bus companies will endeavour to keep fundamentally stable for at least five years.
- » A network of complementary subsidised services.
- » Joint delivery of passenger information to high standards, recognising the need both for a commercial identity for the participating bus companies and for comprehensiveness.
- » Involved in the original set up and roll out of the real-time information and bus priority system across the whole network.
- » Improved bus facilities in Leicester city centre, with capital investment co-ordinated by Leicester City Council.
- » Improved bus shelters and bus stop infrastructure at over 800 stops suitable for low-floor buses throughout the area.
- » Agreement on a longer-term vision for the development of the network as passenger numbers grow.
- » Comprehensive monitoring of patronage.
- » Involved in the Smart Ticketing Project, funded by a Department for Transport (DfT) grant, to deliver comprehensive network ticketing.

2.36 As a result, passenger numbers in Leicester are growing, and, in the most recent satisfaction survey carried out for the Audit Commission satisfaction with bus services in Leicester was in the top quartile nationally and satisfaction with bus service information was also increasing.

2.37 The outputs from the QBP have led to a noticeable increase in satisfaction with public transport. The Congestion Strategy includes measures to improve bus journey times. The Authorities' Transport Directors hold strategic level meetings with Bus Company Area/Regional Directors to ensure long-term goals are shared. It should be noted that a review of the operation and constitution of the QBP is due to be undertaken in 2011.

Graph 4.1 LTP Area Total Bus Patronage



Bus Information – Real Time Passenger Information (StarTrak)

2.38 We have an extensive network of real time bus passenger information. StarTrak has improved passenger information and has brought economic, environmental and social benefits. However StarTrak is reaching the end of its useful life with parts and hardware/software upgrades now difficult to obtain or unobtainable. There is a need for a replacement real time bus information system but progress will depend on the availability of limited funding opportunities.

Bus Stops and Shelters

2.39 We have a comprehensive contract supported by advertising revenue providing significant numbers of bus shelter including maintenance. The maintenance and repair provisions of the contract are working well. The contract is coming up for

renewal within the next 12 months. Many bus stops now have raised kerbs. For further information please see Chapter 5 – Accessibility.

Bus Stations and Interchanges – City Centre Bus Improvements

2.40 We have had a lot of success with bus travel with improvements in the suburbs and along the radial routes leading to increased bus patronage into the city centre. However we have not yet progressed improvements within the city centre itself which is the main gateway into Leicester. The focus of LTP3 needs to be quality improvements to the bus termini, bus infrastructure and bus routing within the city centre to both make good the current deficit in quantity and quality and allow for future growth. Bus use is by far the dominant non car transport mode and the mode that has the potential to make the really big impact. Footways are obstructed by queuing passengers, there is insufficient kerbspace for buses to stop, accidents occur and the planned housing growth will make current conditions much worse without our intervention.

It will become increasingly important to modernise and extend St. Margaret's Bus Station, which is in the optimum location on the inner ring road but close to the City Centre and the major retail centres. ...'

Leicester Civic Society (December 2010)

Park and Ride

2.41 We have two permanent park and ride sites at Meynell's Gorse and at Enderby located close to the M1 junction 21/Fosse Park area, with a further under construction at Birstall. There is also Saturday-only site at County Hall. The original permanent site at Meynell's Gorse has been very successful with the buses carrying up to around 1,750 passengers a day and diverting 200 cars each peak hour. The primary purpose of the park and ride schemes is to encourage car drivers from their cars onto high quality express buses for work, for shopping and for leisure.

Freight

2.42 Our freight strategy has been guided by our successful Leicester and Leicestershire Freight Quality Partnership (FQP) that has been making steady progress since its inception. This has raised awareness of freight issues between members, enabled the councils to understand the practical problems of the operators and enabled a freight signing strategy to be developed and implemented. Due to this success and our respected reputation, we were invited on to the steering group developing the regional freight strategy (RFS). This has enabled us to influence the development of the RFS, which has in turn ensured that the developing LTP is broadly consistent with the RFS in the key areas of: environmental impact of road freight and growing demand, efficient movement of freight on road, and linking transport and economic development.



2.43 Freight distribution is regarded as an important area for Central Leicestershire as an essential public service and as a key part of city regeneration and the creation of jobs. Freight distribution is also a big employer in Leicester and Leicestershire. Many distribution centres are located in the area due to our central location. Magna Park is the largest distribution centre in Europe. The Leicester and Leicestershire Freight Quality Partnership (FQP) was established in March 2000 in order to develop environmentally sensitive, economical and efficient ways of delivering goods in Leicester and Leicestershire. The FQP comprises members from the private sector, interest groups, Highways Agency and Authorities, Police and the Chamber of Commerce.

2.44 The main success so far has been agreement to pursue a programme of implementing clear and effective road signing of key freight areas around the city to reduce lost mileage and time, publishing a local freight map and setting up a website. This work has been backed up by surveys of companies on industrial sites in the city and freight collection/delivery drivers who work in and around the city. The main reasons for this investment (coupled with minor junction improvements identified in the survey) are to bring about an improvement in the efficiency of deliveries, minimise pollution through reducing lost mileage and ensure that freight vehicles use the most appropriate routes for their size.

Parking

2.45 City centre parking regimes have been introduced to reduce long stay spaces as a demand management measure. This is to reduce commuter parking and thus car trips made in the peak period. The aim of the LTP is that there will be no net increase in off-street parking places in the CTZ. The Transport Strategy and outcomes are based on this. The on street charging zone and the areas covered by residents' parking controls will be considered for expansion. We will work with the hospitals to control on site parking. This is so as to make it easier for patients and their carers to park, as they may have no realistic alternative means of access to what are regional facilities. This also contributes to reducing peak period traffic by reducing what is effectively commuter parking for staff as staff car parking spaces are freed up for patients and their carers. We introduced decriminalized parking enforcement (DPE) over the whole of the city council area on 1st January 2007 and we also have bus lane enforcement powers. One of the concerns raised during consultation from annual ward meetings is the high volume of cars parked illegally on roads and pavements. The city centre and key routes are subject to a fairly rigid enforcement regime. Outlying areas with few problems are less rigidly enforced. There are currently a number of off street car parks opening up on demolition and other sites providing cheap car parking and reducing the use of existing formal car parks. These have had an adverse impact on the operation of the existing park and ride sites.

'We need tighter control on access to the city centre by motorists and no illegal parking tolerated.'

'The Local Transport Plan must be based on no net increase in off-street parking places within the city centre, and there must be allowance of P&R spaces as city centre parking stock.'

'There needs to be tighter control on access to the city centre by motorists and no illegal parking tolerated. ...'

Leicester Civic Society (December 2010)

Variable Message Signs – Real Time Information for Car Parks

2.46 Another success has been the provision of a car park real-time information system for all the main car parks. This has contributed to a reduction in queuing and congestion on the road network. Wasted vehicle mileage has also been reduced. A before and after study has shown that queuing times aggregated across all car parks have been halved. We will continue with our regular real-time Radio Leicester traffic information bulletins broadcast from the Leicester traffic control centre and with our web based information.

Accident Remedial Measures

2.47 We are not only concerned with the personal and human cost of casualties and accidents and the impact on the health service but also the impact on journey time reliability and congestion. Any accident has the capacity to affect congestion but those where serious injuries are involved can have a disproportionately high impact. For further information please see Chapter 6 – Improve Safety, Security and Health.

Journey Planning

2.48 Personal Travel Planning (PTP) is defined by the Department for Transport as a well established method that encourages people to make more sustainable travel choices. It seeks to overcome the habitual use of the car, enabling more journeys to be made on foot, bike, bus, train or in shared cars. This is achieved through the provision of information; incentives and motivation directly to individuals to help them voluntarily make more informed travel choices. PTP forms an important part of UK national and local transport policy, contributing to the suite of tools promoted under the general heading of smarter choices.

2.49 Personal Travel Planning (PTP) projects in other parts of the UK have typically shown a reduction of 10% in car trips. Leicester City Council commissioned Steer Davies Gleave to run a Personal Travel Planning (PTP) project in March 2010 (See Annex A) This PTP project was intended as a trial project so that we could learn more about delivering a PTP project, and whether it should be applied to Leicester on a larger scale. Two areas of the city of 2,000 households each (Knighton and Belgrave) and one area of the county of 1,000 households (Thurmaston) were chosen for the pilot. These areas are very diverse, with their own



set of characteristics and challenges. A customer satisfaction survey was carried out with participants of the project. Depending on the area, between 10% and 13% of respondents reported a reduction in their car use between one and three months after the visit.

2.50 It is acknowledged that there are also economies of scale to be had in larger PTP projects; much of the cost comes from the set up and planning of the project; once underway, the project can be relatively cheap to run.

Maps

2.51 Multi operator local bus maps have been published and a website set up through the city and county Bus Information Strategy. A local freight map has been published and a website set up through the Freight Quality Partnership (FQP). This work has been backed up by surveys of companies on industrial sites in the city and freight collection/delivery drivers who work in and around the city. We have started on cycle maps but need to concentrate on comprehensive promotion and marketing (including of health benefits).

Car Schemes – Car Share

2.52 Car sharing is when two or more people arrange to share private transport. It allows people to benefit from the convenience of the car, whilst meeting new people and reducing congestion, pollution and the cost of travel.

2.53 Leicestershare.com has been set up by Leicester City Council and Leicestershire County Council to:

- » To provide you with alternative modes of transport in and around Leicester.
- » To help tackle congestion and improve air quality.
- » Gives people the chance to meet new people and to encourage building new social networks.

2.54 Leicestershare.com is an online service that promotes car sharing and puts people in touch with other car sharers. Leicestershare.com puts people travelling in the same direction in contact with each other, so they can arrange to travel together. It is available to everyone, and is free to use and secure.

Car sharing saves – money:

- » Car sharing with one other person will reduce your fuel costs by half. The cost of driving your own car starts at about 23p a mile.
- » Car sharing cuts down on parking costs.
- » Car sharing reduces mileage, wear and tear and depreciation of the vehicle.
- » Car sharing may eliminate the need for a second or third car.

Car sharing saves – time:

- » Car sharing helps reduce traffic congestion.
- » Car sharing shares the stress of driving.

Car sharing saves – the environment:

- » Reducing the number of cars on the road helps to reduce exhaust emissions.
- » Pollution is the biggest concern for people with asthma in the UK.
- » The average car commuter drives 19 miles a day. Cutting that by half through car sharing would save 648kg of carbon dioxide over one year, the same as that absorbed by 216 trees.

Car Schemes – Car Clubs

2.55 Car clubs work on the principle of individual members having access to a group of cars in their neighbourhood that are shared with other people, and that are charged for by the time used and distance travelled. The development of car clubs over the last few years has been assisted by the growth of modern technology, most notably the growth of internet access and mobile phones, which gives them advantages over informal car sharing or one-off liftshare organisations.

2.56 Current evidence suggests that for car clubs to be viable in the UK, they need political support from local authorities, the provision of ‘usable’ on-road parking bays, and finance and organisation to assist with marketing. Providing proper support and start-up funding would allow the establishment of a comprehensive network, rather than a piecemeal approach led by commercial considerations focussed on the most profitable areas.

Public Transport Routing

2.57 Central Leicestershire Strategic Transport Studies (CALTRANS) Final Report October 1997

Leicestershire County Council and Leicester City Council appointed The MVA Consultancy in December 1994 to undertake strategic transport studies in Central Leicestershire, centred upon the city of Leicester and its environs. The studies, known as CALTRANS (Central Leicestershire Strategic Transport Studies), were envisaged as taking forward the Transport Choice Strategy.

*'Leicester's public transport infrastructure should enter the 21st century. We need Light Rapid Transit systems. We are a city larger than Nottingham, yet Nottingham possess one tramline and is already working on two more. ...
... the high capital cost (of a tram) may make bus only lanes and guided bus lanes worth considering as interim measures but sooner or later LRT must come. Medium to long term public transport aims in a city such as Leicester cannot be achieved without this commitment and assessment of the business case, which would lead to the phased delivery of a tram based system should commence now.'*

Leicester Civic Society (December 2010)

Public Transport Routing – Longer Term Measures

2.58 The studies, among other things, looked in some detail at the appropriateness and potential of a public transport high speed mass transit system for Central Leicestershire.

2.59 This work built upon previous research carried out for both the county and city councils. Two separate transport modelling exercises were undertaken, involving use of both the START model and detailed highway and public transport network models.

2.60 A four line strategy was identified as being an appropriate scenario for testing the costs and benefits of such a system in the Central Leicestershire context. The lines included within this scenario were:

- | | | |
|--------------------|-----|-------------|
| 1. Fosse Park Area | <=> | city centre |
| 2. Syston | <=> | city centre |
| 3. Wigston | <=> | city centre |
| 4. Blaby | <=> | city centre |

Lines 1 and 2 were assumed to operate as a combined cross city centre service

2.61 Key points from the CALTRANS exercise back in 1997 with respect to mass transit were:

1. A tram had the potential to produce a positive overall Net Present Value when supported by a strong transport strategy;
2. A surplus of revenue over operating costs could be generated, perhaps enough to finance 20-25% of the capital costs of the scheme;
3. There were concerns about the effects upon congestion due to the loss of highway capacity for general traffic associated with the on-street operation of trams.

2.62 It concluded that trams could be a significant benefit as part of a longer term transport strategy for Central Leicestershire. The reasons for taking this view are its performance against the overall range of evaluation headings used for CALTRANS. In particular, such a system could provide:

- » Transport quality and image impacts making it inherently more attractive to car users than buses
- » Wider quality and image effects that could enhance the national and international profile of Leicester and its city centre, thus promoting inward investment
- » A publicly acceptable 'carrot' against which the 'stick' of more stringent road traffic policies such as road user charging (tolling) and parking restraint could achieve public acceptability
- » A significant direct improvement to city centre and radial road environments, through the replacement of diesel buses with electric trams
- » A transport system that is more acceptable than buses as a means of allowing enhanced public transport penetration of the heart of the city centre
- » Accessibility for the mobility handicapped at a level not achievable through bus based technology.

Charging (pricing)

2.63 We participated in the east midlands 6Cs' (Leicester, Nottingham and Derby Cities and the respective counties) transport innovation (TIF) study after securing £1.8M from DfT in April 2007 to explore the scale and type of congestion in the sub-region, and assess the feasibility of potential charging or pricing interventions.

2.64 The study also involved considerable transport modelling and data analysis to assist in fully understanding the current congestion problems and key locations. It assessed the impact of a range of road pricing and complementary transport investments using sophisticated traffic/land use modelling taking account of a wide range of factors including the predicted growth of the region up to 2021.

2.65 Ultimately, it was found that the evidence did not fully support the case for road pricing across the '6Cs' in the short term. It should be noted however that Nottingham had progressed with a 'Workplace Parking Levy' strategy as their preferred option and the 6C's collectively determined not to proceed further with more detailed work.

Key Problem Areas

2.66 The main problems are on the radial corridors leading into the city from the travel to work area and within the city centre itself. Problems also occur in the busy area around M1 Junction 21/Fosse Park. The radial corridors stretch from the suburbs to the city centre and the key problems are:

A607 Melton Road Corridor: Delays to buses and general traffic as evidenced at Checketts Road junction.



A6 Abbey Lane Corridor: Main car route with delays to high numbers of general traffic and new trips to proposed Abbey Meadows science park (720 jobs).

A47 Humberstone Road Corridor: Delays to buses and general traffic as evidenced at Scraftoft Lane

A426 Aylestone Road Corridor: Delays to buses and general traffic as evidenced at Soar Valley Way

A50 Groby Road Corridor: Delays to buses and general traffic as evidenced at Glenfrith Way and Fosse Road North

City centre area: Queuing buses, poor general air quality and poor public realm, pedestrian accidents.

M1 Junction 21/Fosse Park Area: Delays to general traffic; poor general air quality and accessibility; high accident rates.

Pilot Project into Personalized Travel Planning

2.67 We successfully bid for emda funding to run a pilot roll out of personalized travel planning in selected areas of the Leicester urban area. We are currently assessing the results of the pilot.

Impact of Housing Growth in the Leicester Principal Urban Area Study

2.68 In August 2009, Leicester City Council commissioned WSP to carry out runs of the PTOLEMY (3-Cities Version) land-use and transport model to assess the travel related impacts of dwelling growth in the Leicester Principal Urban Area (PUA). The study focused on the impact on travel in Leicester from trips generated by dwelling growth within the city and adjoining districts in 2026, in the morning peak period (0700-1000).

3. Appraising the Options

3.1 The option assessment described in chapter 3 demonstrated that many options could be considered to form part of our Congestion Strategy and also our Improving Air Quality and Reducing Noise Strategy, Carbon Reduction and Road Safety and Active Travel Strategies. The Policy Instruments that are considered to have the greatest impact on congestion are listed below:

3.2 The individual Policy Instruments were scored against our Transport Objectives and other criteria. This methodology allowed us to identify the most effective Policy Instruments with regard to managing congestion in Leicester city. The result of this process is shown in the table below:

Table 4.1 Leicester's Policy Instruments for Congestion
Leicester's Policy Instruments – Scored priority 20.12.10

No.	Policy Instrument	Strategy	Score
		Primary large font	
24	Working with Partners Company Travel Plans School Travel Plans Cycling Health Education Bus Rail Taxi Business Environment	Congestion Low Carbon Accessibility Safety, Security & Health Air Quality	13
26	Campaigns To Promote Walking and Cycling Road Safety Education Campaigns Flexible Working Hours, Home Working Teleconferences, Teleworking Salary Sacrifice Branding	Congestion Low Carbon Air Quality Safety, Security & Health	13
1	Public Transport Focused Development Encouraging public transport use through Land Use Planning Development Densities and Mix Development Pattern	Congestion Low Carbon Accessibility Air Quality	10
3	Bus Stations and Interchanges New Improved	Congestion Low Carbon Accessibility	9
10	Public Transport Routing Bus rapid Transit Guided Bus Trolley Buses Trams Light Rail	Congestion Low Carbon Air Quality	9
18	Charging (pricing) Road user Workplace Parking Levy	Congestion Low Carbon Air Quality	9
23	Land Use Measures Developer Contributions Value Capture Taxes Planning	Congestion Accessibility Air Quality	9
25	Journey Planning Personalised (PJP) Individualised Marketing Trip Planning	Congestion Low Carbon Air Quality	9
28	Variable Message Signs Real-time Driver Information Systems Route Guidance Parking Guidance and Information Systems	Congestion Accessibility	9



12	Rail New and Upgraded Rail Lines New Rail Stations New Rail Services on Existing Lines	Congestion Accessibility	8
16	Traffic Lights Urban Traffic Control (UTC) Systems Intelligent transport systems Information Technology Systems (ITS)	Congestion Low Carbon	8
31	Maps General Cycle Walking Freight	Congestion Low Carbon Accessibility	8
34	Accident Remedial Measures Traffic Calming Local Safety Schemes 20mph Speed Limits Speed and Red Light Running Cameras Vehicle Activated Signs	Safety, Security & Health Congestion Quality of Life	8
2	Bus Corridors Quality Bus Corridors Bus Priority junctions Bus Lanes	Congestion Accessibility	7
5	Ticketing Off Bus Smart Card Interoperability Network	Congestion Accessibility	7
6	Bus Fares Decrease Structure Concessionary	Congestion Accessibility	7
7	Bus Information Static Real time passenger information	Congestion Low Carbon Accessibility	7
8 8a	Buses/Services QBP Contracted/Supported Relocation/Operational Times	Congestion Low Carbon	7
9	Park and Ride New Improved	Congestion Accessibility	7
14	Roads Junction Improvements High Occupancy Vehicle (HOV) lanes Red Routes	Congestion	7
15	Traffic Management Conventional Co-ordination of Streetworks Network Management	Congestion Maintain Assets	7



17 17a	Parking Standards Control of Car Parking Provision Control of Taxi Parking Provision On Street Charges Residents' Parking Schemes Parking Controls Physical Restrictions Regulatory Restrictions	Congestion	7
22	Freight FQP Home Deliveries Lorry Routes and Bans Lorry parks Transshipment Facilities Rail Water	Congestion Low Carbon Air Quality	7
13	Major Road Improvements (over £2m) New Roads Junction Improvements	Congestion Accessibility	6
19	Car Schemes Car Clubs Car Share including Ride Sharing Company Pool Cars	Congestion Accessibility	6
27	Conventional Signs and Markings Directional signs Freight signs Walking Cycling Markings	Congestion Safety, Security & Health	6

3.3 Congestion is a priority because regeneration and new housing, together with growing prosperity, will increase person trips so we need to control the number of people driving into the city. Reducing carbon and improved air quality also depends on controlling congestion. The roadspace is relatively fixed. We want to accommodate the extra person trips without making congestion, carbon emissions and air quality worse. We will be taking forward the options that:

- » Facilitate as many of the new journeys as possible by bus, walking and cycling.
- » Convert some of the existing car trips to bus, walking and cycling trips (to which the Rights of Way Improvement Plan will make a contribution).
- » Increase general capacity of the existing roadspace by improving traffic signal coordination, making physical changes at junctions, improving enforcement of parking and bus lane restrictions and better managing day to day events.
- » Allocate roadspace to increase the capacity for person trips.
- » Locate new houses and jobs to minimise car travel.



- » Contribute to the sustainability and prosperity of our communities.

3.4 The high level drivers for change are to accommodate the extra person trips whilst managing congestion, reducing carbon, increasing accessibility and improving air quality. At a lower level, the drivers for change are to bring about:

- » A step change in the quality and quantity of the bus service.
- » A behavioural change in getting to both work and school encouraging walking (and cycling).
- » Better travel information for all travellers.
- » The optimisation of the use of the network by technology.

Value for Money (VFM) in Tackling Congestion

3.5 A new Leicester and Leicestershire transport modelling system has been developed to help us with the development and appraisal of the policy options. The LLITM replicates existing conditions so as to forecast the consequences of proposed changes to demand and to the transport system and ensure value for money in the measures proposed. This model is currently being verified as fit for purpose so we have used other modelling tools such as the east midlands Ptolemy model and locally improved versions of the Central Leicestershire Transport Model. We have been able to test different options to see which enables the available road space to be used to best advantage. For example we have tested differing options for bus priorities and junction improvements to ascertain the effect on general traffic. This has in turn enabled us to ensure that our strategy makes the most of the existing highway network and has informed our target setting.

3.6 The key to getting the best VFM from the transport system is to ensure that the use of roadspace is optimised. The aim is to maximise the person movements along key corridors into the city centre during peak periods when there is no spare roadspace available. Our analysis indicated that the best way to achieve this aim is to encourage bus use by providing quality bus services that people enjoy using. This is the backbone of our LTP. We are also aware that certain car users will always want to use a car no matter how good the bus service is. This might be because the bus does not provide an appropriate route as a suitable alternative to the car or simply that the car user will not use a bus. In order to provide VFM for all travellers including car users, we will continue the linking of traffic signals to optimise traffic flow through an area known as a SCOOT region. Where signals are already linked, we will upgrade the installation to the latest standards. This is another way to ensure that the best is obtained from the highway asset. The users of all vehicles, including car users, enjoy the benefits. We also link into this system to maximise the bus advantage by selective vehicle detection (SVD) at appropriate locations of buses. This enables late running buses to make up lost time whilst at the same time allowing general traffic the same advantage.

3.7 One element of providing a reliable bus journey that passengers can begin to

enjoy is to provide bus lanes. This enables better use to be made of the available roadspace as a bus will move many more people over a certain length of road than a car. In order to ensure VFM is achieved, we have to ensure that other road users are not adversely affected, particularly in terms of cost and time. We have a track record for implementing capacity neutral schemes that do not adversely affect car users. On Hinckley Road we achieved a significant decrease in bus peak period in bound journey time of over 5.5 minutes and also an improvement in car journey time of 0.5 minute. The measure of bus journey time reliability, the standard deviation, halved. On Welford Road we achieved a decrease in bus peak period in bound journey time of approx 1 minute (17%), with approx 2 minutes in the peak hour, with little change in car journey time. The measure of bus journey time reliability, the standard deviation, reduced by approx 40% (1 minute). The car journey time was maintained by rationalisation of the timings and coordination of all the main traffic signals between Asquith Way and University Road. We will build on our expertise in this area during the next five-year period to continue delivering VFM.

- 3.8 It is intended to ensure further VFM and also to minimise disruption to the travelling public by fully coordinating and integrating the implementation of tackling congestion schemes with maintenance schemes wherever sensible. For example we will renew traffic signal installations as part of a congestion scheme involving traffic signals; we will tie in maintenance works to the carriageway and footway when implementing QBCs; we will programme and organise bridge maintenance works to minimise congestion and to tie in with tackling congestion schemes. Better coordination of works reduces direct costs to the councils, while reduced journey times lead to indirect cost savings for travellers.
- 3.9 We have taken steps to ensure that we improve VFM by maximising additionality from different funding sources. For example, joint work with Sustrans has enabled us to deliver schemes of benefit to each organisation earlier than would otherwise have been possible.

VFM in Cheaper Solutions

- 3.10 We have identified through the FQP potential problem areas for large goods vehicles (LGVs) in negotiating the road network and thus causing congestion. The subsequent survey work established that the Uppingham Road/Coleman Road junction and the London Road/Stoughton Road junction cause particular problems. Our study of the problems has revealed low cost solutions, by relocating the stop lines and remarking, is all that is required to bring about improvements. These works will be carried out very early on in the LTP. Parked cars cause congestion whilst visiting shops in parades on many main roads. Particular examples are Belgrave Road, Hinckley Road, Humberstone Road and Narborough Road. Decriminalised parking enforcement has brought relief to congestion on these roads. However, linked to this and in order to support the local traders, we will wherever feasible, integrate low cost measures within QBC schemes to provide limited parking that will not obstruct through traffic. These sheltered areas will also be useful as areas for delivery vehicles to park without obstructing the through traffic.



3.11 Consideration of the following factors will determine the relevant priority of each radial:

- » Number of bus passengers, potential for increase and potential to reduce person delay.
- » Number of buses using the corridor.
- » Availability of roadspace and opportunity for reallocation.
- » Support for the project and the balancing of any local issues with the wider benefits.
- » Likelihood of investment by the bus companies.
- » Current delays to buses and general traffic.
- » Ease of implementation and ability for capacity neutral.
- » Cost of delivery and Value For Money (VFM).
- » Links to development.
- » Political sensitivities.
- » Impact on CL LTP targets.
- » Links to park and ride.
- » Links to accessibility, safer roads, air quality and road condition.

3.12 The Results of Appraisal

A. Facilitate as many of the new journeys as possible by bus, walking and cycling.

- » Working with Partners
- » Campaigns
- » Public Transport Focused Development
- » Bus Stations and Interchanges
- » Public Transport Routing
- » Land Use Measures
- » Journey Planning



- » Traffic Lights
- » Maps
- » Bus Corridors
- » Ticketing
- » Bus Fares
- » Bus Information
- » Buses/Services
- » Park and Ride
- » Traffic Management
- » Parking
- » Car Schemes
- » Conventional Signs and Markings

B. Convert some of the existing car trips to bus, walking and cycling trips.

- » Working with Partners
- » Campaigns
- » Bus Stations and Interchanges
- » Public Transport Routing
- » Charging (pricing)
- » Journey Planning
- » Maps
- » Accident Remedial Measures
- » Bus Corridors
- » Ticketing
- » Bus Fares
- » Bus Information



- » Buses/Services
 - » Park and Ride
 - » Parking
 - » Car Schemes
- C. Increase general capacity of the existing roadspace by improving traffic signal coordination, making physical changes at junctions, improving enforcement of parking and bus lane restrictions and better managing day to day events.
- » Bus Stations and Interchanges
 - » Public Transport Routing
 - » Variable Message Signs
 - » Traffic Lights
 - » Bus Corridors
 - » Ticketing
 - » Buses/Services
 - » Park and Ride
 - » Traffic Management
 - » Freight
 - » Car Schemes
- D. Allocate roadspace to increase the capacity for person trips.
- » Bus Stations and Interchanges
 - » Public Transport Routing
 - » Bus Stops (incl. On-street bus stands)
 - » Variable Message Signs
 - » Traffic Lights
 - » Bus Corridors
 - » Buses/Services



- » Park and Ride
 - » Traffic Management
 - » Parking
 - » Freight
 - » Car Schemes
- E. Locate new houses and jobs to minimise car travel.
- » Public Transport Focused Development
 - » Public Transport Routing
 - » Land Use Measures
 - » Buses/Services
 - » Roads
 - » Car Schemes
- F. Contribute to the sustainability and prosperity of our communities.
- » All options
- G. A step change in the quality and quantity of the bus service.
- » Bus Stations and Interchanges
 - » Public Transport Routing
 - » Bus Stops (incl. On-street bus stands)
 - » Bus Corridors
 - » Ticketing
 - » Buses/Services
 - » Park and Ride
- H. A behavioural change in getting to both work and school encouraging walking (and cycling).
- » Working with Partners
 - » Campaigns



- » Journey Planning
- » Maps
- » Parking
- » Car Schemes

I. Better travel information for all travellers.

- » Working with Partners
- » Campaigns
- » Journey Planning
- » Variable Message Signs
- » Maps
- » Ticketing (Smart Card)
- » Bus Information
- » Buses/Services
- » Conventional Signs and Markings

J. The optimisation of the use of the network by technology

- » Variable Message Signs
- » Traffic Lights
- » Traffic Management

Working with Partners – Leicester and Leicestershire Local Enterprise Partnership (LEP)

3.13 The Leicester and Leicestershire Local Enterprise Partnership (LEP) is just becoming established and we intend to be involved very closely with the work of that organisation. Transport is key to delivering Leicester's aims and objectives and achieving the ambitions we have for Leicester. Transport in Leicester underpins the sustainable economic growth we want to achieve in a low carbon way and without negative impacts on the environment. We will work in partnership with the LEP in taking forward appropriate elements of our congestion strategy and indeed other relevant strategies.

Working with Partners – Travel Plans

- 3.14 National research indicates that commuter car driving can be reduced by 10-30% by implementing workplace travel plans and school travel plans can reduce traffic by 8-15%. We have up to now dedicated only limited resources to facilitate travel plans. It is a very cost effective way to reduce vehicular traffic. The best way to move forward against our objectives and targets will be to direct dedicated staff resources towards travel plan development at businesses within the CTZ and to all city schools. Travel plans will also be required for all new commercial development as part of the planning process. The traffic reduction will help us to reduce nitrogen dioxide levels.
- 3.15 The major employers within the CTZ that currently have travel plans are De Montfort University, Leicester Royal Infirmary, Highcross Shopping Centre, Leicester University and Leicester City Council.
- 3.16 We hope and expect the increasing use of Travel Plans to lead to a reduction in the number of pupils travelling to school by car. This can also improve the exercise/fitness levels of children and raise awareness of road safety issues locally and other related environmental concerns.

Traffic Lights – Network Management

- 3.17 Technology and Intelligent Transport Systems (ITS) specifically, already form an important part of our delivery plans. ITS helps travellers to move around Central Leicestershire more safely, on less congested roads, and on better public transport services with improved information services. Examples are SCOOT for improving all traffic journey times, StarTrak real time bus information, bus selective vehicle detection at traffic signals, car park variable message signs and the traffic control centres. ITS has brought economic, environmental and social benefits. We will be building on the success we have already achieved, in partnership with other agencies and suppliers by upgrades and new development. The partners include all the transport authorities of the three cities sub-region, the HA and the police.
- 3.18 We will maintain at least 25% reserve capacity wherever feasible to minimise such impacts and ensure that incidents affecting the network are dealt with in a prompt manner through our implementation of the Traffic Management Act. These actions will contribute to a resilient network, a network that quickly resumes efficient operation after temporary periods of inefficiency.

Conventional Signs and Markings

- 3.19 Improvements to general traffic signing and lining will be primarily implemented through the delivery of integrated transport schemes, particularly the Quality Corridor programme. However, because of the age and condition of the cycle signing network, extra funds have been allocated to bring the signs up to standard. Where appropriate, the new signs include adding in bridleway and footway information determined through the Rights of Way Improvement Plan (RoWIP). The city centre redevelopment scheme proved an ideal opportunity to improve



the quality of pedestrian signing, while reducing general street furniture clutter. In addition, we intend to continue the established freight signing programme from LTP2 during LTP3, assuming funding streams can be found.

Pedestrian Facilities – Walking

3.20 Improvements in these areas help accessibility but can also help to take some cars off the roads. They also make an important contribution to improving health by increasing exercise and helping to improve air quality. Walking represents 20% of person trips to the city centre in the peak period and so any percentage increase could have a marked impact. The city's Rights of Way Improvement Plan is outlined in Chapter 5 - Accessibility

Cycles – Cycling

3.21 Improvements in these areas help accessibility but can also help to take some cars off the roads. They also make an important contribution to improving health by increasing exercise and helping to improve air quality. Because the number of cyclists heading into the city centre in the peak period is relatively low, representing about 1.4% of total peak trips, the impact of any percentage increase will not be great but will be worthwhile. Cycle training is an area that will be taken forward to encourage more cycling and at the same time improve safety. For further information please see Chapter 5 – Accessibility and Chapter 6 – Improve Safety, Security and Health.

'Safe walking and cycling networks need to be provided The provision of pedestrian routes, cycle routes and their associated infrastructure must give good access to housing, employment, retail and public transport throughout the city.'

Leicester Civic Society (December 2010)

Bus Fares

3.22 Difficulties in access for disadvantaged groups result from a combination of availability and affordability concerns. We currently have a comprehensive countywide scheme of concessionary travel for elderly and disabled people. This offers concessionary travel well above the minimum standards defined by government and free or flat-fare travel passes for people with some types of impairment. Funding these Schemes remain a challenge and it is likely that some of the discretionary benefits will be subject to review early on during this Plan period.

Bus Corridors – Decriminalised Parking Enforcement (DPE) Including Bus Lanes

3.23 Our research on London Road has led us to the conclusion that the effective enforcement of parking orders on bus lanes could reduce peak pm journey times by between one and three minutes. Effective enforcement of parking and loading orders also helps the flow of all vehicles. DPE was established on 1st January 2007, and a much improved enforcement regime has followed. It is intended that bus lane enforcement will be considered as part of the city centre bus improvements in order to reduce bus journey times and enhance the attractiveness of

buses. The appropriate traffic regulation orders and signing will need to be reviewed and any necessary changes made before enforcement can begin.

Bus Corridors – Bus Lanes

3.24 There has already been investment in bus priority measures, including bus lanes, in some corridors. It is proposed to upgrade each corridor to the highest possible standard but due to the likely financial situation in the early years of the plan, these works may have to be programmed into the later plan years. Existing bus lanes would be extended and where appropriate new ones introduced in order to reduce bus journey times and increase reliability. The primary purpose of bus lanes in Central Leicestershire is to allow buses to jump vehicle queues without reducing travel times for other modes or the general vehicular capacity of the network. We have a track record in achieving this aim on key radials such as Hinckley Road and Welford Road. For the longer distance traveller, coaches are appreciated by those seeking good value for money. We allow coaches to use bus lanes so that they can provide a fast and reliable journey to the coach station at St Margaret's. Bus lanes play a role by helping all emergency vehicles to achieve quicker response times. This is particularly beneficial for ambulances accessing the accident and emergency hospital at the Leicester Royal Infirmary. As there are negligible specialist military vehicles either operating or passing through the area, we have not identified any special requirements for them.

.... All additional transport capacity improvements will need to come from public transport together with improved and encouraged facilities for cyclists and walkers, and a serious commitment to reduce the need to travel by design.

Leicester Civic Society (December 2010)

Roads – High Occupancy Vehicle Lanes

3.25 In order to ensure we are making the best use of available roadspace, we intend to use up to date modelling systems to forecast the impact of high occupancy vehicle lanes. This is where vehicles carrying two or more people are allowed to use bus lanes. If we can demonstrate that better use can be made from the existing roadspace by increasing person trips at a faster speed, we will consider the possible use of bus lanes by high occupancy vehicles on an individual basis. No allowance for the effects of such a measure has yet been made in the setting of the targets as the case needs to be proved. The consideration will include the impact of motorcycles and LGVs also using bus lanes.

Leicester city centre – New Bus Termini and Routing

3.26 We believe the best and most efficient way to deliver the benefits and outcomes that are required is through a comprehensive package of improvements delivered as one coordinated programme. Leicester City Council thus has ambitious plans to improve public transport for Leicester and the surrounding area. A comprehensive package of measures would be introduced as part of transforming Leicester into Britain's sustainable city, providing economic growth and environmental wellbeing. The New Bus Termini and Routing (NBTR) scheme is a key priority



within One Leicester Planning for people not cars, which has a focus of facilitating growth in trips to jobs in the city centre by public transport. The scheme was previously categorised as `high scoring` in the East Midland funding allocation (RFA2), with Leicester being a major economic centre for jobs and wealth creation within the region. We will be working closely with the emerging LEP to ensure that the scheme is adopted as a first priority particularly in any bids and for funding. This scheme is crucial to underpin sustainable economic growth throughout the city in a low carbon environment and help facilitate new jobs whilst protecting existing jobs.

3.27 Investigations have shown that the scheme is needed due to:

- » No surplus traffic capacity available on radial and orbital routes into and around the city during peak periods
- » Significant congestion on city centre streets
- » No suitable kerb space left on city centre streets for additional bus services
- » Create better links between bus facilities, the rail station and any potential mass rapid transit system
- » Poor bus facilities have a negative effect on key streets and spaces

3.28 The optimised overall scheme would most likely comprise various parts or phases including:

- » New bus station and interchange hubs
- » On-street bus stand improvements
- » Taxi management improvements
- » Routing improvements
- » Strengthened Bus Partnership arrangements
- » Bus Lane and Bus Gate camera enforcement

3.29 The NBTR scheme puts right a deficit in city centre bus infrastructure and offers a low carbon sustainable transport solution that also provides for growth in travel – due to new homes, economic growth and new jobs. The access and egress arrangements to any bus station, including the routing from the inner ring road, will be crucial to the success of the scheme. The optimised design for bus station access and egress within the immediate adjacent public highway will be vital to this.

3.30 The bus scheme has the potential to deliver the following economic benefits –

- » Accommodate transport needs for a 20% growth by 2026 of new housing in

Leicester and Leicestershire.

- » Removes transport capacity constraints in the city centre that compromise our ability to deliver an effective system to meet public transport needs and grow the local economy.

3.31 In Leicester and Leicestershire there has, until recently due to the recession, been a sustained increase in bus patronage. We have introduced additional quality bus corridors, new park and ride facilities at Enderby, with a further park and ride site underway at Birstall. We are also proposing high quality bus facilities, as part of a smarter choices strategy, to persuade car users to use public transport and to cater for the big increases in bus trips that are forecast. The physical interventions would be underpinned by improved working with the bus companies by making use of the powers in the Transport Act 2000, as may be amended. The way we will facilitate this is under development but it could include a strengthened, possibly statutory, quality bus partnership, or reinforced voluntary arrangements, to better regulate the flow of buses in the city centre.

Ticketing

3.32 The QBP has been instrumental in the joint delivery of comprehensive network ticketing, again recognising the need to retain commercial freedom on individual service pricing. The Smart Ticketing Project is progressing, funded by a grant from the DfT. We shall be evaluating the options offered by the Transport Act 2008 for supported delivery of the LTP objectives.

3.33 We will continue our partnership work with the rail industry to improve interchange at railway stations, particularly with infrastructure, information and through ticketing for bus to rail interchange. Within existing constraints we intend to improve accessibility by:

- » Providing better bus service information on timetables and ticketing.
- » Promoting multi-journey ticketing and travel reimbursement schemes.

Park and Ride

3.34 We are progressing park and ride because we believe that park and ride is the single most effective way to tackle congestion in Central Leicestershire. It will help on the main arterial routes, improve access to Leicester city and help to promote the economic regeneration of the city centre. Whilst the cost of a scheme in the context of the LTP is high, this investment represents our commitment to park and ride as the best available means to achieve a modal shift and therefore significant reductions in vehicle numbers in the peak hour on radial routes. Modelling work has suggested that, as a result of the introduction of park and ride and other measures, a reduction of up to 10% in peak hour traffic flow on Narborough Road could be achieved. Park and ride therefore represents good value for money.



3.35 There are currently issues relating to the funding of the planned subsidy in the early years of the new Enderby service. We had planned to use income from off street car parking for this purpose. Several temporary car parks have opened up on demolition sites/unused land undercutting existing established car parks and compounded by the impact of the recession. This has led to a shortfall in funding for the park and ride subsidy which is very challenging in the current financially stringent times. Opportunities to reduce park and ride running costs and seek new income streams are currently being investigated.

'... a great expansion of Park'n'Ride schemes is badly needed in sustainable urban extensions. The four P&R proposals identified by the city council are not enough in themselves. Park'n'Ride should also be introduced at South Wigston, Oadby, Thurnby and Hamilton. Once again Nottingham leads the way with seven successful P&R sites in operation for a number of years.'

Leicester Civic Society (December 2010)

Rail

3.36 We have had ambitions for higher frequency train services and an increased number of stations in Central Leicestershire to help us reduce the rate of growth of car journeys and increase accessibility. The reality is that the national priority for rail concentrates on longer distance services and freight. Also the costs of new rail provision are many times that of bus provision and will not demonstrate in themselves good value for money (VFM) for either tackling congestion or delivering accessibility.

3.37 There have been some progressive rail service improvements particularly to London but not the step change we would like. We welcome the £69.4m allocated to Network Rail to deliver a scheme by 2014 to raise line speeds on the midland mainline. However there are two other very cost effective enhancements at a cost of £27.5m that we would recommend to the government. These are the provision of freight loops at Desborough for £10m. These would allow passenger trains to overtake slower freight trains. Also, the £17.5m realignment of track at Market Harborough to provide a straighter and faster route. The delivery of all these enhancements at a cost of £96.9m would just about deliver Leicester's short term goal of a sub hour journey time to London. We also still have poor services to the North and to both East and West. Manchester is the most frequent destination from Leicester not served by a through service. When served by through trains during 'Project Rio', Leicester - Manchester patronage grew more than anticipated. There is also a demand for fast through services to Leeds and faster services to Birmingham. There is a very strong business case for electrification of the midland mainline connecting Leicester to London and Sheffield and the North. This would deliver a smoother and more reliable low carbon service with faster journey times, as the opportunity to improve track alignment would go hand in hand with the electrification. Unfortunately the previous and current Government is delaying any decision for the midland mainline despite giving the go ahead to the South West and North West. Such a decision would also be tied up with the replacement of the ageing High Speed 125 as any new fleet would need to be specified as electric traction. Electric traction is also able to deliver increased capacity as more space is available for passengers, particularly within

the replacement for the locomotive units. The traction motors are slung beneath the floor.

3.38 We will obtain the best value from the local rail network within the constraints. This means:

- » Continuing our partnership work with the rail industry to improve interchange at railway stations, particularly with infrastructure, information and through ticketing for bus to rail interchange.
- » We will lobby hard for the electrification of the midland mainline.
- » We will lobby hard for line speed enhancements, the cumulative impact of which will deliver a sub hour London journey time from Leicester.
- » We will lobby hard for regular fast through services to Manchester and Leeds and thus better connections to the North, and a faster Birmingham service.

... enable increased rail use through improvements to the railway station ...

Leicester Civic Society (December 2010)

Rail – High Speed Rail

3.39 A key part of the Government's assessment for high speed rail (HSR) is that Britain's initial core high speed network should link London to Birmingham, Manchester, the East Midlands, Sheffield and Leeds, at speeds of up to 250 miles per hour. This Y-shaped network of around 335 miles would bring the West Midlands within about half an hour of London, and deliver journey times of around 75 minutes from Leeds, Sheffield and Manchester to the capital. The Government has set up High Speed 2 Ltd (HS2) as a company to take forward expansion of high speed rail in the UK. HS2's work has shown that as a first step a high speed line from London to Birmingham would offer high value for money as the foundation for such a network, delivering more than £2 of benefits for every £1 spent. An East Midlands HS2 officer working group has been formed to take HSR forward through the East Midlands, including compiling a long list of potential station locations. Officers of the city council are participating in the working group. The openness of this project has, by necessity, been limited due to the potential serious personal and financial consequences of possible blight having an adverse impact on a property. It has been essential for HS2 to carefully manage the process to minimise the opportunity for blight, particularly where something may never happen. The Government's formal consultation commenced on 28th February 2011 and is due to close on 29th July 2011.

3.40 Leicester is not a predetermined destination although there would be many benefits in being served by a station on the high speed line. There will also be threats to Leicester in not being a part of HSR. Leicester benefits from virtually all the midland mainline Sheffield, Derby and Nottingham services delivering a really excellent rail service to London. We would have to work really hard to retain a comparable service if some of the existing midland mainline services were to be

displaced by non Leicester HSR services. It also needs to be noted that the midland mainline is the slowest of all the main lines out of London, with the current trains not being able to achieve anywhere near their 125 mph design speed due to the track alignments. So train frequency to London is our great strength, which is under threat from HSR, if Leicester is not a HSR destination. HSR without a Leicester station would make electrification and line speed improvements of the midland mainline, at the earliest opportunity, of paramount importance to Leicester. We believe that a typical journey time to London of under an hour is realistic within the next six years. We are also keen to explore with HS2 the feasibility of trains running from Leicester and onto the HSR network. Such train sets, designated High Speed Classic compatible, would have to be of bespoke design and involve significantly greater capital cost for the trains. However such a system could potentially deliver Leicester's aims of fast direct connections to the North including Manchester and Leeds.

Freight

3.41 Freight Transport is an essential part of everyday life, spanning the distribution of a wide variety of fresh produce through to the delivery of heavy materials for industry. However, achieving a balance between freight transport's contribution to economic growth and protecting the environment and our communities from will be a critical success factor within this Local Transport Plan. The core of our freight strategy is to work to encourage more sustainable distribution through working in partnership with our established FQP.

Roads – Junction Improvements

3.42 We will look to improve junctions to make the best possible use of our existing infrastructure. Priority will be given to improvements that will improve journey time reliability for public transport.

Major Road Improvements (over £2m)

3.43 The outer ring road is incomplete to the South East between the A6 and A47, the missing link is often referred to as the proposed "Eastern District Distributor Road". This would complete the link between the A6 and A46. Outline indications from previous analysis are that there could be a reduction in vehicles in the city centre by completing the outer ring road. Road building is generally not on the current government's agenda and inevitably leads to a tendency for increased carbon use. When the current priority of reducing the budget deficit is also factored in, it is difficult to see how such a scheme could be taken forward, certainly within the first part of this LTP period. We will keep the case under review and may carry out further analysis in due course using the LLITM. There are however likely to be selective improvements required to the outer ring road directly connected with significant development such as at Ashton Green and Leicester Forest East – urban extensions to Leicester. Nevertheless the priority will be to ensure a step change improvement in public transport to serve such urban extensions and the associated corridors into the city centre. This will ensure any increased car use is kept to a minimum and allowed for by a transfer from car to bus of those existing residents in the general area that travel into Leicester.

3.44 The outer ring will have a modest increase in traffic. This is a more appropriate route than alternative routes through the city centre. We will facilitate this, when funding allows, by junction improvements, signing and physical works at the radial/outer ring junctions. This will encourage car drivers away from the radial routes, supported by decriminalised parking enforcement and bus lane enforcement.

3.45 We have also investigated in outline the case for roads situated outside the Greater Leicester urban area as follows:

- » A Southern Relief Road linking from the A6 South 'London Road' (corridor) to the M1 Junction 21 Fosse Park area.
- » An Eastern Bypass scheme that could provide a parallel route for traffic from the east to the south that currently uses the A46/M1 and that would include a Southern Relief Road as above.

We have concluded that such schemes would not demonstrate high value for money under current circumstances and hence would not currently command a high priority to be taken forward. The case will be kept under review, in discussion with the local enterprise partnership, for possible inclusion in subsequent local transport plans.

Journey Planning

3.46 We will appraise the impact of the Personal Travel Planning (PTP) project commissioned in 2010 by Leicester City Council with a view to rolling out a future PTP project over a larger area and over a longer period of time, which helps raise contact and participation.

Campaigns – Marketing and Promotion

3.47 We have noted the success of the Big Wheel, Nottingham's transport branding and promotion. A roll out of a sustained travel promotional campaign similar to the 'Big Wheel' could underpin all of the above actions. We will market and promote car alternatives with emphasis on their health and environmental benefits. We will brand parts of the road network such as key roundabouts, to help with reducing lost traffic, including promotion of the developing Rights of Way network and other non-motorised routes.

Car Schemes – The Leicester Business Car Club project

3.48 The Leicester Business Car Club project based initially in the city centre aims to deliver a car club which will result in fewer cars on the road in Leicester particularly during the peak period when congestion is at its worst, with lower noise, and less air pollution. This car club will be run by an experienced private car hire operator in partnership with Leicester City Council on a two year pilot contract within the city centre. The vehicles will be clearly branded which gives additional opportunity for promoting transport modal change, and club marketing will also include access to travel planning advice and walking / cycling promotion. The

car club is part of a total package to reduce reliance on the private motor car and increase transport choice and the take up of more sustainable transport modes. Experience in other cities suggests that car club members cut their car mileage by half as they become more aware of costs (they pay per use) and become better at planning travel and more likely to use public transport, cycling and walking.

3.49 A club operating say 20 cars would expect an annual CO2 reduction of around 17.5 tonnes compared to not having the club. The project will design the car club infrastructure to minimise unnecessary travel and be convenient enough to encourage business users to leave their own car at home and use more sustainable modes of transport for commuting, thus avoiding those emissions entirely. Successful introduction of a car club will reduce emissions in comparison with the status quo by using less polluting vehicles than the current average. On-street parking bays in city centre have been chosen. These locations are spread around the city to make them most suitable for the existing potential business users.

Environmental benefits:

- » Reducing congestion by removing commuters from rush hour traffic.
- » Commuters will make more journeys by public transport, cycling and on foot.
- » These changes will reduce the pollution, including carbon dioxide.

Public Transport Routing – Trams

3.50 Leicester City Council has an aspiration to introduce a low carbon transport system of world class standards capable of facilitating significant growth in trips to support economic growth and jobs in Leicester. Trams in Leicester have been discussed for many years. In a major transport study CALTRANS undertook in 1997, it concluded that a Mass Rapid Transit (MRT) system based upon Light Rail, or trams, had the potential to produce a positive overall net present value as part of a comprehensive transport strategy. Recently the Government has given the go ahead for trams in Edinburgh, the extension to the Birmingham Centro tram, an extension to the Manchester metro tram system and two further new NET lines in Nottingham.

3.51 A tram is a complex project to deliver and it will take several years to procure. Current Government rules require 25% of the capital costs to be from local contributions. It would almost certainly be financed as a Government PFI scheme and would be a public system for Leicester with capability for future expansion to other parts of Greater Leicester.

3.52 Leicester City Council believes that a tram is necessary to achieve a significant modal shift from cars to public transport, and this light rail mode of travel would compliment the New Bus Termini and Routing Scheme through the introduction of a city centre modal interchange. A tram would also add to Leicester's reputation and image.

3.53 The next steps are to undertake a feasibility study comprising engineering assessment backed by a comprehensive financial operating model, evaluation of demand management measures by the use of the new Leicester and Leicester

Transport Model (LLITM) and a full evaluation of financing / funding opportunities. This up front work is a short/medium term priority for the city council.

Charging (pricing)

3.54 This can mean road tolling – paying to use the road by vehicles (also referred to as road user charging). It would have the impact of both reducing vehicular flows by suppressing demand and raising funds locally. Our research has shown that the successful introduction of local road pricing will rely on the presence of most if not all of eight factors. We have considered the five factors suggested by the Commission for Integrated Transport and three locally derived factors. This is how we stand against each of the five:

- » Severe congestion problems
 - Our analysis indicates that the key radials are at capacity 8am-9am and 5pm-6pm but the congestion is not severe; this is supported by the feedback from consultation at annual ward meetings and discussion groups where the perception is that there is not a serious congestion problem although many would like to see the moderate levels reduced
- » A strong local economy
 - The local economy was weakened by the contraction of the traditional manufacturing industries towards the end of the last century; it is now stable and ready to grow; a lot of growth will be required before it can be considered strong enough to support road pricing
 - The active support of local authorities in and adjacent to the local area
 - The adjacent authorities are likely to consider it as a longer term solution
- » Political stability
 - There have been different administrations in the city in recent years but the current administration is stable
- » A transport champion
 - One has not emerged in recent years but a directly elected mayor in May 2011 may offer an opportunity

3.55 In addition we also believe that the following three locally derived factors need to be evident:

- » Public support for raising funds locally additional to existing taxes
- » Our consultation shows some public opposition
- » Comprehensive Park and Ride provision

- » We have been endeavouring to add three sites to our one successful park and ride site. Progress has been slower than anticipated and provision is thus not currently comprehensive as we still only have two permanent full time sites with a further under construction. The subsidy required to operate the service currently is greater than anticipated due to the recession and cheap city car parking, although measures to reduce the subsidy are currently being developed.
- » A strong economic case

3.56 The economic case for road pricing has in the past been poor with most scenarios being negative dependant on the charging regime considered for adoption. For example, our past analysis indicated that a £1 charge just outside the inner ring road gives a net disbenefit of £7.3m/year, a £2 charge gives a disbenefit of £12.6m/year. These exclude the scheme implementation and running costs - the annualised estimate being of the order of £22m/year for a 30 year lifespan.

3.57 Although the Government was using TIF to help test and develop initial thinking, it is important to note that there is currently no proposal for the introduction of any congestion charging or road pricing system locally or nationally. It should be noted that no decision on a national road pricing scheme has been taken and that separate legislative powers would be required to implement any such decision, although the current Government has indicated it's intention to introduce lorry road user charging – HGV RUC. The DfT Business Plan (November 2010 version) indicates that HGV RUC will commence operation by April 2014. We believe that this scheme will be an important precursor to any scheme involving cars. We will take any opportunity to be involved in the development and operation of HGV RUC so that we can not only input into the development of the scheme from a lorry and distribution perspective but also increase our knowledge of road pricing generally. We currently have an open mind on road pricing and will be keeping the case for road pricing generally under review for the longer term.

Charging (pricing) – Workplace Parking Levy (WPL)

3.58 We have also considered the 'softer' pricing option of introducing a WPL. It would be less effective than road tolling and have a lower impact than direct pricing based on road usage. It is thus a weaker and indirect form of road pricing. The benefits of a WPL are that it could be relatively quick to implement as the concept is relatively simple. It has relatively low development and implementation costs. It can focus on the city centre. It can be part of the development of the regeneration proposals regarding parking provision. It could increase the take-up of travel plans by encouraging businesses to promote them. It can be linked to travel plans, by giving discounts to employers that have an active travel plan. The disbenefits are that there is continuing business opposition. There is currently no political support. It has no effect on through traffic. The impact on congestion is not proven, as no city in the UK has yet implemented a scheme. Our assessment is being informed by the efforts of Nottingham in implementing a WPL scheme. Implementation there is taking much more time than originally envisaged and there is substantial business opposition.

- 3.59 The administration required to implement a scheme in Leicester would be disproportionately high. A characteristic of Central Leicestershire is that there are few large employers but many small and medium employers. There are about 24,000 PNR (private non-residential parking) spaces requiring a considerable back office capability to administer. These spaces include employee, customer and disabled spaces at approximately 1,600 properties in the CTZ. In other words we have a lot of relatively small PNR car parks that would require a relatively high administration and management input into a WPL scheme. We have weighted the dis-benefits highly due to their importance to our wider aspirations for the city, regeneration in particular, and the practical difficulties at Nottingham.
- 3.60 There could be advantages in creating an income stream to invest in Leicester's transport system particularly at a time of government funding cut backs to local authorities. The conclusion is that we will keep a watching brief on the development of the Nottingham scheme and keep the business case under review.

'The introduction of a Workplace Parking Levy should be seriously considered.'

Leicester Civic Society (December 2010)

The Role of the Planning System Public Transport Focused Development

- 3.61 We work with planning colleagues developing the local plan and the local development framework. This ensures the LTP reflects the planning context and vice versa in both congestion and accessibility terms. The transport implications of new development are allowed for in determining suitable locations. We are also increasing the number of new homes in the city centre so that car use will be minimized. This is due to facilities and jobs being close by and the excellent availability of bus services. The major regional facility Curve is also located in the heart of the city centre where public transport links are excellent. The opportunity to improve walking links and public realm is also part of the planning agenda. All significant planning applications are assessed for the impact on the transport system. Appropriate conditions and/or legal agreements are contained in planning consents. These ensure that the transport impact of the development is allowed for as part of the development. Development that prejudices the future improvement of the transport system is not allowed to proceed. The aim of the LTP is that there will be no net increase in CTZ off-street parking places. The Transport Strategy and outcomes are based on this. The distribution of carparking in the City Centre is assessed in the Car Parking Strategy (SPD) outlined in [Section 4](#).
- 3.62 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. We will obtain an improvement whenever possible. As mentioned previously, once traffic flows exceed 75% - 80% of capacity, the network flows can become unstable very quickly and resilience reduced. Any hiccup 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. In the case of new works in connection with development, we will wherever reasonably feasible require at least 25% reserve capacity for the peak hour when designing any alterations. Such measures will be important contributors to maximising network resilience. Developers will be required to make a financial contribution to the costs of transport infrastructure in appropriate cases, before planning consents can be issued. We also ensure that new development is designed to enable refuse collection vehicles to efficiently and safely service the new buildings. An enhancement to service standards is facilitated whilst a reduction in the incidence of unsafe obstruction to general traffic caused by stopping and loading within the highway is achieved.

'All development should ensure a shift to the use of sustainable low emission transport to minimise the impact of vehicle emissions on air quality, particularly in Air Quality Management Areas. Development should be located where it is accessible by sustainable transport to support the use of public transport, walking and cycling as an alternative to the car. Higher density development must be located in areas with easy access to local facilities to reduce the need to travel.'

Leicester Civic Society (December 2010)

Land Use Measures

3.63 We have a well thought out approach to the negotiation of developer funding bringing additionality whenever possible. This allows us to ensure that we properly absorb the traffic impacts of the development whilst at the same time bringing about wider transport improvements through a modest injection of our own funds. For example major new residential development in Birstall is linked to the implementation of the park and ride site. The additional traffic generated by the development cannot be directly accommodated by the existing transport system. The park and ride site will be attractive to car users currently using the A6 into Leicester. The traffic generated by the development will then replace the traffic that uses the park and ride site. The immediate effect on congestion will be neutral but once there is an established park and ride site, there will be potential for the transfer of more car users with consequential improvements in conditions. This will be facilitated by modest expansion of the park and ride scheme if required.

4. The Congestion Strategy

4.1 In earlier sections, we looked at the current and future situations and we have appraised the options. All the options appraised in Section 3 have their merits and contribute to reducing congestion and improved journey times. This is an extensive list of options. Whilst we recognise the importance of an effective transport system that promotes, encourages and enables the use of sustainable modes of travel to reduce congestion and carbon and improved journey times and air qual-

ity we acknowledge that we will not be able to afford them all. We have therefore prioritised these options relative to their appraisal score in combination with a realistic assessment of their benefit cost, affordability and deliverability.

- 4.2 In delivering the Congestion Strategy we also need to consider the options set out in the other chapters. It is likely that added benefit can be gained if we are able to combine various individual policy options into cross cutting deliverable packages.
- 4.3 Our strategy needs to be realistic with regard to the resources that we are likely to have available and flexible to adapt to changing circumstances. Thus, our approach to the delivery of this objective is split into short-term and medium to longer-term. We have considered all of the options outlined in Chapter 3 and have concluded that a strategy based on buses will give the best value for money outcomes for Leicester and the suburbs (Central Leicestershire). We have successfully delivered bus improvements to key corridors into the city and worked hard on park and ride in partnership with the county. As a consequence bus patronage is high. However we have not invested in bus improvements in the city centre itself and there is now a substantial city centre deficit in terms of both quality and quantity for the bus service.

Making it happen - The Congestion Strategy Short Term

- 4.4 Our immediate focus for this LTP period will be in delivering a package of city centre bus improvements in order for us to realise the key transport outcomes for Leicester. Encouraging walking and cycling will also be part of the strategy. However numbers of cyclists in the peak period riding into the CTZ are relatively low and so even a big percentage increase will only make a marginal improvement in congestion, but there are also health benefits. The harder measures will be underpinned by softer measures taken forward by a smarter choices company or similar, should a strong business case emerge.
- 4.5 We want to maintain the current direction and increase the momentum by doing more of the same better, with help from the softer measures. This will allow us to further increase bus user satisfaction and bus patronage. Buses allow for full flexibility within a concentric area such as Central Leicestershire. This currently provides the best value for money and buses are able to share the available road space with other modes in a reasonable and equitable way to get the most out of the available space. This helps us in tackling congestion, carbon emissions and air quality without adversely affecting car travel in a value for money way. We acknowledge that many journeys will still be made by car either because there is no reasonable alternative or a car is the preferred mode of travel. We will increase the efficiency of the network by improved coordination of traffic signals and junction improvements that will help all modes.

City Centre Car Parking Strategy: Supplementary Planning Document

- 4.6 A City Centre Car Parking Strategy (SPD) is being produced by the city council. It is expected to be adopted March 2011. This SPD is being produced to provide



an evidence base about the current level of city centre car parking provision. An adopted City Centre Car Parking Strategy will allow us to proactively manage the supply, matching future supply with likely demand.

4.7 It will provide a clear strategy for public car parking provision, taking account of both existing and future demand within the city centre. It will be reviewed within five years, immediately after the first review of the Core Strategy. It aims to:-

- » Understand what the current patterns of parking are in the city centre;
- » Provide a basis for taking decisions on future car parking, based on current and future demand;
- » Encourage economic regeneration by balancing the needs of visitors, shoppers, residents and businesses with the development of sustainable transport, CO2 and nitrogen dioxide reduction objectives and air quality improvements;
- » Ensure quality parking provision that is well designed, located and managed;
- » Provide a basis for decision making on the progressive removal of temporary and unsightly or outdated parking provision, to improve the city-scape;
- » Be integrated with the wider city centre strategies for planning, transport, CO2 reduction and city centre management and form part of a broader city wide parking strategy.

4.8 The SPD will be used to:-

- » To achieve an appropriate level of car parking that will support the economic viability of the city centre for work, shopping and leisure, without undermining sustainable modes of transport.
- » To take decisions on proposals for freestanding parking provision (i.e. not associated with new development. Applications for parking that are associated with new development will continue to be considered on their individual merit in line with current planning policy.
- » This SPD has focused primarily on the parking supply for commuters taking into account park and ride services. On-street parking has been excluded.
- » It will be used in pre-application discussions and as a material consideration when determining planning applications.
- » It provides a new evidence base about the current level of parking supply and demand.
- » It provides a criteria based approach for considering enforcement action against unauthorised car parking.

- 4.9 The boundary of the SPD area has been based on the Central Transport Zone (CTZ) from the Local Transport Plan and slightly expanded to include the major car parking destinations that are close by, within and adjacent to the city centre.
- 4.10 Leicester's LTP recognises that the city centre and surrounding area is one of the main attractions for employment, leisure and shopping. The LTP is a sustainable transport strategy which recognises that an appropriate supply of public parking spaces is essential to support a city. The LTP both supports and influences Leicester's Core Strategy and the SPD.
- 4.11 Before considering any additional parking that is not related to new development, in the first instance, justification should be given in light of the Local Transport Plan. This sees Leicester as Britain's First Environment city that will be a great place to live but also somewhere that does not place a burden on the planet in future years.
- 4.12 The LTP aims to deliver attractive alternatives to car travel and to cater for some high levels of housing growth whilst managing congestion and improving journey times and accessibility for all, but particularly for deprived groups to support a new prosperity. It seeks to encourage more people to walk, cycle and use public transport (particularly the bus to or from the city centre), to reduce carbon emissions and provide a transport system that facilitates a safer and healthier way of life.

Car Parking – The Planning Context

- 4.13 The City Centre Car Parking Strategy Supplementary Planning Document (SPD) forms part of Leicester's Local Development Framework (LDF) and will be supplementary to Leicester's Core Strategy.
- 4.14 Based on the evidence in this SPD, there is now a need to review the adopted Car Parking standards as contained within the 'saved policies' of the city of Leicester Local Plan. The SPD expands on Core Strategy Policy CS 15 Managing Demand For Car Use.

Medium to Long Term

- 4.15 Having noted the strong business cases that have evolved for trams in other UK cities, we will be examining the case for trams in Leicester. Trams have the ability to provide high user satisfaction and persuade car users from their cars whilst having no emissions at point of use and carrying large passenger volumes. A tram system would project a high level of ambition, a strong reputation and a modern quality image for Leicester. We believe that the stronger business cases will emerge where bus patronage is currently high on key corridors into the city. Buses will still play a key part in a newly emerging transport system that includes trams along trunk routes with buses as feeders.



5. Delivering the Congestion Strategy

5.1 From the Policy Instrument Options table in the above section it can be seen that the overarching/key strategic policy options for reducing congestion and improved journey times are:

- » Working with Partners
- » Campaigns
- » Public Transport Routing
- » Charging (pricing)
- » Public Transport Focused Development
- » Bus Stations and Interchanges
- » Rail
- » Land Use Measures
- » Journey Planning
- » Variable Message Signs

5.2 These will take greater precedence when considering delivery options but the following policy options are also important, particularly when considering the delivery of more than one objective and as part of a package in delivering the LTP as a whole.

- » Bus Corridors
- » Ticketing
- » Park and Ride
- » Traffic Management
- » Traffic Lights
- » Parking
- » Maps
- » Bus Information
- » Buses/Services
- » Limited Road Improvements where appropriate
- » Car Schemes
- » Freight
- » Conventional Signs and Markings

5.3 The most effective policy instruments will be packaged together and be included in the Implementation Plan. The above Policy Instruments can be split into the delivery of the objective in the short, medium and long term.

5.4 To deliver this objective in the short term (within the first Implementation Plan period) we are likely to:

- » Continue Working with Partners and particularly the LEP
- » Continue to undertake and support Campaigns
- » Improve Public Transport Routing particularly in the city centre and investigate the case for trams
- » Support and encourage Public Transport Focused Development

- » Improve on street bus stands in strategic city centre locations (Bus Stations and Interchanges)
- » Produce a Business Case for new Bus Termini and Routing (Bus Stations and Interchanges)
- » Support and lobby for Rail improvements serving Leicester
- » Support and encourage Land Use Measures that reduce congestion and journey times
- » Facilitate Journey Planning including working up a business case for a Smarter Choices Company or Trust
- » Investigate the business case for Variable Message Signs
- » Together with appropriate policy options from the second list above
- » As a cross cutting option, develop and take forward proposals for a Smarter Choices – Low Carbon Company or Trust

5.5 Our Implementation Plan goes into further details of what we will be doing and the measures that we will most likely be delivering in the next four years to achieve this objective in the short-term. It also explains how we intend to continue to develop our approach to ensure that we maximise the benefit cost ratio of the schemes and initiatives that we do.

5.6 Delivery of this objective in the medium to longer term: our medium to longer-term approach is also designed to be flexible and will be influenced by what our first Implementation Plan achieves. We will monitor schemes and initiatives in order to build on our successes and review the things that do not perform as well as we had anticipated. Decisions will also be informed by the availability of funding.

5.7 Based on the information available to us at the moment, in the medium term (within the second Implementation Plan period) we believe that we are likely to continue with the strategy as outlined above, and build on it by:

- » Continue Working with Partners and particularly the LEP
- » Continue to undertake and support Campaigns
- » Firm up the case for Public Transport Routing – Trams – mass rapid transit
- » Support and encourage Public Transport Focused Development
- » Deliver first phases of new Bus Termini and Routing Strategy (Bus Stations and Interchanges)
- » Support and lobby for Rail improvements serving Leicester



- » Support and encourage Land Use Measures
- » Implement and monitor success of a programme to make Journey Planning available to city residents
- » Implement and monitor success of the installation of Variable Message Signs
- » Together with appropriate policy options from the second list above

5.8 We will review our medium term approach in the light of our monitoring results and the availability of funding.

5.9 Based on the information available to us at the moment, in the longer term (beyond the next Implementation Plan period) we believe that we are likely to continue with the approach as outlined above, but build on it by:

- » Continue Working with Partners
- » Continue to undertake and support Campaigns
- » Produce business case for Public Transport Routing – Trams – mass rapid transit
- » Investigate Charging (pricing) including workplace parking levy
- » Support and encourage Public Transport Focused Development
- » Deliver final phases of new Bus Termini and Routing Strategy (Bus Stations and Interchanges)
- » Support and lobby for Rail improvements affecting Leicester
- » Support and encourage Land Use Measures
- » Implement and monitor success of a programme to make Journey Planning available to city residents
- » Implement and monitor success of the installation of Variable Message Signs
- » Together with appropriate policy options from the second list above

5.10 We will review our longer term approach in the light of our monitoring results and the availability of funding.

Congestion Strategy Conclusions and Summary

5.11 Through LTP2 we have delivered measures that have helped to provide a more effective and efficient transport system. Whilst our aim is to achieve the same through LTP3, the way in which we deliver this objective will be driven by a greater emphasis on financial resources, low carbon outcomes and the challenges

presented by growth.

- 5.12 Our approach to the delivery of this objective, at least in the short term, is principally focused on making the very best use of what we already have, including improving the city centre part of the bus service, managing and maintaining our transport system, roads, bridges, footways and cycleways to the best standards that we can afford. This will be supported by our efforts to influence peoples' travel choices through better marketing and promotion, travel planning and provision of appropriate improvements to walking, cycling and public transport generally.
- 5.13 In the medium to longer term we will need to investigate the feasibility of delivering more pro-active and radical ways to reduce the demand for car travel. This will include examining the strength of the business case for trams in Leicester.
- 5.14 We will intervene by facilitating a reduction in car use by delivering quality improvements to bus travel, to walking and cycling, whilst managing car parking supply. We have had a lot of success with bus travel with improvements in the suburbs and along the radial routes leading to increased bus patronage into the city centre. However we have not yet progressed improvements within the city centre itself which is the main gateway into Leicester. The focus of LTP3 will be quality improvements to the bus termini, bus infrastructure and bus routing within the city centre to both make good the current deficit in quantity and quality and allow for future growth. Bus use is by far the dominant non car transport mode and the mode that has the potential to make the really big impact. Although the potential numbers are much smaller, walking and cycling still have a helpful contribution to make to encouraging less car use and also help people to a healthier life. Walking and cycling schemes will be implemented as well as bus schemes. Commercial travel planning, school travel planning and personalized travel planning will continue to support these schemes and so support carbon reduction. Proposals for a 'Smarter Choices – Low Carbon Company' will be taken forward, with all options considered including a trust route. Such a company would be totally focused on reducing car mode share and thus carbon by increasing bus patronage, walking and cycling by working with key partners throughout the Leicester urban area.
- 5.15 In summary the immediate emphasis in the short to medium term will be on delivering a package of measures that are together best able to make a real difference to reducing car mode share and increasing bus use. A key component of this package will be bus improvements within the city centre underpinned by a programme of softer measures.

6. Monitoring the Congestion Strategy

- 6.1 Comprehensive monitoring of traffic growth is carried out and trends identified and reported on as part of the LTP process. Incremental changes in traffic volumes are handled automatically by the systems at the Leicester traffic control centre. There are associated control strategies for managing the network. Subject to funds being available we aim to:
- » Upgrade the traffic flow monitoring system to provide improved trend analysis and growth rate assessments.



- » Develop traffic data analysis systems to deal with classified vehicle data.
- » Upgrade the SCOOT system to provide improved rapid response capability to unforeseen network problems.
- » Regularly review the data and amend our actions as may be required.

6.2 Key indicators that we propose to adopt to facilitate monitoring progress achieving the congestion strategy are:

- » Change in peak period (7 – 10am) traffic flows to CTZ
- » Average journey time per mile on target routes.
- » Public transport patronage

6.3 To monitor the effectiveness of our strategy we have five key outcome indicators and six supporting indicators. The key outcome indicators are detailed here in table 4.2. The supporting indicators are provided in our Implementation Plan.

Table 4.2 Congestion Strategy key outcome indicators and targets

PI Category	Ref. No.	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
Outcome	L LTP1	Congestion on locally managed A roads	3.60mins per mile	3.60 minutes per mile (2009/10)	3.60mpm	3.60mpm	3.60mpm	3.60mpm	DfT
	L LTP2	Public transport patronage	43m	41.5m 06/07 43m 07/08 42.5m 08/09 41m 09/10	40m	41m	42m	43m	Local bus companies
Non – transport Outcome	L LTP3	Number of people on out of work benefits	There are no targets apart from those in the LAA (which don't go beyond 2010/11).	17.6% of 16-64 year olds (Aug '09 to July '10)	Monitoring only	Monitoring only	Monitoring only	Monitoring only	DWP via NOMIS



	L LTP 4	Rate of people moving from out of work benefits into employment	There are no targets apart from those in the LAA (which don't go beyond 2010/11).	-2.2% points from June 2009 to June 2010	Monitoring only	Monitoring only	Monitoring only	Monitoring only	DWP via NOMIS
	L LTP 5	Net additional homes provided	1,519 Cumulative 2010/11 to 2014/15 = 7,065	2006/07 1,215 2007/08 942 2008/09 1,208 2009/10 930	1,402 Cumulative 2,517	1,527 Cumulative 4,044	1,502 Cumulative 5,546	1,519 Cumulative 7,065	Local Survey

6.4 The full lists of congestion indicators and targets are presented in the Implementation Plan.



Chapter 5:

Improve Connectivity and Access The Accessibility Strategy



1. Introduction

The Goal we are helping to achieve in this chapter is:

Equality of Opportunity Promoted – Leicester’s people are more confident

The three strategic challenges, identified in chapter 2, addressed by our Accessibility Strategy are:

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 interchanges 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 two 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

2. The Current and Future Situation – The Challenges and Opportunities

2.1 The ability of people to access places of work, learning, health care, shopping, leisure and exercise, and other opportunities can significantly impact on their quality of life, and on their life chances. Schemes and initiatives to improve accessibility can encourage participation and retention in education; reduce inequalities in health, and help people move from welfare into work. Helping people into work improves their standard of living, pulls families out of poverty and helps

to improve levels of participation in society.

Public transport access to the city centre

2.2 The city centre is very accessible by bus during the daytime, but less so during evenings and Sundays. However, there is severe bus congestion in the city centre and road traffic accidents involving buses and pedestrians. Commercial bus operators (who run 85% of services in the area) have concentrated on providing a simplified core service. This has meant that although accessibility has improved through frequency increases on core routes during the day, it has decreased on less profitable marginal services. Table 5.1 and Maps 5.1 to 5.3 show the results of analysis using the ACCESSION software package. ACCESSION has determined the accessibility of the city centre, using published bus timetables, and taking into account waiting times at and walking distances to/from bus stops. It shows that 97% of Leicester's population live within 400m of a bus stop offering a 30 minute or less journey time by bus into the city centre during the daytime (between 7am and 6pm) in the week. However, access to an equivalent service in the evening (6pm to midnight) falls to 94% and for Sunday evenings to 85%. This is not surprising given the complete absence of some services on Sundays, such as the Inner and Outer Circles, the UHL Hospital Hopper and the Park and Ride services. If Monday to Friday evening is restricted to 8pm onwards rather than 6pm, 400m bus stop 30 minute accessibility falls from 94% to 88% (or a loss of accessibility for 5,700 people).

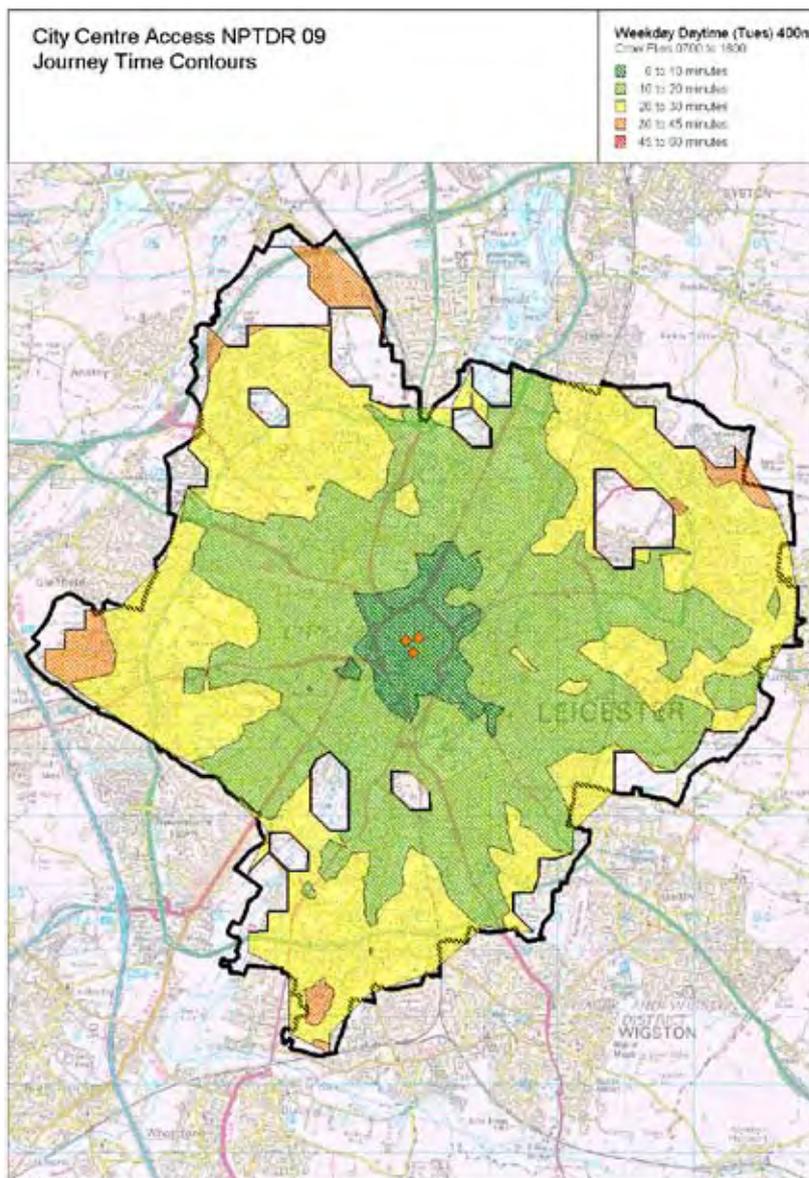
Table 5.1 Bus service accessibility of the city centre

Period ⁹	Frequency (Minutes)	All Households ¹⁰		All Households as a %	
		250m	400m	250m	400m
Mon-Fri daytime	10	6503	6583	6%	6%
Mon-Fri daytime	20	66600	71892	60%	65%
Mon-Fri daytime	30	99217	108032	89%	97%
Mon-Fri daytime	45	100964	109675	91%	99%
Mon-Fri evening	10	3977	4016	4%	4%
Mon-Fri evening	20	50069	56890	45%	51%
Mon-Fri evening	30	93334	104010	84%	94%
Mon-Fri evening	45	100000	109601	90%	99%
Sat daytime	10	7584	7840	7%	7%
Sat daytime	20	64853	70867	58%	64%
Sat daytime	30	98979	107803	89%	97%
Sat daytime	45	100806	109575	91%	99%
Sat evening	10	5347	5386	5%	5%
Sat evening	20	50617	56760	46%	51%
Sat evening	30	91204	101719	82%	91%
Sat evening	45	99842	109505	90%	98%
Sun daytime	10	2395	2602	2%	2%
Sun daytime	20	38550	44946	35%	40%
Sun daytime	30	84984	97880	76%	88%

Period ⁹	Frequency (Minutes)	All Households ¹⁰		All Households as a %	
		250m	400m	250m	400m
Sun daytime	45	98537	109353	89%	98%
Sun evening	10	2869	2956	3%	3%
Sun evening	20	32696	40045	29%	36%
Sun evening	30	78367	94392	70%	85%
Sun evening	45	97575	109337	88%	98%

No Car Households consistently have a better percentage of coverage than All Households, showing that the network is geared towards those who are most likely to need access to the bus network for transport.

Map 5.1 – Weekday Daytime Accessibility October 2009

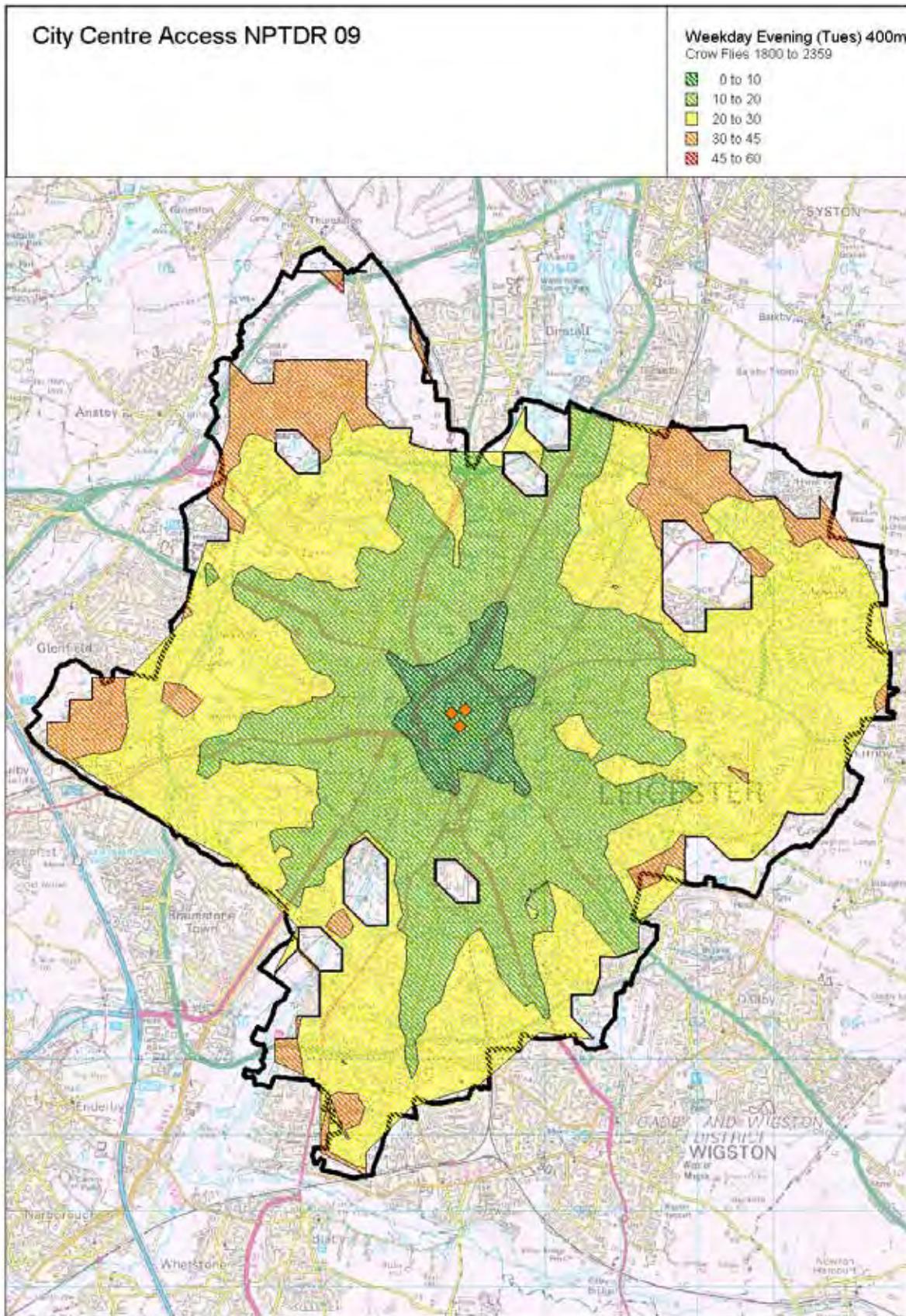


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⁹Daytime is classified as between 0700 and 1800. Evening is classified as between 1800 and 2359. Accession will choose the quickest trip available in this period.

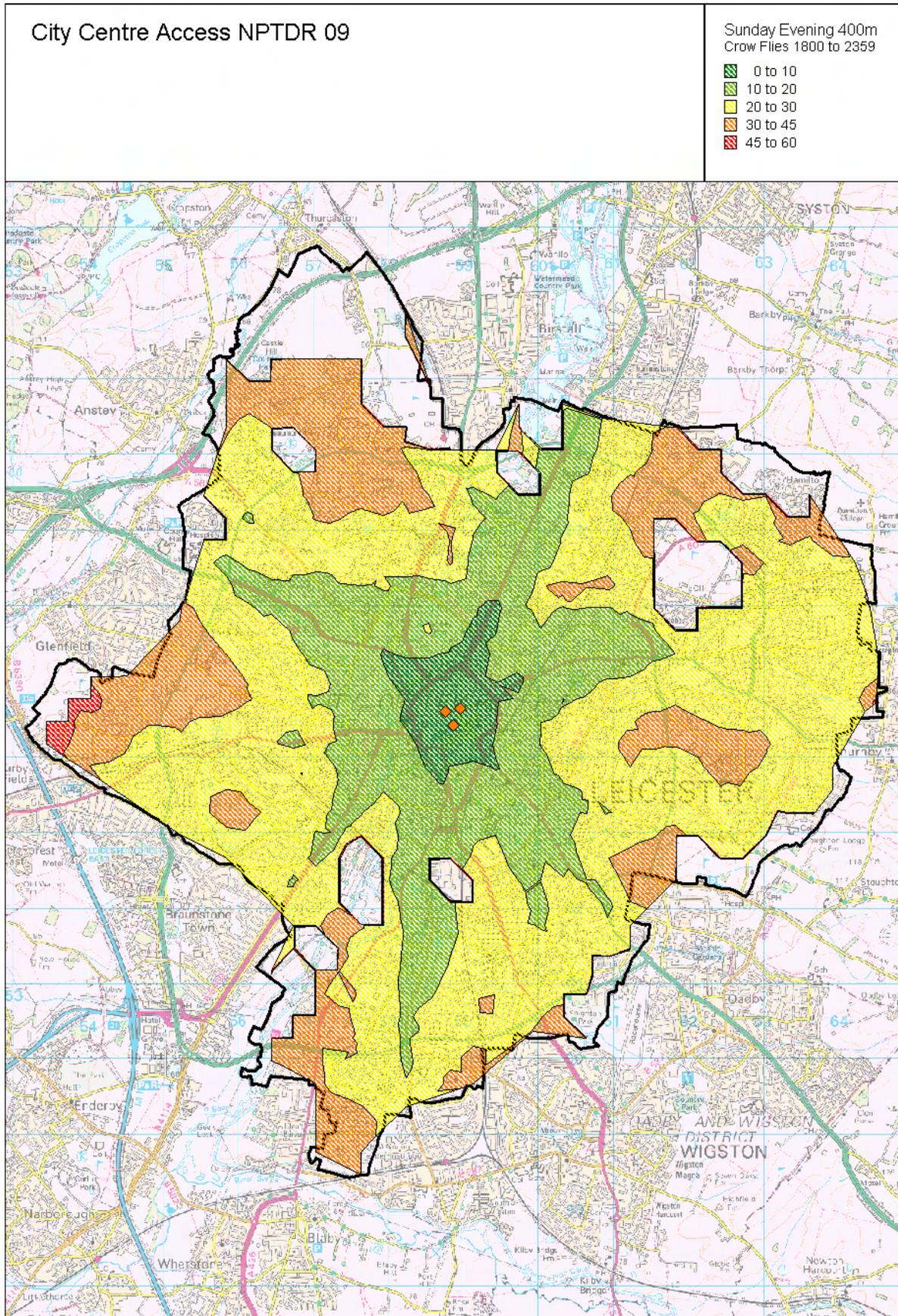
¹⁰ Population data taken from 2001 Census

Map 5.2 - Weekday Evening Accessibility October 2009



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Map 5.3 - Sunday Evening Accessibility October 2009



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Public transport access to destinations other than the city centre

2.3 Many of our key employment areas, two of the three main hospital sites (Glenfield and General) and several of our deprived wards are on the periphery of the city. Although interchange between bus services is possible in the city centre it is not always easy. Bus stops are spread across the city centre and most (if not all) services which used to travel through the centre have been broken into two. Users who are not familiar with the city or its services may find it difficult to make interchanges (for example, a journey from Clarendon Park in the South to County Hall in the North West, which was once accessible via a single service, now involves being dropped off in Charles Street in the city centre and walking over half a kilometre to St Margaret's Bus Station for the second leg of the journey). Leicester is not particularly well served by orbital buses and so it is not always easy to travel by bus from one area on the edge of the city to another without going into the city centre and out again. The Inner and Outer Circle routes are meandering (with no bus stops on the Outer Ring Road the Outer Circle route goes through all the adjacent estates), infrequent (once an hour in either direction) and slow (taking just under one and a half hours and two hours respectively to complete a circuit).

Access to everyday facilities

2.4 A strategic accessibility assessment of the city has been completed. This process was initially informed by mapping. The ACCESSION software has so far shown that there are few access problems to everyday facilities (shops, hospitals, workplaces, schools etc.) in Leicester during the main part of the day. ACCESSION is a modelling tool which uses journey times derived from the latest bus timetables and walking times along the road network in its accessibility calculations. It does not take into account factors such as:

- » An unwillingness to change buses to reach a destination, due to increased journey times, but especially where the consequent fare paid could double.
- » The quality of both the walking routes to / from the stop and facilities at the stop.
- » Choice of destinations.
- » Quality, availability or suitability of on-road quiet routes and off-highway cycle routes.
- » Perceptions of personal safety.
- » Overcrowding – where buses won't stop as they are full.
- » Access needs of disadvantaged groups.

2.5 In addition to the computer mapping, we collated the following perceived access needs from ward meetings, focus groups partner consultation, accessibility planning events and a literature review:

- » Improved access to employment, removing the barriers to jobs and training opportunities that are encountered by the workless through catering for shift patterns at Braunstone Frith and Gorse Hill/Bursom Industrial Estates
- » Improved bus frequencies on orbital routes
- » More frequent bus services in the evenings and on Sundays, particularly from Braunstone Park and Rowley Fields.
- » Improved marketing of existing public transport services.
- » Better personal safety while using public transport at night.
- » Improved access to hospitals by public transport – especially for elderly people and from Humberstone and Hamilton wards.
- » The cost of travel – particularly for low-income households – can be a barrier, especially when accessing higher education
- » The need for more cycle related information, paths, routes and parking facilities as cycling on the road is seen as dangerous.
- » More pedestrian crossings and dropped crossings along footways.

Community Exclusion and Priority Neighbourhoods

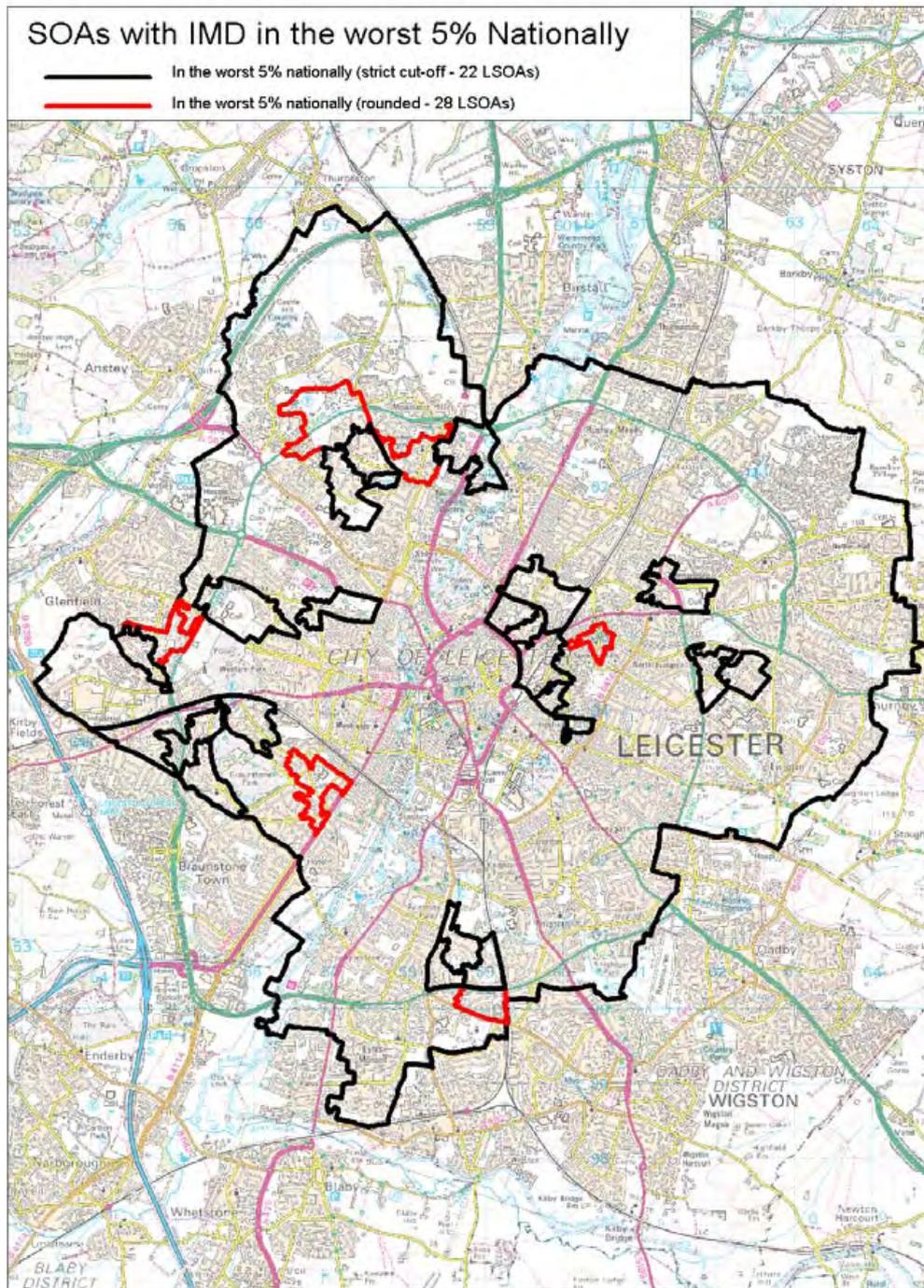
2.6 Neighbourhoods which are excluded may be geographically isolated such as the Braunstone estate in Leicester. Local shops often sell food at higher prices than supermarkets. They often can't stock the same range of products – particularly healthier foods - either. Income disparity in certain ethnic communities leads to a greater percentage of income spent on transport. The Leicester Partnership agreed to the establishment of 'Priority' areas using the Indices of Multiple Deprivation 2007 as a basis. They chose to highlight the areas that fell into the top 5% most deprived in the country. This provides a useful methodology for targeting scarce resources.

2.7 The Index of Multiple Deprivation (IMD) combines indicators across seven categories into a single deprivation score and ranks each 'super output area' in the city. The categories are:

- » Income Deprivation.
- » Employment Deprivation.
- » Health Deprivation and Disability.
- » Education, Skills and Training Deprivation.
- » Barriers to Housing and Services.
- » Living Environment.
- » Crime.

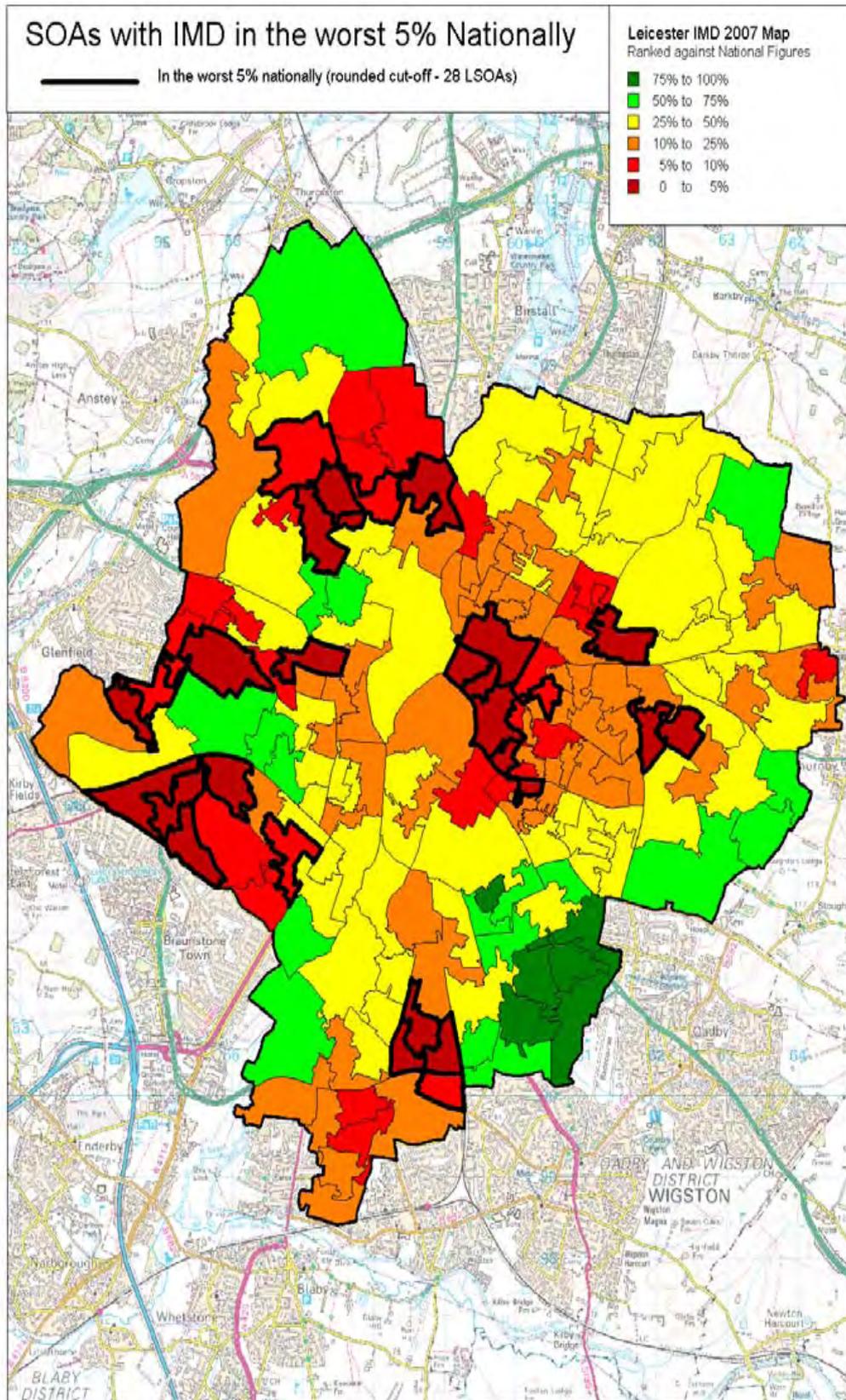
2.8 Each Super Output Area (SOA) includes a population of approximately 1,500 people. The analysis shows that 28 super output areas in the city fall within the 5% most deprived nationally. When “clustered” the SOA’s highlight the areas of multiple deprivation as Beaumont Leys, parts of Braunstone and Glenfield, Saffron, St Matthews and St Marks, Highfields, Humberstone, Abbey Rise, Crown Hills and New Parks. These areas are shown on Map 5.4 below:

Map 5.4 – Super Output Areas with top 5% Indices of Multiple Deprivation 2007



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Map 5.5 - Thematic map of IMDs 2007



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2.9 Leicester's most deprived wards tend to be either immediately adjoining the city centre or are large housing estates at the edge of the city. Many facilities are within walking distance of the former, and for the latter, the very factors that cause the areas to score highly in deprivation, such as lack of access to a car, mean that they represent profitable routes for bus companies. Bus links to the city centre are already good, with estates supporting commercial bus services which operate to a frequency of 15 minutes or better (daytime) or 30 minutes or better (most of the evening), 16 hours a day, six days a week. However, the peripheral estates suffer from poor links to more adjacent facilities, which generally require access in an orbital rather than radial direction.

People with physical and sensory disabilities

2.10 Based on national trends, an estimated one in five local people are disabled. Disabled people require, and should be able to expect, full access to all modes of transport. Our work to benefit disabled people must, therefore, be wide-ranging in order to reflect the breadth of access issues. Our work has been informed and shaped by the opinions of representatives of various organizations representing disabled people in Leicester and Leicestershire. Often small-scale changes deliver real benefits in improving access to the city centre, local shopping areas and public transport for disabled groups. We also assist disabled people and the less mobile through our city centre Shopmobility scheme, enabling anyone with mobility problems to loan one of 68 scooters, 10 wheelchairs or 8 power chairs that are available between our two Shopmobility sites. There were 11,000 loans made in 2009/10 (up from 10,000 in 2008/09). We will keep demand under review and provide additional equipment if needed.

People with learning disabilities

2.11 People with learning disabilities can often find it hard to use public transport. Therefore, in partnership with smaller bus operators, we have already carried out disability awareness training for drivers: the larger bus operators already provide their own customer care training for drivers. There are 1,611 people with moderate to profound learning disabilities recorded on the Learning Disability Register as currently living in Leicester. However, the numbers accessing the available services are higher than the number on the Learning Disability Register, and are higher than would be anticipated by the national prevalence rates for people with moderate and profound learning disabilities, suggesting that the actual figure is much higher. (Source: JSNA 2008/09)

Leicester and Leicestershire Economic Assessment 2010

2.12 The Leicester and Leicestershire Economic Assessment 2010 recognises that there is a correlation between good transport links and job recruitment/retention and that developing good transport links to jobs, education and training is a key action for the employment strategy.

Safety and Security

2.13 The Department for Transport have published the findings of a major national survey into people's perceptions of security and crime while waiting for public transport. Whilst 64% of respondents felt positive about their personal security, other peoples apprehensions often reflected the respondent's age, gender and ethnic background; for example:

- » Men, being more likely to be a victim of violence or robbery, felt more fearful of the presence of groups of other men.
- » Women, who were more likely to experience harassment or sexual assault, are more concerned about the behaviour of lone men.
- » Younger people were found to be most likely to experience being threatened or stared at in a hostile or intimidating manner.
- » Ethnic minority passengers felt further exposed to the wider experience of racial harassment and therefore likely to have concerns, but were less likely to report any incidents.
- » Disabled people felt particularly vulnerable to the threat of crime where access to transport is limited or via poorly lit, isolated routes.

The survey showed that the three interventions that provided reassurance for people waiting for the bus come through (in order).

- » Locally monitored CCTV
- » A well-lit environment
- » Shelters and stops being visible from the road

Tackling Access to Health Facilities

2.14 One of the main areas for action that transport services can facilitate is good access to health facilities and providing the opportunity to exercise by improving access by walking and cycling to those health facilities and leisure activities to help tackle obesity. Good access to your nearest GP will not be relevant if you cannot register with that practice. Also, the potential rise in the number of specialised GP surgeries under the Health White Paper may increase the need to travel.

Walking and Cycling

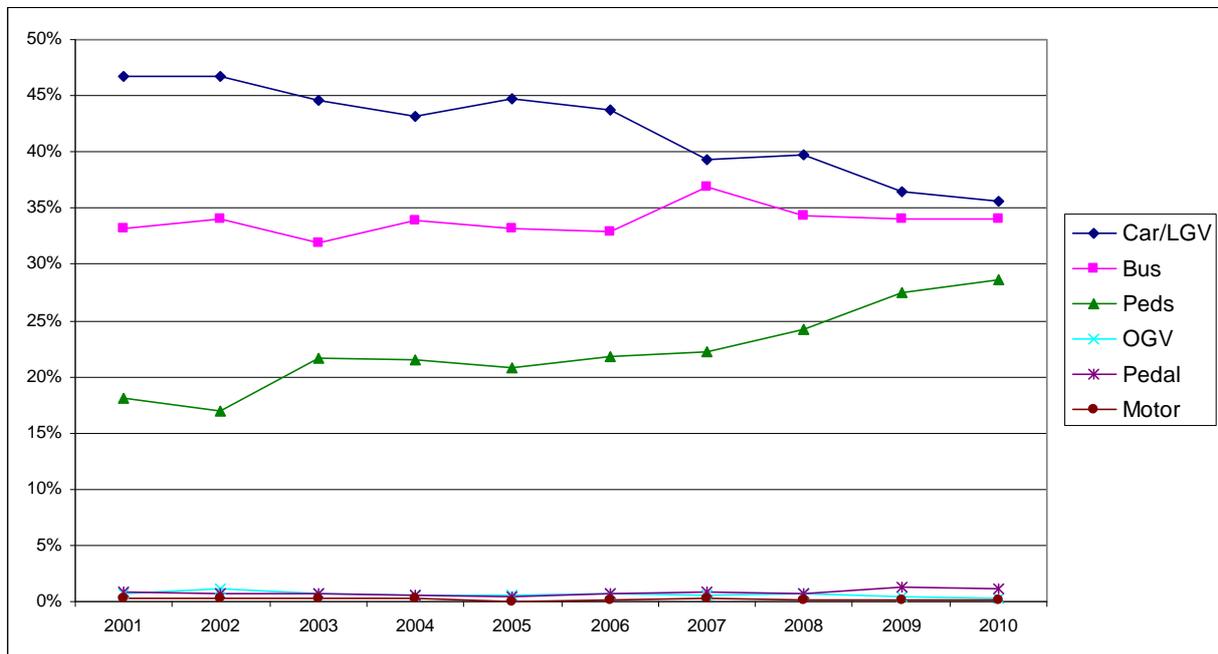
2.15 Walking is a healthy and important method of getting around, as well as being an element of most other journeys e.g. walking to/from bus stops or car parks. Cycling provides the flexibility of providing transport from any origin to any destination, at any time, and is a practical solution for journeys of up to about five miles. It is a way of improving accessibility to sites that are not well served by public transport and has obvious health benefits. Photo 5.1 shows an example of our city centre pedestrianisation.

Photo 5.1: Pedestrianisation, city centre



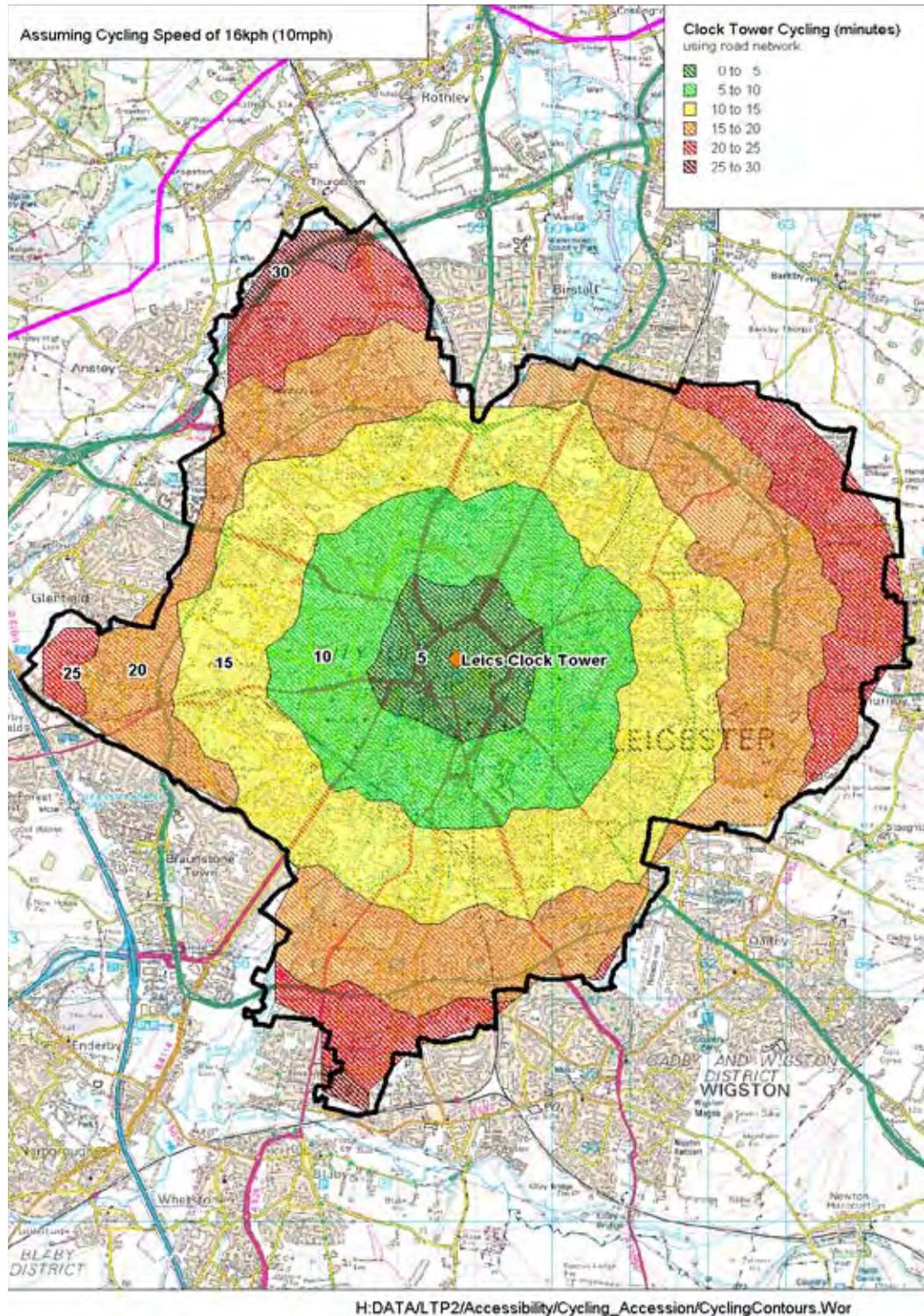
2.16 Graph 5.1 below shows how the modal share of people walking into the city centre across the inner ring road cordon has increased from 21.8% in 2006 to 28.7% in 2010 (this is an increase of 5,596 people from 29,811 to 35,407), whilst car trips have fallen from 43.7% to 35.7%.

Graph 5.1: City centre modal share by classification 2001 - 2010



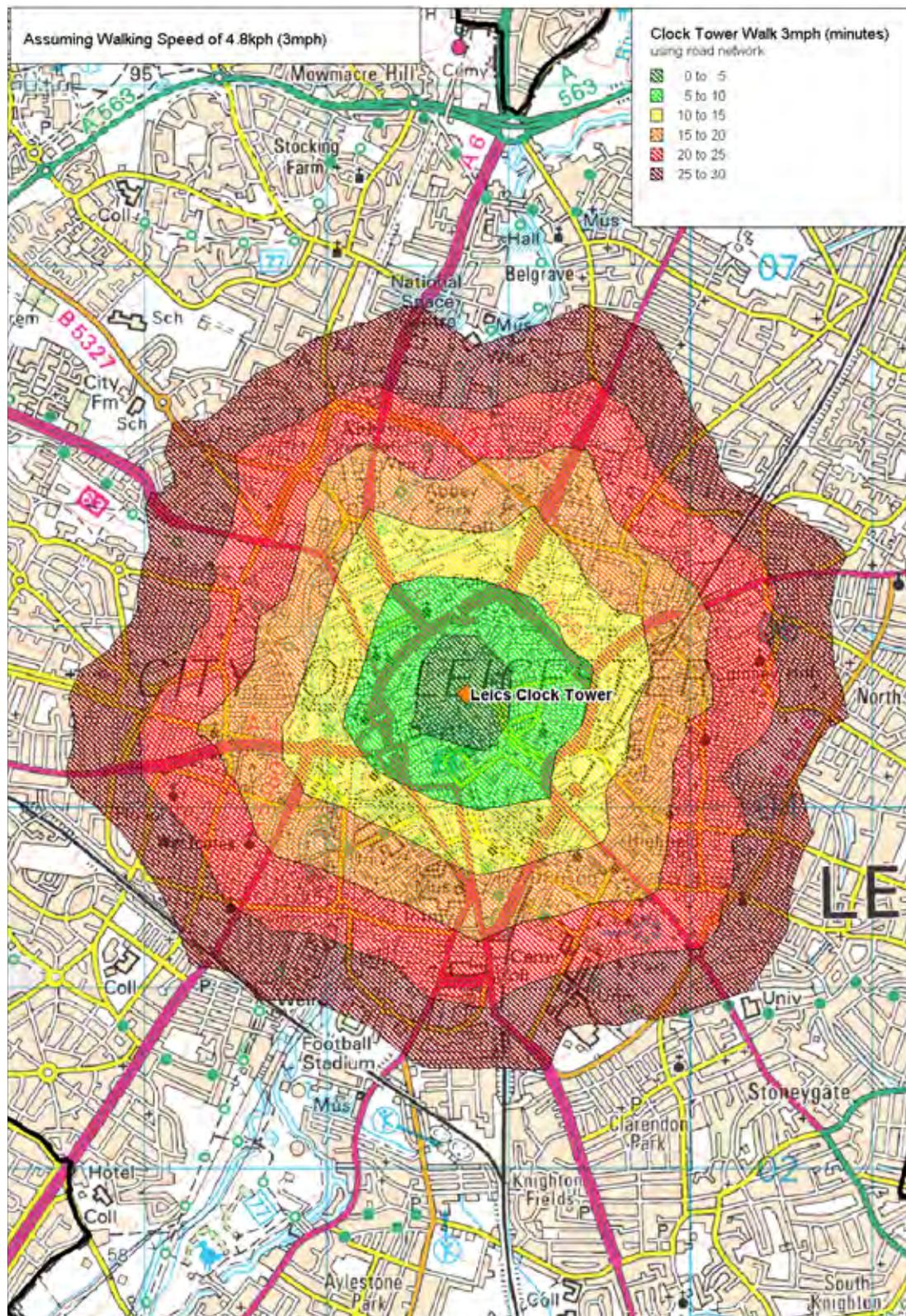
2.17 Maps 5.6 and 5.7 show 10 minute journey time contours from the Clock Tower in Leicester city centre for cycling and walking respectively.

Map 5.6 – Cycling Journey Times from the Clock Tower



2.18 Map 5.6 above shows that any part of the city can be reached by bicycle within 30 minutes from the Clock Tower.

Map 5.7 – Walking Journey Times from the Clock Tower



2.19 At an average walking speed the Clock Tower in the city centre can be reached within half an hour from places as diverse as the National Space Centre in the North, the Walkers Football Stadium in the South and Spinney Hill Park to the East.

Public transport, walking and cycling information

2.20 Examples of current information provision by the city council and others:

- » Central Leicestershire Bus Map - available on the LCC website, and as a hard copy leaflet from various city locations including New Walk Centre Customer Services, libraries, tourist information, universities, shopping centres and the bus station.
- » Various Bus Timetables - for supported bus services, these are mainly available at the bus station and from the bus operator travel shops.
- » Bus Stop Timetables - provided in some of the city centre shelters, mainly Haymarket and Causeway Lane.
- » Traveline - online and telephone bus information, provided nationally with a contribution made by the city council.
- » Real time bus information system - supplies on street, internet and text \ messaging information on next bus arrival times.
- » Bespoke point to point Leicester Public Transport and Cycling (and other modes) maps and routes are available at the Transport Direct website.

2.21 When providing information it should be remembered that Leicester has high levels of poor literacy (reading and writing in English) – 68% compared to the national average of 56%. This means that approximately two-thirds of residents cannot read or write English easily.

Accessibility and Employment

2.22 Research produced by Experian in September 2009 concluded that Leicester ranked 311th out of 324 Local Authority Areas in terms of the 'people' theme (based on workforce qualifications, earnings and employment occupations). 23% of Leicester City's working age population have no recognised qualifications, which is nearly twice the Great Britain figure (12.3%). Conversely, only 22.3% of Leicester City's resident workforce has a degree level qualification compared to 30% in Great Britain. Earnings for Leicester City residents are well below national levels and there are fewer Leicester City residents working in managerial and professional occupations than is the case nationally.

2.23 In February 2010, there were 41,710 key benefit claimants in Leicester City (20.2% of the working age population) which is a much higher proportion than seen nationally (15% in Great Britain). In some city wards such as New Parks, about a third of the working age population are claiming out-of-work benefits. More recent Job Seekers Allowance claimant figures for August 2010, show that the unemployment rate in Leicester is 5.7% compared to 3.6% in Great Britain. The following wards have male JSA unemployment rates in excess of 10%: Abbey, Beaumont Leys, Braunstone Park and Rowley Fields, Charnwood, Eyres Monsell, Freeman, New Parks and Spinney Hills.

2.24 The implications for transport planning are that jobs demanding higher level skills are likely to be taken by those residing outside the city boundary who will commute into Leicester. As the economy continues to restructure and become increasingly knowledge-based, this situation could become more marked. The up-skilling of residents, particularly those from the most deprived areas, amongst new communities and those currently out of work, is critically important and considered a priority.

2.25 Only 57% of working age females in Leicester are currently in employment. This could suggest a need for more flexible working opportunities, appropriate training and progression. Transport provision may also be important in terms of increasing female participation in the labour market.

2.26 At the Leicester and Leicestershire sub-regional level, following the boom in employment in 2006 and 2007, overall numbers in full-time employment are forecast to decrease from 413,700 in 2008 to 404,000 in 2016 (based on Experian forecasts). The Annual Population Survey provides information about where residents who are employed are working and where the workforce of a specific area actually lives. This information is useful in assessing levels of self containment and high level commuting patterns.

2.27 In terms of residence self containment, 82%¹¹ of those living in Leicester actually work in Leicester. This represents a very high level of self containment and is higher than the other East Midlands cities of Nottingham and Derby. Table 5.2 (below) shows where Leicester residents work; 82% work in Leicester and a further 12.6% work in the surrounding county area. Very few Leicester residents are commuting out of the sub-region (less than 1% to both Nottingham and Northamptonshire). Analysis done by the Office for National Statistics suggests that there has been no significant difference in the percentage of Leicester residents working in each of the areas shown between 2001 and 2008.

Table 5.2 - Where do Leicester residents work?

Area of work	Proportion of residents working in this location
Leicester	82.4%
Charnwood	2.8%
Blaby	2.4%
Harborough	2.3%
Hinckley and Bosworth	1.6%
North West Leicestershire	1.4%
Oadby and Wigston	1.4%
Nottingham	0.8%
Northamptonshire	0.8%
Melton	0.7%

Source: APS, 2008

¹¹Confidence interval around this data is + or - 3%

2.28 Workplace self containment looks at where those working in the city of Leicester actually live. This shows that 54%¹² of Leicester’s workforce lives in Leicester and 46% of the workforce lives outside the city itself. This indicates that Leicester is less workplace self contained than it is residence self contained. It is, in effect, an employment hub attracting workers from the surrounding area. The majority of those commuting into Leicester live in Leicestershire (35% of Leicester’s workforce). This is not statistically different to the situation in 2001.

Table 5.3 - Where does Leicester’s Workforce live?

Area of residence	Proportion of Leicester’s workforce living in this location
Leicester	53.8%
Leicestershire	35.0%
Nottinghamshire	2.8%
Warwickshire	2.0%
Northamptonshire	1.2%
Nottingham	0.6%
Rutland	0.5%
Coventry	0.5%
Derby	0.4%

Source: APS, 2008

The table below provides more detail on the 35% Leicestershire figure.

Table 5.4 – Breakdown of Commuters from Leicestershire

Area of residence	Proportion of Leicester’s workforce living in this location
Leicestershire	35.0%
Blaby	12.8%
Charnwood	6.4%
Oadby and Wigston	6.2%
Harborough	3.7%
Hinckley and Bosworth	3.7%
North West Leicestershire	1.4%
Melton	0.7%

Source: APS, 2008

2.29 Analysis of earnings data suggests that many of those in the high earning jobs are commuting into the city from Leicestershire and further afield. As the economy becomes more “knowledge based”, this situation could increase the pressure on transport networks if people wish to commute into the city during peak periods.

¹²Confidence interval around this data is + or - 3%

- 2.30 Reducing worklessness is more complicated than simply using a transport resource to match up areas of greatest unemployment with available jobs. Other common barriers for people to get back into work include lack of flexibility of employers (for example, around carer responsibilities), ensuring that work pays, low levels of skills and access to training. However, problems with transport can prevent people from attending interviews, reduce their travel horizons and result in their turning down jobs. A survey carried out for the Social Exclusion Units report into links between transport and social exclusion showed that 38% of jobseekers said that transport (lack of personal transport or poor public transport) was a barrier to getting a job. This is particularly the case for people living in low-income areas and 16-25 year olds.
- 2.31 In the recent Leicester and Leicestershire Business Survey (December 2009) 12% of businesses in Leicester indicated that 'employees getting to and from work by car' was a problem for them. Getting to work by public transport was a problem for 13% of business located in Leicester city and for 19% of businesses located in Leicestershire. 19% of businesses in Leicester said that car parking for their employees was a problem. However, businesses were more concerned about traffic congestion, with 25% of city based businesses indicating this was a problem. When taking into account all business concerns, businesses are much more concerned about financial issues and finding customers than transport related concerns.

3. Appraising the Options

- 3.1 Option assessment described in chapter 3 demonstrated that many options could be considered to form part of our Accessibility Strategy (such as Public Transport Routing, Public Transport Development, Bus Stations and Interchanges and others) but many were identified to form part of our congestion and road safety and active travel strategies and have been appraised in those strategy chapters. The options identified for appraisal are:

Working with Partners to improve accessibility

- 3.2 A key aspect of Accessibility Planning is the need to work in partnership – at appropriate levels - with stakeholders to deliver solutions and maximize opportunities to solve local access issues.

Working with Partners – access to Health

- 3.3 We work with colleagues in different tiers within the Health Sector to address accessibility issues; this ranges from improving co-ordination of health promotion, contributing to the Older People's Strategy, to developing travel plans and providing Demand Responsive Transport.

Working with Partners – access to Education

- 3.4 Currently we are providing children with free transport to school when the student is placed at the nearest maintained school where the distance measured from home to school is in excess of the statutory two miles for under eight year olds

and three miles for those eight year olds and over. This requirement excludes independently run schools and colleges. Where a student takes up a school place in excess of the above distance as a result of parental preference being expressed, then no assistance will be provided unless special circumstances apply.

- 3.5 We work in partnership with individual schools via our Road Safety Team and their School Travel Plan in identifying areas of concern to be improved by Safer Routes to School schemes. This work may include 20 mph zones/areas, new/upgraded pedestrian or dual use crossings, traffic calming and improved pedestrian facilities in the area, to benefit all local residents. All schools now have level access bus stop facilities at their nearest stop to improve accessibility for parents with child buggies, or those with other requirements. The Road Safety Team work in partnership with individual schools to offer free pedestrian and cycle training to all Primary Schools. Specifically this is the 'Feet First' pedestrian training for year 2 students and Bikeability Level 1 and 2 Training for years 5 and 6.
- 3.6 The Leicester Post 16 Transport Partnership ensures that no post-16 student is prevented from entering or continuing further education through lack of transport. In order to ensure good quality cross boundary links, Leicestershire County Council is represented on the city Post 16 partnership and vice versa. The Partnership consists of representatives from:
- » The CYPS (Children's and Young People Services): The CYPS provides universal access to childcare and to primary, secondary and special education.
 - » Special Educational Needs (SEN) Transport Service.
 - » Connexions: provides information and advice to 13-19 year olds to help them make a smooth transition to adulthood and working life.
 - » Further Education and Sixth Form college representatives: service delivery providers.
- 3.7 Initial work in the Partnership concentrated on qualitative service user data collection. Research showed that transport considerations were not important to mainstream students in the city in determining their learning location for Post 16 study. Students who left their college course part way through the year also told us that transport problems were not seen as a major factor in their decision. However, there was a lack of awareness of transport services and products (particularly bus passes) available. It has been encouraging that our Post 16 education providers have identified transport information as an area in which to expand their collaborative working.
- 3.8 The following initiatives are on-going, improving access to learning for students:
- » Real Time Passenger Information display boards in colleges.
 - » Improving bus service information available to students to raise awareness of services so students can make informed transport choices at the course ap-

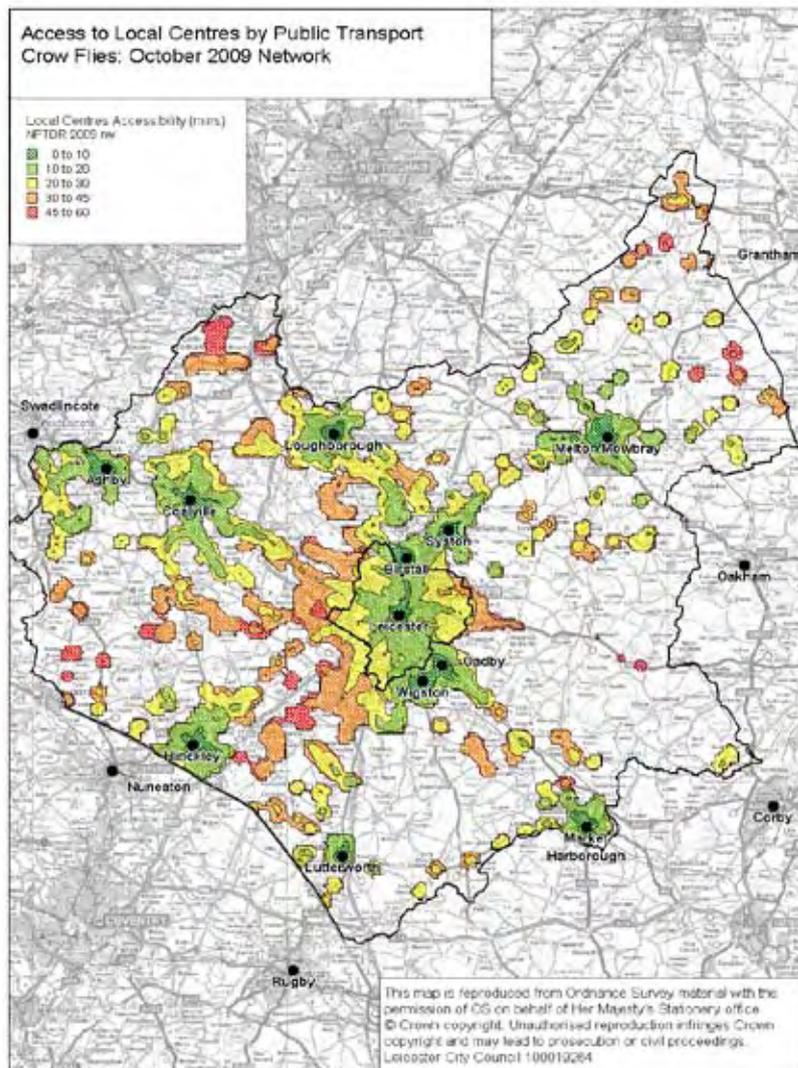
plication stage. This is currently done through Partner websites and college literature.

- » Providing mobility training for disabled students through an interactive theatre company, followed up by practical travel training so they can learn to plan routes and travel independently.

Working with Partners – access to Food and Retail

3.9 What we eat is central to our health throughout life. Good nutrition through adult life helps protect against diabetes, coronary heart disease, stroke and some cancers. Through joint working with the county council, we have considered access to a relatively small number of main centres across Leicester and Leicestershire that provide a high concentration of essential facilities that local people depend on. Through work with our partners, we agreed a definition of a main centre as one providing: a large food store or choice of shops selling healthy competitively priced food, further education at a college or sixth form and a post office, bank branch, building society and chemist. The mapped access time contours are shown on Map 5.8. Nearly all residents of Leicester can access a main centre by public transport within 30 minutes or less.

Map 5.8 (Access to Local Centres)



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Working with Partners - Taxis

- 3.10 Around 14,000 journeys are made each week from the city's five main ranks. Taxis play a key role in providing interconnectivity between modes by filling in gaps in public transport services and offering a flexible, accessible door-to-door service. They have an essential role in the night time economy when other forms of transport are not available. The fleet of 338 hackney carriages are all wheelchair accessible with a range of designs to cater for different mobility needs. Our aim is to improve the provision of ranks and investigate the use of innovative systems to manage the use of ranks taking into account customer need, balancing supply around the city centre and minimising the need for kerb-side space.

Campaigns

- 3.11 Leicester City Council participate in a wide range of campaigns promoting access via bus, cycling and walking. See Chapter 4 for more details. Consultation for this Local Transport Plan clearly shows that whilst satisfaction with the bus services in Leicester are generally high, the experience for people with disabilities and particularly those with learning disabilities can be stressful due to other passengers attitudes and also when bus drivers do not understand or realise that some passengers need more time, patience and guidance in getting on and off buses.

As a result of this, we will be working with the bus companies to provide posters for the buses and training for the drivers as part of the 'Stamp It Out Campaign'. Stamp It Out is a community led partnership with all partners committed to stamping out all forms of hate incidents and crimes to make Leicester a safer place for people to live, work and socialise.

Similarly, results of consultation over the course of LTP2 with disability groups has shown that walking in or close to areas where people are cycling can be stressful. We have along with DeMontfort University and RNIB, developed a poster campaign called 'Social Cycling' for the city centre poster sites and the university building to make cyclists more aware of the stress they can cause to the pedestrians that they are cycling amongst.

Public Transport Focused Developments

- 3.12 This involves organising the location and mix of land use types to suit public transport use. This includes land use planning. All new developments will be designed to be accessible on foot, by bike and by public transport as well as by car. As part of the councils Strategic Inclusive Design Aims we aim to:
- » Make places (and specify products) that everyone can use safely, easily and with dignity
 - » To remove (and not create) barriers that cause undue effort or separation
 - » To enable everyone to participate equally, confidently and independently in everyday activities

- » To achieve these aims through a clear commitment to achieving best practice, rather than minimum standards

See **Chapter 4** for more details.

Land Use Measures

3.13 See Chapter 4 for more details.

Buses

Working with Partners – Buses

3.14 We work with the bus companies through the Quality Bus Partnership (QBP) and we will also be working with disabled groups to help them in accessing and using public transport. See **Chapter 4** for more details.

Bus Stations and Interchanges

3.15 Bus stops are currently located in concentrated pockets spread around a large part of the city centre leading to a lack of kerb space for buses, crowded pavements, road traffic accidents and potential long walks between stops for interchanges. A new bus station and/or improved interchanges would help to significantly reduce some or all of these problems.

3.16 Interchanges are important gateways to Leicester with around 840 local bus departures from St. Margaret's Bus Station and around 11,500 people passing through Leicester railway station everyday. Easy interchange makes more complex journeys easier to achieve and market. Interchanges raise a number of issues including: the location of bus stops for connections on to local bus services, quality of waiting facilities, lack of information, through ticketing, insufficient car and cycle parking, operation of the taxi ranks, security and safety of pedestrian routes and pedestrian signing. Having many of these facilities nearby helps to reassure passengers, particularly when they are in unfamiliar locations.

3.17 St. Margaret's Bus Station is currently served by 24 different coach services to other parts of the country including Yorkshire, London, Birmingham and the South West (over 30,000 departures in 2009/10). Many more destinations are available through changing in Birmingham. Both council contracted and commercially operated bus services use the bus station with over 48 different services making over 211,218 departures each year (2009/10 figures). Consultation shows that opinions about St. Margaret's Bus Station have improved since the refurbishment in 2007. Other improvements since then include the installation of cycle racks inside and outside the station, improved signage and information both inside the station and directing you to the station. However, many people also see the bus station as being remote from the city centre; this is important as walking (primarily from the city centre) is the main method that people use to access the bus station.

3.18 We therefore plan to continue our partnership work with bus operators to improve the interchange at the bus station as and where appropriate taking into account user feedback.

Bus Fares

3.19 Between 1997 and 2009 bus fares have increased by 24% in real terms (nationally) compared to a 14% fall in motoring costs in real terms (note that this is principally due to the fall in cost of purchasing a motor vehicle, which halved in the twelve years from 1997. Vehicle running costs have increased by 24%, as with buses, over the same period). Rail fares have seen a real terms increase of 13% over the same period. In the Comprehensive Spending Review (CSR), October 2010, the government said that, including concessionary travel, overall they will make 28% savings from local transport revenue funding, in line with the wider revenue savings that the department is making from its overall budget for transport.

Bus Fares - Concessionary

3.20 Also, from 2012/13, the DfT plans to make a reduction in the subsidy paid to bus operators by reducing the rate at which subsidy is paid by 20%. This could cause bus operator costs to rise and a corresponding increase in bus fares.

3.21 The government is committed to protecting the England-wide concessionary travel scheme for older and disabled people. So while it has identified substantial efficiency savings in this area, they are focused on the way the scheme is administered, rather than on the benefits received.

3.22 In the wake of the CSR the DfT has said that the current non-statutory arrangements that enable long distance coach operators to claim Bus Service Operators Grant (BSOG) in return for offering a half-price concession to older and disabled people will be ended by October 2011, although the industry may wish to continue to offer this on a commercial basis. This does not in any way affect the statutory national concession which offers free travel on local bus services throughout England.

3.23 Difficulties in access for disadvantaged groups result from a combination of availability and affordability concerns. We currently have a comprehensive countywide scheme of concessionary travel for elderly and disabled people. This offers half-fare travel well above the minimum standards defined by government and free or flat-fare travel passes for people with some types of impairment. We regularly review the scheme to ensure that there are no barriers to eligible people claiming concessions. From April 2008 people over 60 and eligible disabled people have been able to travel for free on any local bus service in England after 9:30am. In addition to the free scheme we have continued our current concessions of a half-fare scheme that is free of time or geographical restrictions within Leicestershire for OAPs, and free travel before 9:30am for Leicester disabled passholders.

3.24 For some patients, the cost of travel to hospital can present difficulties. Financial help is available under the Hospital Travel Costs Scheme (HTCS), to those patients who do not have a medical need for an ambulance, but who cannot meet the cost of travel to hospital. Patients (and where considered medically necessary, their escort) in receipt of certain benefits are entitled to reimbursement of

travel costs to hospital. Costs are calculated on the basis of the cheapest form of public transport available to the patient. Patients travelling by private car may claim for petrol instead (and car parking charges where unavoidable). We will work with colleagues in the NHS to promote this valuable scheme to those who would benefit from it.

- 3.25 Consultation told us that the costs of travel can be a barrier to accessing higher education, particularly for lower income households, despite the eligibility of many to receive an Educational Maintenance Allowance (EMA) of up to £30 per week (scrapped in the October Comprehensive Spending Review, but date of demise not yet known). However, post 16 students with severe learning or physical disabilities are entitled to free travel (after payment of a £160 contribution charge) using a suitable method (e.g. bus pass, specialist vehicles, taxis etc.) depending on their needs. The £160 annual cost of a bus pass is waived for post 16 students living in a family receiving certain benefits. Leicester College – the largest Post 16 education provider in the county – issues bus passes to students directly. Those who are not eligible for a bus pass under the three mile rule are encouraged to appeal against the L.A.'s Transport Policy.
- 3.26 However students can be awarded a bus pass by the college, at the college's discretion. This is funded by the college's learner support fund, with the student / family making a contribution if they are not in receipt of a means tested benefit. Bus passes are not normally allocated to students who live less than one mile from their college, as they are judged able to walk. Increasing pressure on college learner support funds has prompted our Post 16 transport partnership to consider affordability issues through reviewing the suitability of the existing rigid 'three mile rule' for bus passes. We are now reviewing our subsidy to the post 16 bus pass. We are also reviewing our discretionary wavering for those on benefits.
- 3.27 We also fund the 'Travel Aid' scheme where a fee of £1 entitles an unemployed person to claim half-fare bus travel for a four-week period. This works to supplement the National (English) Concessionary Travel Scheme which provides free off-peak bus travel to all eligible older and disabled people. The Travel Aid scheme is discretionary and receives no specific Government funding. The total cost of the Concessionary Travel Scheme exceeded £8.5m in 2009/10 and continues to put pressure on council finances, but thus far the non-statutory additions which the city fund have been able to be continued (rail and pre-0930 concessions). We recognise the importance of the Travel Aid Scheme to users, and have been successful in being able to continue funding it.

Ticketing

- 3.28 The increased availability and functionality of bus tickets through the use of such things as Smart Ticketing technology and Through and Off-Bus Ticketing has the potential to improve accessibility. Further details can be found in Chapter 4.

Park and Ride

3.29 Park and Ride improves accessibility and provides an alternative to car travel. Further details can be found in Chapter 4.

Bus Corridors

3.30 See Chapter 4 for more details.

Public Transport Routing

3.31 See Chapter 4 for more details.

Bus Information

3.32 Our bus information strategy, agreed with bus company partners, recognises the need for high quality information, properly updated and delivered through a variety of media. The key commitments in the bus information strategy are to:

- » Maintain the bus services database for the Traveline telephone and on-line enquiry service, with full contribution to the costs of these.
- » Provide and distribute high quality timetable leaflets.
- » Provide full guides to the hourly services network, one for the whole county and one for Central Leicestershire.
- » Provide guides to the services in main urban areas, delivered door to door at six-monthly intervals.
- » Provide and maintain bus-stop displays at all main bus stops; all new JC Decaux bus shelters include provision for bus service information.
- » Provide permanent on-street displays giving comprehensive local bus information in all major town centres and in all railway stations.
- » Provide data for the national Transport Direct initiative.

3.33 The 2008 National Place Survey found that 68% of people in Leicester were very or fairly satisfied with local bus services (compared with 56% in the East Midlands region as a whole and 55% nationally) and 54.5% were very or fairly satisfied with local transport information (compared with 48% across the East Midlands and nationally). We have joined an agreement with bus companies and local authorities across the East Midlands to change bus timetables on only six standard days each year. This helps to ensure effective publicity for changes and to reassure customers, particularly those with learning difficulties.

Bus Stops

3.34 Ensuring that the positioning of bus stops, and the access to / from them are well lit, safe, and minimise walking times for passengers is a key element of our accessibility work. We will work with the QBP and the police to identify bus stop improvements (such as improved signing and information) and implement as finance allows. Provision of high quality bus stops is relatively inexpensive, particularly as part of a larger highway improvement scheme and hence we will continue this option as part of our Accessibility Strategy.

Bus Stops - Level Access Bus Stops

3.35 We will implement raised kerbs at stops, primarily in parallel with our bus corridor projects, but we will also invest elsewhere where low floor buses are used giving priority to routes operating within and through our priority areas.

Buses/Services – Low Floor

3.36 Raised kerbs at bus stops on routes served by low-floor buses make it easier for everybody to get on and off buses, but they are particularly useful for those with mobility impairments or parents with children in buggies. On their introduction the low floor easy-access buses were the most noticed element of bus service enhancements, and this positive response was confirmed by comments made at our ward meetings and focus groups, particularly among the elderly and bus passengers with buggies. Around 79% (in 2008/09) of Arriva and First's buses operating in Central Leicestershire are low floor vehicles. We will therefore continue to improve accessibility by ensuring that investment in level access bus stops, dropped kerbs, widening or providing new footways, improving traffic signal crossings and providing information in alternative formats continues in parallel with the upgrading of bus fleets operating in Central Leicestershire to low-floor specification.

Buses/Services – Contracted/Supported services

3.37 Earlier/later opening hours do make services more accessible, especially if (where there is a need) pre-determined appointments are made around availability of public transport. City council transport planners will continue to work with service providers as and where appropriate to try to ensure services are provided at times when they are accessible to service users from a transport perspective. Whilst funding new local bus services is beyond city council resources in the current economic climate our experience shows that we should continue to seek funding opportunities to “kickstart” new services when appropriate.

3.38 We have experience of using local bus services to improve orbital movements with a successful bus route initiated under the Urban Bus Challenge scheme in Braunstone. We currently support the hourly Outer Circle service, at a cost of around £246,000 a year and the Inner Circle at a cost of around £178,000 per annum. There is clearly a demand for orbital services in Leicester (100,000 journeys a year were made on the Outer Circle in 2009/10) but any additional funding is unlikely in the current financial situation, unless external funding can be found.

Continuing to support these services should still provide better value for money and capacity than demand responsive or taxi based alternatives.

3.39 The city council supports many evening and Sunday bus services on routes operated commercially during the main part of the day. These services have an important role in providing access to work for part-time and shift workers (and to leisure activities) but they are costly to subsidise. Bus services are more expensive to operate at these times and they are relatively lightly used. We also support school services for non-statutory entitled school children.

These routes are designed to complement the commercial bus network, while providing for journeys that are most likely to be undertaken by car should the direct bus service not be available. Within the city, we regularly review our bus service support criteria, with a view to maximising the targeted access they provide within resources available.

Maps – Bus Maps

3.40 We regularly update and publish the Central Leicestershire Bus Map, which shows all the main bus routes in Central Leicestershire and provides details of which buses stops they use in the city centre. See Chapter 4 for more on maps.

Photo 5.2 Interchange facilities - London Road Railway Station



Rail

3.41 Leicester is on a rail crossroads, with north-south links being provided by East Midland Trains (Sheffield - East Midlands - London) and east-west links by Cross Country Trains (East Anglia – East Midlands – West Midlands and beyond).

3.42 We have made real progress in tackling interchange issues at the railway station through improving map-based public transport information, re-developing the central reservation on the dual carriageway outside the station to include a new city-bound bus stop as shown in [Photo 5.2](#) and improving the quality and directness of the walking and cycling routes from the city centre via Granby Street to the station (completed in 2010). We plan to continue our partnership work with the rail industry and Prospect Leicestershire to help bring about the “New Business Quarter” at the rail station area and improve interchange at the railway station further. See Chapter 4 for additional information on rail.

Cycles - Working with Partners - Cycling

- 3.43 Community bike enterprises such as Bikes4all and Cyclemagic aim to get people of all ages cycling.

The project recycles bikes donated by the public and corporate sponsors and offers training, activities and services which have a positive impact on the whole community. Leicestershire Constabulary has been working with the city council to re-use stolen bikes which are unclaimed.

The idea began in September 2003 to prevent bikes going to landfill when they could be refurbished and donated or sold to families in deprived areas.

The bikes are used during Bikeability training to provide bikes for children who don't already own a bike in order that they can still benefit from the training.

This is a community project working with volunteers and provides an invaluable service for little cost.

Cycles – Cycle Routes and Lanes

- 3.44 We use our accessibility planning work and feedback from consultation to identify “missing links” in the network that, if completed, improve accessibility to key services. Such links can often be relatively inexpensive to provide yet produce many benefits in terms of improving health and reducing car exhaust emissions. In fact (based on evidence from the Cycle Demonstration Towns) the Cost Benefit Ratio for cycling infrastructure is 1:3 (and that is without taking account of the health benefits in the calculation, when they are included the ratio is much higher). Hence, providing and maintaining well surfaced, lit and signed links to schools, local shops, health care facilities and employment areas – both through footways, crossing points and the networks of public Rights of Way and permissive paths owned by the council - will continue as part of our Accessibility Strategy.

Monitoring of the integration of cycling into the pedestrian priority zones created in the city centre in 2008 has shown that cycling numbers have doubled within a relatively short space of time. However, whilst cyclists are generally very happy with the new zones some pedestrians are not, particularly those with visual or physical impairments. If funding permits then a study will be undertaken which will look into the success or otherwise of cyclist integration in the pedestrian priority zones.

- 3.45 Results from monitoring of the integration of cycling into the pedestrian priority zones created in the city centre in 2008 have shown that cycling numbers have doubled and that both cyclists and pedestrians are generally happy with allowing cyclists within the zone. Therefore, integrating cycling within urban regeneration schemes should be continued.

Cycles - Advanced Stop Lines

3.46 Continue to work to provide on carriageway facilities for example 'advanced stop lines' at junctions. Full width lanes should be the first preference; however virtual cycle lanes (coloured surfaces without the use of white lines) could be considered where there is insufficient width.¹³

Cycles - Cycle Parking

3.47 The Leicester city centre Car Parking Strategy Supplementary Planning Document (SPD) outlines areas where there is currently the greatest demand for car parking spaces and also looks towards future demand such as:

- » The New Business Quarter and other Strategic Regeneration Areas
- » Around the railway station/bus station interchanges

Cycle hubs which include parking and cycle hire should be provided in these locations along with other frequently used sites e.g. Highcross, the universities and the UHL Trust.

Opportunities to provide cycle parking should be taken throughout all areas of the city, particularly where local facilities are provided (e.g. doctor's surgeries).

Cycle parking has been provided at major events in Leicester for a number of years. Not only does it provide a service, and means that cycling can be publicised as a way of travelling to the event, but it also forms a monitoring tool.

Cycles - Cycle Hire Schemes

3.48 The London Barclay Bike Hire Scheme could become the first public transport system to make a profit. TfL aim to expand the scheme. However, setting up the bike hire scheme is set to cost £140m over six years. TfL expect it will cover its operating costs within two to three years and will then be able to contribute to its implementation costs.¹⁴ Paris Velib bike hire is also expanding and making a profit.

Leicester's Smartcard for use on public transport could have the capacity to be used as cashless payment for Cycle Hire Schemes. Consultation with various groups both cyclists and non-cyclists have put the provision of bike hire as desirable. Therefore, the Cycle Hire Scheme is a long term option for Leicester's LTP3. The cost of providing a bike hire scheme will be unaffordable for the first years of LTP3. However, during this time we will be investigating the strength of the business case.

¹³Advanced stop line research study, Atkins, May 2005

¹⁴Guardian.co.uk

Maps – Cycle Maps

3.49 An area where Leicester has under performed throughout LTP2 has been in the provision of mapping and signing of cycle routes. Feedback from many cycling stakeholders and in particular from the pilot Personalised Travel Planning Team has been that the lack of mapping and signs are preventing the uptake of cycling.

A new printed map should be available in January 2011 via bike shops, city council outlets and Ride Leicester events. Bespoke point to point Leicester Public Transport and Cycling (and other modes) maps and routes are currently available at the Transport Direct website.

3.50 Main roads can act as barriers reducing peoples travel horizons. We receive many requests from the public to install new crossing facilities to enable safe access, to health centres for example, and these are relatively low cost, say £30,000. Providing safe, easy to use crossing points is therefore important in increasing the accessibility of facilities, either to a bus stop for an onward journey or to a final destination itself. Provision of pedestrian and cyclists crossing facilities are relatively inexpensive to provide, particularly as part of a larger highway improvement scheme and hence we will continue this option as part of our Accessibility Strategy.

3.51 We will prioritise the continuation of improving cycling and walking access over the ring roads and the completion of the green ringway orbital cycle route. We will also look for improved links between the universities, University Hospitals Leicester (UHL) and existing and proposed transport interchanges.

Maintenance – Footways and Cycle Routes

3.52 Chapter 9 includes details of our roads and footways maintenance strategy which aims to focus on improving the condition of the footways to maximise the contribution that they can make in helping us improve accessibility using footways particularly for less mobile people.

Major Road Improvements (over £2m)

3.53 Junction improvements can facilitate easier access for pedestrians, cyclists and vulnerable road users. See Chapter 4 for more details.

Car Schemes

3.54 See Chapter 4 for details.

Variable Message Signs

3.55 Variable Message Signs (VMS) are digital road signs used to inform car drivers about specific temporary events and real-time traffic conditions. The aim of using VMS is to provide drivers with mandatory and/or advisory information at the roadside. See Chapter 4 for more details.

Training – Independent Travel / Valuing People

- 3.56 The “VALUES – Travel Training” Project under Voluntary Action Leicestershire (VAL) is focussed on people with learning disabilities and has a number of different programmes under it which focus on volunteering and employment and now travel training. They support both young people and adults and are mainly funded via the council but have had independent charitable funding as well.
- 3.57 An integrated travel training strategy will be developed over the coming year. Leicester City Council employs a travel buddy - someone that trains people with learning disabilities how to travel independently using public transport to get to and from different destinations (e.g. home to work). The uniqueness of this post is that it is a person with a learning disability who is training other people who also have learning disabilities, and therefore provides peer-to-peer mentoring. This is more empowering for the individual being trained and has created an employment opportunity for someone with a learning disability rather than this role being undertaken by a non-disabled person.
- 3.58 Learning Disability awareness training was delivered to bus drivers during 2008/09 as part of the Special Olympics. An ongoing programme of training needs to be developed in partnership with the bus companies that will cover all vulnerable groups.

Traffic Management – Network Management Leicester’s Rights of Way Improvement Plan (RoWIP)

- 3.59 As public highways, we have recognised the significant contribution that rights of way can make to the high level objectives of the Local Transport Plan and the council’s wider agenda in particular to help improve accessibility. Rights of way are a key ingredient in the development of our integrated transport network. We have carefully considered our Local Transport Plan objectives and the feedback from our Local Access Forum and have developed our high level policy statement that reflects how the development of our rights of way network is embraced by and integrated with our Local Transport Planning process.

The council’s RoWIP policy statement:

‘Leicester City Council aims to manage, improve and promote its rights of way network, within and around the city, to facilitate non-motorised access to services and to provide leisure and recreational opportunities to all residents of and visitors to the city’

- 3.60 We have developed five high level objectives to ensure alignment with our Local Transport Plan and to help guide the development of our RoWIP.
- » Reduce Congestion, Reduce Carbon Emissions, Improve Air Quality and Reduce Noise – We will develop and maintain our rights of way network to assist in achieving this objective by facilitating proportionally more walking and cycling trips on the rights of way network.

- » Improve Accessibility and Connectivity– We will improve access to everyday services, places of work, schools, leisure and shopping by extending the rights of way network to improve links from residential areas to such services.
- » Improve Safety, Security and Health – We will help improve people’s health and well being and continue to reduce the number of people killed or hurt on the road network by attracting proportionally more trips to be taken on the rights of way network by extending and promoting the rights of way network.
- » Manage to Better Maintain Transport Assets – We will continue to improve the condition of our rights of way network and make it easier to use by improving our inspection and maintenance regimes.
- » Quality of Life – We will take every possible opportunity to improve, extend and promote our rights of way network through the land use and transport planning processes to provide the highest possible quality leisure facilities for walkers, cyclists, equestrians and disabled users.

Legal Requirements of the RoWIP

3.61 Leicester City Council, as with every other highway authority specified within the legislation, has a requirement, under section 60 of the Countryside and Rights of Way Act 2000, to publish a Rights of Way Improvement Plan. The council shall then, not more than ten years after first publishing it, review the plan and decide whether to amend it.

The Rights of Way Improvement Plan shall include an assessment of:

- i The extent to which the rights of way network meets the present and likely future needs of the public.
- ii The opportunities provided by local rights of way for exercise and other forms of open-air recreation and the enjoyment of the area.
- iii The accessibility of local rights of way to blind and partially sighted people and those with mobility difficulties.

3.62 It should also include a statement of the action the authority intends to take for the management of local rights of way and for securing an improved network, with particular regard to the matters dealt with in the assessment.

Leicester’s First Rights of Way Improvement Plan

3.63 Leicester’s first RoWIP was published in October 2007. It was integrated within the Central Leicestershire Local Transport Plan 2006 to 2011. The third Local Transport Plan will be published in March 2011. The Leicester Partnership’s Sustainable Community Strategy, ‘One Leicester’, adopted in 2008, sets out a 25 year vision for the city. To ensure that the objectives of the RoWIP, the Local Transport Plan and One Leicester are reflected within each other it has been necessary to revise the RoWIP.

3.64 The first RoWIP resulted in a number of major improvements to the rights of way network. These improvements included:

- » The resurfacing of King William's Bridge, which carries a bridleway running from Castle Hill Country Park across the Rothley Brook towards the village of Anstey
- » The surfacing of a well used missing link which provides a direct link between surfaced paths leading to a large residential area and the Beaumont Shopping centre
- » Provision of street lighting on a path connecting the Great Central Way with Braunstone Lane East
- » Access improvements on embankment leading to a crossing point of Hamilton Way
- » A threefold increase of the total length of paths recorded on the definitive map and statement
- » Exceeding targets set for measurement of service under BVPI 178 and CL 19

3.65 In August 2008 Natural England published an evaluation of RoWIPs which assessed if they were 'fit for purpose'. Leicester's RoWIP was included within the assessment and report for the East Midlands Region. The assessment concluded that our RoWIP met the requirements and was fit for purpose but was lacking in detail and content. It was also considered that the document was written in a 'technical, less accessible style' and it was noted that the structure was unclear and 'jumps about a bit'. Our assessment of the needs of disabled people was considered to be excellent.

3.66 The council's first RoWIP was awarded first place in the improving accessibility for all category of Natural England's ROWIP awards, held in March 2009. The award recognised the role played by our RoWIP in improving accessibility to the network.

Leicester's Second Rights of Way Improvement Plan

3.67 The need to progress with the production of the Definitive Map and to record the other paths which form the network but are not required to be shown on the Map is one of the key objectives of the RoWIP. A desktop survey was undertaken in November 2010 to gather known information on the full extent of the network. The findings are summarised below and highlight the level of unrecorded paths within the city.

The Definitive Map included:

- » 60km of footpaths
- » 5.5km of bridleways

In addition to these paths shown on the Definitive Map our List of Streets included:

- » 26.5km of footpaths
- » 6.5km of bridleways
- » 7.5km of Cycle tracks not associated with a carriageway

The following cycle tracks are shown on our cycling map but not recorded within either of the above documents:

- » 33km Cycle tracks associated with a carriageway
- » 19km Cycle tracks not associated with a carriageway

Finally a map based search was undertaken and the following paths were identified none of which have been included in the above:

- » 11.5km Towpath
- » 38km of paths in parks
- » 10.5km Other paths of unknown status

3.68 We have also identified that a number of well used paths within the city (in particular sections of the cycle track network) are unadopted. This is leading to issues with the condition of these routes as they are not subjected to the levels of inspection or maintenance which is enjoyed by those highways maintainable at public expense. The unadopted sections of the Great Central Way, which forms part of National Cycle Network 6, include a number of former railway bridges which need regular inspection. We plan to undertake these inspections during the next four years.

3.69 We will also seek better ways to report and respond to maintenance issues identified on the network. This may be achieved by increased inspections on various routes, the production of a schedule of features and engaging with known path users who will be encouraged to report matters requiring attention.

Leicester City Local Access Forum

3.70 The Leicester City Local Access Forum (Local Access Forum) has held regular meetings since its inaugural meeting in January 2005. The council is required, under the Countryside and Rights of Way Act 2000, to consult with their forum on the preparation of its RoWIP. The production of the second RoWIP has been discussed at formal meetings of the Local Access Forum and within an informal workshop requested by its members. The workshop was used to help members direct the council on the content and general direction of the RoWIP.

3.71 The RoWIP is recognised, by the council and the Local Access Forum, as being one of the most important areas in which they can make significant inputs. The Handbook for Local Access Forum Members, published by Natural England in March 2008, echoes this view and encourages forums to undertake a wider role in the implementation of the RoWIP.

Programme of Public Rights of Way Schemes

3.72 The production of a forward work programme is considered necessary to give forums a clear direction and purpose. The work programme of the Local Access Forum will be developed to match, as closely as possible, the programme of work to be undertaken within the RoWIP. This should ensure that advice issued by the Local Access Forum is relevant and meaningful. It should also help to monitor and encourage continual progress on the actions identified within the RoWIP.

Freight - FQP

3.73 Freight distribution is regarded as an important area for Central Leicestershire as an essential public service and as a key part of city regeneration and the creation of jobs. The Leicester and Leicestershire Freight Quality Partnership (FQP) was established in March 2000 in order to develop environmentally sensitive, economical and efficient ways of delivering goods in Leicester and Leicestershire. The FQP comprises members from the private sector, interest groups, Highways Agency and Authorities, Police and the Chamber of Commerce.

3.74 We have almost completed a programme of implementing clear and effective road signing of key freight areas around the city to reduce lost mileage and time and published a local freight map. This work has been backed up by surveys of companies on industrial sites in the city and freight collection/delivery drivers who work in and around the city. The main reasons for this investment (coupled with minor junction improvements identified in the survey) are to bring about an improvement in the efficiency of deliveries, minimise pollution through reducing lost mileage and ensure that freight vehicles use the most appropriate routes for their size.

3.75 Freight transport is an essential part of everyday life, spanning the distribution of a wide variety of fresh produce through to the delivery of heavy materials for industry. However, achieving a balance between freight transports' contribution to economic growth and protecting the environment and our communities from excessive noise and/or pollution will be a critical success factor within this Local Transport Plan. The core of our freight strategy is to continue to work to encourage more sustainable distribution through working in partnership with our established FQP. The current Government has indicated its intention to introduce lorry road user charging – HGV RUC, by April 2014. We will take any opportunity to be involved in the development and operation of HGV RUC so that we can input into the development of the scheme from a lorry and distribution perspective. We will keep the impact of any national scheme on our local freight strategy under review as the national scheme develops.

Dial a Ride

3.76 Current demand responsive transport ('dial a ride') will have an extended role to play in meeting the access needs for those who are unable to use conventional public transport, or where there is smaller demand. The current service provides for opportunities to travel from anywhere within Central Leicestershire to the city centre or other local shopping areas at least twice a week.

Motorcycles

3.77 Motorcycles offer economy (cheaper initial purchase and running costs), easier parking, reduced journey times and greater convenience when compared to the car. They also offer a cleaner alternative, but only if the journey was not previously made by walking, cycling or using public transport. Motorcycles are therefore particularly beneficial for journeys where walking and cycling are impractical and public transport is simply not available. However, motorcyclists make up a substantial number of personal injury accident figures in proportion to their use, but our analysis in the road safety chapter shows that the majority of these accidents in the urban area would appear not to be as a result of rider error. We will continue to provide secure parking facilities in addition to encouraging employers to consider the role of motorcycles in their travel plans.

3.78 As part of looking at development proposals development co-ordinators use the city council's Parking Standards Supplementary Planning Guidance to request parking for motorcycles (See SPD - Supplementary Planning Document). The provision of Powered Two-Wheeler (PTW) parking is then conditioned as part of planning approval. Transport assessments and travel plans should indicate the expected level of demand for PTW parking. As a minimum developers will be required to provide for safe, well lit and secure (including ground anchors) parking equal to 5% of the number of parking spaces provided. If possible these facilities should be undercover. Travel plans approved as part of development can include targets for modal share for motorcycles and scooters (powered two wheelers - PTWs).

Parking - New Off Street

3.79 There has been a recent increase in the number of surface level car parks in the city centre which has encouraged more people to drive into the centre rather than use alternative modes of transport. An increase in car parking spaces, while increasing accessibility for car users, has detrimental effects on all our other goals (congestion, carbon emissions, air quality and safety) as it leads to an increase in the number of cars entering the city centre. This is our lowest scoring policy option and we will not be pursuing it as an active policy.

4. The Accessibility Strategy

4.1 In earlier sections, we looked at the current and future situations and we have appraised the options. All the options appraised in Section 3 have their merits and contribute to the promotion of equality of opportunity. Whilst we recognise the importance of an effective transport system that promotes, encourages and enables the use of sustainable modes of travel to promote equality of opportunity we acknowledge that we will not be able to afford them all. We have therefore prioritised these options relative to their appraisal score in combination with a realistic assessment of their benefit cost, affordability and deliverability.

We also need to consider options set out in the other chapters. It is likely that added benefit can be gained if we are able to combine various individual policy options into cross cutting deliverable packages.

Our strategy therefore needs to be realistic with regard to the resources that we are likely to have available and flexible to adapt to changing circumstances. Thus, our approach to the delivery of this objective is split into short-term and medium to longer-term.

Consultation, mapping and a literature review has informed us of a variety of issues, particularly relating to improving orbital, evening and Sunday services, especially where this facilitates access to employment opportunities. Although we will take opportunities to work with partners on a thematic basis (to improve access to shopping, healthcare and education facilities), as and when the opportunity arises, as economic prosperity facilitates wider social inclusion, it would seem appropriate that reducing barriers to employment and training opportunities be a key output of our strategy, particularly for those neighbourhoods and groups of people likely to obtain the greatest benefit.

- 4.2 Our approach to accessibility will therefore continue to be through partnership working and local area ward action planning focusing particularly on accessing employment and training opportunities from areas and neighbourhoods that suffer multiple forms of deprivation.

The main elements of our Accessibility Strategy

- 4.3 In addition to the interventions covered in the congestion strategy and road safety and active travel strategy the Accessibility Strategy includes the following options appraised in Section 3:

- » Bus Stops
- » Buses/Services - Low Floor Buses and Level Access Bus Stops
- » Buses/Services – contracted/supported services
- » Pedestrian Facilities
- » Cycling Facilities
- » Working with Partners to improve accessibility
- » Improved Bus Stations and Interchanges
- » Bus Fares – concessionary
- » Bus Services Information
- » Training – to help improve accessibility for people with learning disabilities
- » Improved Rights of Way
- » Freight
- » Dial a Ride
- » Better provision of facilities for motorcyclists
- » Improved supply of taxi and private hire vehicles at peak demand time.
- » Maintenance

5. Delivering the Accessibility Strategy

From the Policy Instrument Options table in the above section it can be seen that the overarching/key strategic policy options for improving accessibility and promoting equality of opportunity are:

- » Buses/Services
- » Bus Stops
- » Dial a Ride
- » Pedestrian Facilities
- » Cycles
- » Working with Partners
- » Park and Ride
- » Public Transport Focused Developments
- » Bus Corridors
- » Bus Stations and Interchanges
- » Public Transport Routing
- » Bus Services Information
- » Rail
- » Maintenance
- » Major Road Improvements (over £2m)
- » Car Schemes
- » Variable Message Signs
- » Land Use Measures
- » Training
- » Freight
- » Traffic Management – RoWIP

The most effective Policy Instruments will be packaged together and be included in the Implementation Plan.

The above Policy Instruments can then be split into Short, Medium and Long Term Objectives.

To deliver this objective in the short term (within this Implementation Plan period) we are likely to:

- » Continue Working with Partners (e.g. Bus Companies, Freight Quality Partnership)
- » Continue to support Bus Services (subject to funding availability)
- » Continue to provide High Quality Bus Stops (subject to funding availability)
- » Continue to provide Dial a Ride services (subject to funding availability)
- » Continue to provide Facilities for Cycles, Motorcycles and Pedestrians
- » Continue to provide Training, (e.g. VALUES training helping people with Learning Disabilities to use public transport)

- » Produce Business Case for new Bus Termini and Routing Strategy (Bus Stations and Interchanges)
- » Improve supply of Bus Services Information

Our Implementation Plan goes into further details of what we will be doing and the measures that we will most likely be delivering in the next four years to achieve this objective in the short-term. It also explains how we intend to continue to develop our approach to ensure that we maximise the benefit cost ratio of the schemes and initiatives that we do.

Delivery of this objective in the medium to longer term: Our medium to longer-term approach is also designed to be flexible and will be influenced by what our first Implementation Plan achieves. We will monitor schemes and initiatives in order to build on our successes and review the things that do not perform as well as we had anticipated. Decisions will also be informed by the availability of funding.

Based on the information available to us at the moment, in the medium term (within the next Implementation Plan period) we believe that we are likely to continue with the short term strategy as outlined above, and also:

- » Deliver first phases of new Bus Termini and Routing Strategy (Bus Stations and Interchanges)

We will review our medium term approach in the light of our monitoring results and the availability of funding.

Based on the information available to us at the moment, in the longer term (beyond the next Implementation Plan period) we believe that we are likely to continue with the approach as outlined above, and also:

- » Deliver final phases of new Bus Termini and Routing Strategy (Bus Stations and Interchanges)
We will review our longer term approach in the light of our monitoring results and the availability of funding.

6. Monitoring the Accessibility Strategy

6.1 To monitor the effectiveness of our strategy we have four accessibility key outcome indicators and two supporting indicators. The key outcome indicator is detailed here in table 5.5. The supporting indicators are provided in our Implementation Plan.

Table 5.5 Accessibility Strategy key outcome indicators and targets

PI Category	Ref. No,	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
Outcome	L LTP 21	Percentage households with good access to key services or work – access to employment	85%	2009 = 85% England = 83%	85%	85%	85%	85%	DfT
	L LTP 22	Access to major hospitals i) LRI ii) General iii) Glenfield 730-930am, no car households within 30 minutes	a) 90.0% b) 48.3% c) 71.7%	2009/10 = a) 90.0% b) 48.3% c) 71.7% within 30 minutes	a) 90.0%	b) 48.3%	c) 71.7%		Transport Strategy Team
	L LTP 23	Access to Leicester Railway Station (No car households)	93.6%	2009/10 = 93.6% within 30 minutes	93.6%	93.6%	93.6%	93.6%	Transport Strategy Team
Non – transport Outcome	L LTP 24	Use of public libraries (in the last 12 months)	Monitoring only	2,100,457 (08\09) 2,015,393 (09\10) 2,100,000 (10\11)	Monitoring only	Monitoring only	Monitoring only	Monitoring only	Residents Survey

6.2 The full lists of accessibility indicators and targets are presented in the Implementation Plan.



Chapter 6:

Improve Safety, Security and Health The Road Safety and Active Travel Strategy



1. Introduction

The Goal we are helping to achieve in this chapter is:

Better Safety, Security and Health - Leicester's people are more active, healthy and secure

The two strategic challenges, identified in chapter 2, addressed by our Road Safety and Active Travel Strategy are:

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

- » The majority of killed and seriously injured casualties in Leicester City are from 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, traffic speeds, consideration of other road users)

2. The Current and Future Situation – The Challenges and Opportunities

2.1 The overall Safety, Security and Health Challenges faced by the City are outlined in Chapter 2 but are discussed here in more detail.

Road Safety

2.2 We have had considerable success in reducing the number of people killed or hurt on our roads over the last ten years as illustrated in the table 6.1.

However, we are not on track to achieve our killed and seriously injured targets and hence are also not on track to achieve the National Targets as defined in the National Road Safety Strategy (2000), to reduce the number of all KSIs (from a 1994-98 average) by 40% by the end of 2010 and the number of child KSI's by 50%.

Table 6.1 Leicester's Roads Safety Performance

	1994-8 average	2009	% Reduction	National Target reduction
All KSI	127	87	31.5%	40%
Child KSI	27	18	33.3%	50%
Slight Injuries	1389	1255	9.65%	10%

2.3 A proportion of road casualties are not reported to the police and therefore do not appear in official casualty statistics. Whilst fatalities are always reported, the under-reporting of collisions becomes more prevalent with less seriously injured casualties and with certain classes of road users, such as cyclists and powered two wheeler users. To gain a fuller picture of where to target resources in the future we need to work with colleagues in the health sector at local hospital Accident and Emergency units, to attempt to compare the two data sets of Police Stats19 and A & E admissions. Road casualties in Leicester cost the NHS £4,294,400 in 2009, which is obviously a large drain on local hospital and ambulance resources.

Casualties amongst Vulnerable Road Users -Pedestrians

2.4 We have seen a 37.6% reduction in pedestrian casualties on the 1994-98 average from 351 to 219 in 2009. Within these casualties, children age 5-15 are those causing most concern. Most collisions involving pedestrians occur when they are crossing the road. The speed of vehicles involved in collisions with pedestrians is also a major factor in the severity of the resulting injury. New research from the Department for Transport suggests that the risk of fatality to a pedestrian rises steadily up to 30 mph. Above that speed the risk to pedestrians rises rapidly, so that by 40 mph the risk to a pedestrian of fatality after being hit by a car is up to five times that it is at 30 mph. Several other factors are involved here, for example the type of vehicle a person is hit by. Flat fronted vehicles, such as buses are more likely to cause fatality at lower speeds than a car. This demonstrates the importance of keeping vehicle speeds down to reasonable levels, where there are larger numbers of pedestrians. Through consultation with disability groups we learn that many disabled and older pedestrians, have been hit or thrown off balance by cyclists. Despite a huge amount of anecdotal evidence, there is a lack of hard statistics on this issue.

Casualties amongst Vulnerable Road Users - Cyclists

2.5 We have seen a 29% reduction in cyclist casualties on the 1994-98 average from 173 to 123 in 2009. In that time numbers of cyclists have risen as have the number of people wearing cycle helmets and brighter clothing. In the last three years particularly, a worrying trend has appeared in cycling collisions. A large number involve cyclists riding on the footway. These collisions either involve the cyclist riding into traffic off the footway, or failing to stop at junctions. Collisions also happen due to mistakes such as opening doors in to cyclists, and hitting them whilst they are riding straight ahead.

Casualties amongst Vulnerable Road Users - Motorcyclists

2.6 Casualties amongst motorcyclists have shown the smallest decrease of all the vulnerable road user groups. Casualties since the 1994-98 average have shown a 14.1% reduction, from 85 down to 73 in 2009. However, improvements in bike design and rider training have contributed to a reduction in motorcycle casualties since the early 1990's. Many of the casualties are riding smaller size commuter style bikes up to 125cc, although there are also a number of casualties in the over 500cc category. Many people see motorcycles as a way of improving their accessibility conveniently and cheaply, particularly where public transport is not available and distances involved make walking and cycling impractical. Motorcycle usage could rise in the course of this Plan, because of the downturn in the economy and the high cost of car insurance for young drivers. We will continue to carefully monitor casualties in this group.

Vulnerable Road Users - A Summary

2.7 Despite reductions, pedal cyclist, powered two wheeler and pedestrian casualties remain unacceptably high, with 123 pedal cyclist casualties (including 11 serious), 73 powered two wheeler casualties (including one fatal and ten serious) and 219 pedestrian casualties (including three fatal and 33 serious) in 2009. Nearly all these vulnerable road user casualties are the result of collisions with other vehicles. As mentioned earlier there are probably much higher numbers of certain classes of these casualties who are injured on the roads but do not appear as reported to the police in STATS 19 statistics.

Casualties amongst Motor Vehicle Road Users

2.8 Car drivers and passengers represent the largest single group of casualties, as might be expected from the largest group of road users. In 2009 there were 819 car driver and passenger casualties in Leicester, of which two were fatal, 21 were serious. On top of this there were 59 bus and coach casualties, of which two were serious, 15 goods vehicle occupants, of which two were serious and 27 Taxi or private hire users. Many road casualties are unfortunately easily avoidable, because of human errors. All too often the following appear in road collision descriptions, and in police and other statistics collected in the city:

- » Drivers and cyclists failing to stop at traffic signals and pedestrian crossings
- » Drivers going too fast
- » Drivers and passengers not wearing seat belts
- » Drivers using hand held mobile phones
- » Dangerous parking on junctions etc.
- » Drink/drug driving
- » Cyclists riding off the footway into traffic

- » Drivers not paying attention
- » Pedestrians failing to look properly whilst crossing roads

If these were to be reduced and rectified by various means we would be looking at many fewer and less severe casualties on Leicester's roads.

Casualties involving young drivers

2.9 There were 477 casualties in 2009 where at least one vehicle driver that was involved in the collision was aged 17-24. Many other road users are being hurt or killed in collisions involving these young drivers. This represents a large proportion of the total casualties. These collisions often involve mistakes due to inexperience and over-confidence on the part of the young driver. We need to look at what further interventions we can make to lower this level of young driver involvement in local collisions.

Personal Security Challenges

2.10 Home Office circular 16/04 places a duty on Community Safety Partnerships to invite public transport operators and providers to participate in the formulation and implementation of local crime and disorder reduction strategies. This was part of a wider Government strategy to encourage more widespread co-operation amongst all parties with an interest in reducing crime and the fear of crime around public transport.

2.11 National research indicates that if people felt more secure, 11.5% more journeys would be made on public transport.

- » 53% women and 23% men feel unsafe waiting on a train platform
- » 44% women and 19% men feel unsafe waiting at a bus stop
- » 47% women and 21% men feel unsafe walking to/from the bus stop/station
- » 46% women and 24% men feel unsafe walking in a multi storey car park
- » Anti-social behaviour on buses – would like the presence of conductors
- » Bus shelters regularly vandalised. Residents questioned whether other materials other than glass could be used.

2.12 National Community Safety Partnership (CSP) surveys reveal that for passengers, the walk to and from the stop or station is often perceived to be the most insecure part of their journey, and that the time spent on a vehicle is perceived to be the most secure. Passengers base their decision to travel, on how secure they feel about the whole journey, and so may be deterred from using public transport because of concerns about parts that are beyond the control of transport operators. CSPs can assist by focusing attention on walking routes to public transport and the environment around transport interchanges.

2.13 Leicestershire Police hold a database of complaints where people feel unsafe in the street, they also record where rubbish, graffiti, dog mess and young people are causing a nuisance. This could be used to highlight areas where the street-scape is an element in making people feel unsafe.

Leicester's crime and disorder consultation report stated that one in five people were 'very worried' about being robbed, mugged, or beaten up, yet the actual number of incidents is very small.

2.14 Many parents, children and adults are put off from walking and cycling due to perceived and real fear of danger from motor vehicle traffic. Children often don't walk or cycle comparatively short distances to school because of their own and their parent's fears of traffic issues on their routes to school. Typically these fears include drivers going too fast and not concentrating. In the 2007 Young People in Leicester city Survey recorded that 39% of pupils reported that 'an adult, who scared or made them upset, had approached them' on their journey to school.

2.15 The 'stranger danger' factor also seems a major concern to parents; 60% of parents fear their child will be killed or injured in a road traffic accident, abducted or murdered whereas only 5% fear for their child's poor health in later life due to their child's current level of physical activity. In actual terms, roughly 0.03% of the population of Leicester aged between 4 and 18 are killed or seriously injured in an accident, whereas, 25% of Leicester's children are classed as overweight and obese. Leicester's Play Partnership identified issues associated with parents perception of the safety of children travelling to play areas.

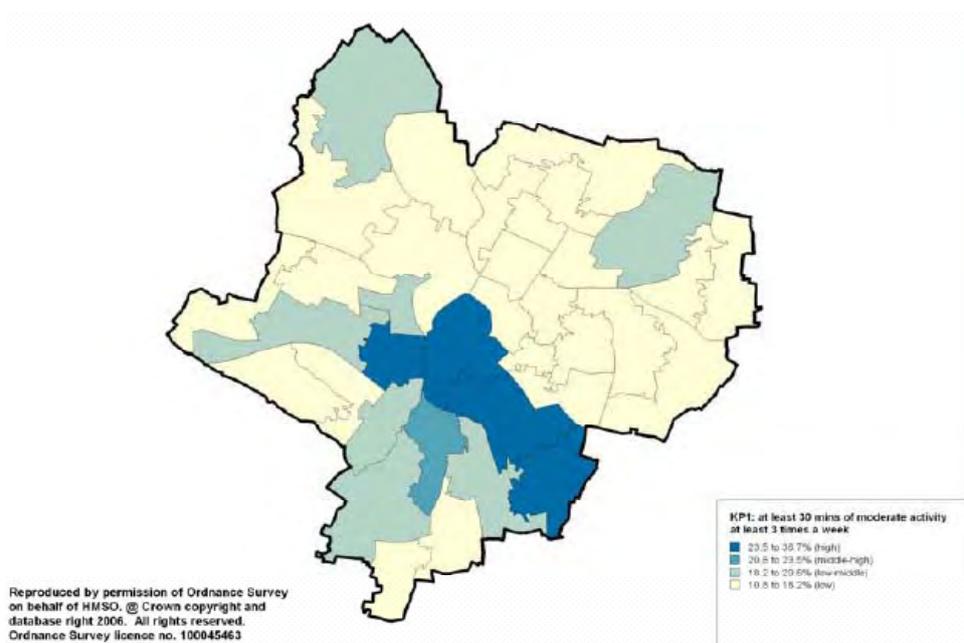
2.16 Consultation carried out over the period of LTP2, identified that people who are disabled and particularly those with learning disabilities, have concerns over their treatment by bus drivers and, their personal safety. This is backed up by Leicester and Leicestershire's 'Stamp it out' campaign which identified that people with learning disabilities often experience hate motivated abuse on public transport. The consultation also identified that people with physical, sensory and learning difficulties have concerns over cycling in pedestrian areas and in areas of shared use. The accidents recorded in by the police, in the Stats 19 database, do not reflect the actual number of near misses and pedestrian/cyclists conflicts that the disability groups are reporting.

Health - Inactivity in Adults

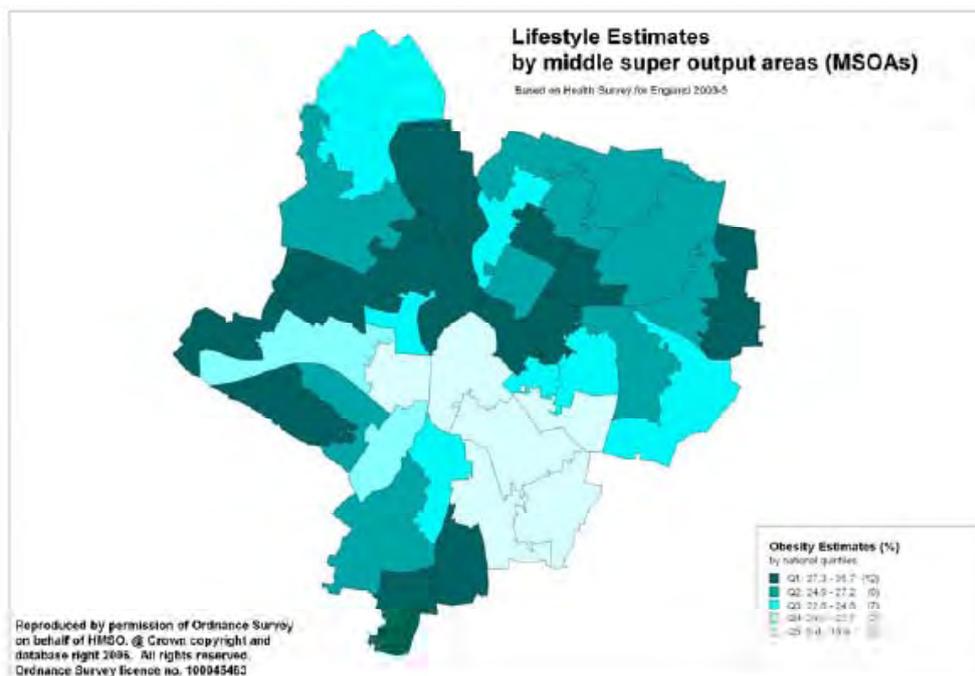
2.17 People in Leicester are not sufficiently active. The Sports and Active Recreation summary shows that in 2009 only 19% of Leicester's residents participate in sufficient physical activity and only 15 % take at least one walk of moderate intensity per week and only 6% take at least one cycle ride of moderate intensity. These are all well below national and regional averages. This inactivity leads to an increase in the risk of obesity, coronary heart disease and diabetes. According to the NHS Leicester City Commissioning and Investment Strategy 2010, inactivity cost Leicester's NHS £6million per annum.

2.18 Maps 6.1 and 6.2 show the level of obesity across Leicester in relation to the level of inactivity. Although it is likely that other lifestyle factors, such as diet, contribute to the obesity levels, it is clear that the areas where there is the highest level of physical activity there are the lowest level of obesity. Areas that currently present both the highest levels of obesity and the lowest levels of activity are Belgrave, Braunstone, Eyres Monsell, Spinney Hills, Scraptoft, and New Parks, although the patterns may alter.

Map 6.1 – Levels of Inactivity



Map 6.2 – Level of Obesity





2.19 Leicester's population is ageing and is expected to sharply increase from 2011 onwards and increase by some 17% over the next ten years. The National Health Survey 2008 for England shows that the levels of activity decrease with age and that without intervention, nine out of ten adults will be obese by 2050. Therefore it is apparent that, without intervention, the problems associated with inactivity are likely to increase in Leicester.

Health - Inactivity in Children

2.20 Leicester's 0-18 year old population is growing more rapidly than the national average, and of these children and young people there are already high levels of obesity, with some wards showing levels of overweight and obese children as nearly 50%. Nationally, it is anticipated that by 2050 two thirds of the nation's children will be obese. Leicester's Childhood Weight Management Programme, looks at weight in both Year 6 (10 – 11yrs olds) and reception age pupils (4-5 yr olds). The 2008/09 survey showed that Leicester's level of overweight and obese children is slightly less than the national average overall. However, there are some areas where obesity levels are far higher than the national average.

2.21 High levels of obesity in Year 6 pupils are not necessarily in the same areas as the Reception age children. In 2010 Coleman and Fosse wards have higher levels of obese children in reception, whereas, in Westcotes and Eyres Monsell wards levels are almost as high as 50% in Year 6. Boys are slightly more likely to be obese than girls.

2.22 A recent YouGov poll concluded that nearly half, (49%) of parents under-estimated the amount of physical activity their children should get in a week. There are several schools in Leicester where despite living within ½ a mile of a school, large numbers of children are driven there.

Opportunities to improve safety, security and health

2.23 Whilst there are clearly many safety, security and health challenges we face, there are also many opportunities. These could be national or local guidance and policies or the demography of the city, which will support the work outlined in this plan. These opportunities are outlined below.

2.24 Much of our recent success in improving road safety can be attributed to the work of the Leicester, Leicestershire and Rutland Road Safety Partnership. Formed in 1998, its purpose is to help reduce casualties in the Leicestershire Police area through joint working between city, county and Rutland councils, representatives from the NHS, Highways Agency, Leicestershire Fire and Rescue Service and Leicestershire Police. The partnership developed the Leicester, Leicestershire and Rutland 'Road Safety Plan' in 2002, taking into account new national policies and strategies, including casualty reduction targets for 2010. The aim of the Partnership is:

'To provide a safer environment on the roads of Leicester, Leicestershire and Rutland using education, enforcement and engineering to enable all road users to travel in confidence, free from fear of death or injury'

2.25 Successes to date have been achieved through:

- » Road safety education, training and publicity (Education)
- » Safer routes schemes (Engineering and Education)
- » Traffic calming schemes (Engineering and Enforcement)
- » Local Safety schemes (Engineering)
- » The Safety Camera Partnership (Enforcement)

The Leicester, Leicestershire and Rutland Road Safety Partnership provides a firm foundation to build on. We currently invest surpluses arising from enforcement into road safety education. To continue this investment in the current economic circumstances is a big opportunity and we can do this effectively and efficiently by all the partners working together.

Speed Management

2.26 Our road hierarchy has been set out in Chapter 3 and our Network Management Plan. Having defined the hierarchy in 2005/6 we have completed a review of speed limits on A and B roads to ensure their suitability. The review concluded that the speed limit on four lengths of road should be changed. These changes are due to be considered by the council's cabinet early in 2011. Traffic speeds are a key deterrent to walking and cycling, so we anticipate that the enforced reductions in speed limits will reduce the perceived danger of using these modes.

The National Road Safety Strategy

2.27 The Department for Transport's Road Safety Research Report (September 2005) compared Child Pedestrian Exposure and Accidents around Europe. Key findings were:

- » Children in Britain more likely to walk to school along major through roads with higher traffic volumes and faster traffic
- » Over three quarters of children's road crossing movements are at unmarked sites.
- » Children are less likely to be accompanied by an adult on the walk to school or to a friends house compared to the EU.

The key implications of the report were that policy makers should:

- » Consider a strategy for road safety education and training to adequately prepare all road users, including children, for the dangers.
- » Focus on road crossing activity as there are some question marks over British children's crossing behaviour and encouraging appropriate choices of where to cross.
- » Ensure road safety education should emphasise the dangers of main roads and encourage appropriate behaviours in proximity to traffic.

- » Consider lower speed limits in residential areas.

The Safer Leicester Partnership

2.28 The Partnership was formed in 1999 as a result of the Crime and Disorder Act 1998 with the idea that it takes the joined-up efforts of a number of different agencies to make a real difference to community safety issues in our city.

The Safer Leicester Partnership's vision is;

“To ensure that all citizens of Leicester feel safe within their communities and benefit from an improved quality of life and well being as a result of partnership action to reduce crime and substance misuse.”

Security - Night Bus services and taxis and private hire vehicles

2.29 The Safer Leicester Partnership funded a new scheme to provide a free shuttle bus around the city centre clubs to bring revelers to the Abbey Street area (well lit, CCTV coverage) from where people will then be able to travel onwards either by Night Bus services or taxis and private hire vehicles. Moving people swiftly out of the city centre has helped to reduce the Crime and Disorder Partnership's target of reducing violent crime in the city centre by 25% by 2008.

Stamp it out Partnership

2.30 Stamp It Out is a community led partnership with all partners committed to stamping out all forms of hate incidents and crimes to make Leicester a safer place for people to live, work and socialise. The group consists of 24 partners and part of its remit is to work with transport providers to promote courtesy amongst passengers.

Our work with Health and Sports Activities Partners

2.31 The Chief Medical Officer said recently:

‘The benefits of regular physical activity to health, longevity, well-being and protection from serious illness...easily surpass the effectiveness of any drugs or other medical treatment. The challenge for everyone, young and old alike, is to build these benefits into their daily lives’.

2.32 Leicester has been proactive in tackling obesity through its Healthy Weight/Obesity Forum. Formed in 2006, the Forum comprises statutory, community and voluntary and business sector organisations in Leicester, working together to halt the year on year rise in obesity in the city. Through the Forum a Healthy Weight Strategy has been formed, of which walking and cycling have been a major contributors to the targets. Interventions which have been co-ordinated through the Forum and of which Active Travel is a contributor are:

- » 3x30 Pledge – This project encourages city residents to participate in sports and physical activities three times a week for thirty minutes. The project is currently funded by Leicester City Council, Sports Services, Leicester PCT and Sport England. Since its inception in April 2009 over 2000 residents have signed up.
- » Active Lifestyle Scheme – Is a partnership between NHS, Leicester City Council, Leicestershire County Council, GP Practices and other healthcare professionals. It offers inactive people the chance to participate in exercise under guidance of a qualified exercise professional at a reduced rate. Base-line figure 09/10 - 840 Referred onto the scheme, target for 10/11 – 1215, target 11/12 – 1500
- » FAB Projects - this project aims to improve health, well being and quality of life of residents in deprived areas of Leicester through the combined work of Physical Activity Activators and Community Food Workers

Leicester City Council will take a lot of responsibility from the Primary Care Trust (PCT) in 2012. These responsibilities are set out in a new government white paper. This facilitates transport and health professionals working together in closer partnership and will result in a big opportunity for improvements in health.

2.33 It is clear that the people of Leicester (both young and old) need to participate in more physical activity. Travel provides an opportunity where physical activity could become part of a daily routine as:

- » We have a considerably lower car ownership level in Leicester than nationally.
- » 82% of residents of Leicester work within Leicester and thus undertake journeys of less than five miles.
- » 97% of Leicester's population live within two miles of an educational establishment.
- » 60% of Leicester's population live within one mile of a GP practice and a hospital. 100% live within two miles.
- » 48% of Leicester's residents live within half a mile of a food store. 100% live within one mile. (economic assessment).
- » 86% of pupils reported that they enjoyed physical activities 'quite a lot' or 'a lot'.
- » 72% of pupils owned a bicycle (young people's survey. Leicester 2007)
- » An average of 38% of those questioned in Sustrans surveys in six locations around the city in 2006, 2007 and 2008 said that they intend to walk or cycle more.

The National Active Travel Strategy

2.34 In February 2010 the Department for Transport in conjunction with the Department for Health published the Active Travel Strategy, the aim is to get two million people more active by 2012/13. The National Active Travel Strategy's objectives are:

- » Improving people's health and wellbeing through more active lifestyles.
- » Maximising access to jobs and services without increasing congestion.
- » Reducing carbon emissions from transport and supporting our climate change targets.
- » Reducing harmful emissions and improve local air quality.
- » Making for more attractive, safer places and communities, and ensuring greater access for everyone to local services.

Green Infrastructure Strategy

2.35 There is good evidence that proximity to green space is health promoting, and access to such space is important. People who use green spaces regularly are more likely to take exercise, and those who use it most regularly usually live nearby. Greenspace has a positive effect on physical as well as mental health.

A recent study found that all causes mortality and deaths from circulatory disease were lower in areas with the most exposure to greenspace. Everyone who lived near green space tended to be healthier, and the effect reduced the health gap between the richer and poorer income groups. The Lancet concluded: 'The evidence showed that green space does more than pretty up the neighbourhood; it seems to have real effects on health and health inequality, of a kind that politicians, planners and health staff should take seriously.'

[Mitchell & Popham Lancet 2008]

Green Infrastructure (GI) comprises the networks of multi-functional green space which sit within, contribute to, the type of high quality natural and built environment required to deliver sustainable communities. Delivering and enhancing these networks require the creation of new assets to link with existing green space. These networks should be incorporated with the cycle and pedestrian networks outlined in this plan.

The 6 C's Green Infrastructure Strategy 2010 identifies that a major step change in the scale, quality and connectivity of GI assets will be required to match the scales of new growth planned in the region.

Although parts of Leicester are deficient in access to natural green space it has very good green corridor links between north and south within the city following the course of both the river/canal and a disused railway line. However, green corridors in other directions are far more limited. Although Leicester is moderately well supplied with radial routes, it lacks good links between outer suburbs, schools and employment sites including two hospitals.

The 6 C's study has also identified two 'Greenways' running through the city. A 'Greenway' has no legal status, but can be defined as 'largely off-highway routes for shared use by people of all abilities on foot, bike or horseback, for commuting, play or leisure; connecting people to facilities and open spaces in and around towns, cities and the countryside. Greenways are especially valuable for wheelchair users. In many cases they utilize existing bridleways or rights of way.

The LTP will work with the GI to continue to provide, in some cases maintain and extend the green routes.

The first route in Leicester is through the riverside corridor where the route is already established. The second east-west route runs along the Forest Way off-road cycleway, to the west of the city but which needs extending beyond Darlington Road and to the east it uses New Walk to Evington Road and beyond it uses, a network of quiet side roads. The greenway to the east of the city will be linked to other green spaces by the extension of the Green Ringway, especially linking to Thurncourt where there is a lack of amenity space and play space.

3. Appraising the Options

- 3.1 The option assessment described in chapter 3 demonstrated that many options could be considered to form part of our Road Safety and Active Travel Strategy but some were also identified to form part of our Congestion, Accessibility and Carbon Reduction strategies and hence have been appraised in those chapters. The following options have been appraised and identified as forming the Road Safety and Active Travel Strategy:

Working with Partners

3.2 Existing Partners

A major strength of LTP1 and LTP2 has been establishing successful partnership working.

Several existing partnerships and forums focus on the improvement of safety, security and health and these will be continued. These are:

- » National Community Safety Partnership (CSP)
- » Leicester, Leicestershire and Rutland Road Safety Partnership
- » Leicester Weight/Obesity Forum
- » The Safer Leicester Partnership
- » Schools Sports Partnership

Partnerships with national organisations such as Sustrans, CTC, Cycling England (or equivalent) and Sky Sports have been created to deliver particular campaigns and programmes such as BIKEIT and Cycling Champions..



Photo: Leicester Sky ride 2010

Local organisations such as Groundworks and Cyclemagic help deliver training whilst we are a partner in the 'Understanding Walking and Cycling Research Project' being undertaken by the Universities of Lancaster, Leeds and Oxford Brookes. Work with community safety partnerships on the likes of 'Stamp-it-Out', can improve the sense of security on the streets and on public transport

Leicestershire Police has developed the concept of Joint Action Groups (JAGs) to look at Community Safety issues raised by local groups and residents. Transport issues (including road safety) are part of the remit of these JAG's. There are nine JAGs across the city, each one reflecting local circumstances, Ward Committee boundaries and catchment areas of local policing units. The JAG's include the Crime and Disorder Partnership, Police, Highway Authority and local residents to assess ways to improve lighting, visibility on footpaths and to reduce areas of vandalism. The aim is to encourage everyone to work together to reduce crime and the fear of crime, thus removing an additional barrier to walking and cycling trips. This reporting structure forms a strand of delivering our road safety and active travel strategy.

Working with Partners

3.3 New Partners

Where resources permit we would like to actively promote partnership working and establish new partnerships with:

- » Leicester Sports Partnership Trust – major sporting venues
- » Stamp it out partnership
- » The GP Consortiums (when established)
- » Private organisations
- » The Ramblers as part of the 'Get Walking – Keep Walking' initiative
- » Living Streets as part of their Walking Works Campaign.
- » 'Citizens Eye' community news agency and the new young people's newspaper 'Leicester Wave'.
- » The establishment of partnerships with groups representing disabled people to provide accompanied trips to the city centre to establish suitable routes and journeys will help those people not travelling to the city centre due to unfamiliarity. As will partnerships with the police and city wardens to target areas where anti-social cycling is a problem

Campaigns To Promote Walking

3.4 Walking shows a cost benefit ratio of 19:1 when its benefits to health, congestion, journey time reliability, carbon reduction are taken into account¹⁵. It gives the best rate of return of all the modes of transport and therefore, we plan increase the number of campaigns to encourage more walking.

3.5 A study, on the DfT's 'Walk in to Work Out' campaign showed that the use of promotional interventions alone resulted in employees being twice as likely to walk to work as the control groups. The study also showed that promotion alone is more likely to result in increased numbers of pedestrians than cyclists¹⁶. Therefore we plan to increase the level of walking promotion in proportion to the level of pedestrian infrastructure.

3.6 Throughout LTP1 and LTP2, there has been an informal co-ordination of walking activities with the NHS and Physical Activity Partners. However, there has been no formal body to manage this. We will seek to duplicate the success of Leicester's Cycle City Workshop through the Physical Activity Forum (a branch of the Sports Partnership Trust) to co-ordinate walking related activities and campaigns.

'Lets Walk Leicester' was launched as part of the Chaloy Chalay campaign in 1999. It consisted of various poster campaigns, with good response rates. However, due to the concentration of resources into infrastructure improvements and regeneration, the promotion of walking has diminished throughout the LTP2 period.

3.7 We will increase the level of Walking Promotion through:

- » Campaigns; such as at Health Events throughout the city, Star Walker Scheme aimed at parents of primary school children to encourage walking and cycling to school, National and local Walk to School campaigns National Walking Week, Leicester and Leicestershire Walking Week.
- » A major Walking to Work Campaign 'Step in to Get in' working with Partners such as Leicestershire County Council Ramblers, Living Streets, Natural England, the major sports stadia and major employers such as Highcross and Walkers will bring together walking to work events such as VIP days where recruitment days are held particularly to show people how they can travel to employment sites.
- » 'People not Cars' Days which includes Skyride (see cycling – mass participation bike rides) and Skywalkers events.
- » Routefinders such as WalkIt.com, Walkzone and GPS phone applications. Including how to get to the bus stops through the 'Step in to Get on' campaign.

¹⁵2010 study 'Value for money- an economic assessment of investment in walking and cycling DoH and GOSW'

¹⁶Mutrie et al, 2002 'Walk in to Work Out': a randomised controlled trial of self help intervention to promote active commuting, *Journal of Epidemiology and Community Health*, 56.

- » Community Guides are used to let people know what services are in their local area to give people more choice over facilities that they could walk or cycle to.
- » Points4life links to smart cards where sustainable travel earns rewards on smart cards

Campaigns to Promote Walking for Health

3.8 Walking for Health is a tried and tested, cost-effective intervention that is proven to get sedentary people active at least three times a week for periods of over a year. It is locally run, flexible and can target: hard-to-reach groups; elderly people; those at risk of or suffering serious long-term ill health; young families. There is a cost benefit ratio to the health authority alone of 1.7. Although predominately leisure walks, and not for commuting purposes, in Leicester and Leicestershire, Health Walk Leaders are designed to encourage walking as a part of daily life and included in travel habits. The Health Walks give people back the confidence to walk, and knowledge of where to walk, which in turn, it is hoped will encourage them to walk as part of their commute. Health Walks around shopping and the commute should be developed and expanded. We will continue to work with Natural England and the Physical Activity Professionals to deliver Walking for Health and will establish new partnerships with The Ramblers to develop Get Walking-Keep Walking in Leicester.

Campaigns to Promote Cycling (General)

3.9 Leicester has held regular co-ordination meetings for cycling organisations, cycle users and cycle promoters. The meetings have allowed the authority to run co-ordinated campaigns such as 'Summer of Cycling' to advertise in one place all the cycling activities available in the city. It has created partnership functions in order to bid for cycle related projects e.g. Cycle Champions. Consultation with cycling stakeholders has put the co-ordination meetings as vital. The group are a useful source in terms of collecting qualitative feedback on how we are performing, and have indicated that whilst infrastructure is important in encouraging people to cycle, the promotion and 'softer' measures are equally, if not more important. This is borne out through the massive increase in cycling numbers in 2006/07 following an increase concentration of cycling co-ordination and promotion from 2004.

3.10 Both local (cycle city workshops) and national evidence (from the cycle demonstration towns) indicates that the promotion of cycling is vital to encouraging cycling. Leicester's Summer of Cycling Campaigns have been well received not only for the promotion of cycling, but also as a way of 'Talking up Leicester'. The types of campaigns that should be continued are Bike It¹⁷, Cycle Champions¹⁸. These campaigns have received partner funding throughout the life of LTP2, but are proved to be value for money particularly when health benefits are included in the ratio.

- » DfT considers a 1:2 Cost:Benefit ratio 'high'

- » Cycle Demonstration Towns found 1:3 Cost:Benefit ratio
- » GO of the SW found an average of 1:19 in the UK when health benefits are included

Campaigns – To Promote Cycling (Mass Participation Cycle Rides)

3.11 In 2009 and 2010 Leicester held two Sky rides with estimated numbers participating increasing from 8,000 in 2009 to over 12,000 in 2010. There is anecdotal evidence that many of the participants were people who hadn't cycled in a long time. The Skyride is accompanied by summer long led cycle ride. The scheme does have benefits in raising the profile of cycling and encouraging cycling for health.

Campaigns – To Promote Cycling for Health

3.12 Studies have found that people who cycle to work experience a 39% lower rate of all-cause mortality compared to those who do not, and that the annual monitoring surveys in Leicester carried out by Sustrans show that the number of people wanting to cycle or walk for health is increasing. Initiatives to encourage cycling for health are:

- » Workplace Cycle Challenge. Leicester ran its first Cycle challenge in 2010. 1,336 people took part, 261 of whom hadn't cycled in over a year. Between them 4 million kilocalories were burnt off. 10,190 trips were made for transport purposes, which if those trips were made by car over 25,000 kilograms of CO₂ would have been created. The cost was below £10,000.
- » Cycle Champions. Leicester has had a Cycle Champions co-ordinator since 2008 primarily funded by CTC. The aim is work with 35 'hard to reach' community groups to promote cycling within those groups. The cost over four years is £511,000 with a target of 2,625 direct beneficiaries and 5,250 indirect beneficiaries. The scheme is on target at the time of writing.
- » Working with Employers e.g. NHS, the Universities to provide tax efficient bike loan scheme.
- » Promoting the availability of the CTC bike to work membership, which includes breakdown cover, £10m third party insurance, accident helpline and advice amongst other benefits.
- » Promoting and facilitating BUG's (Bicycle User Groups) amongst employees.
- » Cycle commuter planners groups

¹⁷Bike It works directly with schools to encourage the children, parents and teaching staff to cycle to school.

¹⁸The Consortium is lead by Sustrans with CTC, Living Streets, London Cycling Campaign, the Ramblers' Association, Transport 2000 and Walk 21. Its aim is to enable 2 million people to become more physically active by walking or cycling as part of their daily lives. British Cycling, Cycling England, the National Heart Forum and the National Obesity Forum are supporters of the programme. It is particularly targeted at bringing cycling to sections of society that are known to have lower physical activity levels and are less likely to be choose cycling as a lifestyle or transport choice.

- 3.13 British Cycling Development project including the Skyride partnership is specifically about entry level recreational sport cycling e.g. sports and recreational cycling clubs. In Leicester it has been responsible for the, development of Beaumont Park, western park mountain bike centre and the cycle speedway amongst others. Short term match fund until 2013 with British Cycling is available to attract and develop resources which specifically provide opportunities for sports clubs with the aim to embed cycling within Leicester's culture.
- 3.14 The Transport Asset Management Plan (Chapter 9) covers the planned maintenance and renewal works to minimise disruption to traffic flow. Improve the surfacing, junction lining and traffic signal installations at selected junctions to increase junction capacity. Improve facilities for buses by prioritising highway maintenance work on bus routes and by providing more bus shelters and travel information. This work is all effective in keeping the roads safe.

Campaigns – Road Safety Education

- 3.15 Attitudinal and behavioural work will play an increasingly important role in casualty reduction. Traditionally much of this work has been “behind the scenes”, but as more radical solutions are promoted to address the more difficult problems; it is increasingly necessary to educate and inform the general public and gain their support. Within Leicester and Leicestershire this is exemplified by the way proactive education and publicity campaigns are contributing to the local acceptance (and success) of the Safety Camera Scheme.
- 3.16 We intend to improve Road Safety Education and Publicity by careful targeting of resources into where casualties are occurring. These include:
- » Motorcycling – As we have a high number of motorcycle casualties on the roads of Leicester, compared with the number of users, we are keen to promote educational and training initiatives, such as supporting the regional “Shiny Side Up” and “Bare Bones” publicity schemes, the new DSA “Enhanced Rider Scheme”, and the Police “BikeSafe” training schemes.
 - » Pre-Driver Training – we are looking at trying to make more opportunities available to schools, for different types of pre-driver training initiatives. As mentioned earlier, young drivers are very over-represented in many types collision, and we need to look at various ways of improving the situation. One of these is to promote Theatre in Education initiatives such as “Legal Weapon”. Also we would be looking to continue to promote “Driver Days” for pre / young drivers at Mallory Park or another venue.
 - » Junior Road Safety Officers - with limited resources our “Junior Road Safety Officer” (JRSO) scheme is an important channel for getting information out to schools. We hold an annual introductory event for the JRSO's who come from a variety of primary schools in the city. We produce a topical newsletter that goes out to the JRSO's and they use information from it for school assemblies to get messages out to the pupils. We hope to continue to expand the scheme to more schools in the next few years, and look at holding other

events for the JRSO's.

- » Speed and Traffic Signal Awareness Courses – These workshops which are run by the Leicester, Leicestershire and Rutland Road Safety Partnership, allow for low level offenders to be diverted away from the courts and receive some re-education with reference to their driving. The aim is to change people's attitudes towards speeding and to gain a fuller understanding of the dangers and potential consequences of failing to comply with an automatic traffic signal and as a result to make them more aware of their own responsibility for their actions, change driver behaviour and to develop a personal speed awareness strategy.
- » Local Road Safety Awareness Campaigns – we are currently involved in the East Midlands Fatal 4 Regional Road Safety Initiative which combines several key low cost elements in terms of education i.e. roadside posters, radio advertising and roadside educational workshops with the police. This DfT funded partnership initiative is being extensively evaluated and we will use it again in the future if the evaluation is positive. In future we will be using a more targeted approach for campaigns based on our local casualty problems. These campaigns will be evaluated using the new DfT evaluation toolkit "E-valu-it".
- » General Road Safety Education including transition and secondary school initiatives - Several programmes are offered to schools; "Silent Killer" is to make young people aware of how easy it is for drivers not to see them and for them to be unaware of traffic, it deals with mobile phones, reflective/bright clothing, peer pressure and seat belts. "Wasted" looks at young drivers and their passengers, how easy it is just to get into a car without checking if the driver is legal or the car insured for them to drive, peer pressure when they are in the car and the effect that has on the driver, mobile phone use, drink/drug driving and seat belts.

Campaigns – Community Safety

- 3.17 Campaigns such as the 'politeness costs nothing' and the learning disabilities awareness posters displayed near to the drivers area of a bus as part of the stamp-it-out campaign help to raise the awareness of other passengers on the subject of hate motivated abuse and to encourage them to report any incidents or if safe to challenge the person responsible.
- 3.18 Campaigns such as the 'Social Cyclist' run with RNIB and De Montfort University make cyclists aware of the impact they can have on other people, particularly vulnerable pedestrians, through poster competitions promoted at the universities.

Training – Road Safety

- 3.19 Training will play an increasingly important role in casualty reduction. Traditionally much of this work has been "behind the scenes". Within Leicester, Leicestershire and Rutland we pro-actively promote and fund a number of training initiatives. We intend to improve training by careful targeting of resources into where



casualties are occurring. These include:

Training - Pedestrian

3.20 Child Pedestrian Training (Key Stage 1) – we are currently expanding our new child pedestrian training scheme at Key Stage 1 in primary schools.

Child Pedestrian Training – (Key Stage 2) we are expanding a new additional short scheme for lower Key Stage 2, where children are starting to walk more independently of adults. We are offering a one off session to year 6 students in their final term looking at travelling independently as they move to secondary school.

Training - Child Cycling

3.21 Child Cycle Training - Leicester Bikeability follows the new National Standard Course – “Bikeability”. Level 1 typically aimed at Year 5 students, is a short off-road course often carried out on school playgrounds, which looks at basic control of the cycle. Level 2 typically aimed at Year 6 students is carried out on quiet roads near the school, and teaches manoeuvres at junctions and general principles of riding on the road. Level 3 is aimed at older students in secondary school and above. This takes the cyclist on to busy roads, and is aimed at those who are typically going to use the cycle as a means of commuting to school or work.

Bikelt is about helping children to get fit by teaching them the skills they need to cycle safely and responsibly. Bikelt not only encourages the children to cycle but is aimed at the whole school family e.g. teaching staff and parents alike. Bikelt is part funded through Sustrans. At Bikelt schools cycling is five times the national average.

Training – Adult Cycling

3.22 Adult cycle training has grown from very little interest in the early years of the LTP2 period to over 100 people trained in the autumn of 2010. This training is carried out in partnership with the Parks Department and spans from complete beginnings to returning cyclists who wish to improve their confidence on the road. A certain element of the training tackles the issue of considerate cycling. However, the level of considerate cycling training, does not match the level of concern over inconsiderate cycling held by the disability access groups.

Training – Greener Safer Driving

3.23 Greener Safer Driving – The council has recently introduced a new “Greener Safer Driving” course which will be rolled out to all those who drive a vehicle as part of their duties for the council. The concept of the course is to make drivers safer and at the same time make them more conscious of eco-driving techniques for reducing CO2 and saving fuel. Once this course has run for a while within the council, and been evaluated, it is hoped to offer it as a package to the companies in Leicester that have large vehicle fleets, and are not already carrying out a similar scheme.

Training – Independent Travel

3.24 SAGE – We offer Safer driving with age (SAGE) to any member of the public over the age of 60 requiring a driving assessment. This is part financed by the client themselves and is approximately an hour long. Within that time length the client undergoes a driving assessment, a feedback session and an improvement lesson wherever necessary on any areas of driving that need bringing in line with today's road and traffic conditions. The client is provided with a detailed report and a certificate of acknowledgement for undergoing the course.

Training – Valuing People

3.25 Road safety training for people with special needs is part of the valuing people initiative. Although not necessarily a major casualty problem, we are starting to provide a service for pedestrian training and cycle training (depending on ability) for those with special needs. We will also look at supporting wheelchair and disabled scooter training initiatives that take people out into the street environment. We are also establishing events to provide accompanied journeys into the city centre for those who are not travelling due to unfamiliarity with the routes and journeys.

Training – Cycle Mechanics Projects.

3.26 Community bike enterprises such as Bikes4all aim to get people of all ages cycling. The project recycles bikes donated by the public and corporate sponsors and offers training, activities and services which have a positive impact on the whole community. The idea began in September 2003 to prevent bikes going to landfill when they could be refurbished and donated or sold to families in deprived areas. Leicestershire Constabulary is working with the city council and they are providing unclaimed bikes to the project. The bikes are used during Bikeability training to provide bikes for children who don't already own a bike in order that they can still benefit from the training. This is a community project working with and training volunteers. It provides an invaluable service for little cost.

Accident Remedial Measures – Local Safety Schemes

3.27 Local safety schemes have been implemented on the main road network, primarily at junctions to address "accident cluster sites". They often involve kerb realignments, anti-skid surfacing, the provision of safer crossing points and the elimination of conflicting traffic movements through traffic signal improvements. Our Road Safety Team investigates locations with clusters of accidents in order to develop a proposed programme of Local Safety Schemes. Each year a list of locations is produced where there have been nine or more accidents in the previous three years. The current list for 2010 has 43 such sites in the city. These sites are then investigated, giving priority to those that are at the top of the list, have more than 50% pedestrian and cyclist casualties, or are in areas where accessibility will be improved.

3.28 Our policy is to implement schemes where the Estimated First Year Rate of Return (EFYRR) is at least 100%. Schemes with higher EFYRR are more likely to be funded. While implementing local safety schemes, we will take the opportunity to consider improving walking and cycling links in the area, thus improving accessibility.

Accident Remedial Measures – Traffic Calming

3.29 Traffic calming features are used to reduce traffic speeds and rat running and to increase the perception of road safety. A well designed scheme can improve the quality of life in the local area, with routes becoming more appealing for pedestrians and cyclists. However, our air quality action plan shows that traffic calming has a slight detrimental impact on air quality, although this is due to the way drivers react to the measures. The use of markings on the road to change its character can induce more moderate driving techniques, reducing the negative impact of the feature.

3.30 Introduction of traffic calming schemes in Leicester has resulted in local accident reductions of 55%, with schemes using road humps having a 64% reduction and schemes without humps having a 33% reduction. The cost of schemes has been typically recovered within 18 months of the scheme being implemented in terms of EFYRR.

3.31 The council's existing policy is that road humps will not normally be used on local distributor roads: other measures such as chicanes, priority workings, pedestrian refuges and signing and lining being used instead. However, in exceptional circumstances (e.g. where other measures are unlikely to/have not achieved the desired reductions in accidents) consideration will be given to the judicious use of road humps on local distributor roads, but only as part of a wider package of measures.

Accident Remedial Measures – 20mph speed limits and 20mph zones

3.32 Experience in Leicestershire and more recently in the new DfT report on the Portsmouth 20 mph blanket speed limit in residential areas, suggests that signage alone gives limited success, only achieving a 1-2mph reduction. 20 mph “zones” with traffic calming features, have proved effective over a number of years in reducing casualties and speeds. We do have some areas of the city where effective traffic calming has been introduced, but as yet the speed limit has remained at 30 mph. Hence we propose to carry out the necessary signing and Traffic Regulation Orders to convert these areas into 20 mph zones. Beyond this where vehicle speeds have been found to be low i.e. below 24 mph due to parking for example, despite there being no traffic calming, then we will look at introducing 20mph speed limits on these residential roads, with a priority list being part of our implementation plan in later phases of this strategy. Where there are residential areas where the vehicle speeds are higher than 24 mph, and accident levels are high, then we will look at continuing to use traffic calming so that 20 mph zones can be introduced.

Accident Remedial Measures – Speed and Red Light Running Cameras Safety Camera Scheme

- 3.33 A very valuable component of the Leicester, Leicestershire and Rutland Road Safety Partnership, is the Safety Camera Scheme. The Partnership believes that driver attitudes towards excessive speed will only be changed by a strategy of education, supported by effective enforcement. Additional enforcement using safety cameras commenced on 1st April 2002, with a 56% first year reduction in KSI casualties at camera sites being recorded. However, as 55% of all casualties in the city occur on the main road network, most of which is already covered by Safety Cameras, there is little scope for funding additional conventional fixed speed camera sites in the city, although there are some sites where further “red light” cameras could be introduced, because of collisions at traffic signal junctions. Fast driving and hard acceleration greatly increases vehicle emissions, so enforcement of speed limits not only improves safety but also reduces CO₂ and NO_x emissions through encouraging more moderate driving.
- 3.34 The safety camera scheme has received positive support both politically and from the local media, the general view from our consultation is that safety cameras have helped to reduce speed and improve road safety. In addition, independent research carried out for us by a local consultancy indicates that there has not been accident migration resulting from the speed camera scheme, that traffic speeds are down by about 4mph and that there is no evidence that shunt accidents near to camera locations have increased.
- 3.35 The Road Safety Partnership has calculated that the fee income surpluses from providing Driver Education Workshops, where speed and red light offenders can attend in lieu of points on their licence, will nearly fund the operation of a revised safety camera scheme operation. Hence, the safety camera scheme will continue to form part of our strategy.

Accident Remedial Measures – Vehicle Activated Signs

- 3.36 Vehicle Activated Signs (VAS) and Speed Indicator Devices (SIDs) – These are signs which are triggered by driver’s speeds. The difference between them is that a VAS is a permanent sign used to treat a particular casualty problem, often involving drivers going too fast on the approach to a hazard, which cannot be treated easily by other measures. A SID is a similar device which is used as an educational tool to drivers to slow down, where there is a problem with speeding, but no casualties to warrant the use of regular enforcement or other measures. SID’s are temporary signs which should only be left at sites for a short period of time, otherwise their effect wears off and they are ignored by regular drivers through a site after several weeks’ usage. The best type of SID’s, are those which give a positive reinforcement message as well as displaying the driver’s speed. A priority list for VAS has been drawn up based on casualties, speeds and other factors. It is intended to deploy some SIDs as resources allow, in conjunction with Leicestershire Police who have some of the devices available, where speeding problems have been identified. Vehicle Activated Signs will continue to form part of our Road Safety and Active Travel Strategy.

Accident Remedial Measures – Road Safety Audit

3.37 The Road Safety Strategy will also include the provision of Road Safety Audits on all new schemes. New procedures for the Safety Audit of new Traffic/Highway Schemes in Leicester based on HA 19/03 were adopted in April 2004. We believe this will help to reduce the number of accidents arising from previously unanticipated effects of new highway improvement and maintenance schemes. Research by Surrey County Council covering 40 minor schemes of which half were audited and half were not has indicated that there is one casualty per year less on audited schemes. We will also continue to use the Leicester and Leicestershire Motorcycle Forum as a consultee to evaluate our traffic schemes at their design stage. This relationship has led to the production of design guidelines for motorcycles in traffic schemes. We also need to look more at traffic signal and street lighting schemes for road safety auditing purposes.

Managing Occupational Road Risk

3.38 The City Council's Risk Management Strategy includes a driving policy. This aims to reduce the number of personal collisions and loss incidents that are caused when employees are required to drive as part of their duties. We are seeking to improve the driving skills of employees required to drive as part of their employment, by providing "Safer Greener Driver Training", concentrating initially on those who have resulted in a number of insurance claims. It is intended to widen this to cover all persons who have occasion to drive vehicles in pursuance of or in connection with city council business. New starters will be expected to take part before they can drive either a council vehicle or their own on council business. We will be evaluating the effectiveness of the course and consider if it is appropriate to offer it as a package to private companies in Leicester that have large vehicle fleets, and are not already carrying out a similar scheme.

Street Lights

3.39 Fear of crime can be a major disincentive to walking or cycling, particularly after dark. The development of the street lighting improvement programme continues to be based on crime statistics and local views. The roll-out of converting High Pressure Sodium (HPS) and Low Pressure Sodium (LPS) lighting to newer and more efficient CosmoPolis or LED light, creates a safer night time environment as well as reducing energy costs and carbon. More information on the Street Lighting Maintenance Strategy can be found in Chapter 9.

Maintenance

3.40 We will continue the work, started in LTP2, to establish the relationship between casualties and road surface by continuing to look at accidents in damp or wet conditions and identifying locations where SCRIM testing can be undertaken. Details on our road surface maintenance strategy can be found in Chapter 9. We will continue to proactively manage essential maintenance work on carriageways, footways and cycleways.

Cycles – Routes and crossings

3.41 The London Road Corridor before and after study showed that whilst there had been an increase in the number of pedestrians(52%) and cyclists(400%) crossing London Road, the number of accidents have remain constant, therefore appropriate infrastructure can be used to encourage active travel and to minimise the level of accidents. More detail on cycling infrastructure can be found in Chapter 5. National inclusive design guidance and research should be considered when designing cycle facilities.

Advanced Stop Lines (ASL)

3.42 Studies show the use of ASL's can improve accessibility for cyclists without causing additional conflict¹⁹.

Pedestrian Facilities

3.43 There have been over one hundred new pedestrian or cycle crossings installed since 2000, and we have seen a gradual decline in the number of pedestrian accidents. Where monitoring has been carried out at new crossings the numbers of pedestrians crossing the road at that point have increased and the number of accidents has decreased. The pedestrian crossing programme is detailed in Chapter 5 Accessibility. However, it is intended to continue the programme as an accident reduction measure as well as an accessibility measure. The guidance in the Inclusive Design Action Programme should be referred to when designing pedestrian facilities.



Photo: Pupils of St John the Baptist using the zebra crossing on Clarendon Park Road

4. The Road Safety and Active Travel Strategy

4.1 In section 2 of this chapter, we looked at the current and future situations and we have appraised the options. All the options appraised in section 3 have their merits and contribute to making the roads safer and encouraging active travel. This is an extensive list of options. Whilst we recognise the importance of all these options, we acknowledge that we will not be able to afford them all. We have, therefore, prioritised these options relative to their appraisal score in combination with a realistic assessment of their benefit cost, affordability and deliverability.

¹⁹Advanced stop line research study, Atkins, May 2005

4.2 In addition to the congestion and accessibility strategies interventions that help improve road safety and encourage active travel the Road Safety and Active Travel Strategy includes the following policy options:

- » Working with Partners
- » Campaigns
 - Road Safety Education (Education)
 - Walking Promotion
 - Health Walks
 - Cycling Promotion
 - Mass Participation Cycle Rides
 - Initiatives to Encourage Cycling for Health
- » Training
 - Road Safety Training Activities
- » Accident Remedial Measures
 - Vehicle Activated Signs (Engineering and Enforcement)
 - Traffic Calming (Engineering and Enforcement)
 - 20mph speed limits and 20mph zones (Engineering and Enforcement)
 - Local Safety Schemes (Engineering)
 - Safety Camera Scheme (Enforcement)
 - Road Safety Audit
- » Street Lights
- » Maintenance
- » Cycles
- » Pedestrian facilities
- » Conventional Signs and Markings
- » Journey Planning

4.3 In delivering the Road Safety and Active Travel Strategy, we need to be realistic with regard to the resources that we are likely to have available and flexible to adapt to changing circumstances. Thus, our approach to the delivery of this objective is split into short-term and medium to longer-term.

Areas for Priority Working with Partners

4.4. Our approach to implementing the strategy will continue to be through partnership working with the Crime and Disorder Partnership, the Primary Care Trust, Sustrans, the Leicester, Leicestershire and Rutland Road Safety Partnership and other local authorities through Road Safety GB and the Midlands Service Improvement Groups.

4.5 The emphasis on encouraging more walking through campaigns means that we will be developing new partnerships with the likes of The Ramblers as part of the 'Get Walking-Keep Walking Campaign' and living streets. The Active Travel

Strategy will form part of the Physical Activity Branch of the Sports Partnership Trust. The Sports Partnership Trust was created to co-ordinate the sport and physical activity schemes throughout the city whether they be generated from the NHS, city council or any of the sports bodies. Joint working with local media groups will also be developed.

Campaigns

- 4.6 Active Travel campaigns will be targeted at areas where obesity is high particularly in children and we will concentrate on campaigns where we can work with partners to increase levels of activity, particularly where the opportunity to make access to work easier is an outcome. Road Safety campaigns will be targeted at reducing vulnerable road user casualties, through local and road safety partnership campaigns.

Training

- 4.7 We will continue to target child pedestrian in year 2, but look to develop more advanced training for year 4 children. Cycle training will continue in years 5 and 6, and will be expanded to cover key stage 3 and adult cycle training.

Accident remedial measures

- 4.8 Throughout the period of LTP2 many accident remedial measures were packaged with campaigns, training and working with partners into Safer Route Projects. Although, the full benefits of introducing Safer Routes schemes in terms of reduced accidents are only achieved in the longer term, there are also benefits for health and social inclusion that can be realised much sooner. Safer Routes Scheme are unlikely to continue, within the first few years of this strategy, as stand alone schemes, due to their cost. We will continue to co-ordinate measures, where the priorities are similar ie combining the work on a 20mph zone with pedestrian training to achieve better outcomes as part of our Road Safety and Active Travel Strategy.

5. Delivering the Road Safety and Active Travel Strategy

The Road Safety and Active Travel Policy Options identified above are included in the Implementation Plan either as individual interventions or as a package of measures, and are split into Short, Medium and Long Term time frames.

To deliver the Strategy in the short term (within this Implementation Plan period) are priorities are:

- » Continue Working with Partners
- » Continue to undertake and support Campaigns
- » Undertake business cases for carrying out large Campaigns such as hosting conferences and a large scale Walking to Work Project.

- » Continue to undertake Training with vulnerable road users
- » To establish and begin to implement a programme to make Journey Planning available to city residents
- » Continue to provide a programme of Pedestrian Facilities
- » Continue to provide a programme of Cycle routes and lanes
- » To develop a programme of Cycle Advance Stop Lines
- » Continue to undertake Accident Remedial Measures
 - Traffic Calming (Engineering and Enforcement)
 - 20mph speed limits and 20mph zones (Engineering and Enforcement)
 - Local Safety Schemes (Engineering)
 - Safety Camera Scheme (Enforcement)
- » Continue to implement a programme of Maintenance of our highway network and transport infrastructure
- » Continue to promote, install and maintain a programme of Conventional Signs and Markings
- » Even though Street Lights score low on the Option Assessment, it scored highly in safety terms and therefore, it is unlikely to be a stand alone priority, but will be incorporated into a package of measures.

Our Implementation Plan goes into further details of what we will be doing and the measures that we will most likely be delivering in the next four years to achieve this objective in the short-term. It also explains how we intend to continue to develop our approach to ensure that we maximise the benefit cost ratio of the schemes and initiatives that we do.

Delivery of this objective in the medium to longer term: Our medium to longer-term approach is also designed to be flexible and will be influenced by what our first Implementation Plan achieves. We will monitor schemes and initiatives in order to build on our successes and review the things that do not perform as well as we had anticipated. Decisions will also be informed by the availability of funding.

Based on the information available to us at the moment, in the medium term (within the next Implementation Plan period) we believe that we are likely to continue with the strategy as outlined above, but build on it by:

- » Continuing a phased programme to make Journey Planning available to city residents
- » Undertake large scale campaigns
- » To undertake a business case to establish a programme of Street Lights improvements to address identified safety concerns.

We will review our medium term approach in the light of our monitoring results and the availability of funding.

Based on the information available to us at the moment, in the longer term (beyond the next Implementation Plan period) we believe that we are likely to continue with the approach as outlined above, but build on it by:

- » Making Journey Planning available to all city residents
- » Implementing a phased programme of Street Lights improvements to address identified safety concerns.
We will review our longer term approach in the light of our monitoring results and the availability of funding.

6. Monitoring the Road Safety and Active Travel Strategy

6.1 To monitor the effectiveness of our strategy we have six key outcome indicators and five supporting indicators. The key outcome indicators are detailed in [Table 6.2](#). The supporting indicators are provided in our Implementation Plan.

Table 6.2 Improve Safety, Security and Health Performance Indicators and targets

PI Category	Ref. No,	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
Outcome	L LTP 27	Total number of casualties from road traffic accidents	1222	1328 2004-2008 average				1222	Police
	L LTP 28	Total number of child casualties from road traffic accidents	162	176 2004-2008 average				162	Police

	L LTP 29	a. Number of people killed or seriously injured in road traffic accidents	80	87				80	Police
		b. Number of Children killed or seriously injured in road traffic accidents	13	14				13	
		c. Number of Pedestrians killed, seriously or slightly injured in road traffic accidents	234	255				234	
		d. Number of Pedal Cyclists killed, seriously or slightly injured in road traffic accidents	118	128				118	
		e. Number of Powered Two Wheeler Occupants killed, seriously or slightly injured in road traffic accidents	81	88				81	
Non – transport Outcome	L LTP 30	Perceptions of anti social behaviour							
	L LTP 31	Obesity among primary school age children in Reception Year	To be set	10%	8.8%	To be set	To be set	To be set	Local Survey
	L LTP 32	Obesity among primary school age children in Year 6	To be set	18.0%	14.8%	To be set	To be set	To be set	Local Survey

6.2 The full lists of safety, security and health indicators and targets are presented in the Implementation Plan.

Chapter 7:

Improve Air Quality and Reduce Noise The Improving Air Quality and Reducing Noise Strategy





1. Introduction

The Goal we are helping to achieve in this chapter is:

Better Safety, Security and Health - Leicester's people are more active, healthy and secure

The two strategic challenges, identified in chapter 2, addressed by our Improving Air Quality and Reducing Noise Strategy are:

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

2. The Current and Future Situation – The Challenges and Opportunities

Why is Air Quality Important?

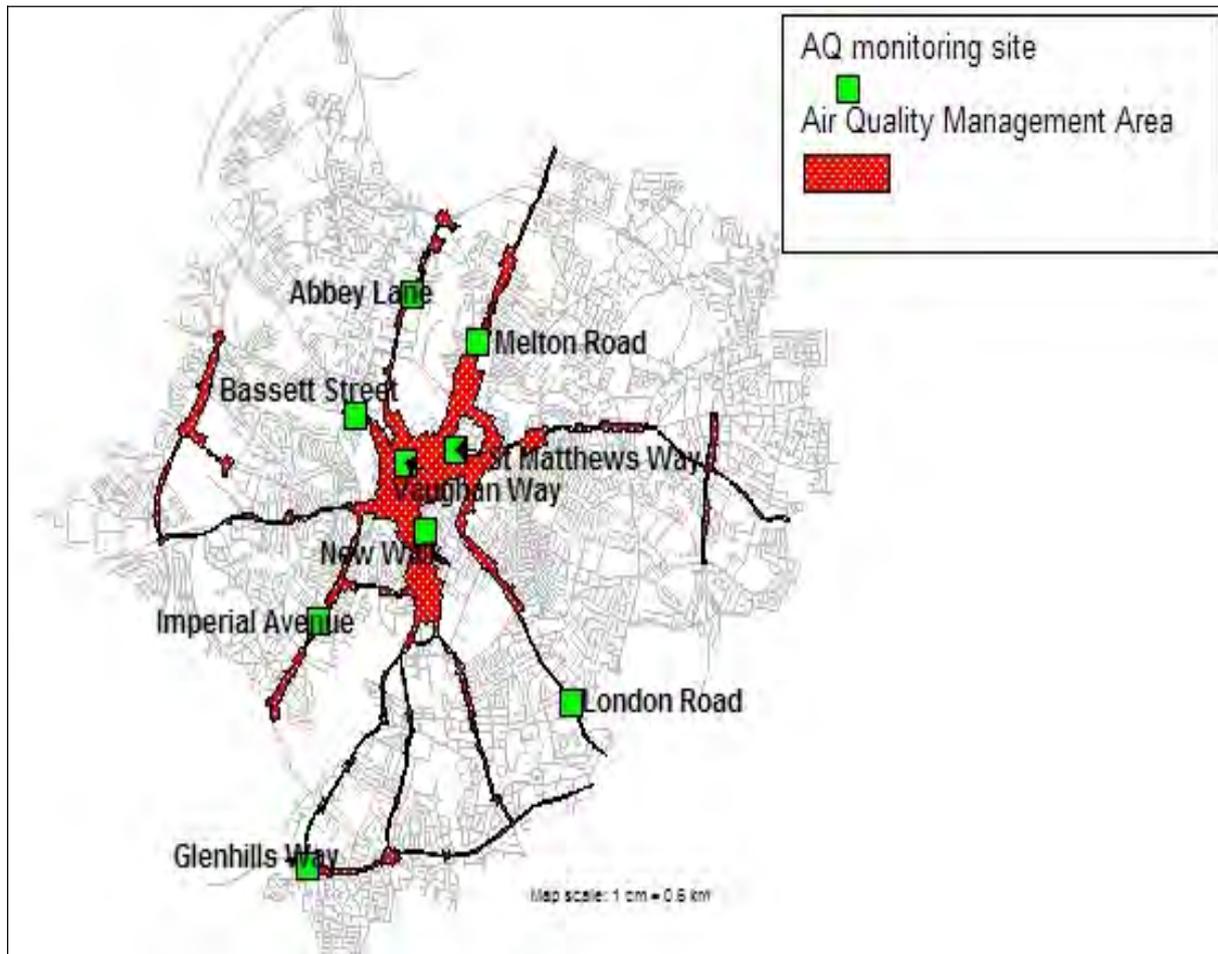
2.1 Evidence to the Parliamentary Environment Audit Committee in 2010 indicates that poor air quality –

- » Reduces the life span of everyone in the UK by an average of 7 – 8 months;
- » Causes up to 50,000 premature deaths each year in the UK. (In Leicester, this equates to at least 750 premature deaths).

2.2 This compares with about 3,000 fatalities every year on the roads and about 11,000 deaths per year caused by passive smoking.

2.3 National projections indicate that there is a worsening trend over the decade in the relationship between deprivation and exposure to bad air quality. There is also some evidence that deprived populations living in areas of poor air quality are more susceptible than the population as a whole to the harmful effects of air quality due to its combined impact with other social stressors. Analysis of the UK population demonstrates that the young are statistically more likely to live both in areas of social deprivation and of poor air quality.

Map 7.1 Leicester Air Quality Management Area © HMSO



2.4 The resident population of Leicester's Air Quality Management Area, [Map 7.1](#) is estimated to be about 3% of the City's population (9,000 people), and the affected people typically live in inner city areas and/or areas in close proximity to major roads, which correspond to areas of elevated social deprivation. Therefore, any improvement in air quality in these areas will have a disproportional benefit for the actual people most seriously affected. Disadvantaged people tend to contribute least to atmospheric emissions and also tend to be the group least able to take action to address them.

2.5 Taking the mortality figures for the UK pro-rata, we can make the crude calculation that poor air quality would lead to about 250 premature deaths per annum in Leicester. However, because of the demographic factors referred to, this is almost certainly an underestimate, and the proportion of the UK mortality attributable to deprived / polluted areas within the City will be larger.

Leicester City's Air Quality Management Area

- 2.6 Nitrogen dioxide concentrations are measured or predicted as annual average levels over the 24 hour day for all days in the year, and this is the basis for the 40ug/m³ limit value of the National Air Quality Objective. The health concern is for people with longer term exposure to concentrations above the limit value at a particular location, in buildings where the same people regularly spend the night. Areas of exposure are taken as being the residential facades which may or may not be close to the edge of the road.
- 2.7 We completed a review and assessment of air quality in 2000 and then declared our Air Quality Management Area, in accordance with the Environment Act 1995, with respect to nitrogen dioxide levels. This review confirmed that there is not a need to proceed to a Detailed Assessment for Benzene, 1,3-butadiene, lead, sulphur dioxide, carbon monoxide and PM10 particulates.
- 2.8 The only exceedance of National Air Quality Objectives in Leicester is due to the level of nitrogen dioxide in close proximity to the major road network; the dominant source being vehicle exhaust emissions. Leicester city has a network-wide problem with nitrogen dioxide and so there is a single, extensive, AQMA centring on the main road network and the city centre. Some of the worst areas are: Abbey Lane, Melton Road, Glenhills Boulevard and St Matthews Way, and along the outer ring road towards the Fosse park area leading to Junction 21 of the M1. Annual mean values in the worst affected residential area (St. Matthews) are 56 microgrammes per cubic metre and at the worst site (Glenhills Way), levels were 75 microgrammes per cubic metre in 2009.
- 2.9 We conducted further air quality review and assessments in 2003 and in 2007. The 2007 review necessitated the extension of the AQMA in April 2008 to include an additional 102 houses on the west (northbound) frontage of the Abbey Lane corridor. [Map 7.1](#) shows the extent of the current air quality management area. [Table 7.1](#) provides details of the levels of nitrogen dioxide at our monitoring stations from 2005 to 2009. Computer air dispersion scenario modelling indicated that delivering our all Local Transport Plan 2006-11 Improving Air Quality Strategy activities would fail to meet the statutory Objective for nitrogen dioxide at all of our monitoring sites by 2011 by a substantial margin. This indicated that action beyond the scope of the Local Transport Plan was and is required if the National Objective level is to be met at all of the monitoring stations on the main road network.

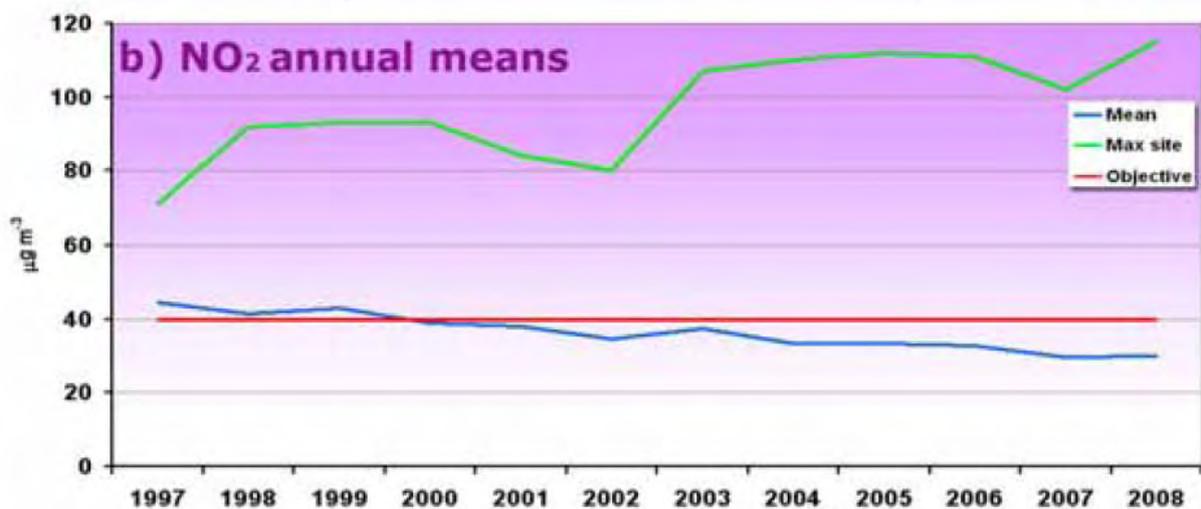
Table 7.1 Levels of Nitrogen Dioxide at Monitoring Stations

Location	Distance from curb (m)	Coordinates	Year	Data capture %	Annual Mean NO ₂ level (µgm-3)
AURN	35	X 458763 Y 304065	2005	97	31
			2006	98	30
			2007	99	32
			2008	99	28
			2009	94	33

Melton Road	3	X 459528 Y 306316	2005	99	52
			2006	99	50
			2007	99	53
			2008	100	53
			2009	97	56
Imperial Ave	7.5	X 457245 Y 303040	2006	99	35
			2007	99	36
			2008	99	34
			2009	98	34
Abbey Lane	7	X 458574 Y 306885	2005	98	46
			2006	97	44
			2007	99	45
			2008	99	44
			2009	99	54
Glenhills Way	3	X 457083 Y 300156	2005	97	57
			2006	100	68
			2007	99	66
			2008	99	67
			2009	99	75
Uppingham Road	2	X 461188 Y 305306	2005	99	35
			2006	99	35
			2007	94	37
			2008	99	36
			2009	99	34
St Matthews Way	2	X 459221 Y 305036	2005	98	52
			2006	87	58
			2007	99	56
			2008	91	51
			2009	97	56
Vaughan Way	3	X 458507 Y 304904	2005	41	49
			2006	99	53
			2007	99	56
			2008	99	57
			2009	99	57
London Road	3	X 460843 Y 302059	2006	84	29
			2007	92	34
			2008	97	32
			2009	98	32

2.10 As a result of these findings we were obliged to produce an Air Quality Action Plan (AQAP) aimed at addressing the levels of nitrogen dioxide. The first edition was included as an annex in the Central Leicestershire Local Transport Plan 2006-11. The measures described in the AQAP included many of the schemes and initiatives that we have been implementing to manage congestion and hence help to improve air quality.

Graph 7.1 UK monitoring network average NO₂ concentrations



(UK Air Pollution, DEFRA 2008)

Central Leicestershire Districts - Air Quality Management

2.11 Since the air quality legislation came into effect in 1995 there has been joint working through the Air Quality Forum between the district councils, Leicester City Council and Leicestershire County Council. This section of the LTP has been prepared through consultation with the Air Quality Forum. At the November 2009 EPUK Conference, Leicester was amongst five local authorities chosen as good examples of air quality action planning. Leicester's managing of congestion through urban traffic management and control was highlighted as effective action to improve air quality.

National Trends in Air Quality

2.12 To what extent air quality in the UK is improving or deteriorating is difficult to say given the variation in measured concentrations relating to meteorological conditions. As a result, it is sometimes hard to tell whether measured variations in pollutant concentration are the direct result of policy measures or are associated with meteorological conditions. Nitrogen dioxide is emitted directly in motor vehicle exhausts ('primary NO₂') but most of it forms secondarily from nitric oxide (NO) emitted in the exhausts. The atmospheric combination of NO plus NO₂ is referred to as 'NO_x':

2.13 Concentrations of NO₂ should have clearly declined between 1995 and 2008, as a result of reductions in emissions of NO_x. These reductions have principally been in relation to emissions from road traffic, resulting from the Euro standards for new vehicles, and emissions from industry and power stations. Further reductions in UK-wide concentrations have been predicted as emissions decline further towards 2020. UK monitoring network average NO₂ concentrations (Graph 7.1) have been steadily declining over the last two decades and have been below the objective value since 2000; this trend looks set to continue. However, by contrast the highest concentrations of NO₂ measured by the network appear to have been increasing over time at several of the busiest roadside monitoring sites.

While this increase may have levelled off since 2003, concentrations at the most polluted sites remain well above the objective level.

2.14 This increase in the relative proportion of NO₂ in overall NO_x is making it harder to meet UK air quality Objectives and EU Limit values. Indeed, the UK has failed to meet 2010 European Legislative deadline for nitrogen dioxide and now faces legal proceedings. Research has indicated that this is largely attributable to the increased proportion of primary NO₂ in the exhaust of diesel vehicles, associated with the increasing penetration of light diesel vehicles into the national fleet. Euro standards regulate NO_x emissions, not NO₂ and some technology choices by vehicle manufacturers appear to be actually increasing the NO₂ : NO_x ratio especially in diesels, while overall NO_x (and CO₂) emissions are falling in newer vehicles (i.e. less NO_x is being emitted but more of it is being emitted as NO₂). Hence, increasingly stringent vehicle emissions standards are not being reflected in a fall in NO₂ levels at busy roadsides and, indeed may even be exacerbating the problem.

Leicester's Noise Action Plan

2.15 The Environmental Noise Directive (END) requires the production of noise maps, which are intended to inform the production of Noise Action Plans (NAP) for large urban areas. END concerns noise from road, rail and air traffic as well as from industry. It focuses on the impact of such environmental (ambient) noise on individuals. In England, END is implemented through The Environmental Noise (England) Regulations 2006. The Regulations confirm that Secretary of State is the Competent Authority for preparing the Action Plan. In the current round of noise mapping it was not possible to gain more than an indication of the night noise impact from road traffic. As part of the long term strategy, the Competent Authority will establish a mechanism that secures robust data regarding traffic flow and associated information for the night period (23.00 – 07.00). Additionally, it will work with the Highways Agency and others, to develop a robust prediction methodology for night noise from road traffic. This will enable a greater focus to be made on the management of night time road traffic noise given the increasing emphasis being put on the effects of night noise by the World Health Organisation.

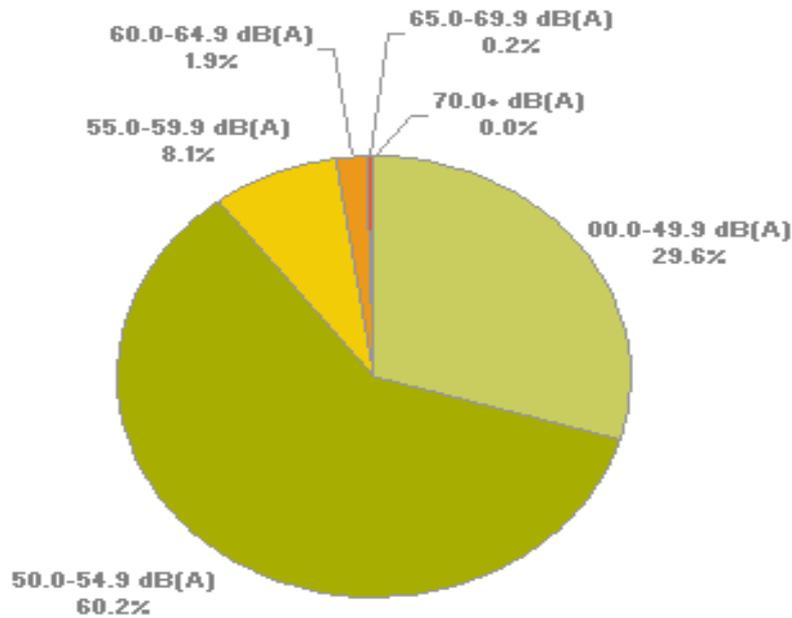
2.16 Leicester's Noise Action Plan was published by Defra in March 2010. The document can be viewed as part of the LTP3 evidence base. The management of noise in Leicester rests with various authorities including;

- » For road traffic sources – the city council as highway authority and the Department for Transport
- » For land use planning – the city council as planning authority and the Department for Local Government and Communities

2.17 Noise maps provide a strategic assessment of noise exposure in different areas. They can be linked to population data to estimate how many people are affected by different levels of ambient noise, and the source of that noise. In large urban areas noise from major and other roads and railways and significant industrial areas has been mapped. The current Leicester noise map is for 2006, and a segment with day time noise levels is shown below. The pink shading shows the

areas with the higher noise levels. The close correlation between areas of high road noise levels and those with poor air quality is readily apparent. The Regulations require that noise maps be produced again in 2012 (for 2011), and every five years thereafter.

Graph 7.2 Exposure of Leicester population to night time noise levels



2.18 The Environmental Noise Directive requires noise mapping to establish;

- » Number of people exposed to noise levels > 55db(A) Lden
- » Number of people exposed to noise levels > 50db(A) Lnight

2.19 [Graph 7.2](#) gives the exposure of the Leicester population to differing night time noise levels.

2.20 A summary of the noise mapping results for the Leicester agglomeration (Leicester conurbation) are provided below. The Regulations required that noise level information be determined in terms of several noise indicators. These include: Lden (the average levels during Daytime, Evening and Night, where evening noise incurs a 5dB penalty and night noise a 10dB penalty), Lnight; and LA10,18h (the noise level exceeded 10% of the time in the 18 hour day). The estimated number of people and dwellings exposed above various noise levels from the strategic mapping of road traffic noise in the Leicester conurbation are shown in Tables 7.2 to 7.4 below:

Table 7.2 Estimated number of people and dwellings above various noise levels due to road traffic noise, Lden

Noise Level (Lden) (dB)	Number of Dwellings	Number of People
≥55	171,000	413,000

Map 7.2 – Leicester Noise Map



Table 7.3 Estimated number of people and dwellings above various noise levels due to road traffic noise, Lnight

Noise Level (Lnight) (dB)	Number of Dwellings	Number of People
≥50	134,000	322,000

Table 7.4 Estimated number of people and dwellings above various noise levels due to road traffic noise, LA10,18h

Noise Level (LA10,18h) (dB)	Number of Dwellings	Number of People
≥55	171,000	414,000

2.21 The Action Plan has been designed to manage noise issues and effects, including noise reduction if necessary. The Regulations require that this Action Plan should “apply in particular to the most important areas as established by strategic noise maps”. To fulfil this requirement, attention has been focused on those most exposed to noise (according to the results of the strategic noise mapping) from

those roads mapped. The Competent Authority has decided, therefore, to use the LA10,18h indicator as the basis for identifying important areas to be investigated for potential action. It has been decided that the important areas with respect to road traffic noise in this agglomeration will be where the 1% of the population that are affected by the highest noise levels from those roads mapped are located according to the results of the strategic noise mapping (“Important Areas”). This approach has been taken because the population at these locations are likely to be at the greatest risk of experiencing a significant adverse impact to health and quality of life as a result of their exposure to road traffic noise.

2.22 In addition, those locations where the LA10,18h is at least 76 dB according to the results of the strategic noise mapping have been identified as First Priority Locations (“First Priority Locations”). It is envisaged that in general the highways authorities will investigate as a priority the Important Areas that contain First Priority Locations. The LA10,18h indicator describes only the noise that occurs between the hours of 0600 and 2400 and doesn’t cover the night period. Even so, the identification of Important Areas has been based solely on the LA10, 18h value. This reflects the fact that for the first round of mapping the Lnight values had to be derived. Furthermore, implementing many of the potential actions available to manage noise issues and effects would not only address the noise as measured by the LA10, 18h indicator but also the noise that occurs at night.

Important Areas

2.23 [Table 7.5](#) below shows the approximate number of dwellings and associated population to be investigated for potential action with respect to road traffic noise in this agglomeration for any relevant local authority that is wholly or partly within this agglomeration:

Table 7.5 Approximate number of dwellings and associated population per authority to be investigated due to noise from those roads mapped

Local Authority	Number of Dwellings	Associated Population
Leicester City Council	1,550	3,500
Blaby District Council	150	500
Charnwood Borough Council	< 50	< 100
Hinckley and Bosworth Borough Council	< 50	< 100
Oadby and Wigston Borough Council	250	600
TOTAL	2,000	4,700

First Priority Locations

2.24 [Table 7.6](#) below shows the approximate number of dwellings and associated population in this agglomeration that have been identified as First Priority Locations with respect to road traffic noise for any relevant local authority that is wholly or partly within this agglomeration:

Table 7.6 Approximate number of dwellings and associated population per authority to be investigated as a first priority due to noise from those roads mapped

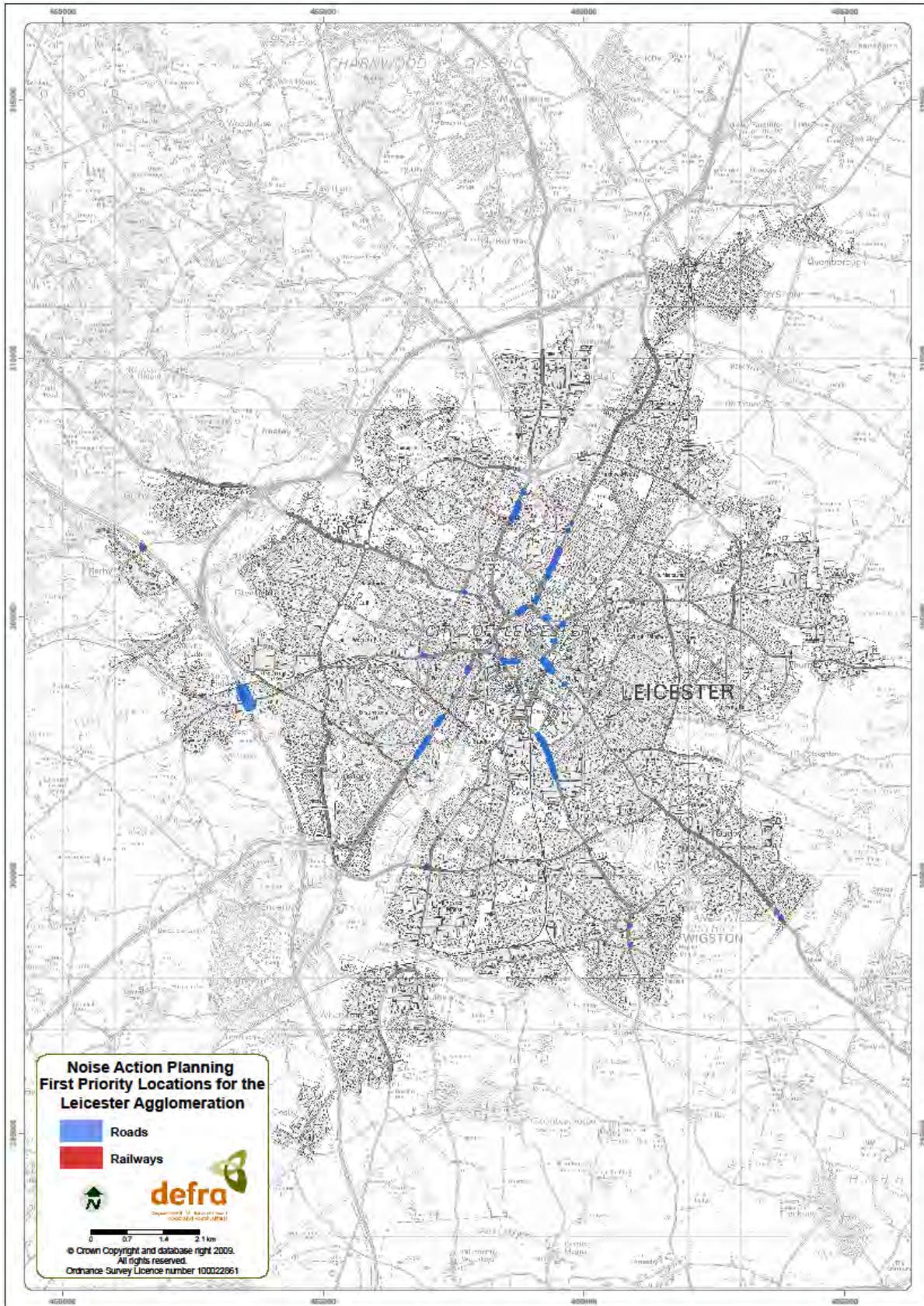
Local Authority	Number of Dwellings	Associated Population
Leicester City Council	200	600
Blaby District Council	< 50	< 100
Hinckley and Bosworth Borough Council	< 50	< 100
Oadby and Wigston Borough Council	< 50	< 100
TOTAL	250	700

2.25 It is envisaged that the highway authorities will investigate as a priority the Important Areas that contain First Priority Locations whilst having regard to any ongoing noise mitigation initiatives, schemes and plans. The highway authorities, however, may use their discretion when deciding on the investigation priority. Map 7.1 shows the location of the First Priority 200 dwellings in Leicester with respect to road traffic noise. The map has been made using computer modelling techniques, based on information such as traffic flow data, road/rail type, and vehicle type data. No actual noise measurements have been made in the production of these strategic maps. The modelling, where necessary, also took account of features which affect the spread of noise such as buildings and the shape of the ground (e.g. earth mounds), and whether the ground is acoustically absorbent (e.g. fields) or reflective (e.g. concrete or water). The calculations produced noise level results on a 10m grid at a receptor height of 4m above ground, as required by the END and the Regulations.

2.26 As required by the Environmental Noise (England) Regulations 2006, in this first round of mapping, maps have been produced for major roads which have more than six million vehicle passages a year, and major railways which have more than 60,000 train passages a year. For the second round of mapping in 2012, in addition to re-mapping the areas covered in the first round, roads having more than 3 million vehicle passages per year and railways with more than 30,000 train passages per year are to be mapped. All agglomerations with a population of over 100,000 will also be mapped. The actual roads, railways and agglomerations to be mapped in the second round will be subject to confirmation based on the most up to date data available at the time.

2.27 The noise map is only intended to be used for strategic assessment of noise levels in any given area. They should not be used to attempt to determine, represent or imply precisely the noise levels at individual locations (e.g. individual houses, windows). It should also be borne in mind that the noise levels shown are for an average day in the year, and therefore do not show the specific noise from individual vehicles, trains, or aircraft or from discrete industrial activities. We have reviewed the noise locations and assessed our own noise related records and have concluded that we haven't any specific issues with noise at these locations.

Map 7.3 – First Priority Locations for the Leicester Agglomeration



2.28 A web-based support tool is currently being developed which is scheduled to go live on 1st April 2011. This will help the local highway authorities to investigate and assess the First Priority Locations and decide at which locations it is possible to implement any action to reduce noise levels. These decisions will then be passed to the relevant department of the relevant (sometimes the same) local authority with responsibility for the communities affected by the noise source (eg the land use planning and/or environmental health department). They will have the opportunity to comment on the highway authority's assessments, and the highway authority will make changes in response to their comments (or, if not, provide an explanation as to why not). These agreed assessments will then be passed on to DEFRA. The local authority will have approximately a year to complete this process from the "going-live" date of the support tool.

National Picture - Noise

2.29 The Noise Policy Statement for England sets out the long term vision of Government noise policy:

"Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development".

This long term vision is supported by the following aims:

- » Avoid significant adverse impacts on health and quality of life;
- » Mitigate and minimise adverse impacts on health and quality of life; and
- » Where possible, contribute to the improvement of health and quality of life.

2.30 A key phrase within the Noise Policy Statement for England vision is "health and quality of life". It is recognised that noise exposure can cause annoyance and sleep disturbance both of which impact on quality of life. It is also agreed by many experts that annoyance and sleep disturbance can give rise to adverse health effects. The distinction that has been made between "quality of life" effects and "health" effects recognises that there is emerging evidence that long term exposure to some types of transport noise can additionally cause an increased risk of direct health effects. The Government intends to keep research on the health effects of long term exposure to noise under review in accordance with the principles of the Noise Policy Statement for England. The Noise Policy can be viewed as part of the LTP3 evidence base.

Opportunities to improve air quality and reduce noise

2.31 The most significant opportunity is that many short car journeys in and around Leicester could be converted to walking or cycling trips. Some 50% of journeys to work are less than five kilometres. Additionally, 36% of Leicester commuters who do not use public transport, walk or cycle to access employment live within 400m of a bus stop and 82% of Leicester's residents work within Leicester. We have developed good cycling promotion coupled with key projects (such as Cycle city workshop, bike projects and cycle shops) that has helped to increase the number of people cycling by 81% between 2004 – 2009. Due to the increase numbers



Chapter 7: Improve Air Quality and Reduce Noise

The Improving Air Quality and Reducing Noise Strategy

of people cycling, there is potential to develop and build upon our existing infrastructure, parking facilities and improvement our bike parking and cycle signing.

2.32 We can use the planning process to help implement our improving air quality and reducing noise strategy - our Principal Urban Area study has indicated that there will be an increase in the number of homes. We need to cater for this new growth but we need to ensure that we have sustainable travel.

Integrated traffic management research

2.33 Integrated Traffic Management and Air Quality (ITRAQ) is a project to develop a dynamic traffic management system for optimising use of the road network whilst meeting the growing demands, from Government across the UK and Europe and from the European Commission, to sustain high standards of air quality in urban environments.

2.34 The project is being proposed to the European Space Agency's (ESA) Integrated Applications Programme by a consortium (Infoterra Ltd, Leicester City Council, DeMontfort University and The University of Leicester) whose combined expertise includes intelligent traffic management systems using GNSS and air quality applications using space services technologies.

2.35 The approach draws on earlier research and development on traffic flow strategies and traffic induced pollution involving the council and the universities. As the industry lead, Infoterra Ltd have wide ranging interests in applications of space technologies and are long-standing collaborators with the scientists at The University of Leicester.

2.36 The ITRAQ project will proceed in three stages. A feasibility study over one year to define the dynamic traffic management system (including a pilot demonstration of feasibility), a full scale 2-3 year demonstration project to establish operational capability (together with economical and technical viability) and roll-out of an operational system.

2.37 The proposal to ESA is for the first step only, in which the system concept will be developed around an existing operational traffic control system in use in the city of Leicester, but augmented with traffic flow and air quality modelling and near real-time data from space and in-situ measurements. A pilot demonstration (included in this feasibility phase) will be specific to the Leicester environment but will serve as a test case for traffic and air quality management for a considerable number of other cities with similar post-industrial environments and populations in the UK and Europe.

2.38 However, the economic viability of ITRAQ depends on the system being portable to other traffic and living environments such as large metropolitan cities, small market towns, county zones and rural areas. Diversification of the system concept to other environments will be tackled in the demonstration phase of the project.

2.39 We will consider support for the development of the project on an on-going basis depending on any emerging outcomes. Such support will need to be considered in the context of our other priorities and the government's current priority of reducing the budget deficit.

3. Appraising the Options

3.1 The option assessment described in Chapter 3 demonstrated that many options could be considered to form part of our Improving Air Quality and Reducing Noise Strategy. Most were identified as forming part of our Congestion, Reducing Carbon, Accessibility, and Active Travel and Road Safety strategies. Hence, several of the key options are described in other strategy chapters relevant to them. Cross references are provided below to those descriptions:

Table 7.7: Further Options for improving Air Quality and Reducing Noise:

Option	Page Reference
Working with Partners (company & school travel plans, cycling, health, education, business, environment)	109, 151, 151 -152
Public transport focused development	121-122, 154
Buses/Services – Lower Emission	241
Charging (Pricing)	119 -121
Journey Planning	117
Public Transport Routing	118
Cycles	110, 161 -163, 190 -192
Pedestrian Facilities	110, 144, 148, 189 -190
Bus Stations and Interchanges	111, 155
Bus Fares	110, 156
Bus Corridors	110 - 111
Maps	94, 160
Variable Message Signs	93, 163
Buses/Services (QBP, Contracted/Supported, Relocation/Operational Times)	88 -90, 159
Rail	114- 116
Maintenance	Chapter 9
Parking (Controls and Restrictions)	92, 123 -125
Traffic Lights (If SCOOT linked)	109
Roads (Junction Improvements, High Occupancy Vehicle (HOV) lanes)	111, 116
Park and Ride	113

3.2 The effectiveness of the above measures in improving air quality and reducing noise is not discussed in the other chapters, however, it will correlate closely with their effectiveness in achieving a modal shift from car journeys to trips by other modes and in reducing congestion.

3.2 This section provides an analysis of the other options not forming part of the above Strategies which we intend to take forward as part of our approach to Improving Air Quality and Reducing Noise Strategy.

3.3 In 2009 we carried out an option identification and analysis specifically for updating the Air Quality Action Plan. This used the principles put forward in the guidance published by the National Society for Clean Air and Environmental Protection. Funding was obtained from the DEFRA Air Quality Grant Scheme to review and update Leicester's Air Quality Action Plan during the preparation of this Plan. The Transport Research Laboratory (TRL Consultants) was commissioned to review the current Air Quality Action Plan (AQAP) (Central Leicestershire Local Transport Plan 2006-11, Annex 11). TRL submitted their final report in December 2009 (Final Project Report CPR 585 – Revised Air Quality Action Plan Interventions, Savage A. and Turpin K.).

3.4 TRL carried out the following steps to produce a package of interventions that could potentially be incorporated into a revised AQAP for Leicester City Council. These steps are based on Defra's recommendations in its policy guidance (PG(03) and PG(09)) for elements to be included in a local authority AQAP (Defra, 2003 and 2009):

1. Identification and quantification of source contributions to predicted objective exceedances.
2. A review of recent local documents, policies and best practices.
3. An initial assessment of potential interventions, and prioritisation of interventions for use in Leicester
4. Consultation of interventions (a stakeholders workshop involving key disciplines was held and options evaluated and ranked).
5. Detailed assessment and quantification of preferred interventions.
6. Identification of a package of interventions for inclusion in a draft revised Air Quality Action Plan.

This work has helped inform our option appraisal work as part of this Local Transport Plan.

3.5 The main source of nitrogen dioxide is vehicle exhaust emissions from traffic. All options considered as part of our continued air quality action planning process are aimed at reducing or positively influencing one or more of the factors below:

- » Vehicle-kilometres travelled;
- » Emissions per vehicle-kilometre; or
- » Repositioning / changing traffic flows, in relation to critical, sensitive locations, or vic versa.

3.6 In addition to the options appraised in the congestion, carbon reduction, accessibility and road safety & active travel strategy chapters; the following options are identified for appraisal as part of this strategy:

Working with Partners

- 3.7 We are currently working with the Quality Bus Partnership (QBP), Freight Quality Partnership (FQP), and Health Authorities. Air pollution is currently estimated to reduce the life expectancy of every person in the UK by an average of 7-8 months, with estimated equivalent health costs of up to £20 billion each year. There are significant benefits to be gained from further improvements.

About 90% of the measured nitrogen dioxide in Leicester is derived from motor vehicles. Of this, about 60% is from heavy vehicles. Encouraging the use of lower emission vehicles, and raising environmental awareness with regard to operations can help improve air quality and reduce noise. Through commissioning bus services we take the opportunity to specify low emission vehicles as and where appropriate such as on park and ride services.

Campaigns and Training – To promote more economical driving styles

- 3.8 Campaigns to influence driving styles and short journeys are part of the strategy as short car journeys cause up to 60% more pollution per mile than longer journeys. This is because an engine does not run efficiently and the catalytic converter does not work properly until the engine is hot. In Leicester, 41% of journeys made by car are less than two miles, and 77% are less than five miles. Promoting more economical driving styles and other simple pollution saving tips could, if widely taken up, have a relatively large impact on air quality as well as saving the motorist money. The city council is leading by example through implementation of Greener Safer Driving for employees who drive in the course of their work.

Freight – Promotion of good practice to fleet managers

- 3.9 Our work through the Freight Quality Partnership with fleet managers aims to continue to raise awareness of pollution issues and encourage investment in vehicles and good practice generally. We believe that a small amount of officer time doing this work is high value for money. Distribution depots outside the city where large lorries (HGVs) transfer loads to smaller, cleaner vehicles for distribution within the city could reduce congestion and emissions in Leicester. Some large stores within the city such as Marks and Spencer and BHS already operate a policy of consolidating loads to reduce delivery journeys.

Low Emission Vehicles, Infrastructure and Initiatives – Low Noise Road Surfacing

- 3.10 Over recent years, the use of low noise roads surfaces has become increasingly widespread. These surfaces are now routinely used for new strategic roads, and are generally used when the road surface has to be replaced due to wear and tear.

Low Emission Vehicles, Infrastructure and Initiatives – Traffic Management Schemes

3.11 These can manifest themselves in several ways:

- » The re-routing of traffic away from sensitive receptors; restrictions on the type of traffic (e.g. heavy vehicles) that can use certain roads at certain times of day; and
- » The design and building of new roads to provide an alternative route away from noise sensitive premises.

Low Emission Vehicles, Infrastructure and Initiatives – Low Emission Zones

3.12 A Low Emission Zone (LEZ) refers to a geographic area within which a low emission strategy applies. An LEZ supported by active barrier control on major routes, combined with traffic management to prevent non-compliant vehicles finding alternative routes, could bring high and medium reductions in air pollutant and carbon emissions respectively. LEZs need to be combined with other interventions to be successful.

3.13 The immediate imposition of an LEZ, where only vehicles of, say, less than three years old are permitted to enter, would harm the economy as it will take time for business to adapt to new working practices and purchase and operate new vehicles. We need to work with businesses over time to reduce pollution from vehicles to ensure that our measures as a complete package support a vibrant city centre and thriving economy. We will ensure that new development does not prejudice a possible future LEZ. We will note progress with better air quality and keep the case for an LEZ under review as regeneration proceeds. We will also learn from Cambridge's proposal for an emissions envelope for the city centre area by facilitating reduced emissions from buses in total. Bus operators will be expected to work within an overall emissions allowance with a year on year reduction. The ability to run extra services to cater for growth and patronage increases will depend on emission improvements elsewhere in the fleet. We will be considering options for improved partnership working with the bus companies as part of the city centre bus improvements and we will take into account the experiences from Cambridge as part of this development work.

Low Emission Vehicles, Infrastructure and Initiatives – Tree planting initiatives

3.14 Trees and foliage are well known for improving air quality and reducing noise transmission. We therefore support tree planting as part of highway schemes where appropriate.

Land Use Measures – Low Emission Strategies

3.15 Toxic air pollutants and greenhouse gases arise from similar emission sources. The planning systems for land use and transport are an important part of an integrated approach to air quality improvements and carbon reduction. Low emission strategies aim to provide a package of measures to help mitigate the transport impacts of development by accelerating the uptake of low emission transport

fuels and technologies in and around new development.

Measures may address both construction and operational phases of a development. Typical operational phase measures include parking policies, investment in low emission infrastructure, fleet emission improvement, emission based tolling, procurement and supply chain initiatives and contributions to local transport projects and strategic monitoring. The cumulative impacts of transport emissions from development can be mitigated by requiring contributions to a central low emission fund to assist the implementation of air quality action plans, climate change action plans and local transport plans.

4. The Improving Air Quality and Reducing Noise Strategy

4.1 Continued close cooperation between transport planning, environmental (air quality, noise and carbon reduction) and spatial planning professionals within the city council, as well as with partner organisations, provides a strategic approach to improve air quality and reduce noise to those living in areas of exposure, near to busy roads and junctions. This will therefore help to improve peoples' quality of life. The "transport" strategy for Improving Air Quality and Reducing noise in Leicester is focused on reducing air and noise pollution caused by traffic by encouraging and facilitating more people to travel by public transport, walking and cycling. This will be achieved mainly through delivering the congestion strategy (Chapter 4), the road safety and active travel (Chapter 6) and the carbon reduction strategy (Chapter 8). The congestion, carbon reduction and active travel strategies and programme of schemes therein are informed by and have influenced the preparation of the latest edition of Leicester's Air Quality Action Plan. This plan has also been prepared on the basis of the need to be realistic and achievable in the context of the government's current priority of reducing the budget deficit. This means that progress will not be as fast as we would like due to limited funding opportunities.

Leicester's Air Quality Action Plan 2011 - 2026

4.2 Leicester City Council has a duty under the Environment Act 1995 to publish and keep up to date an Air Quality Action Plan (AQAP). The second edition of Leicester's AQAP is published as [Annex 4](#) to this document. It shows how the measures contained in the proposed LTP Programme (Delivering our Transport Goals: Leicester's Implementation Plan 2011 to 2015) and beyond will enable the Authority to continue to move towards meeting the air quality objectives. It also justifies the selection of the measures in terms of value for money.

Leicester's Noise Action Plan

4.3 The implementation of the part of the Action Plan concerned with road traffic noise in this agglomeration will be a continuous process commencing from the adoption of the plan. As required by the Regulations, this Action Plan will be reviewed at least once every five years. In addition to the options considered for appraisal in section 2 of this chapter future noise impacts will be controlled through the operation of the national, regional and local transport and land use planning system. For large scale projects, an Environmental Impact Assessment

is required by law, which normally includes a noise impact assessment. Mitigation such as optimising route alignment and the use of noise barriers, either through landscaping or purpose built walls or fences, is included in the design of new schemes to minimise any adverse noise impact. In the case of a new or improved highway this can be through the provision of compensation and insulation.

4.4 In addition to the congestion strategy and road safety and active travel strategy interventions the Improving Air Quality and Noise Reduction Strategy includes the following options appraised above:

- » Campaigns to promote more economical driving styles
- » Promotion of good practice to fleet managers (through our FQP)
- » Low Noise Road Surfacing

5. Delivering the Improving Air Quality and Noise Reduction Strategy

5.1 From the Policy Instrument Options table in Chapter 3 it can be seen that the overarching/key strategic policy options for improving air quality and reducing noise, excluding any additional specifically for delivering the congestion strategy, are:

- » Working with Partners
 - QBP, FQP
- » Campaigns and Training
 - To promote more economical driving style
 - To attract car drivers to switch to other mode
- » Freight
 - To promote good practice to fleet manager
- » Lower Emission Vehicles, Infrastructure and Initiatives
 - Low noise road surfacing
 - Traffic management schemes
 - Low Emission Zone
 - Planting trees
- » Land Use Measures
 - Low Emission Strategies
- » Working with Partners (Other Policy Instruments – see [Table 7.7](#))
- » Public Transport Focused Development (Appraised in Chapter 4)
- » Buses/Services – Low Emissions (Appraised in Chapter 8)
- » Charging (pricing) (Appraised in Chapter 4)
- » Journey Planning (Appraised in Chapter 4)
- » Public Transport Routing (Appraised in Chapter 4)
- » Cycles (Appraised in Chapters 5 & 6)
- » Pedestrian facilities (Appraised in Chapter 5)

5.2 The above Policy Instruments can then be split into Short, Medium and Long Term Objectives. The most effective Policy Instruments options will be packaged

together to deliver the Strategy.

5.3 To deliver this objective in the short term (within this Implementation Plan period) we are likely to:

» Continue Working with Partners (QBP, FQP and Health authorities) to deliver

Lower Emission Vehicles

- » Continue to undertake and support Campaigns such as to promote more economical driving styles and, through the city council's grey fleet project discourage staff use of their own cars on business trips
- » Continued implementation of Greener Safer Driver Training Courses
- » Through our Freight Quality Partnership continue raise awareness of pollution issues and encourage investment in 'greener' vehicles and operational practice.
- » Lower Emission Vehicles, Infrastructure and Initiatives:
 - To continue the roll out of low noise road surfacing when and where appropriate, often in association with maintenance schemes
 - To seek opportunities to re-route traffic away from sensitive receptors and consider restrictions on certain types of traffic using certain roads at certain times
 - Promote the merit of further investigations into a Low emission zone
 - To promote the use of Land Use Measures in the planning process to accelerate the uptake of low emission transport, fuels and technologies in and around new development

5.4 The measures and schemes that will deliver the strategy are detailed in our Implementation Plan. It goes into further details of what we will be doing and the measures that we will most likely be delivering in the next four years to achieve this objective in the short-term. It also explains how we intend to continue to develop our approach to ensure that we maximise the benefit cost ratio of the schemes and initiatives that we do.

5.5 Delivery of this objective in the medium to longer term: Our medium to longer-term approach is also designed to be flexible and will be influenced by what our first Implementation Plan achieves. We will monitor schemes and initiatives in order to build on our successes and review the things that do not perform as well as we had anticipated. Decisions will also be informed by the availability of funding.



Chapter 7: Improve Air Quality and Reduce Noise

The Improving Air Quality and Reducing Noise Strategy

5.6 Based on the information available to us at the moment, in the medium term (within the next Implementation Plan period) we believe that we are likely to continue with the strategy as outlined above, but build on it by:

- » Working with Partners (QBP, FQP and Health authorities) to produce a business case for a Low Emission Zone
- » Lower Emission Vehicles, Infrastructure and Initiatives:
 - Produce business case for a Low emission zone
- » To use Land Use Measures in the planning process to accelerate the uptake of low emission transport, fuels and technologies in around new development

5.7 We will review our medium term approach in the light of our monitoring results and the availability of funding.

5.8 Based on the information available to us at the moment, in the longer term (beyond the next Implementation Plan period) we believe that we are likely to continue with the approach as outlined above, but build on it by:

- » Working with Partners (QBP, FQP and Health authorities) to deliver a Low Emission Zone if a successful business case has been established
- » Lower Emission Vehicles, Infrastructure and Initiatives:
 - To deliver a Low emission zone if a successful business case has been established

5.9 We will review our longer term approach in the light of our monitoring results and the availability of funding.

6. Monitoring the Improving Air Quality and Noise Reduction Strategy

6.1 To monitor the effectiveness of our strategy we have three key outcome indicators. Supporting indicators are shown in [Table 3.12](#) of our Air Quality Action Plan. The key outcome indicators are detailed in [Table 7.7](#).

6.2 The full lists of air quality and reduce noise and quality of life indicators and targets are presented in the Implementation Plan. The supporting indicators are provided in our Implementation Plan. For the Central Leicestershire Local Transport Plan 2006 – 11 we set the target for the indicators through computer air dispersion modelling that reflected the implementation of our improving air quality strategy.

6.3 For current targeting setting we considered the extent to which schemes in the 2006/11 programme had been delivered, the availability of accurate up to date traffic flow information from our proposed congestion strategy in this Local Transport Plan, the results measured over the last four years, the likely programme of works over the next four years noting the country's economic situation and the cost of computer modelling and officer time. We concluded that we would use

analysis of past data to help set our target for 2014/15. Targets are set for four key sites on the air quality monitoring network and are provided in the Table 6.2. The targets show that we are continuing to try to reduce the levels of nitrogen dioxide but will not achieve the National Objective level of 40 $\mu\text{g.m}^{-3}$.

6.4 As the noise mapping is at an early stage and the noise map is only intended to be used for strategic assessment of noise levels in any given area we are not setting noise related targets but will use the following indicator to help monitor the situation.

Table 7.8 Improve Air Quality and Reduce Noise, Quality of Life Performance Indicators and targets

PI Category	Ref. No,	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
Non – transport Outcome	L LTP 38	Self-reported measure of people’s overall health and wellbeing		In 2008/09 Place Survey 72%					Residents Survey
Outcome	L LTP 39	Air Quality Annual Mean Nitrogen Dioxide		Average, measured annual mean NO2 2007-9	Not set – monitoring only	Not set – monitoring only	Not set – monitoring only		Local Survey
		Abbey Lane	45	48			45		
		Melton Road	50	54			50		
		St Matthew’s Way	48	54			48		
		Glenhills Way	63	69			63		
	L LTP 40	Approximate number of dwellings and associated population per authority to be investigated as a first priority due to noise from those roads mapped	Not set – monitoring only	200 2009/10	Not set – monitoring only	DEFRA			



*Chapter 7: Improve Air Quality and Reduce Noise
The Improving Air Quality and Reducing Noise Strategy*



Chapter 8:

Reduce Carbon Emissions

The Carbon Reduction Strategy





1. Introduction

The Goal we are helping to achieve in this chapter is:

Carbon Emissions Reduced – Leicester' carbon footprint is reduced

The three strategic challenges, identified in Chapter 2, addressed by our Carbon Reduction Strategy are:

Reducing the levels of carbon dioxide emissions from our transport

- » Transport is currently one of the main sources 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

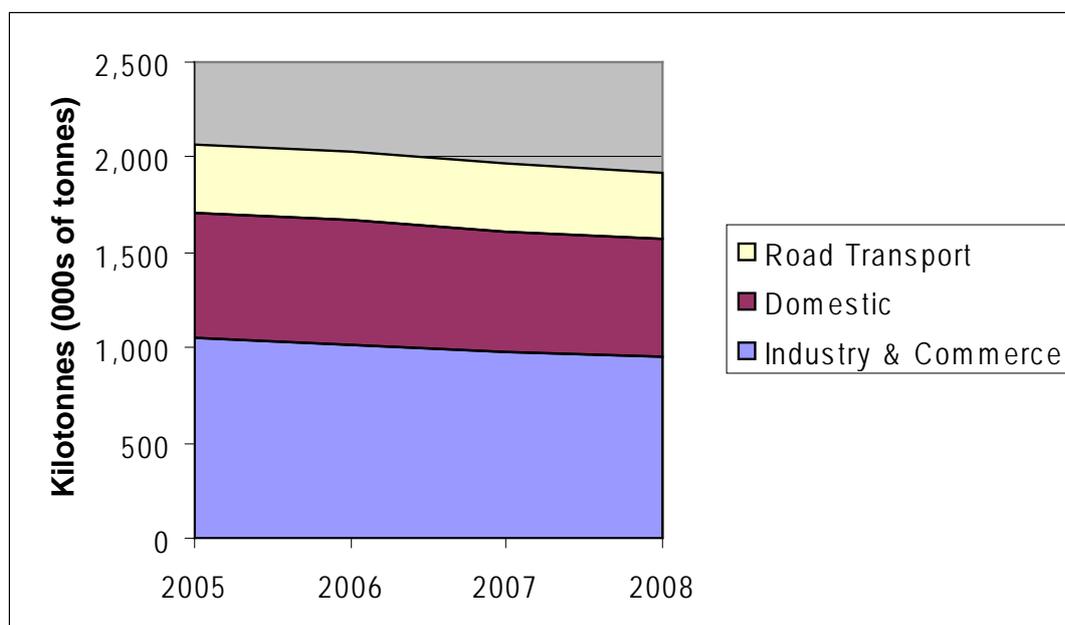
Potential effects of climate change on the highway network include damage to roads, bridges and other structures from both heat and flooding.

2. The Current and Future Situation – The Challenges and Opportunities

Leicester's Transport Greenhouse Gas Emissions

2.1 Helping deliver strong national economic growth at the same time as cost-effectively cutting greenhouse gas emissions is the biggest strategic-level transport challenge we face. Carbon Dioxide (CO₂) is the principal greenhouse gas emitted by road transport. Estimates of CO₂ emissions by local authority area have been provided on an annual basis by the Government for national performance indicator NI186: Per Capita reduction in CO₂ emissions in the Local Authority Area. Data is currently available from 2005-8. As [Graph 8.1](#) shows, Leicester is currently estimated to emit about 2 million tonnes of CO₂ each year. Road transport is not the biggest contributor to this, but is nonetheless very significant – accounting for nearly 18% of emissions in 2008. This is broadly comparable with the national picture, where road transport emissions account for 19% of the total²⁰. The small estimated reduction in Leicester's CO₂ emissions between 2005 and 2008 shown in [Graph 8.1](#) is largely due to reductions from industry and commerce.

²⁰ 21% of emissions are from domestic transport, of which 92% are from road transport (see paragraph 2.11) This gives a figure of 19% of UK emissions from road transport.

Graph 8.1: Leicester's CO2 Emissions**Table 8.1: Leicester's CO2 Emissions (Source: AEA Technology)**

Year	CO2 Emissions (000s of tonnes)				Transport Emissions as % of Total	Population ('000s mid year estimates)
	Industry and Commercial	Domestic	Road Transport	Total		
2005	1,052	657	364	2,073	17.56	291.4
2006	1,018	652	354	2,024	17.49	296.8
2007	981	628	356	1,965	18.12	300.9
2008	949	628	341	1,917	17.79	303.8

2.2 [Table 8.1](#) shows that Leicester's transport emissions are trending downwards. The 2008 figure is 15,000 tonnes lower than that for 2007, despite an estimated slight increase in population (column 8, [table 8.1](#)). [Graph 8.2](#) and [Table 8.2](#) put Leicester's emissions in context by presenting them on a per capita basis alongside the UK average and those of a number of other local authority areas. Cambridge has been chosen as an area with a reputation for higher levels of sustainable travel (specifically cycling), whilst the other areas have been chosen as comparators as they are to some degree comparable with Leicester in terms of population size (within the local authority area boundary) and urban character. [Graph 8.2](#) and [Table 8.2](#) show that Leicester's transport emissions per capita are towards the lower end of the range.

Graph 8.2: Leicester's 2008 Per Capita CO2 Emissions in Context

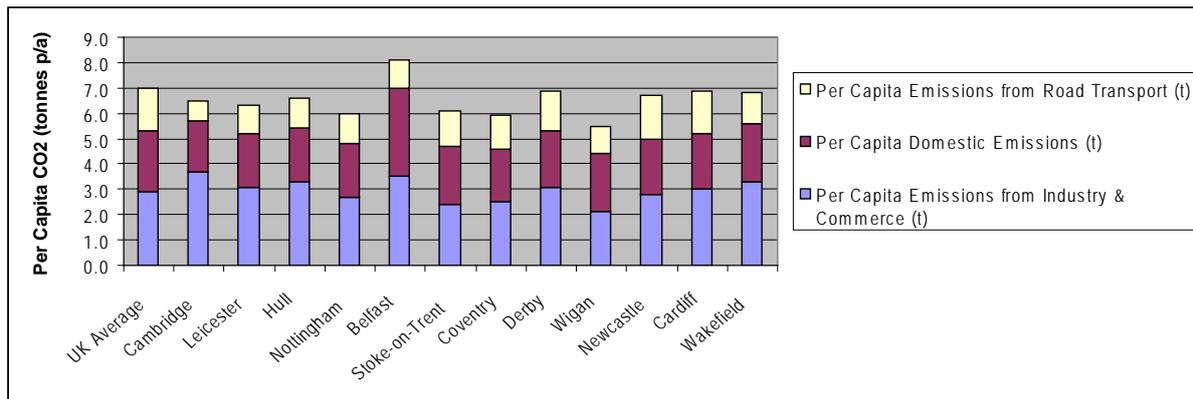


Table 8.2: Leicester's 2008 Per Capita tonnes CO2 Emissions in Context

	UK Average	Cambridge	Leicester	Hull	Nottingham	Belfast	Stoke-on-Trent	Coventry	Derby	Wigan	Newcastle	Cardiff	Wakefield
Per Capita Emissions from Industry & Commerce (t)	2.9	3.7	3.1	3.3	2.7	3.5	2.4	2.5	3.1	2.1	2.8	3.0	3.3
Per Capita Domestic Emissions (t)	2.4	2.0	2.1	2.1	2.1	3.5	2.3	2.1	2.2	2.3	2.2	2.2	2.3
Per Capita Emissions from Road Transport (t)	1.7	0.8	1.1	1.2	1.2	1.1	1.4	1.3	1.6	1.1	1.7	1.7	1.2

Source: AEA Technology

Leicester's Approach to Reducing Emissions – progress so far

2.3 Leicester City Council has had a long-standing commitment to tackling climate change, with a Climate Change Strategy first published in October 2003 and a long term aspirational target to reduce city-wide carbon dioxide emissions to 50% of the 1990 level by 2025/26 established corporately in 2006/07. We had a Local Area Agreement target to reduce per capita CO2 emissions in the city area, from 6.9 to 6.1 tonnes by 2010/11 as measured through National Indicator NI186.

2.4 The council commissioned the Institute of Energy and Sustainable Development at De Montfort University to produce a 1990 baseline for estimated over all carbon dioxide emissions in Leicester. Subsequent monitoring suggests that carbon dioxide emissions have fallen by around 15% between the 1990 baseline and 2008. However, this is the result of reductions in emissions from commerce and industry. Emissions from transport are estimated to have risen during this period.

2.5 Working on the basis that the city-wide target will require broadly equivalent pro rata emissions cuts from each of the main emissions sources: domestic, commerce/industry and transport between 2008 and 2025, an average reduction rate

of 2.41% (8.22 kT) per annum would be required for transport. This rate has been used to calculate the proposed target L LTP12. This is more than twice the rate inferred from the Government's 2020 target. It will be necessary if Leicester is to achieve its overall 2025 target - unless the commerce/industry and/or domestic sectors were to achieve greater pro rata levels of reduction. The council and its partners will be developing a 'roadmap' during 2011 for achieving the city-wide 2025 target. If this work suggests that a rebalancing of the relative reductions targeted for transport, commerce/industry and domestic sectors is recommended, target L LTP12 may need to be reviewed. This city-wide target is mirrored by an equivalent target to reduce the council's own emissions by 50% of the 2008/09 level by 2025/6 and the authority has recently signed up to the 10:10 campaign, committing to an 8.95% reduction of its CO₂ emissions by July 2011.

- 2.6 A public awareness and attitudes survey was conducted in the period June-August 2002, using a survey tool designed by De Montfort University, in close collaboration with Leicester City Council, and sent to the members of the Leicester People's Panel, who had volunteered to participate in consultative processes of this type. Whilst the panel members are likely to represent individuals with more of a motivation to engage with policy making than the public generally, this survey forms a first step towards future monitoring that can access representative samples of the city's social and ethnic groups. 98 respondents completed the survey tool. The sample consisted of 53 women and 45 men, aged between 17 and 82 years.
- 2.7 Results indicated that 94% had read the Climate Change Strategy and 90% considered it either 'good' or 'excellent' overall. 87% reported feeling 'concerned' or 'extremely concerned' about the potential local weather changes reported in the Strategy, and 89% indicated that the Strategy had increased their awareness of climate change. Therefore, the results are very encouraging in showing local interest and engagement with the problem.
- 2.8 The results also gave some indication about what behavioural responses could be expected from Leicester residents who have read the Strategy. These results are useful in pointing to differences between people's willingness, and perceived ability, to carry out certain climate-change related actions. For example, whilst high numbers (e.g. 82% in the case of energy efficiency) reported their intention to find out more about energy efficiency, renewable energy, and use low energy light bulbs at home, fewer reported an intention to use their car less (50%) and public transport more often (58%). Related to this, relatively few numbers indicated an intention to encourage their employer to switch to renewable energy or adopt a 'green' transport plan, having read about climate change.

National Picture - climate change

- 2.9 There is now a broad scientific consensus that recently observed changes in climate are partly a result of human activity. For some time, everyday emissions from businesses and households have altered naturally occurring levels of carbon gases, and the outcome has been an acceleration in the earth's warming. If we continue as usual, average temperatures will rise by 2-3 degrees centigrade within the next 50 years or so. The impacts this will have include:



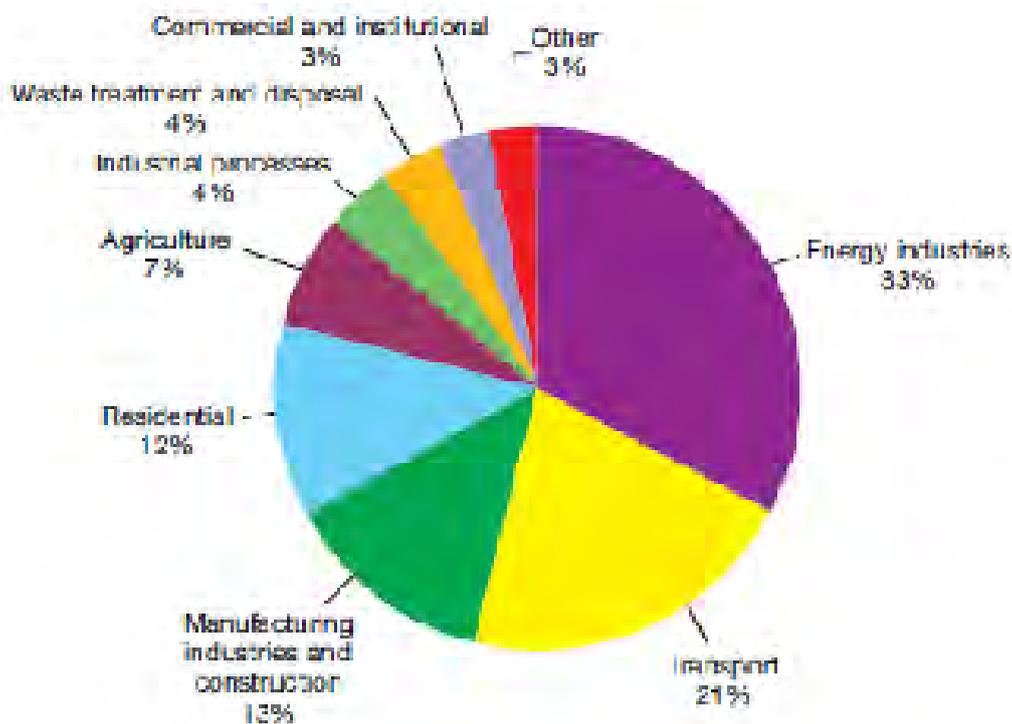
- » Reduction of water supplies for one-sixth of the world's population
- » Declining crop yields
- » Rising sea levels will result in tens to hundreds of millions more people flooded each year leading to permanent displacement of 200 million people by mid-century
- » 15-40% of species facing extinction after only two degrees centigrade of warming
- » Ocean acidification will have major impacts on marine ecosystems with possible adverse impacts on fish stocks
- » Increased damage from extreme weather. In the UK annual flood losses alone could increase from 0.1% of GDP today to 0.2–0.4% once the increase in global temperatures reaches 3o-4oC

2.10 According to UKCP09 scenarios, by 2050 these impacts in Leicestershire are expected to include:

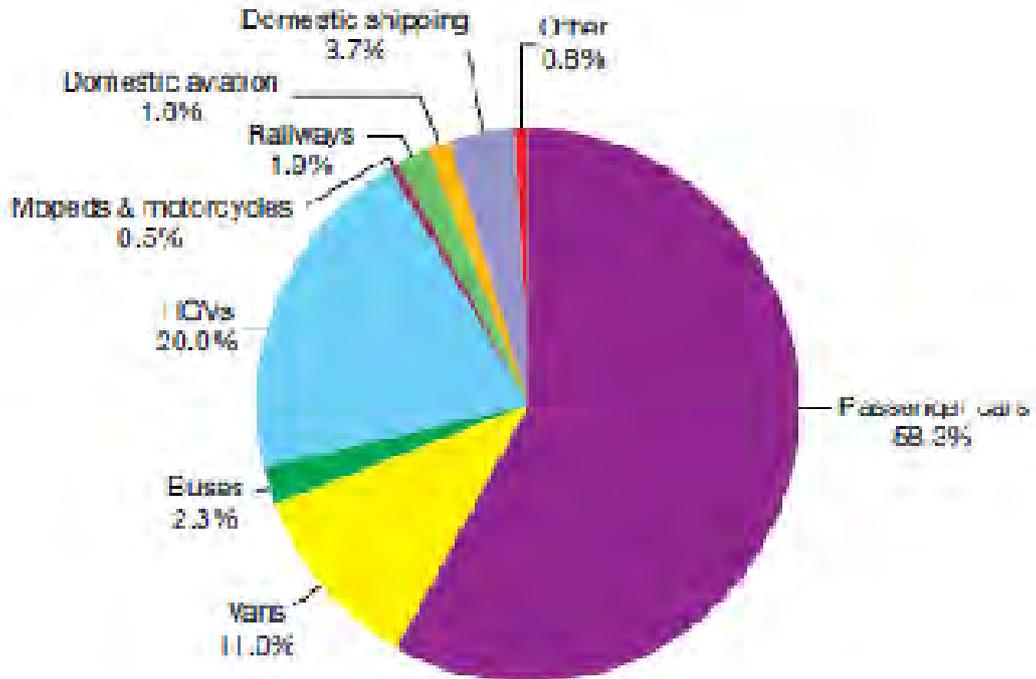
- » Temperature increases of around +2.20C in winter and +2.50C in summer.
- » Similar levels of rainfall overall but more of that rain in winter (+14%) and that which falls in summer (-15%) becoming more intense, meaning more summer flooding but also more periods of summer droughts.
- » Milder winters and longer growing seasons.

2.11 The UK is committed to reduce its greenhouse gas emissions by at least 80% of 1990 levels by 2050, achieving at least 34% by 2020. A system of five yearly national Carbon Budgets has been established through the Climate Change Act 2008 and these set additional milestones along the way. Transport greenhouse gas emissions have risen by 12% since 1990 and now account for 21% of UK emissions, with 92% of this generated by road transport. See [Graphs 8.3](#) and [8.4](#).

Graph 8.3 - Transport is a significant source of domestic greenhouse gas emissions (7)

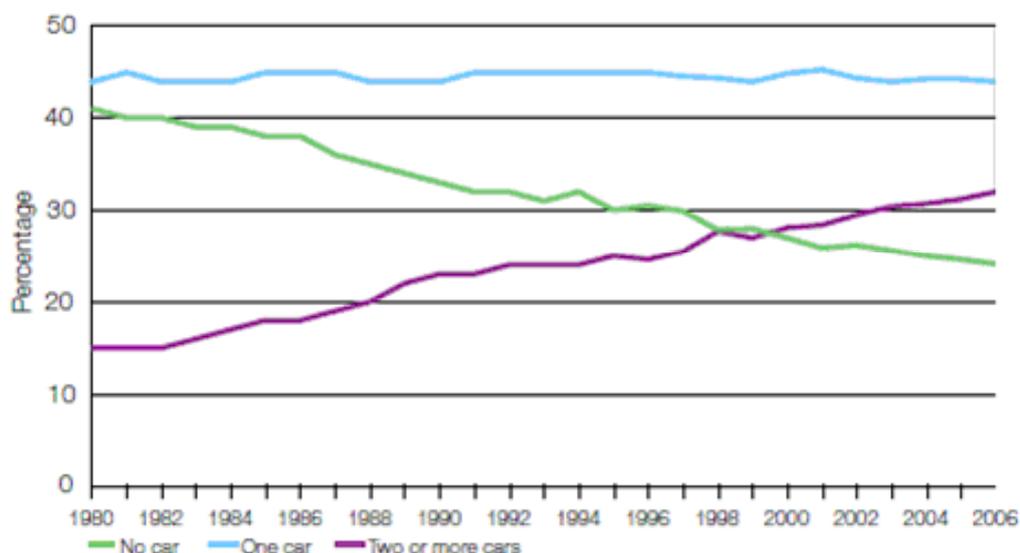


Graph 8.4 – Travelling by road accounts for 92% of the domestic transport sector’s greenhouse gases (7)



2.12 Research also shows that transport behaviours are amongst the most difficult to change – there are strong links between transport and people’s lifestyle choices. Some people see little reason to make greener transport choices. This could be due to a number of factors, such as not having access to, or being aware of, the lower carbon options available. For many of us, our lifestyles are built around the car and our propensity for owning them continues to grow. As Graph 8.5 shows, for around the last ten years, more households have had access to two or more cars than those without a car.

Graph 8.5 – Households have access to more cars





2.13 Survey evidence suggests that the public’s general awareness of the term ‘climate change’ is almost universal and concern about climate change is high across the population. However, this is a complex area. There is evidence demonstrating both willingness and resistance to change travel behaviour. There is particular resistance to travel change when it is considered to constitute a significant lifestyle change. Findings from a major study on this topic were published in January 2009, with further work underway to support future policy development. More detailed research findings are available at: <http://www.dft.gov.uk/pgr/scienceresearch/social/>.

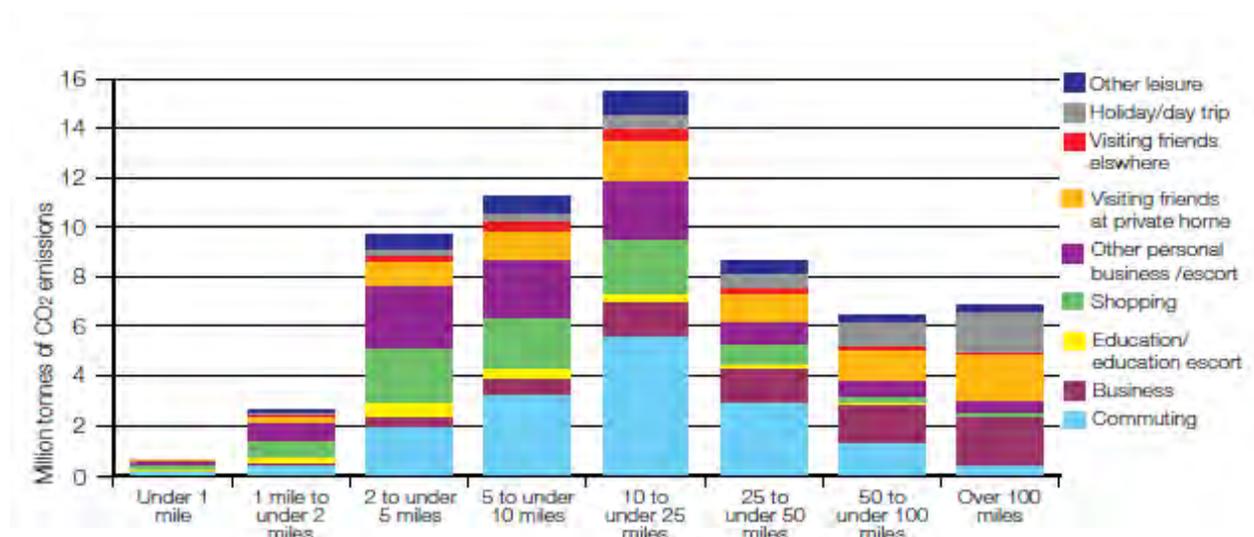
Opportunities to reduce carbon emissions in Leicester

2.14 Table 8.2 showed that Leicester’s transport emissions per capita are towards the lower end of the range. To understand why this might be, and what could be done to reduce them further, we would ideally want to disaggregate the figures to understand the emissions sources in more detail – for example based on the purpose of the travel, journey lengths and so on.

2.15 Unfortunately this is not possible from the data sources. Instead, we have to rely on an analysis of national figures carried out by the Department for Transport, which provides a breakdown both by journey purpose and length. Graph 8.6 below reproduces Chart 2.6 from the DfT report Low Carbon Transport – A Greener Future which summarises this breakdown. It is important to note that the DfT analysis is for passenger transport only ie. it does not include freight transport.

2.16 A significant opportunity is that many short car journeys in and around Leicester could be converted to walking or cycling trips. Some 50% of journeys to work are less than 5 kilometres. Additionally, 36% of Leicester commuters who do not use public transport, walk or cycle to access employment, live within 400m of a bus stop; and 82% of Leicester’s residents work within Leicester.

Graph 8.6 CO2 Emissions From Passenger Transport by Journey Purpose and Trip Length



Reproduced from: Low Carbon Transport – A Greener Future, DfT 2009

- 2.17 If Leicester's passenger transport CO₂ emissions are similar to these UK averages; commuting journeys should be a strong focus of attention. They are the biggest emissions source, by journey purpose, from passenger transport. Also, they may be easier to tackle in terms of behaviour change than some of the other sources, due to the regular nature of the journeys, the clustering of journey destinations and the ability to channel information, promotional messages and incentives to commuters via their employers.
- 2.18 We have developed good cycling promotion coupled with key projects (such as Cycle city workshop, bike projects and cycle shops) that has helped to increase the number of people cycling by 81% between 2004 – 2009. Due to the increase numbers of people cycling, there is potential to develop and build upon our existing infrastructure, parking facilities and improvement our bike parking and cycle signing.
- 2.19 However, a shift from car to foot and cycle for these short journeys will not, on its own, deliver the scale of emissions reductions required. This is because the longer journeys, whilst accounting for fewer trip numbers, generate higher emissions per journey. To have a significant impact on CO₂ emissions it will be important to address journeys over 10 miles as well as the shorter ones – as these may be where the majority of emissions are generated. So another key opportunity is to facilitate a shift from car to public transport journeys for the longer trips – such as commuter trips into the city from the surrounding area. Here, bus improvements, including Park and Ride, are important.
- 2.20 Freight is likely to be a significant emissions source – perhaps responsible for 20-30% of transport's carbon emissions in Leicester, but considerably less important than passenger transport. In terms of emissions sources within the freight category, HGVs are currently the main source and emissions from both HGVs and LGVs are predicted to increase nationally between now and 2025 .
- 2.21 Support for the uptake of Low Carbon Vehicles (principally electric) is another potential means to reduce the emissions from these longer journeys.
- 2.22 We can use the planning process to help implement our carbon reduction strategy - our Principal Urban Area study has indicated that there will be an increase in the number of homes. We need to cater for this new growth but we need to ensure that we have sustainable travel.

The 4M Research Project (Measurement, Modelling, Mapping and Management)

- 2.23 4M project is intended to provide an evidence-based methodology for understanding and shrinking the urban carbon footprint. 4M is an Engineering and Physical Sciences Research council (EPSRC) funded study investigating the urban carbon footprint. It is a £2.5 million project and is being carried out by Loughborough University, De Montfort University, Newcastle University, the University of Sheffield and the University of Leeds, in partnership with Leicester City Council.



2.24 The research focuses on the city of Leicester and is divided into four areas:

- » Domestic Buildings: Investigating the nature of energy use and carbon emissions in the city's homes.
- » Non-domestic buildings: These include the city's offices, schools, factories and shops.
- » Transport: Looking at the current modes of transport in the city and the options for more environmentally friendly options
- » Biological sequestration: A study of the city's gardens, parks and other green spaces and how these can be managed to 'lock in' carbon dioxide.
- » The project began in October 2008 and finishes in October 2012.

3. Appraising the Options

3.1 The option assessment described in Chapter 3 demonstrated that many options could be considered to form part of our Reducing Carbon Strategy, Most were identified as forming part of our Congestion, Accessibility, Improving Air Quality and Reducing Noise Strategy and Road Safety & Active Travel and strategies. Hence, several of the key options are described in other strategy chapters relevant to them. Cross references are provided below to those descriptions:

Table 8.3: Further Options for Reducing Carbon Emissions

Option	Page Reference
Working with Partners	109, 151 -152
Journey Planning	93, 117
Maps	94, 160
Public Transport Routing	118
Public Transport Focussed Development	121 -122, 154
Bus Stations and Interchanges	111, 155
Bus Information	158
Buses/Services (QBP, Contracted/Supported, Relocation/Operational Times	88 - 90, 159
Charging (Pricing)	119 -121
Cycles	110, 161 -163, 190 -192
Low Emission Zone	222
Traffic Lights (If Low Carbon and SCOOT linked)	88, 109
Street Lights (If Low Carbon)	198
Freight	91, 168
Bus Fares	110, 156
Ticketing	113
Bus Corridors	110 - 111
Accidental Remedial Measures	201
Variable Message Signs	93, 163
Pedestrian Facilities	110, 144, 148, 189 -190
Parking (controls and restrictions)	92, 123 - 125
Traffic Management	84 -88
Roads (Junction Improvements, High Occupancy Vehicle (HOV) lanes)	111, 116
Park and Ride	113
Rail	114 -116

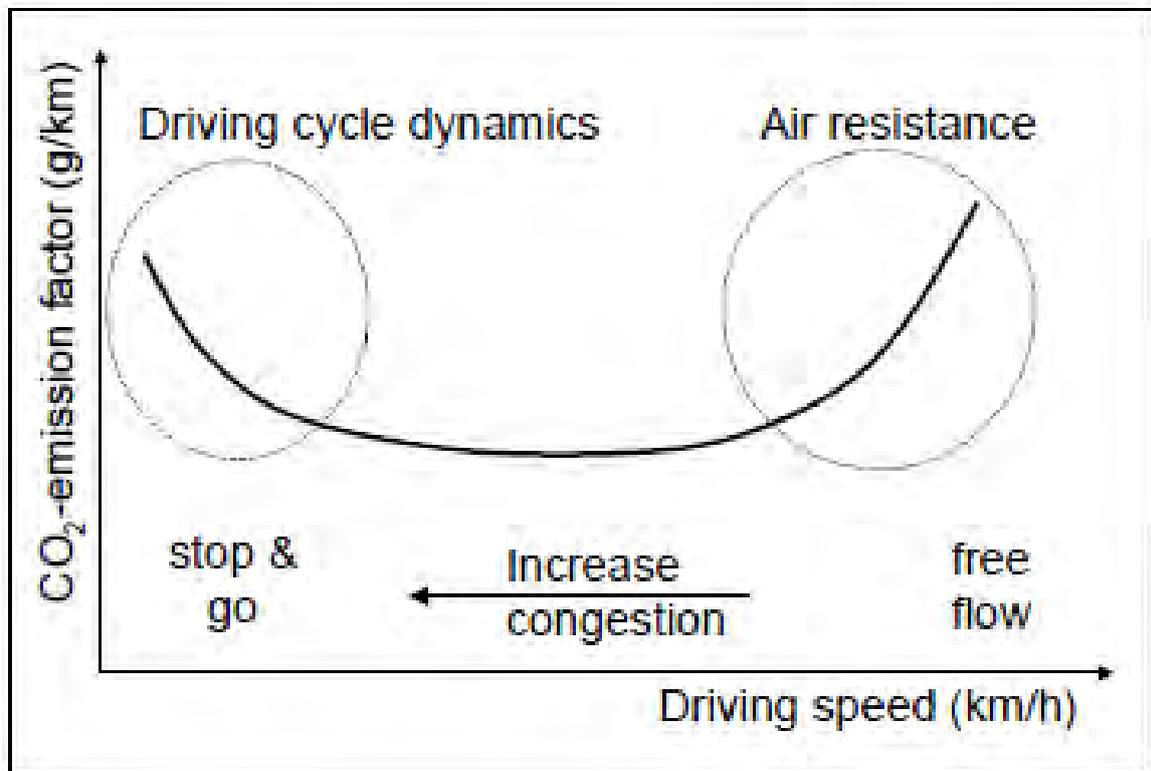
- 3.2 The effectiveness of the above measures in reducing carbon emissions is not discussed in the other chapters, however, it will correlate closely with their effectiveness in achieving a modal shift from car journeys to trips by other modes and in reducing congestion.
- 3.3 This section provides an analysis of the other options not forming part of the above Strategies which we intend to taken forward as part of our approach to Carbon Reduction
- 3.4 First two key terms relating to carbon reduction work are defined; climate mitigation and adaptation. The options included in the Carbon Reduction Strategy will contribute to one or both of these outcomes.
- 3.5 Climate mitigation is any action taken to permanently eliminate or reduce the long-term risk and hazards of climate change to human life, property. The International Panel on Climate Change (IPCC) defines mitigation as: “An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases.”
- 3.6 Climate adaptation refers to the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damage, to take advantage of opportunities, or to cope with the consequences. The IPCC defines adaptation as the “adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation.”

Primary Local Factors Influencing Leicester’s Transport CO₂ Emissions

- 3.7 To help analyse the options we consider that in simple terms Leicester’s carbon dioxide emissions from transport are a product of the following ‘primary factors’:
- » Journey-specific factors governing how efficiently carbon-based fuels are used by vehicles - such as traffic speed and levels of stop-start driving (both affected by congestion), driving style, gradient and vehicle maintenance.
 - » Distance travelled
 - » Carbon intensity of the travel mode and vehicle technology used
- 3.8 With regard to journey-specific factors [Graph 8.7](#) shows that the CO₂-emission increases at low driving speeds as a consequence of congestion or within urban areas. At higher speeds the air resistance becomes determinative for CO₂-emissions and increases exponential. The biggest factor in CO₂ output is the amount of stopping (wasting energy) and starting (using energy) that occurs. Our Leicester data base can show some correlation between; AM inbound peak hour car speeds, and average junction delays. This suggests that reducing CO₂ levels, like improving air quality, depends (to a large extent) on controlling congestion

and hence the options taken forward in our congestion strategy (Chapter 4) will also form the major part of our Carbon Reduction Strategy.

Graph 8.7 Relationship between CO₂-emission and driving speed



3.9 In addition to the options appraised in the congestion, improving air quality and reducing noise, accessibility and road safety & active travel strategy chapters the following options are identified for appraisal as part of this strategy:

Working with Partners

3.10 We are currently working with the Quality Bus Partnership (QBP), Freight Quality Partnership (FQP), to reduce carbon emissions. Encouraging the use of lower emission vehicles, and raising environmental awareness with regard to operations can help to reduce carbon emissions.

Campaigns and Training – To promote more economical driving styles

3.11 The way in which vehicles are driven, has considerable implications in terms of CO₂ emissions from them. Estimates vary from between 10% – 25% from different studies in terms of reduction of CO₂ output, from fleets whose drivers have undergone “greener driving” courses. Ford in Germany has trained 50,000 drivers in these techniques over the last 10 years. These drivers have reduced their CO₂ emissions by between 10% and 25%. Because CO₂ emissions are linked to fuel consumption fleets that have received “greener driving” courses have experienced similar reductions in terms of fuel consumption.

- 3.12 Approximately 9% of the city council's carbon dioxide emissions arise from our transport and travel in delivering council services. We have identified Greener Driver training as a key corporate action that can be taken as it is cost effective per tonne of carbon delivered and a straightforward action. With an estimated 856 drivers and potential savings of 0.38 tonnes CO₂ per driver trained we estimate savings of 325 tonnes. Techniques taught to drivers enable them to drive in a style that is more fuel efficient (therefore also reducing the CO₂ output of the vehicle they are driving). These techniques go hand in hand with driving in a safer fashion. We plan to roll out the training to local businesses.
- 3.13 The primary factor of "distance travelled" will be addressed by implementing the options forming our congestion strategy and particularly our road safety and active travel strategy.
- 3.14 The options to address the primary factor of 'carbon intensity' of the travel mode and vehicle technology used are discussed in the following paragraphs.

Low Emission Vehicles, Infrastructure and Initiatives – buses

- 3.15 Through commissioning bus services we take the opportunity to specify low emission vehicles as and where appropriate such as on park and ride services. But opportunities will be limited for the time being due to the government's current policy of prioritising the reduction of the budget deficit. Through our Quality Bus Partnership we encourage bus companies to use low emission vehicles on commercial services and have a successful working relationship in this regard. We will prioritise any opportunities to lever in extra funding to speed up the roll out of low emission buses in Leicester.

Low Emission Vehicles, Infrastructure and Initiatives – Electric Car Charging Points

- 3.16 We have secured electric charging points, through the planning process, in our prestigious Highcross shopping centre development. Building on this, Leicester is part of a successful Midlands bid, (including Nottingham and Derby), for funds from the second round of the Government's "Plugged in Places" initiative, for financing infrastructure to support use of electric vehicles. The Plugged in Places project presents us with an ideal opportunity to provide charging facilities for electric vehicles at a range of strategic locations across Leicester. The initiative dovetails with the Government's 'Plug-In-Car Grant' of up to £5,000 per car for the new wave of electric vehicles to be launched in 2011. Together, these initiatives will enable motorists to switch to electric vehicles.

Low Emission Vehicles, Infrastructure and Initiatives – HyTrue Project

- 3.17 The project is intended to use 30 hydrogen fuel cell powered cars in a real time setting with drivers from across the social spectrum for a period of 12 months. River Simple LLP has designed and built the first road-going technology demonstrator and approached Leicester City Council to work in partnership with them to develop a full production model. The project is expected to result in a reduction in CO₂ emissions and noise in the urban environment. The three main outcomes



that the HyTrue project hopes to achieve are;

- » Acceptance of hydrogen technology by urban residents and hydrogen fuel cell vehicle users
- » The onward development of a hydrogen vehicle
- » Development of a guidance document that other EU policy makers can follow to ease the introduction of hydrogen vehicles into their cities.

Low Emission Vehicles, Infrastructure and Initiatives – Low Emission Street Lights and Traffic Signals

3.18 We have investigated the feasibility of converting our street lighting and traffic signal stock to “low carbon” and concluded it is feasible on a “spend to save” basis. We now have projects in progress to convert the stocks. There is a programme to install LEDs at all new traffic signal installations and roll out to older installations through a replacement programme. A business case is being developed to install a Central Management System onto Leicester’s street lighting system. This will give superior control to allowing pin-point dimming and switch off. Teamed with the change over of bulbs to energy efficient models it is anticipated that this will save 50% of street lighting energy.

Low Emission Vehicles, Infrastructure and Initiatives – Low Emission Zone

3.19 This is likely to be of medium benefit to lowering carbon emissions but is estimated to be of greater benefit to reducing air pollution and therefore the option is appraised in Chapter 7.

Land Use Measures – Low Emission Strategies

3.20 Toxic air pollutants and greenhouse gases arise from similar emission sources. The planning systems for land use and transport are an important part of an integrated approach to air quality improvements and carbon reduction. Low emission strategies aim to provide a package of measures to help mitigate the transport impacts of development by accelerating the uptake of low emission transport fuels and technologies in and around new development.

Measures may address both construction and operational phases of a development. Typical operational phase measures include parking policies, investment in low emission infrastructure, fleet emission improvement, emission based tolling, procurement and supply chain initiatives and contributions to local transport projects and strategic monitoring. The cumulative impacts of transport emissions from development can be mitigated by requiring contributions to a central low emission fund to assist the implementation of air quality action plans, climate change action plans and local transport plans.

4. The Carbon Reduction Strategy

- 4.1 In earlier sections, we looked at the current and future situations and we have appraised the options. All the options appraised in Section 3 have their merits and will contribute to our approach to cutting carbon emissions. We have appraised an extensive list of options and we recognise the importance of an effective transport system that promotes, encourages and enables the use of sustainable modes of travel to reduce carbon emissions. We acknowledge however that we will not be able to afford them all. We have therefore prioritised these options relative to their appraisal score in combination with a realistic assessment of their benefit cost, affordability and deliverability.
- 4.2 We also need to remember that certain key options set out in the other chapters are likely to form a key part of our approach to reducing carbon emissions. It is likely that added benefit can be gained if we are able to combine various individual policy options into cross cutting deliverable packages.
- 4.3 Our strategy therefore needs to be realistic with regard to the resources that we are likely to have available and flexible to adapt to changing circumstances. Thus, our approach to the delivery of this objective is split into short-term and medium to longer-term.
- 4.4 It is important that Local Transport Plans are effectively co-ordinated with climate change, air quality and public health priorities; and measures to achieve these goals are often complementary. Leicester City Council considers it important to implement transport and traffic-related interventions which benefit both climate change and air quality, whilst avoiding policy clashes. This has led to the integration of Local Air Quality Management into the council's Climate Change Programme to ensure that synergies and initiatives are properly managed and exploited".
- 4.5 Continued close cooperation between transport planning, environmental (carbon reduction, air quality and noise) and spatial planning professionals within the city council, as well as with partner organisations, provides a strategic approach to reducing carbon emissions from transport. Alongside the Local Transport Plan, The Local Development Framework is also key to achieving Leicester's climate change mitigation goals for transport. The Core Strategy establishes climate change mitigation as a key priority for spatial planning in the city (alongside climate change adaptation) in CS Policy 2 and includes policies CS 14 and 15 which are designed to support the delivery of reduced transport emissions as well as other goals. A Climate Change Supplementary Planning Document has been adopted, which provides guidance to developers and other about complying with Policy CS2.
- 4.6 Leicester City Council has signed up to the Low Emission Strategies Development Programme. This initiative was launched by the Local Authorities which gained Beacon Status for Air Quality in 2008 and is endorsed and supported by Defra. The chosen theme is; 'Using the Land Use Planning system to reduce transport emissions'. The main LES benefit is to reduce transport emissions by accelerating uptake of LE fuels and technologies in and around a new develop-



ment, and to promote modal shift away from car travel.

4.7 In common with the ‘Improving Air Quality and Reducing Noise Strategy’; the “transport” strategy for reducing carbon in Leicester is focused on reducing carbon emissions from transport by encouraging and facilitating more people to travel by public transport, walking and cycling and secondly to encourage use of alternative fuelled vehicles and then low emission vehicles. This will be achieved mainly through delivering the Congestion Strategy (Chapter 4), the Accessibility Strategy (Chapter 5) and the Road Safety and Active Travel Strategy (Chapter 6) in addition to the options specific to the carbon reduction strategy carried forward from the appraisal. These options include:

- » Training - Greener Safer Driver Training
- » Low Emission Vehicles
- » Low Emission Street Lights and Traffic Signals

4.8 In addition to measures to reduce greenhouse gas emissions, it is important that we put in place measures to improve the resilience of local transport to the impacts of climate change, such as flooding and deterioration of roads, in line with the Government’s Adapting to Climate Change Programme. This is addressed in our emerging Surface Water Management Plan and covered in our Transport Asset Management Plan.

4.9 The city council’s Climate Change Adaptation Action Plan identifies several projects:

- » Reduce the impact of flooding on council services and infrastructure
 - Map of Flood Hotspots
 - Map of Drainage Asset
 - Improvements to Storm Sewer Network
 - Emergency Response to Flooding
 - Roadside Maintenance
- » Reduce the impact of summer heat waves and increased average temperatures on council services and infrastructure
 - Heatwave Recovery Plan

5. Delivering the Carbon Reduction Strategy

5.1 From the Policy Instrument Options table in Chapter 3 it can be seen that the overarching/key strategic Policy options for reducing carbon emissions, are mainly those forming key parts of the Congestion Strategy. Beyond these, the main carbon reduction options, are:

- » Working with Partners
 - QBP, FQP
- » Campaigns and Training
 - To promote more economical driving styles
 - To attract car drivers to switch to other modes
 -

- » Lower Emission Vehicles, Infrastructure and Initiatives
 - Buses
 - Electric car charging points
 - HyTrue project
 - Low emission street lights and traffic signals
 - Low Emission Strategies

- » Working with Partners (Other Policy Instruments – see Table 8.3)

- » Buses/Services
 - Low emission buses

- » Public Transport Focused Development (Appraised under Chapter 4)
- » Low Emission Zone (Appraised under Chapter 7)
- » Traffic Lights (Appraised under Chapter 4)
- » Street Lights (Appraised under Chapter 6)
- » Freight (Appraised under Chapter 4)
- » Journey Planning (Appraised under Chapter 4)
- » Maps (Appraised under Chapter 4)
- » Public Transport Routing (Appraised under Chapter 4)
- » Bus Stations and Interchanges (Appraised under Chapter 4)
- » Charging (pricing) (Appraised under Chapter 4)
- » Bus Information (Appraised under Chapter 4)
- » Bus/Services (Appraised under Chapter 4)
- » Cycles (Appraised under Chapters 5 & 6)

5.2 The above Policy Instruments can then be split into Short, Medium and Long Term Objectives. The most effective Policy Instruments options will be packaged together to deliver the Strategy.

5.3 To deliver this objective in the short term (within this Implementation Plan period) we are likely to:

- » Continue Working with Partners (QBP and FQP) to deliver Lower Emission Buses and freight operations

- » Continue to undertake and support Campaigns such as to promote more economical driving styles and, through the city council's grey fleet project discourage staff use of their own cars on business trips

- » Provision of Greener Safer Driver Training Courses

- » Low Emission Vehicles, Infrastructure and Initiatives
 - Provision of electric car charging points, Plugged in Places
 - Implement the HyTrue Project if bid is successful
 - Continue a phased conversion of Street Lights and Traffic Signals to "low emission"
 - Support tree planting initiatives
 - Promote the merit of further investigations into a Low Emission Zone



- » To promote the use of Land Use Measures in the planning process to accelerate the uptake of low emission transport, fuels and technologies in around new development

5.4 The measures and schemes that will deliver the strategy are detailed in our Implementation Plan. It goes into further details of what we will be doing and the measures that we will most likely be delivering in the next four years to achieve this objective in the short-term. It also explains how we intend to continue to develop our approach to ensure that we maximise the benefit cost ratio of the schemes and initiatives that we do.

5.5 Delivery of this objective in the medium to longer term: Our medium to longer-term approach is also designed to be flexible and will be influenced by what our first Implementation Plan achieves. We will monitor schemes and initiatives in order to build on our successes and review the things that do not perform as well as we had anticipated. Decisions will also be informed by the availability of funding.

5.6 Based on the information available to us at the moment, in the medium term (within the next Implementation Plan period) we believe that we are likely to continue with the strategy as outlined above, but build on it by:

- » Working with Partners (QBP, FQP and Health authorities) to produce a business case for a Low Emission Zone
- » Lower Emission Vehicles, Infrastructure and Initiatives:
 - Produce a business case for installation of further electric car charging points, if experience from the Plugged in Places project suggests this is appropriate
 - If we are able to implement the HyTrue Project, produce business case to continue/expand this work if our experience suggests this is appropriate
 - Produce business case for a Low Emission Zone
- » To use Land Use Measures in the planning process to accelerate the uptake of low emission transport, fuels and technologies in around new development

5.7 We will review our medium term approach in the light of our monitoring results and the availability of funding.

5.8 Based on the information available to us at the moment, in the longer term (beyond the next Implementation Plan period) we believe that we are likely to continue with the approach as outlined above, but build on it by:

- » Working with Partners (QBP, FQP and Health authorities) to deliver a Low Emission Zone if a successful business case has been established
- » Lower Emission Vehicles, Infrastructure and Initiatives:
 - Continued implementation of electric car charging points if appropriate



- Continue the development of the HyTrue Project if appropriate
- To deliver a Low emission zone if a successful business case has been established

5.9 We will review our longer term approach in the light of our monitoring results and the availability of funding.

Through our transport asset management work we will be tackling the impacts of climate change by:

- » Reduce the impact of flooding on council services and infrastructure
 - Map of Flood Hotspots
 - Map of Drainage Asset
 - Improvements to Storm Sewer Network
 - Emergency Response to Flooding
 - Roadside Maintenance

- » Reducing the Impact of summer heat waves and increased average temperatures on council services and infrastructure
 - Heatwave Recovery Plan

6. Monitoring the Carbon Reduction Strategy

6.1 To monitor the effectiveness of our strategy we have two key outcome indicators and seven supporting indicators. The key outcome indicator is detailed in [Table 8.3](#). The supporting indicators are provided in our Implementation Plan. The target for the key outcome indicator of carbon reduction from transport is set as per the explanation in paragraphs 2.3 to 2.5.

Table 8.3 Carbon Reduction Strategy key outcome indicators and targets

Reference	Description	Baseline 2009/10	Target 2011/12	Target 2012/13	Target 2013/14	Target 2014/15
L LTP 12	Volume of CO2 (carbon dioxide) emitted by Leicester road transport	340.71 kT (2008)	316.05kT (2011)	307.83 kT (2012)	299.61 kT (2013)	291.39 kT (2014)
L LTP 13	Adapting to climate change	Level 3	Level 4	Level 4	Level 4	Level 4

6.2 Progress towards these targets will be reported to the Council’s Priority Board for Reducing Our Carbon Footprint in addition to the main lines of reporting for the LTP as whole. The full lists of carbon reduction indicators and targets are presented in the Implementation Plan.



Chapter 9:

Manage to Better Maintain Transport Assets The Asset Management Strategy



1. Introduction

1.1 The maintenance of our transport infrastructure is crucial to the council meeting its strategic goals. The council's Transport Asset Management Plan (TAMP) sets out the council's strategy for the way it will manage the maintenance of its transport assets. This is against a background of deteriorating assets, increasing costs, a wide ranging reduction in funding from central government and a cap on increases in Council Tax. At the same time as the population grows and the climate is changing, there is ever increasing pressure on our transport assets.

1.2 The TAMP explains how the transport assets in Leicester will be managed by:

- » Integrating the recording and maintenance of a comprehensive inventory of the assets,
- » Carrying out regular inspection and assessment of the condition of the assets,
- » Designing, planning and programming of the maintenance works balancing the council's duty of care to the travelling public, with the budget available in one continuous process.

All the inputs and outputs to this process will be monitored on a regular basis to ensure performance is optimised.

1.3 The maintenance strategy for each grouping of our transport assets is designed to contribute to achieving the objectives of the Local Transport Plan. The strategy acknowledges the different standards of maintenance; safety, serviceability and sustainability. For each asset we aspire to the sustainability level, where we can minimise the maintenance cost over the life of the asset and maximise the value of the asset to the community and the environment. However, the financial constraints are such that over the majority of our transport assets we will just comply with our statutory obligations and meet our users need for safety and we will only be able to ensure availability, integrity, reliability and the enhancement of the service in a very limited number of areas.

2. Highways Maintenance Strategy

2.1 Currently the highway network consists of 91.25km of principal Roads ('A'), 60.5km of Non-Principal Classified Roads ('B' and 'C') and 686.9km of unclassified roads. The majority of our roads are evolved roads, have footways on both sides of the carriageway and some include cycle-ways. The remaining highway network consists of other public rights of way such as footpaths, cycle-paths and bridleways, some of which are surfaced (See Rights of Way Improvement Plan - Annex 2) .

2.2 Through increased investment over the past five years, the condition of our classified road network has improved. In 2005/06, around 13% of the network was 'in need of maintenance soon' (NI 168 Principal and NI 169 Non-Principal). This has fallen to 5% in 2009/10. However, the improvement in the main roads was at

the expense of our unclassified network which has deteriorated significantly over the same period. In 2005-06, 6% of the unclassified road network was in 'need of maintenance soon'. This has risen to 19% (BV 224B) in 2009/10. Similarly the condition of our category 1, 1a and 2 footways which are in need of maintenance has increased from around 28% (2005/06) to 44% (2009/10) (BV 187). This is in spite of major investment in our city centre footways and pedestrian areas.

- 2.3 The specific aim of our Highways Maintenance strategy is to maintain the highway in a safe and accessible condition for use by all members of the travelling public. It is therefore necessary for us to reverse the decline in the condition of the unclassified road network over the last five years. Accordingly, we will now focus our planned maintenance spending to improve the condition of the unclassified road network and the general footway network whilst maintaining the classified road network at its current condition. Priority on the unclassified road network will be given to those roads that are on cycle routes, bus routes or close to schools, hospitals, older person homes etc. Our strategy also includes reactive maintenance to ensure the overall network is safe and accessible for all road users.
- 2.4 This priority, given to the unclassified road network will focus on bringing this element of the network back to a good serviceable standard. To achieve this, we propose to apportion the allocated funding into approximately three equal parts covering works to i) principal and non-principal classified roads, ii) unclassified roads and iii) footways.
- 2.5 The principals of "The Code of Practice for Well Maintained Highways" will continue to be adopted throughout as we look to further improve our highway asset management regime. In line with recognised "best practice", we propose to undertake works to a combination of roads and footways from both the red band (roads and footpaths which have structurally failed) and the amber band (those that require immediate planned maintenance to prevent them structurally failing).
- 2.6 The data from our highway condition surveys will be linked to our "One Leicester" and transport strategy objectives in order to prioritise the roads, footways and cycle-ways to be maintained. Other factors which will also play a part in determining highway maintenance priority will include the move towards "Whole Government Accounting" and working closer with neighbourhoods through the Community Ward meetings.

3. Bridge Maintenance Strategy

- 3.1 Critical elements in our highway network are our bridges and highway structures. We currently maintain 135 highway bridges and 60 footbridges. The other highway structures include retaining walls, embankments, cuttings gantries, tee posts and high mast lighting. 'The Management of Highway Structures' A Code of Practice produced by the Roads Board guides our maintenance regime. Our highway road bridge stock condition is 88% in 2009/10 up from 86% in 2007/08. Over the last five years we have strengthened and/or maintained five bridges on the primary route network, six other bridges on the highway and five footbridges on the Public Rights of Way.

3.2 The bridge maintenance strategy aims to maximise the benefits of the funding available to keep all bridges fit for purpose and safe for use. It includes a mixture of bridge strengthening and major maintenance works on bridges on both the Primary and Non-Primary Route Network which are highlighted in the Implementation Plan.

4. Street Lighting Maintenance Strategy

4.1 The majority of our lighting stock is in a good condition due to a proactive column replacement work program carried out over the last 20 years. However, there are still over 1,100 structurally unsound steel columns and 1,750 concrete columns that require replacing. We are continuing with the replacement of our High Pressure Sodium units by CosmoPolis or LED units resulting in a reduction in our energy usage and therefore our carbon emissions.

4.2 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.

4.3 We will aim to continue to replace our remaining concrete columns and structurally unsound steel columns with new steel columns as they are beyond their design life. We are re-testing our 'at risk' columns every five years. We are identifying and replacing or repairing our steel columns that have corroded at ground level due to road salt and dog urine. We are assessing the replacement of illuminated bollards with reflective ones to cut down on energy consumption and the retrofitting of illuminated sign lighting units with LED gear trays.

4.4 We intend to convert our High Pressure Sodium (HPS) and Low Pressure Sodium (LPS) lighting to newer and more efficient CosmoPolis or 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 which is estimated to have an eight year payback period with savings from energy, carbon tax and maintenance cost. We are investigating a Central Management System (CMS) to enable dimming and part night switching to provide efficient energy monitoring and control and reduce our energy usage and thus our carbon emission and lighting maintenance costs with a reduction in night patrols.

5. Traffic Signals and Systems Maintenance Strategy

5.1 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 five years 66 installations have been replaced, approximately 70% of which were capital funded.

5.2 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

Table 9.1 Traffic signal installations by age profile

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

5.3 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.

5.4 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.

5.5 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.

5.6 The need to ensure installations are renewed at the appropriate times crucial to the safety and longevity of those installations. The proposed four year 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.

6. St Margaret's Bus Station and Car Parks

6.1 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.

Haymarket centre Multi-storey Car Park

6.2 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 2010 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 2010. 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 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.

Newark Street Car Park

6.3 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.

St Margaret's Pastures surface car park

6.4 Over recent years incidents of car-crime have been reported at the St Margaret's Pastures surface car park. This has been mainly confined to thefts from vehicles parked in connection with visits to Abbey Park and the adjacent sports centre. It is now proposed to fund the installation of two cameras located within the middle of the car park. Cabling would be installed to link the cameras to the Security Control Room at York House where the images will be both monitored and recorded.

Granville Road car park

6.5 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 now

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.

7. Winter Service Strategy

7.1 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. Driver training is kept up to date 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 four footway gritting trolleys to enhance our service provision in times of snow.

7.2 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.

7.3 Over the next five 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 where 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.

8. Signing and Lining

8.1 Signing is an important strand of a number of our strategies:

- » General route signing (congestion)
- » Freight signing (accessibility)
- » Walking and cycling (congestion, safety, but mainly accessibility)

8.2 Improvements to general traffic signing will be primarily implemented through our asset management strategy. However, because of the age and condition of the cycle signing network, extra funds will have to be allocated to bring the signs up to standard. Where appropriate, the new signs will include adding in bridleway

and footway information determined through the Rights of Way Improvement Plan (RoWIP). The city centre re-development scheme provided an ideal opportunity to improve the quality of pedestrian signing, while reducing general street furniture clutter. In addition, we will continue to develop the freight-signing programme.

8.3 Lining and road markings will be replaced as they become less visible through wear and general deterioration. An annual replacement programme will be drawn up following visual inspection by both day and night. The amount of traffic over-running and the quality and thickness of the lining material has a direct result on the visibility of the lining over a given time. The amount of lining and markings renewed will be strictly limited to the budget set aside for this purpose. Priority will be given to areas where the safety of the road user is being compromised.

9. Highway Trees and Street Furniture

9.1 We have over 21,000 highway trees. Our stock is generally in a good condition and the intention is to maintain this level. Street trees play a significant part in promoting biodiversity across the city and in reducing air pollution, in part through carbon sequestration. Trees provide a visual enhancement to the landscape, boundary demarcation, the provision of shelter and screening. However, this ever growing resource needs to be properly managed including by pruning on a regular basis or removing and re-planting trees showing signs of ill health.

9.2 We aim to keep our Street Furniture in a fit for purpose condition and ensure it contributes positively to the street scene and to deliver the objectives in our transport strategy. Regular inspections by our highway inspectors and being responsive to feedback from the public helps us to keep to that standard.

9.3 In total, within the city boundary, there are 1,399 bus stops that are owned and maintained by the city council. Of these, 538 stops also have bus shelters, (76 belonging to the city council and 462 belonging to JCDecaux). A survey of all stops in the city is undertaken at least once a year. 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. LCC bus shelters are cleaned and maintained once a month.

10. Biodiversity

10.1 We will improve the landscape and biodiversity at every opportunity. We will also prevent loss of flora and habitat by adopting as a policy the presumption against building on green amenity areas or the extinguishment of highway rights over them so that full control can be exercised. The areas will be retained for the benefit of flora and fauna and the community overall. We are also able to plant more trees in such amenity areas, as suitable tree locations within the main highway areas are very limited for operational reasons. The provision and the maintenance of trees on the highway contribute to air quality improvements. Habitat severance will be avoided where possible. Where this is not possible the effects will be minimised by providing connecting channels.

11. Drainage Asset Management Plan

- 11.1 Highway drainage is an essential, but often ignored, part of the highway infrastructure. It allows rainfall on the highway to drain away in a safe manner. Standing water poses a danger to drivers and passengers of vehicles and it can also be a problem to pedestrians or cyclists. The effectiveness of the highway drainage system is also an essential element in managing the flood risk to properties from surface water flooding. This would form part of the authority's new wider role as Lead Local Flood Authority, to develop, maintain, apply and monitor a Local Flood Risk Management Strategy.
- 11.2 The specific aim of our Drainage Maintenance Strategy is to maintain the highway drainage system in a safe and efficient manner. Our highway drainage assets are visually inspected as part of our highway safety inspections. We also react to reports from the public on highway drainage issues. We are currently developing our Drainage Asset Management regime in partnership with Derby and Nottingham City Council's to improve our asset inventory, data management and inspection processes, funded by the DfT. This work will also help us to prioritise our planned maintenance works according to various criteria, e.g. the number of people and properties which are affected by the inadequacy.
- 11.3 The Highway Maintenance service would also want to influence the type of highway drainage asset that may be designed by developers for future adoption by the highway authority by involvement 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 (SUDS) methods. We will encourage the take up of bio-diversity initiatives within drainage schemes to improve the city's environment.

12. Delivering the Asset Management Strategy

- 12.1 The schemes that will deliver the strategy are detailed in our Implementation Plan. A high level summary is provided below:

Road and footway maintenance

- 12.2 In the next four years priority will be given mostly to the unclassified road network and we will focus on bringing this element of the network back to a good serviceable standard. An approximate amount of £6 million will be required every year for annual maintenance, but the actual provision of budget to the (i) Classified Roads, (ii) Un-classified Roads and (iii) Footways will be decided based on the actual funding allocation. The following are the principal roads that are proposed for maintenance during 2011-15.

- » Abbey Lane
- » Aylestone Road
- » Lutterworth Road
- » Asquith Way
- » Groby Road

Maintenance will be carried out on the worst sections of these roads by the most appropriate treatment. The list of unclassified roads for maintenance is currently being reviewed to take into account the latest condition survey data which reflects the impact of the last two severe winters on the network.

Bridge Maintenance

12.3 We intend to carry out both strengthening works and major maintenance works for the next four years period to keep the bridges in good repair. Some of the listed highway bridges planned for strengthening/major maintenance works in the next implementation period 2011-15, subject to funding availability and the government's priority of reducing the budget deficit, are:

- » Belgrave Road Flyover (major maintenance)
- » St Margaret's Way (major maintenance)
- » Kitchener Road (strengthening)
- » Abbey Park Road (strengthening and major maintenance)
- » Asquith Way (major maintenance)

Traffic Signal Renewals

12.4 It is proposed that all the 66 installations that are more than 15 years old are replaced in the next four year period. Approximately £300k is required every year for the maintenance programme. It should be noted that additional investment will be required when funding is available as the age of some of the newer installations will have expired over and above that recommended. At present there is a maintenance contract to carry out reactive maintenance to repair all traffic lights when fault occurs. Following are some of the signal installations proposed to be taken up for maintenance works in the next implementation period 2011-15:

- » St Georges Way/Charles Street junction
- » Welford Road/University Road junction
- » Abbey Lane/Beaumont Leys Lane junction
- » Belgrave Gate/Orchard Street pelican
- » Granville Road/New Walk pelican

Street Lighting Maintenance

12.5 There are 2,850 lighting columns which require replacing. It would cost approximately £1.6 million to replace them. Additional maintenance works like lamp cleaning, bollard cleaning, sign cleaning also need to be undertaken. A comprehensive maintenance programme will be worked out based on the budget allocations. As part of reactive maintenance, at present all faults highlighted by the Mayrise system are being repaired immediately like lamp changing.

13. Monitoring the Asset Management Strategy

13.1 To monitor the effectiveness of our strategy we have eight key outcome indicators. The key outcome indicators are detailed here in Table 9.2. The full details of both the outcome and supporting indicators are provided in our Transport Asset Management Plan (TAMP).

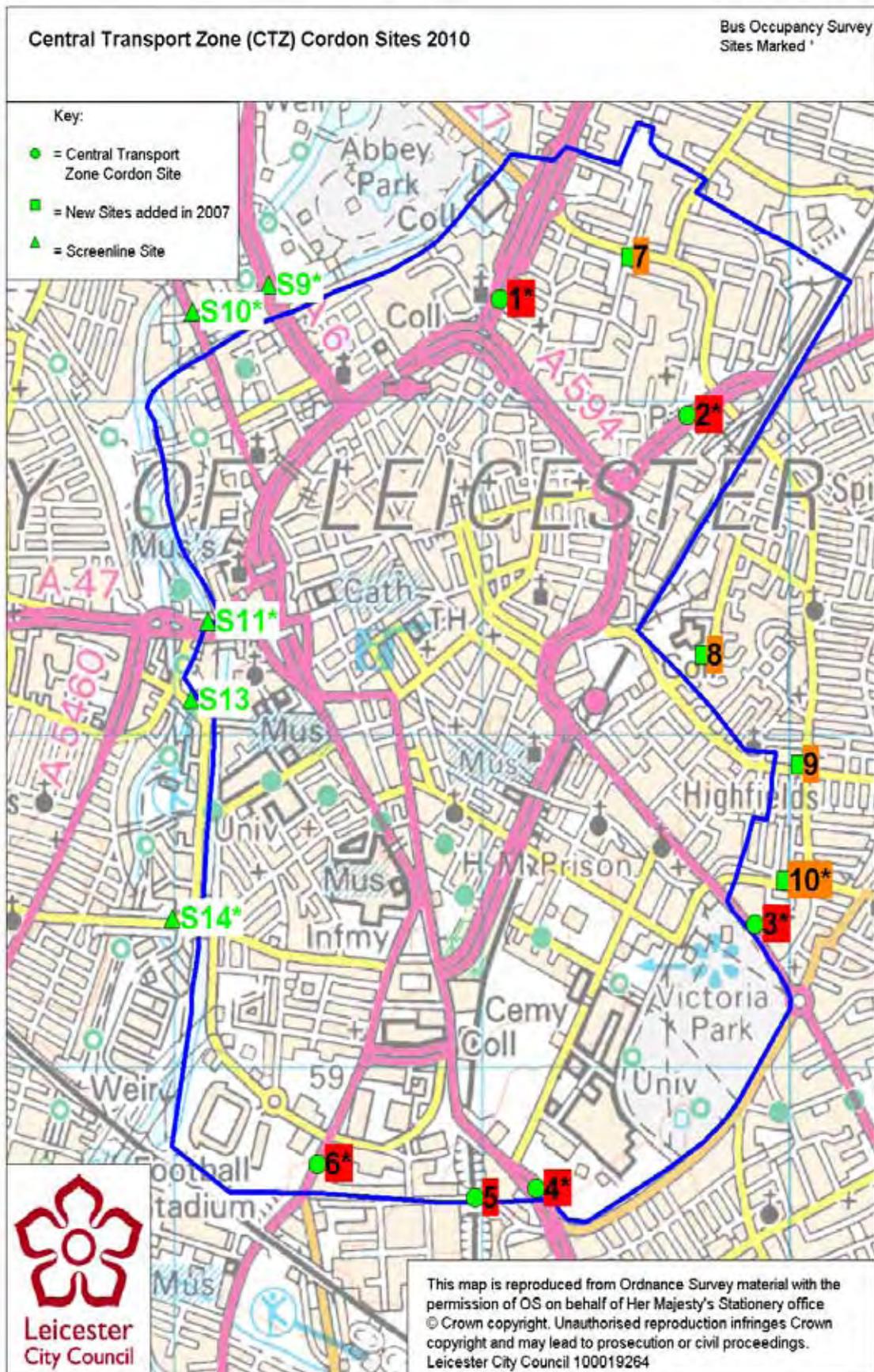
Table 9.2 Asset Management Strategy key outcome indicators and target

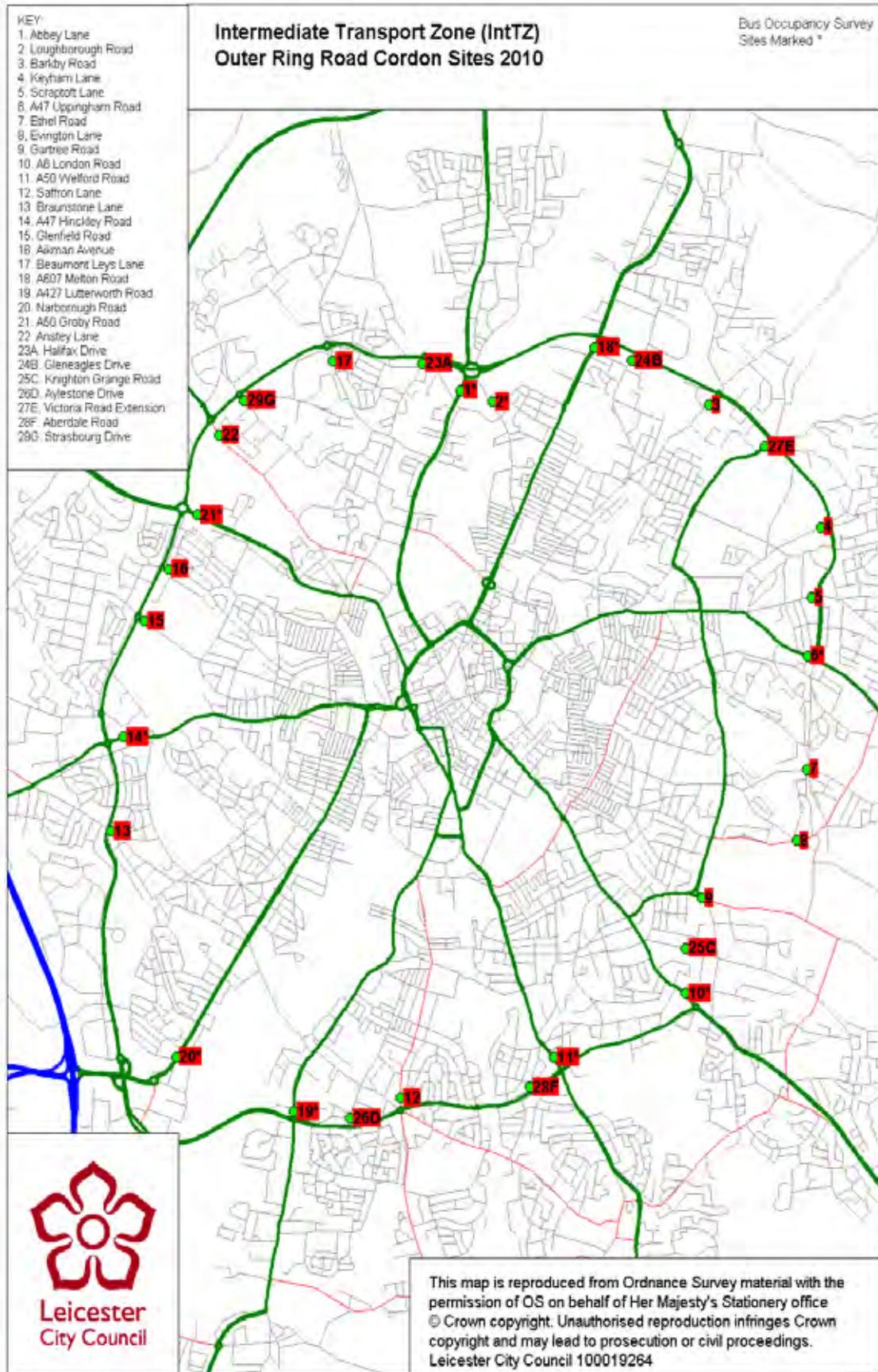
PI Category	Ref. No,	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
	L LTP 41	Principal roads where maintenance should be considered	5%	5% 2009/10	5%	5%	5%	5%	Local Survey
	L LTP 42	Non-principal roads where maintenance should be considered	5%	5% 2009/10	5%	5%	5%	5%	Local Survey
	L LTP 43	Unclassified Road Condition		19% 2009/10	20%	18%	16%	14%	Local Survey
	L LTP 44	Footway Condition		50% 2009/10	50%	45%	36%	32%	Local Survey
	L LTP 45	Percentage of Footpaths easy to use - that is: signed, well surfaced and way-marked	97.5%	2009/10 95%	96%	96.5%	97%	97.5%	Local Survey
	L LTP 46	Bridge Condition Index	87%	87% 2009/10	87%	87%	87%	87%	Local Survey
	L LTP 47	Traffic Signal Condition Index							Local Survey
	L LTP 48	Street Lighting Condition Index	40%	40% 2009/10	40%	40%	40%	40%	Local Survey

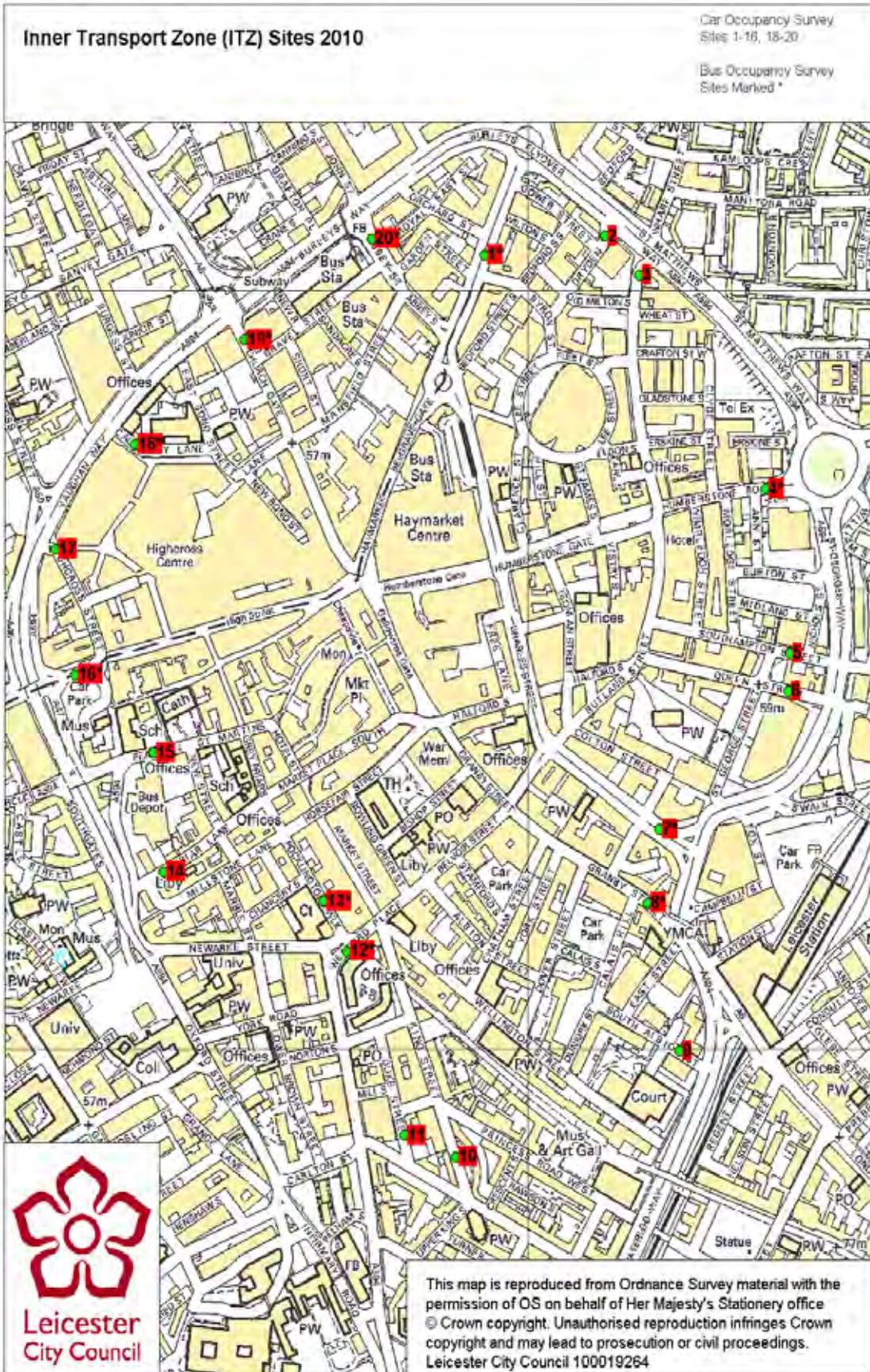
13.2 The full lists of asset management indicators and targets are presented in the Implementation Plan.



Chapter 9 : Manage to Better Maintain Transport Assets The Asset Management Strategy



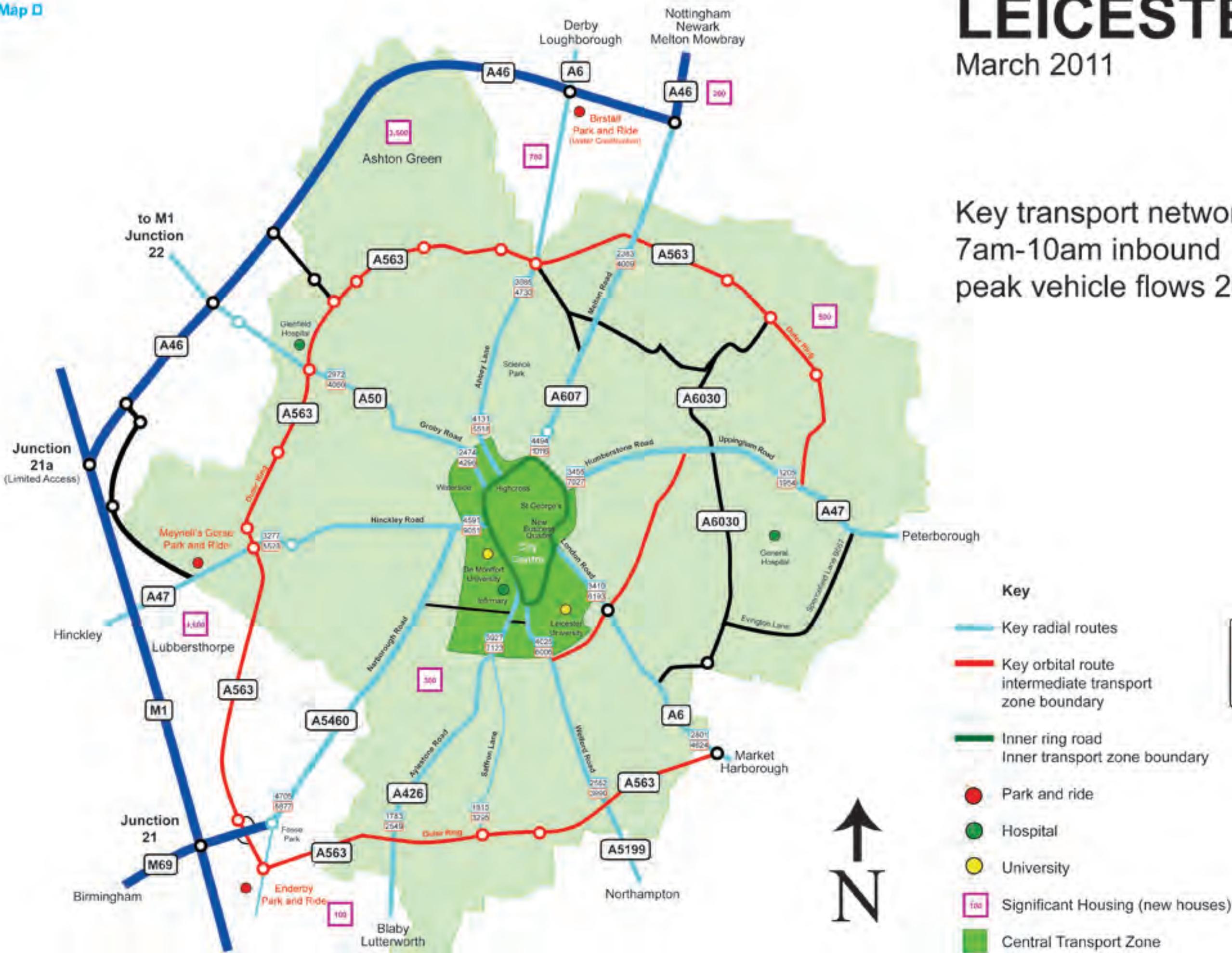




LEICESTER

March 2011

Key transport network
7am-10am inbound
peak vehicle flows 2010



Key

- Key radial routes
- Key orbital route
- intermediate transport zone boundary
- Inner ring road
- Inner transport zone boundary
- Park and ride
- Hospital
- University
- 100 Significant Housing (new houses)
- Central Transport Zone

7am-10am peak inbound flows 2010	
1205	vehicles
1954	person trips

March 2011

Leicester's Local Transport Plan 2011-2026



Part B

Leicester's First Implementation Plan
2011 to 2015

Delivering our Transport Goals



Leicester
City Council

**Leicester's Local Transport Plan
2011 – 2026**

**Part B – Leicester's First
Implementation Plan**

2011 to 2015

**Delivering our Transport
Goals**

**Regeneration, Highways and Transportation
Leicester City Council
A Block New Walk Centre
Leicester LE1 6ZG**

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The Local Transport Plan Part A is a separate document -

‘Planning for People not Cars’ Part A – the Transport Strategy’

1. Introduction, Purpose and Rationale

1.1 Welcome to Leicester’s Local Transport Plan (LTP) Part B This is Leicester’s First Implementation Plan covering the period 2011 to 2015. Part A, a separate document, contains the Transport Strategy setting out our transport policies and individual strategies that comprise our overall transport strategy. 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 in part A. It has to balance up the various interventions with the likely funding streams and required outcomes and deliverability. Inevitably during a period of tight financial restraint, it has to prioritise which interventions to fund. 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. The plan has been developed in consultation with stakeholders, in particular Leicestershire County Council, the police, Leicester PCT, bus companies and business representatives and the public by way of on-line consultation. We have aligned highway infrastructure projects and initiatives with the county council’s programme, in Central Leicestershire, to ensure the most efficient and effective programme delivery and at the same time minimise disruption to transport network users. The plan will be used by council officers, partners, consultants and developers to encourage and ensure delivery of the desired outcomes. Further editions will be published over time to cover the full LTP period.

1.2 The plan sets out our high level and supporting transport performance indicators and targets relevant to each of our transport goals, the estimated impacts, where possible, on non transport specific indicators. Indicators and targets specifically relating to management and maintenance of our highway and transport assets are detailed in our Transport Asset Management Plan. Indicators and targets specifically relating to management and maintenance of our public rights of way network are detailed in Leicester City’s Rights of Way Improvement Plan.

1.3 The plan details the next four years of our transport projects and initiatives, key milestones and risk management. It provides a framework to strengthen our service and project delivery performance. This is a living document that will develop and change over time to take into account feedback from on-going consultation, performance in meeting targets and additional funding that may be secured through bidding for funds such as the Local Sustainable Transport Fund for example. We will regularly review progress and consider the need for updates every twelve months.

1.4 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.

1.5 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. Our immediate focus for the first implementation plan period will be to commence the delivery of a package of city

centre bus improvements in order for us to realise the key transport outcomes for Leicester. Encouraging walking and cycling are also part of the strategy. The harder measures will be underpinned by softer measures taken forward by a smarter choices company or similar, should a strong business case emerge.

2. Leicester's Transport Goals and Objectives

2.1 Leicester's transport goals and objectives have been developed to support national transport goals and "One Leicester", our Sustainable Community Strategy, and in consultation with our wide variety of stakeholders. The goals and objectives are explained in Leicester's Local Transport Plan strategy document and are repeated here for convenience. The goals and objectives are:

Goal: Economic Growth Supported – Leicester is more prosperous

Objective: To Reduce Congestion and Improve Journey Times

Goal: Carbon Emissions Reduced – Leicester's carbon footprint is reduced

Objective: To Reduce Carbon Emissions

Goal: Equality of Opportunity Promoted – Leicester's people are more confident

Objective: To Improve Connectivity and Access

Goal: Better Safety, Security and Health – Leicester's people are more healthy, safe and secure

Objective: To Improve Safety, Health and Security

Objective: To Improve Air Quality and Reduce Noise

Goal Quality of Life and a Healthy Natural Environment are Improved - Leicester is a more attractive place

Objective: To Improve Quality of Life

Objective: Manage to Better Maintain Transport Assets

Goal: Population Growth is supported – Leicester's population is increased in a sustainable manner

Objective: To Reduce Congestion and Improve Journey Times

2.2 The transport strategies and operational plans to deliver these goals are listed below. The Local Transport Plan Programme to deliver the strategies is detailed from chapter 5 onwards of this plan.

The transport strategies:

Congestion Management Strategy

Carbon Reduction Strategy

Accessibility Strategy

Active Travel and Road Safety Strategy

Air Quality and Noise Reduction Strategy

Asset Management Strategy

Car Parking Strategy

Sustainable Modes of Travel to School Strategy

The operational plans:

Leicester City Council Transport Asset Management Plan

Leicester City's Public Rights of Way Improvement Plan

Leicester's Air Quality Action Plan

Leicester's Network Management Plan

3. Achieving Our Objectives: Leicester's Targets

Performance Management

3.1 We have adopted 46 performance indicators to help focus our performance. We have carried out a thorough review of the indicators employed to monitor LTP2 (2006 to 2011) and retained the ones that are appropriate for LTP3. We have adopted some indicators without targets which are for monitoring only. In some cases the indicator is closely tied to the amount of regeneration that actually takes place, which is an unknown. The targets for our performance indicators have been set according to the following hierarchy:

- targets for our key outcome indicators – these include targets which directly measure the achievement of the transport and non-transport specific goals.
- targets for intermediate outcomes – these represent proxies or milestones towards key outcome indicators, as well as relevant National Indicator targets.
- targets for contributory output and other outcome / output indicators – these measure delivery of schemes, policies or initiatives that will contribute to the achievement of targets for the above categories.

Target setting

3.2 Targets have been carefully considered to ensure that they promote genuine improvement without perversely affecting other Performance Indicators (for example, we have to close roads in order to carry out works to improve their condition), are challenging (so that we have to be more effective and efficient), but achievable (because if we set ourselves up to fail we make a mockery of performance management). The targets are realistic and affordable within allocated and anticipated resources and are backed up by delivery detailed in our LTP Programme (Chapter 5 onwards).

3.3 One Leicester sets an ambition to be Britain's most sustainable city. Our LTP targets are therefore stretched to reflect that partnership aspiration. We have also considered the adverse and beneficial trends explained in the following paragraphs.

Adverse trends

3.4 The East Midlands is the fastest growing Region in England. The Atkins report produced for the Regional Spatial Strategy Partial Review shows a trend of increasing pressure on transport from a growing population with greater mobility. Leicester and Leicestershire growth projections are for an additional 25% growth in households over the next two decades, of which over half will be in the Leicester Principal Urban Area. People in the UK are travelling more for social and business reasons, and we need to enable these journeys, while encouraging the use of more sustainable transport modes. Against a national trend of increasing travel, we will do well to limit our increase to a figure below the East Midlands projection.

3.5 Similarly, new EU emissions standards are reducing the pollution per vehicle from new vehicles, but there are more vehicles every year and only the newest reach the highest standards. Leicester has historically had low levels of car ownership with the 2001 Census indicating 38.3% of households having no car or van (against 26.8% for England) but the number of vehicles on our road network has increased. The city has a very young population, and aspirational car ownership will affect the success of our efforts to reduce the need to own a car.

Beneficial trends

3.6 Leicester has been Britain's first Environment City for over 20 years. The sustainability message has been promoted to two generations of schoolchildren, and there is a deep local commitment to taking the sustainable choice where practical. However, the good intentions of walking or taking the bus often lose out to poor weather!

3.7 Bus infrastructure in Leicester (out of the city centre) has got a great deal better over the last ten years. Buses are now light, clean and attractive, with accessible low floor buses forming the majority of the Leicester City fleet. The opening of the Enderby Park and Ride service in 2009 improves the frequency and speed of bus access from the south west edge of the urban area to the city centre. However our success in facilitating increased bus travel has led to bus congestion in the city centre.

3.8 City centre regeneration has led to major improvements in the street scene; for example the pedestrianisation of High Street, which encourages walking and cycling but an adverse consequence of this has been poorer bus penetration. The resident population of the city centre is steadily increasing, for example in the Cultural Quarter where there is a young and affluent apartment-dwelling cohort enjoying the benefits of city centre living. Fear of city centre crime is diminishing although there is still more to be done.

3.9 The indicators, and associated trajectories and targets, have been determined with due regard to technical guidance, consultation with stakeholders and discussion at national, regional and peer local authority level. Extensive consideration was given to the cost effectiveness of collecting data to enable reporting of the indicators prior to finalising the indicator set. Our Indicators are referenced Leicester Local Transport Plan - L LTP X (Reference Number).

3.10 Our targets are detailed in Tables 3.2, 3.3, 3.4, 3.5 and 3.6 and in the following pages. For those trajectories which are non-linear, the trajectory is shown by a simple graph. The targets are listed under the transport goal they serve in the order of the above hierarchy; according to whether they measure progress towards targets directly, represent proxy measurements, or measure the delivery of schemes.

3.11 When setting trajectories and targets the main factors considered were:

- a) The aims of the transport strategies, for example; facilitating regeneration whilst managing congestion, investment that could be achieved without adversely affecting the provision of highway and transportation services (excessive infrastructure works adversely affecting traffic flow)
- b) Relevant national targets (e.g. National Road Safety Strategy targets)
- c) Relevant local targets (regional, neighbouring authorities)
- d) Level of funding available
- e) Targets that would be achieved using current investment levels and current performance
- f) Targets that could be achieved using varying levels of investment and improved performance/greater efficiency in implementation

3.12 A robust system for monitoring and reviewing performance against the targets has been established. This is done predominantly through our Quality Management Review process. Our management and delivery arrangements of our LTP programme

and the elements of the Programme to meet our targets are explained in chapter 5 of this plan. The performance indicators and targets for 2014/15 are listed in Table 3.1.

3.13 Our risk management strategy is explained in chapter 8. The key risks common to achieving the targets proposed include encountering unexpectedly rapid or slow progress in implementing both the LTP and Non-LTP funded implementation programmes. These risks are managed using appropriate programme and project management arrangements including monthly programme and project progress meetings, our consultation strategy and weekly Lead Member briefings. The city and county councils meet regularly as principal partners at both Lead Member and officer level. Through joint steering groups and joint project boards where appropriate potential problems are identified and solutions developed as early as possible in the delivery process.

Table 3.1 List of Leicester's Local Transport Plan Indicators and Targets			
Reference	Description	Target 2014/15	Page
Economic Growth Supported – Leicester is more prosperous			
<i>To Reduce Congestion and Improve Journey Times</i>			
L LTP 1	Congestion on locally managed A roads	3.6 min per mile	16
L LTP 2	Public transport patronage	43 million	16
L LTP 3	Number of people on out of work benefits	Monitoring Only	18
L LTP 4	Rate of people moving from out of work benefits into employment	Monitoring Only	18
L LTP 5	Net additional homes provided	1,519	18
L LTP 6	Satisfaction with public transport information	70%	20
L LTP 7	Satisfaction with local bus services	77%	20
L LTP 8a	Mode of travel to school (reduction of car share to) a) Primary b) Secondary	a) 25.0%	21
L LTP 8b		b) 20.8%	
L LTP 9a	Bus punctuality (non-frequent services)	a) 71.5%	22
L LTP 9b	Bus punctuality (frequent services)	b) 1.04 minutes	
L LTP 10	One Leicester car journey to work share	49%	24
L LTP 11	INDICATOR REFERENCE NOT USED		
Carbon Emissions Reduced – Leicester' carbon footprint is reduced			
<i>To Reduce Carbon Emissions</i>			
L LTP 12	Tonnage of CO2 (carbon dioxide) emitted by Leicester road transport	291.39 kt	27
L LTP 13	Adapting to climate change	Level 4	28
L LTP 14	Area wide traffic	1446 mvkm	29
L LTP 15	Proportion of urban trips under 5 miles taken by i) walking or cycling ii) public transport	to be set	31
L LTP 16	Number of Travel Plans adopted by businesses in the CTZ	70	31
L LTP 17	Percentage of all state schools covered by Travel Plans	100%	32
L LTP 18	Number of Area Wide Travel Plans introduced	4	33
L LTP 19	Percentage of freight/goods destinations properly direction signed	100%	33
L LTP 20	Number of newly registered Ultra Low Emission vehicles in Leicester	Monitoring Only	34
Equality of Opportunity Promoted – Leicester's people are more confident			
<i>To Improve Connectivity and Access</i>			
L LTP 21	Percentage households with good access to key services or work – access to employment	85%	37
L LTP 22	Access to hospitals, LRI, General and Glenfield	90.0% 48.3% 71.7% respectively	37
L LTP 23	Access to Leicester Railway Station	93.6%	38
L LTP 24	Use of public libraries	Monitoring only	39
L LTP 25	Percentage of low-floor buses in Arriva and First fleet	100%	40
L LTP 26	Percentage of level access bus stops	95%	41
Better Safety, Security and Health – Leicester's people are more healthy, safe and secure			
<i>To Improve Safety, Health and Security</i>			
<i>To Improve Air Quality and Reduce Noise</i>			
L LTP 27	Total number of casualties from road traffic accidents	1222	44
L LTP 28	Total number of child casualties from road traffic accidents	162	44
L LTP 29a	Number of people killed or seriously injured in road traffic accidents	80	45
L LTP 29b	Number of Children killed or seriously injured in road traffic accidents	13	

L LTP 29c	Number of Pedestrians killed, seriously or slightly injured in road traffic accidents	234	
L LTP 29d	Number of Pedal Cyclists killed, seriously or slightly injured in road traffic accidents	118	
L LTP 29e	Number of Powered Two Wheeler Occupants killed, seriously or slightly injured in road traffic accidents	81	
L LTP 30	Perceptions of anti-social behaviour	To be set	46
L LTP 31	Obesity among primary school age children in Reception Year	To be set	47
L LTP 32	Obesity among primary school age children in Year 6	To be set	48
L LTP 33	Cycling trips	170 (Index)	49
L LTP 34	INDICATOR REFERENCE NOT USED		
L LTP 35	Adult participation in sport	25%	51
L LTP 36	Percentage of children receiving Pedestrian Training (School Years 1 & 2)	2,400	51
L LTP 37	Percentage of Children receiving Cycle Training (School Years 5 & 6)	1,500	52
Quality of Life and a Healthy Natural Environment are Improved - Leicester is a more attractive place			
<i>To Improve Quality of Life</i>			
<i>Manage to Better Maintain Transport Assets</i>			
L LTP 38	Self-reported measure of people's overall health and wellbeing	To be set	55
L LTP 39	Air Quality Annual Mean Nitrogen Oxide Oxide – Abbey Lane, Melton Road, St Matthew's Way, Glenhills Way (Supporting indicators for air quality are shown in Table 3.12 of our Air Quality Action Plan.)	45, 50, 48, 63.	55
L LTP 40	Approximate number of dwellings and associated population per authority to be investigated as a first priority due to noise from those roads mapped	Monitoring only	58
L LTP 41	Principal roads where maintenance should be considered	5%	58
L LTP 42	Non-principal roads where maintenance should be considered	5%	58
L LTP 43	Unclassified road condition	14%	58
L LTP 44	Footway condition	32%	58
L LTP 45	Percentage of footpaths easy to use - that is: signed, well surfaced and way-marked	97.5%	59
L LTP 46	Bridge Condition Index	87%	60
L LTP 47	Traffic Signal Condition Index	tbe	61
L LTP 48	Street Lighting Condition Index	40%	61

Table 3.2 To Reduce Congestion and Improve Journey Times Performance Indicators and Targets									
PI Category	Ref. No	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
Outcome	L LTP1	Congestion on locally managed A roads	3.60mins per mile	3.60 minutes per mile (2009/10)	3.60mpm	3.60mpm	3.60mpm	3.60mpm	DfT
	L LTP2	Public transport patronage (Central Leicestershire)	43m	41.5m 06/07 43m 07/08 42.5m 08/09 41m 09/10	40m	41m	42m	43m	Local bus companies
Non – transport Outcome	L LTP3	Number of people on out of work benefits	There are no targets apart from those in the LAA (which don't go beyond 2010/11).	17.6% of 16-64 year olds (Aug '09 to July '10)	Monitoring only	Monitoring only	Monitoring only	Monitoring only	DWP via NOMIS
	L LTP 4	Rate of people moving from out of work benefits into employment	There are no targets apart from those in the LAA (which don't go beyond 2010/11).	-2.2% points from June 2009 to June 2010	Monitoring only	Monitoring only	Monitoring only	Monitoring only	DWP via NOMIS
	L LTP 5	Net additional homes provided	1,519 Cumulative 2010/11 to 2014/15 = 7,065	2006/07 1,215 2007/08 942 2008/09 1,208 2009/10 930	1,402 Cumulative = 2,517	1,527 Cumulative = 4,044	1,502 Cumulative = 5,546	1,519 Cumulative = 7,065	Local Survey
Intermediate Outcome	L LTP 6	Satisfaction with Public Transport Information		2008 = 70%	70%		70%		Bi-annual Residents Survey
	L LTP 7	Satisfaction with local bus services		2008 = 77%	77%		77%		As above
	L LTP 8	Mode of travel to school a) Primary b) Secondary	Reduction of car share to: a) Primary = 22.5% b) Secondary = 23.0%	2009/10 a) Primary = 27.0% b) Secondary = 20.8%	a) 25.2% b) 23.0%	a) 24.3% b) 23.0%	a) 23.4% b) 23.0%	a) 22.5% b) 23.0%	DfT via PLASC (for schools with Travel Plans)

	L LTP 9a	Bus punctuality (Non-frequent services)	a) 71.5%	2009/10 % of non-frequent services on time = 69%	70%	70.5%	71%	71.5%	Local Survey
	L LTP 9b	Bus punctuality (Frequent services)	b) 1.04 minutes	Excess waiting time for frequent services = 1.19 minutes	1.13 mins	1.10 mins	1.07 mins	1.04 mins	Local Survey
	L LTP 10	One Leicester car journey to work share 50% target (7-10am)	49%	54.4% 06/07 54.2% 07/08 51.2% 08/09 52.0% 09/10	51.0%	50%	49.5%	49%	Local Survey

To Reduce Congestion and Improve Journey Times

3.14 Ten indicators have been adopted to monitor progress in achieving this objective. Each indicator and target is briefly described, with the aid of a simple graph where appropriate, showing the trajectory for the target.

3.15 Performance Indicator L LTP 1: Congestion on locally managed A roads

This is a new DfT indicator, which we will adopt. Journey times are for the average school day morning peak (7-10am) and are flow-weighted. They have been calculated by combining journey time data from vehicles equipped with Trafficmaster's Global Positioning System (GPS) with traffic flow data from the Department's annual traffic census. The current intention is for this data to be published quarterly.

Ambition: To accommodate increased demand for trips (due to economic and population growth) on the transport network without significant increases in traffic journey times (i.e. to keep journey times at or below their current levels).

Realism: National factors (such as petrol prices and the economy) will have a far greater influence on the overall demand for trips than our local schemes, and the overall demand for trips is the main contributor to congestion levels. Leicester's relatively low ranking (see below) reflects the restricted nature of Leicester's road network, with many closely spaced and busy junctions on Leicester's radial roads and inner ring road. This makes large scale improvements difficult. The DfT counts that are used to flow-weight the speed data are from an 8 year rolling schedule of manual counts, so any changes in flows on the road could take time to feed through into the indicator.

Comparative analysis: Leicester UA has relatively slow average journey times, coming 8th from bottom out of over 100 LAs in 2009/10 with an average journey time of 3.60 minutes per mile, just above Nottingham on 3.64 minutes per mile. The average journey time for Derby was 2.99 mpm and for the East Midlands as a whole – 2.08mpm (buoyed up by Rutland and the three shire counties).

Our key actions: Delivering the Congestion and Accessibility strategies. Planned works in the city centre, Aylestone Road and the Birstall Park and Ride are all designed to reduce congestion, as is the longer-term City Centre Bus Scheme. Nearly all the policy instruments will impact on this indicator. Key features will include: Journey Planning, Smart Ticketing, Public Transport Focused Development, Land Use Planning, Public Transport Routing, Bus Stations and Interchanges, Improved Bus Information, Roads & Traffic Management.

Partners' key actions: New Employer and Residential Travel Plans/Packs are implemented and existing ones maintained. Bus companies adopt Smart Ticketing and co-operate on cross-ticketing measures. The delivery and use of the city centre bus scheme.

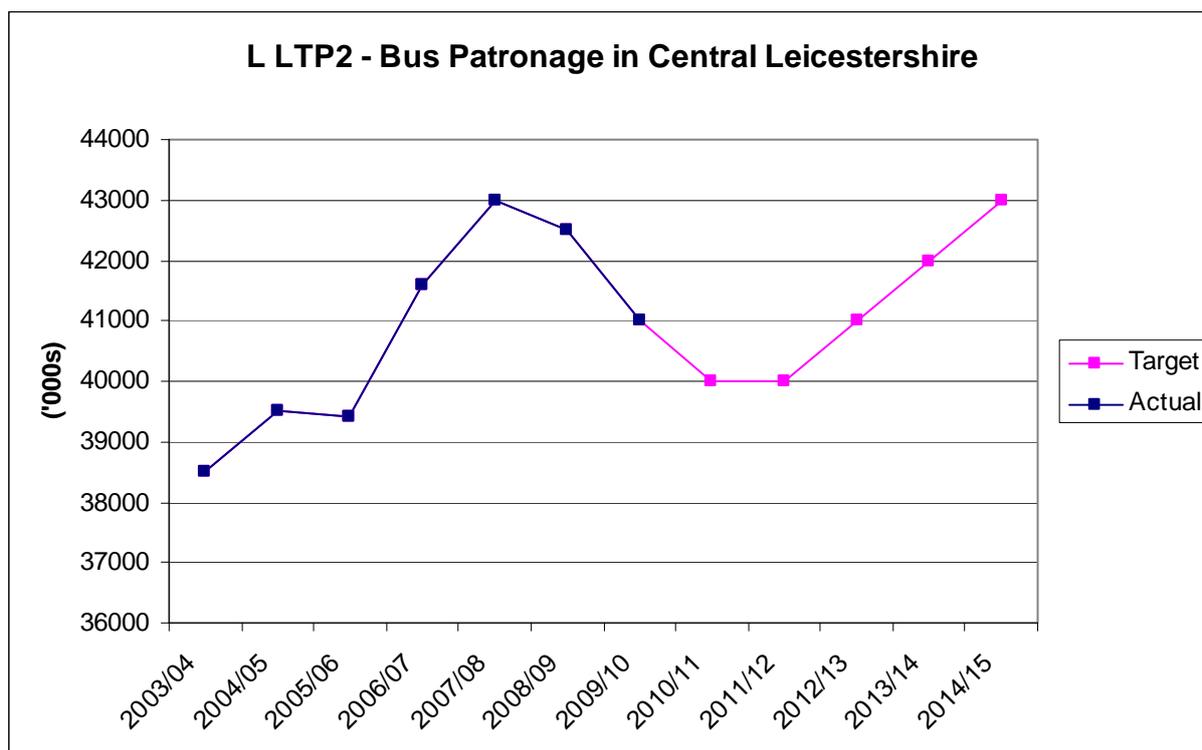
Principal risks: The Congestion and Accessibility strategies are not delivered to programme. Bus companies priorities change. Travel plans/packs not taken up. Traffic growth is higher than expected. Lack of funding prevents identified actions being taken.

Risk management: Senior council officers to monitor progress of the Congestion and Accessibility Strategies, and intervene to realign priorities, staff and resources if necessary. Regular meetings with employers and developers regarding the development of travel plans/packs. Regular meetings with bus companies senior management.

3.16 Performance Indicator L LTP 2: Public Transport Patronage

This indicator is defined as the number of bus passenger boardings per year in

Central Leicestershire. The bus companies record all boardings via the electronic Wayfarer on-board ticket machines. We collate this to give the total annual figure.



Ambition: We will need to go against the national trend (see Comparative analysis) and return our bus patronage to pre-recession levels to achieve the target.

Realism: We have seen a decline in city centre bus patronage since the onset of the recession. Impending cuts to commercial and supported bus services will reduce numbers further in the short term, as will reductions in employment and retail activity. The Enderby Park and Ride site is taking time to bed-in. On the other hand, rising petrol prices and unemployment could lead to increased bus use as an alternative to the car.

Comparative analysis: Bus patronage has declined across the country since the onset of the economic recession, so much so that in the major English conurbations (i.e. the PTEs) all the patronage gains made since the introduction of free concessionary fares in 2006 have been lost.

Our key actions: Deliver the Congestion and Accessibility Strategies. Implement the City Council Travel Plan, and secure travel plans for businesses in the Central Transport Zone (CTZ). Commission the Birstall Park and Ride scheme and continue to market and support the existing Park and Ride sites. (The Humberstone Road Quality Bus Corridor (QBC) was not completed in time to have a positive effect on the current figures (the QBC was completed at the end of July 2010).

Partners' key actions: The bus companies to continue to deliver the data, and to continue to increase the number of new, low floor, low emission buses in their fleets. Universities, hospitals and companies to maintain and implement travel plans. Help deliver Park and Ride. All partners fully support the delivery and use of the city centre bus scheme.

Principal risks: The Congestion and Accessibility Strategies are not delivered on programme. Bus companies' priorities change or they fail to deliver the data. Travel plans proceed more slowly than expected. Regeneration is slower than forecast. Commissioning of the Birstall Park and Ride scheme is delayed or fails to attract

sufficient users. Bus companies increase fares and/or reduce services.

Risk management: Senior council officers to review progress with the implementation of the Congestion Strategy, the City Council Travel Plan and Park and Ride, and if necessary realign priorities, staff and resources. The QBP (Quality Bus Partnership), including the bus operations group and bi-laterals, is to regularly receive progress reports on bus improvements and consider recommendations for action. Hold regular meetings with Local Enterprise Partnership (LEP), the universities and the hospitals regarding the development of travel plans.

3.17 Performance Indicator L LTP 3: Number of people on out of work benefits Performance Indicator L LTP 4: Rate of people moving from out of work benefits into employment

These targets are included for monitoring purposes only. Data is provided by the department for Work and Pensions (DWP). Our economic regional partners are considering recent government changes and they will set targets shortly.

Ambition: To enable people to take up available jobs by facilitating their access to them.

Realism: We have limited influence on bus routes and timetables, and will have less money to subsidise / support un-profitable routes in the future. A lack of orbital routes limits accessibility outside of the city centre and main radials. Few employers in Leicester are large enough to make off-peak, shift pattern timetables and/or routes viable.

Comparative analysis: In 2009 Leicester was above the National Average for Access to Employment (85% over 83%), and has been at 85% for the last three years.

Our key actions: Delivery of the City Centre Bus Scheme. Providing improved bus information and development of smart ticketing. Co-ordinating residential and employment developments with Land Use Planning and mixed use developments. Promotion and support employer and personal travel plans/packs.

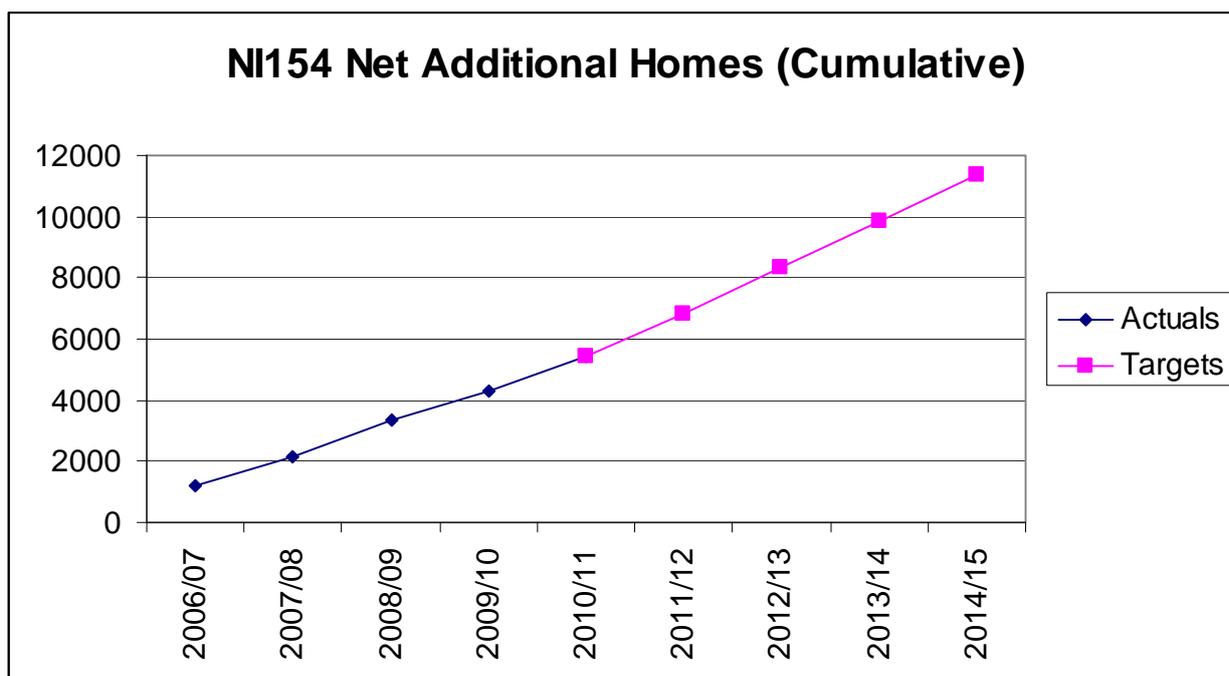
Partners' key actions: Adoption and utilisation of employer travel plans. Support from the bus companies, Job Centre Plus & Connexions (which provides information and advice for 13 to 19 year olds).

Principal risks: Lack of funding. Lack of co-operation.

Risk management: In the greater scheme of things transport is a relatively minor influence on the overall employment rate. A lack of jobs due to the impending cuts and the overall economic situation are likely to reduce or suppress the overall employment rate regardless of levels of access.

3.18 Performance Indicator L LTP 5: Net additional homes provided

This indicator is more a measure of the challenge facing Leicester's transport system than an indicator which is influenced by transport measures. The intention is to build seven thousand homes between 2010/11 and 2014/15, which will generate thousands of extra trips which must be accommodated within Leicester's transport system. Extra capacity (i.e. new road building and existing road-widening) are neither sustainable nor affordable options. To prevent gridlock we must encourage the most efficient use of the road network and try to reduce the number of new trips generated by new developments.



The LTP3 targets build on the LTP2 building programme, which saw 4,295 homes having been built by 2009/10. The 2010/11 target of 5,410 additional homes is expected to be reached, and from there a further 7,065 homes are planned up to 2014/15. The graph shows the cumulative effect of the house-building from 2006/07 to 2014/15 – a total of 11,360 new homes.

Ambition: To help to meet the high demand for housing by providing over seven thousand homes between 2010/11 and 2014/15, and to accommodate that growth within the transport network without greatly increasing congestion. The Leicester Core Strategy (adopted by the council on 25th November 2010) retains the Regional Plan housing target for the city. The Regional Plan remains part of the Development Plan but the Government has made provision to abolish the regional planning tier in the Localism Bill which was published on 13 December 2010. The Localism Bill also includes proposals for the preparation of Neighbourhood Plans but the draft Bill states that they will need to be in general conformity with the local plan.

Realism: The supply of new homes is not currently keeping up with demand and the current economic climate is restricting house-building activity. New homes will be built however, and work must be undertaken to limit their impact on the transport network. The impact of new developments on the existing transport network can be reduced by measures such as the provision of local services (shops, schools and employment) to reduce the need for outside trips, good public transport links, and attractive walking and cycling routes.

Comparative analysis: The accommodation of an increasing population on transport networks is a national problem.

Our key actions: Delivery of the city centre bus scheme. Working with planners and developers to limit new trip generation from developments and to locate new housing in areas with existing transport links and good public transport provision. Also the provision of resident's Travel Plans and/or inclusion of new developments within Area-Wide Travel Plans.

Partners' key actions: Planning authority and Planning Policy – identifying sustainable areas for development. Ensure local bus companies are on board in making provision for new developments. Creating, maintaining and promoting walking and cycling routes (Sustrans).

Principal risks: The housing market will continue to be sluggish. Continuation of Leicester's First Implementation Plan 2011 – 2015 (LTP3 – Part B)

public funding is under threat.

Risk management: These are very challenging targets.

3.19 Performance Indicator L LTP 6: Satisfaction with Public Transport Information

Our Congestion Strategy has a strong emphasis on improving bus services, so it is important for us to monitor satisfaction with this aspect of provision. This information will be collected locally every two years via the Leicester City Council Residents Survey. The programme to replace the StarTrak real time information system requires us to set a target of maintaining our existing, 70% level of satisfaction, to 2014/15.

Ambition: Our extensive network of real time bus passenger information (StarTrak) is reaching the end of its useful life. There is a need for a replacement real time bus information system but the funding will be very challenging in the near future.

Realism: we expect any reduction provision of real time bus information to be outweighed by our upcoming program of bus stop information provision in the city centre.

Our key actions: We are increasing information provision at bus stops in the city centre. We will continue to roll out the Bus Information Strategy as part of the Congestion and Accessibility Strategies and to commission the city centre bus scheme.

Comparative analysis: In the 2008 National Place Survey (now discontinued) Leicester's satisfaction figure was on a par with Derby's and above the average for the East Midlands, but below Nottingham.

Partners' key actions: The bus companies and Leicestershire County Council are working with us to roll out the Bus Information Strategy.

Principal risks: Bus companies' priorities change. Non-users have a poor perception of the information provided.

Risk management: The QBP, including the Bus Operations Group and bi-laterals, to regularly receive progress reports on the roll out of the Bus Information Strategy and take any appropriate corrective action.

3.20 Performance Indicator L LTP 7: Satisfaction with Local Bus Services

Our Congestion Strategy has a strong emphasis on improving bus services, so it is important for us to monitor satisfaction with local bus services. This information will be collected locally every two years via the Leicester City Council Residents Survey

Ambition: It will be a challenge to prevent this from falling given the impending cuts to commercial and supported services, and the potential reduction in real time bus information provision.

Realism. In setting the target we have weighed impending cuts in bus subsidies and reduction in real time bus information against an extra Park and Ride facility, planned improvements to Humberstone Gate, and growing awareness of bus service improvements due to our Humberstone Road Quality Bus Corridor. We have therefore set a target of maintaining our existing, 77% level of satisfaction, to 2014/15. The planned improvements to Humberstone Gate, Park and Ride and the Humberstone Road Quality Bus Corridor are expected to have a positive impact on people's perceptions.

Our key actions: Deliver the city centre bus scheme, Congestion and Accessibility Strategies and in particular the bus strategy.

Partners' key actions: The bus companies to continue to introduce new, low floor, low emission buses to their fleets and improve driver training and maximise the

effectiveness of the city centre bus scheme.

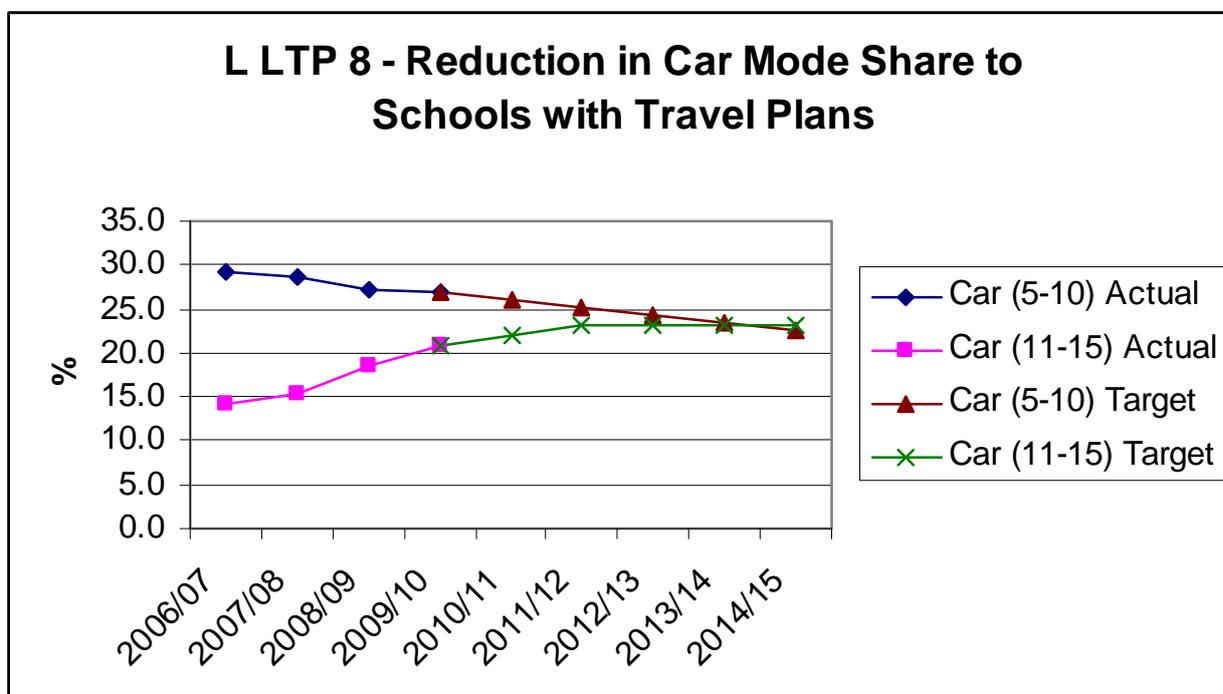
Comparative analysis: In the 2008 National Place Survey (now discontinued) Leicester's satisfaction figure was better than Derby's and the East Midlands average, but below Nottingham's.

Principal risks: The Congestion and Accessibility Strategies are not delivered on programme. Bus companies' priorities change. The bus strategy is not successful.

Risk management: Senior council officers to review progress with implementation of the Congestion and Accessibility Strategies, and if necessary realign priorities, staff and resources. The QBP (including the bus operations group and bi-laterals) to regularly receive progress reports on bus satisfaction levels and consider recommendations for action. We will secure developer provided, bus related, infrastructure and services through the planning process and encourage provision of bus information in reception areas through our work on travel planning with organisations.

3.21 Performance Indicator L LTP 8: Mode of travel to school

This indicator measures the proportion of school aged children in full time education travelling to state schools by the mode of travel that they usually use. The indicator is reported as eighteen separate parts, according to six modes of travel each within two age groupings (children aged 5-10 years and children aged 11-16 years) and for the total age group (children aged 5-16 years). Mode of travel is defined as six modes: cars (including vans and taxis, even if a taxi is carrying more than one child), car share, public transport, walking, cycling, and other. Data is collected through the annual PLASC (Pupil Level Annual School Census) survey and targets are set for both the Primary and Secondary age ranges. It should be noted that the early data for Secondary Schools was incomplete and did not provide a representative picture.



Ambition: At the Primary school level we aim to continue to reduce the proportion of trips made via (non-shared) car journeys.

At the Secondary school level we aim to maintain current levels of non-car mode travel in the face of the impending cuts to commercial and supported public transport services.

Realism: It can be difficult to change established habits of modal choice and to encourage alternatives to the car for busy parents, particularly when we already have a high level of walking to school for the primary school age group. Greater parental choice regarding secondary schools is likely to lead to longer, more complicated journeys, which could discourage students from walking and cycling to school. A significant number of the existing secondary school bus services are subsidised and some of them will have to be reduced or withdrawn over the next four years. Increasing petrol prices and unemployment may lead to an increase in the cheaper modes of travel (i.e. walking, cycling and car sharing).

Comparative analysis: In Leicester all age school data shows 14.1% of children are travelling less than one mile by car; and 7.4% are travelling less than ½ a mile by car. The equivalent figures for Nottingham and Derby are 10.7% and 5%, and 13.1% and 6.7% respectively. Reducing obesity in school age children is also an important link to this work (i.e. L LTP indicators 31 and 32).

Our key actions: We have a systematic programme of work to encourage all schools to establish and review school travel plans tied in to a programme of safer routes to schools schemes and initiatives such as Star Walkers. Our school travel advisor will work closely with all schools to ascertain how we can best help each on an individual basis to decrease car use.

Partners' key actions: Schools to implement and review school travel plans; support our pedestrian and cycling training and other initiatives such as Star Walkers.

Principal risks: Reductions in school bus services transfers pupils into cars rather than more sustainable modes of travel. Momentum is lost in school travel initiatives and/or they are implemented at a slower rate than anticipated. The many pressures on schools, their staff and governors, may not allow them to give sufficient priority to travel initiatives.

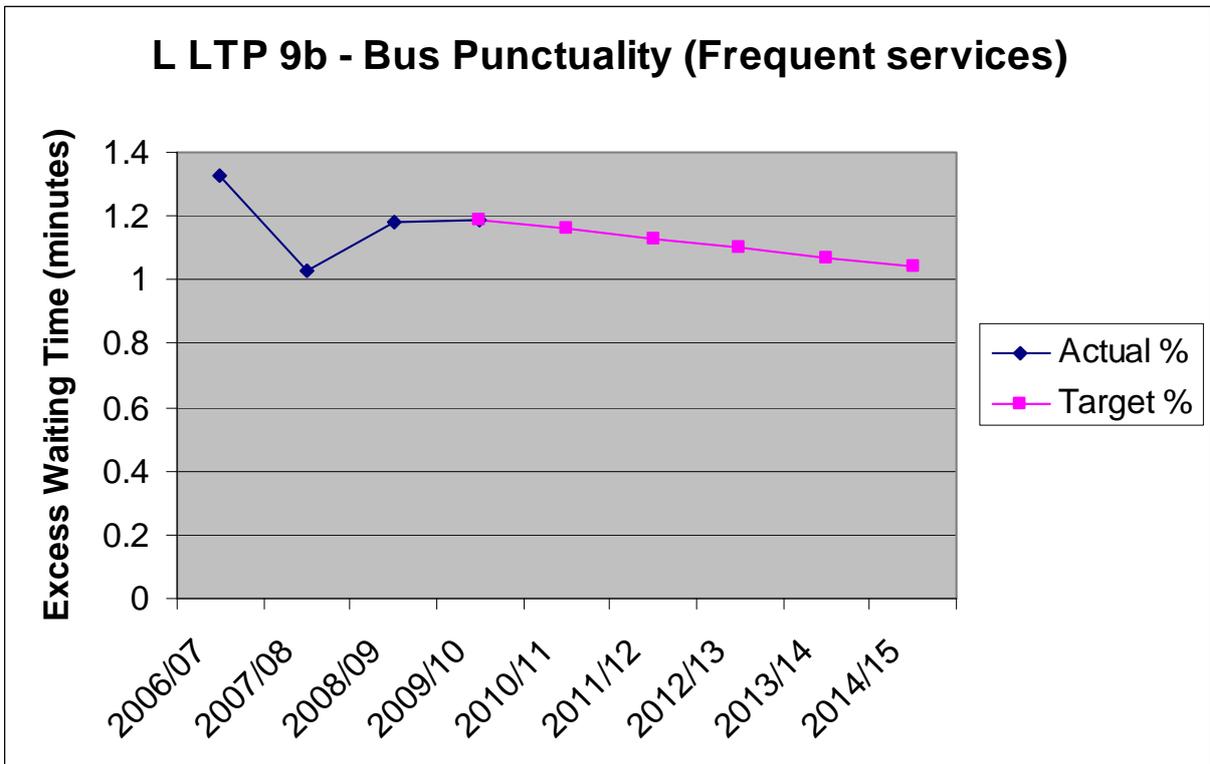
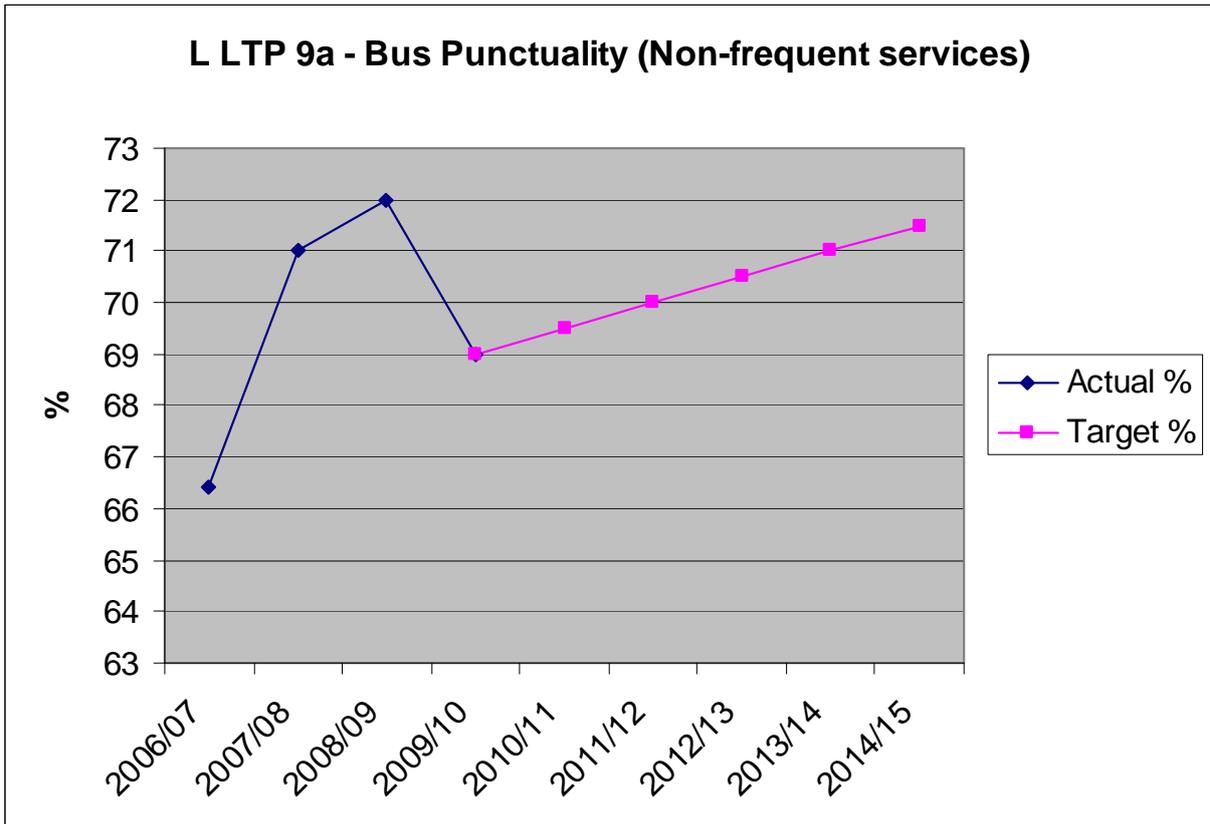
Risk Management: Senior council officers to review implementation progress, and if necessary realign priorities, staff and resources. We will keep in regular contact with schools to offer full encouragement and support to maximise progress and keep travel initiatives high up their agenda. The safer routes to schools schemes programme is informed by the travel plans process.

3.22 Performance Indicator L LTP 9: Proportion of bus services running on time

This indicator monitors the punctuality of 'frequent' bus services, (those arriving at least every 10 minutes), and 'non-frequent' bus services, (those arriving less frequently than every 10 minutes). To ensure that our monitoring sample is representative of services in Leicester, we have identified a set of stops, extending from the city centre, and served by our main operators. There are three elements to this indicator;

- Buses starting their route on time
- Buses on time at intermediate timing points
- Average excess waiting time on frequent service routes

The first two elements relate to non-frequent services, and the performance indicator output is the simple average of these two results. Data for all three elements is collected by way of comprehensive on-street surveys.



Ambition: We have not made the required progress with this indicator.

Realism: Monitoring will be spread throughout the year to ensure there is no seasonal effect in the results. Further analysis of results by corridor and by operator is possible to ensure our interventions are fine tuned to improve punctuality. The punctuality benefits of the recently completed Humberstone Road QBC should begin to show, and the planned improvements to quality bus corridors will also help.

Comparative analysis: Nottingham's bus punctuality results are considerably better than Leicester's.

Our key actions: Deliver the Congestion Strategy, specifically bus priority measures and the city centre bus scheme.

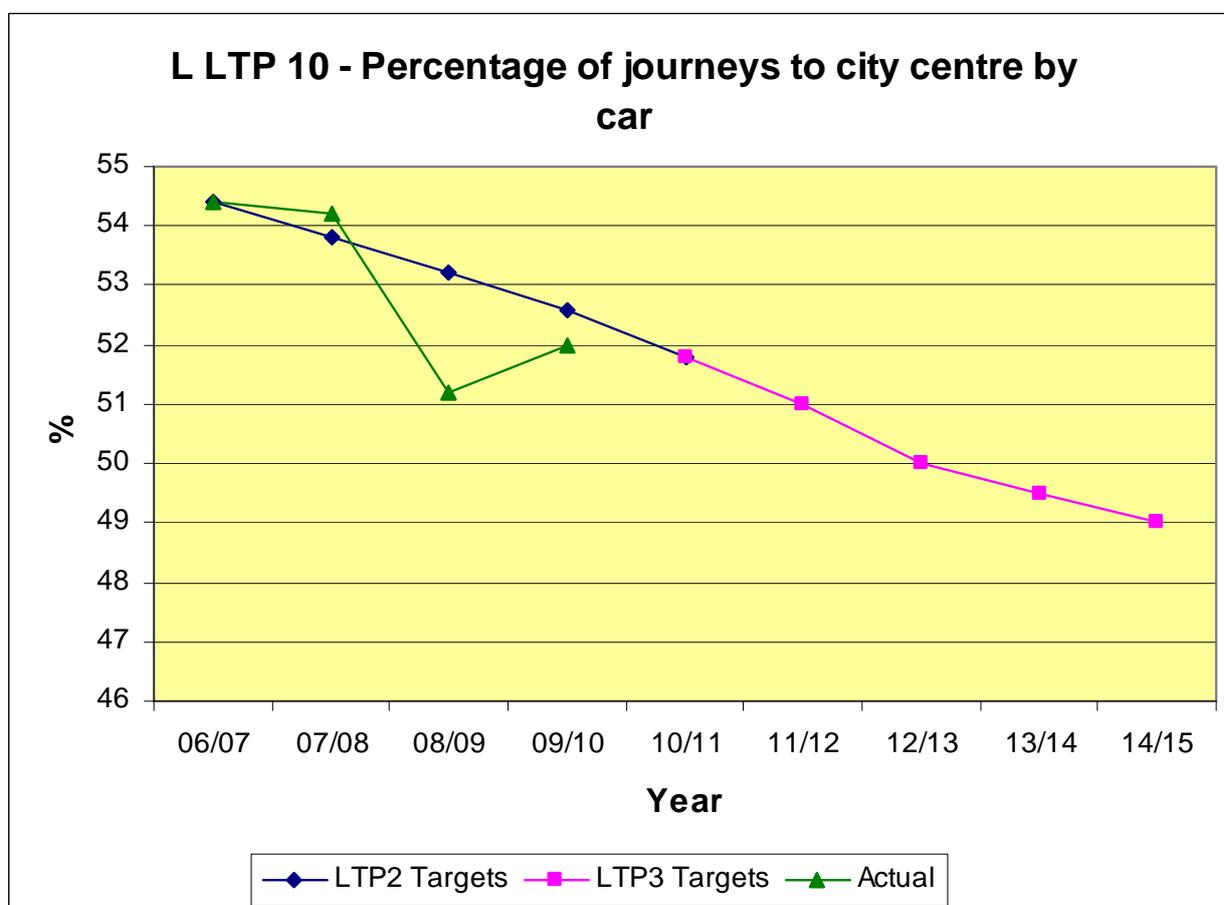
Partners' key actions: The bus companies to continue to introduce new buses to their fleets and improve driver training to reinforce importance of punctuality and cooperate in the delivery and use of the city centre bus scheme.

Principal risks: The Congestion Strategy is not delivered on programme. Bus companies' priorities change.

Risk Management: Senior council officers to review progress with implementation of the Congestion Strategy, and if necessary realign priorities, staff and resources. The QBP (including the bus operations group and bi-laterals) to regularly receive progress reports on bus punctuality and consider recommendations for action.

3.23 Performance Indicator L LTP 10: One Leicester car journey to work share

This indicator measures the average car/LGV share across two cordons, the city centre cordon (using the Inner Ring Road as the boundary) and the CTZ cordon, which is slightly larger (but still based around the centre of the city). It uses an average occupancy rate for cars and LGVs, and does not distinguish between single and multiple occupancy vehicles. Data is collected annually via the Strategic Cordon Surveys. The target is challenging and assumes that we can continue to reduce the car/LGV share against the conflicting pulls of a variety of powerful factors (see Realism section below).



Ambition: It will be a challenge to change established travel to work habits in terms of car use and occupancy levels. Our key interventions are aimed at travel into the CTZ.

Realism: A wide variety of factors have an influence on the indicator figure. The closure of the High Street to traffic and a proliferation of car parks outside of the city centre have increased the number of people being recorded as pedestrians rather than car or bus users. The current recession and increasing petrol prices may be responsible for less trips being made overall (compared with 2007) and may further reduce car trips. Free bus passes may be sustaining bus travel that would otherwise be affected by these market forces. The planned reductions in the Bus Service Operators Grant (BSOG, paid by Government to the bus companies) and the impending cuts to commercial and supported public transport services, will in turn affect bus patronage levels.

Comparative analysis: Bristol has put forward a plan to make the city centre almost entirely car-free by 2015. In York 20% of all journeys are cycle journeys (“Bike for all” website) though it must be stressed that there is a mile car free zone in the town which allows opportunities for cyclists.

Our key actions: Deliver the Congestion and Accessibility Strategies and commission the city centre bus scheme. Implement the City Council Travel Plan and facilitate and secure commercial travel plans as part of the Congestion Strategy. Work is being undertaken to bring in large organisations (namely the Civil Service, several banks, call centres and Learndirect) with the premise of undertaking voluntary travel plans. A comprehensive template and package for voluntary travel plans has been created, as well as a template to monitor any voluntary travel plans by the Travel Plan Officer.

Partners’ key actions: All three hospitals, both universities and other organisations such as Leicester Tiger’s Rugby club, the Primary Care Trusts (PCTs), Highcross Shopping Centre, the Curve and Phoenix Arts, are just some organisations who have adopted and implemented travel plans. At least nine voluntary travel plans have been taken up. Work has been undertaken with Leicester Business Voice to promote voluntary travel plans. The bus companies to actively cooperate.

Principal risks: Organisations fail to adopt travel plans because they do not regard them as necessary, relevant, or an immediate priority. Organisations do adopt travel plans but fail to implement them due to lack of resources/funding. Lack of resources means that help is not available for organisations wishing to adopt travel plans.

Risk management: Senior council officers to review progress of the Congestion and Accessibility strategies and council travel plan, and if necessary realign priorities, staff and resources. Our Travel Plan Officers and Development Control Officers receive progress reports on the implementation of the planning process secured travel plans and seek to agree remedial action with organisations where necessary.

Table 3.3 To Reduce Carbon Emissions									
PI Category	Ref. No,	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
Outcome	L LTP 12	Tonnage of CO2 (carbon dioxide) emitted by Leicester road transport	291.39kT	340.71kT	316.05kT	307.83kT	299.61kT	291.39kT	DECC
Non – transport Outcome	L LTP 13	Adapting to climate change	Level 4	2009/10 Level 3	Level 4	Level 4	Level 4	Level 4	Environment Team
Proxy	L LTP 14	Area wide traffic (Million vehicle kilometres)	Below 1446 (2015)	1397m (2009)	Below 1413 (2011)	Below 1422 (2012)	Below 1430 (2013)	Below 1438 (2014)	DfT
Intermediate Outcome	L LTP 15	Proportion of urban trips under 5 miles taken by i) walking or cycling ii) public transport	to be set	To be established	to be set	to be set	to be set	to be set	National Travel Survey (DfT)
Contributory Output	L LTP 16	Number of Travel Plans adopted by businesses in the CTZ	70	30	46	54	62	70	Local Survey
	L LTP 17	Percentage of all state schools covered by Travel Plans	100%	91% - 2009	93%	95%	97%	99%	100%
	L LTP 18	Number of Area Wide Travel Plans introduced	4	0	1	2	3	4	Local Survey
	L LTP 19	Percentage of freight/goods destinations properly direction signed	100%	75% - 2009/10	85%	90%	95%	100%	Local Survey
	L LTP 20	Number of newly registered Ultra Low Emission vehicles in Leicester	Monitoring only	To be established	Monitoring only	Monitoring only	Monitoring only	Monitoring only	DVLA

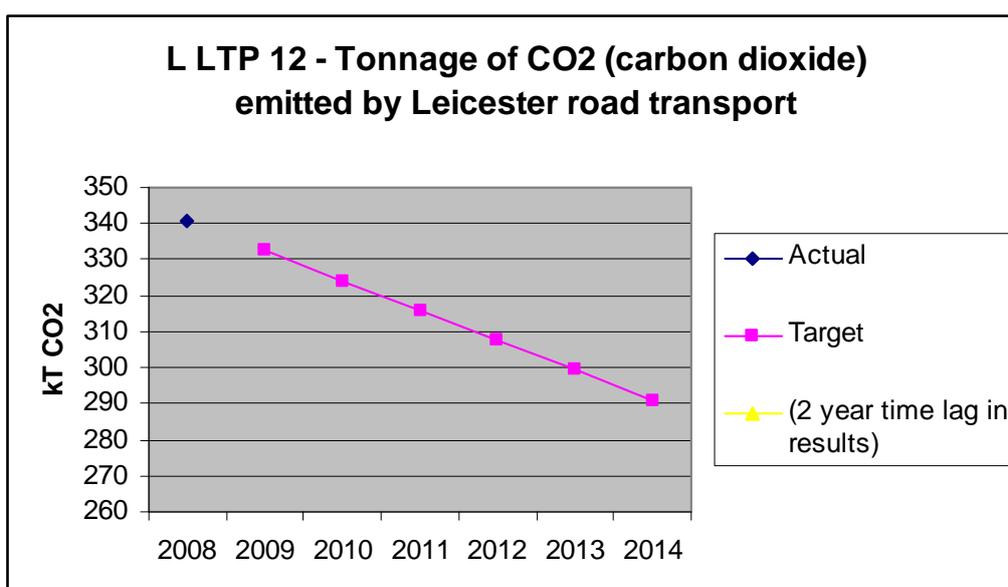
To Reduce Carbon Emissions

3.25 Nine indicators have been adopted to monitor progress in achieving this goal. Each indicator and target is briefly described, with the aid of a simple graph where appropriate, showing the trajectory for the target.

3.26 Performance Indicator L LTP 12: Tonnage of CO₂ (carbon dioxide) emitted by Leicester road transport

Leicester City Council has a long-standing commitment to tackling climate change, with a Climate Change Strategy first published in 2003. A long term aspirational target has been identified to reduce city-wide carbon dioxide emissions to 50% of the 1990 level by 2025/26. Estimates suggest that carbon dioxide emissions in Leicester have fallen by c.15% between the 1990 baseline and 2008, (latest year for which data is available). However, this is the result of reductions in emissions from commerce and industry. Emissions from road transport are estimated to have risen by 33.7% during this period. This indicator tracks the level (tonnage) of CO₂ produced by Leicester's road transport. The data is supplied by the Department of Energy and Climate Change, with a two year lag time in the supply of results. Method of collection:

1. Starting with Leicester's total (ie domestic + industry and commerce + transport) emissions target of reducing by 50% of the 1990 baseline of 2262 kT by 2025/6 gives us an end target emissions level of 1131 kT.
2. To get from the estimated 2008 emissions of 1,917 kT (Source: http://www.decc.gov.uk/assets/decc/Statistics/climate_change/localAuthorityCO2/460-ni186-per-capita-co2-emissions.xls see cell H435) to 1131 kT requires a cut of 786 kT ie **41.0%**.
3. If this cut is borne equally across all three sectors: domestic, industry and commerce and transport, this means transport would have to cut by 41.0%.
4. A 41.0% cut from the 2008 transport emissions of 340.71 kT equates to **139.69 kT** by 2025/6 and would result in 2025/6 emissions of 201.02 kT.
5. Across the 17 years, it could be expressed as an average of **8.22 kT** or **2.41%** of the 340.71 kT each year.



Ambition: On the basis of broadly equivalent pro rata emissions cuts, from the three main emission sources: domestic, commerce/industry and transport and taking account of the city's 2008 emissions levels compared to its 1990 baseline, an average Leicester's First Implementation Plan 2011 – 2015 (LTP3 – Part B)

reduction rate of 2.41% (8.22kT) per annum would be required for transport. This is more than twice the rate inferred from the Government's 2020 target.

Realism: Leicester's transport emissions can be considered in context; by presenting them on a per capita basis, alongside the UK average and those of a number of other local authority areas. Leicester's transport emissions per capita are towards the lower end of the range.

Comparative analysis: Cambridge is an area with a reputation for higher levels of sustainable travel (specifically cycling), whilst the other areas have been chosen as comparators as they are to some degree comparable with Leicester in terms of population size (within the local authority area boundary) and urban character. 2008 Per Capita tonnes road transport CO₂ emissions in Context: Cambridge = 0.8; Leicester = 1.1; Nottingham = 1.2 ; Derby = 1.6 .

Our key actions: Work to reduce carbon emissions from Leicester's transport will be achieved mainly through delivering our carbon reduction strategy, improving air quality & reducing noise strategy, congestion strategy, and our active travel and road safety strategy. Delivering these strategies will help reduce carbon emissions by; reducing vehicular mileage, reducing levels of stop-start driving, attracting people to inherently lower emission modes and facilitating the introduction of low emission vehicles. Deliver the city centre bus scheme.

Partners' key actions: Partners in our QBP and FQP (Freight Quality Partnership), universities and health authorities help us deliver the congestion, accessibility, improving air quality & reducing noise and carbon reduction strategies. Close working with the city council's Environment, Pollution Control, and Planning teams to respectively deliver maximised synergies between reducing carbon emissions and improving air quality, and ensure the Local Development Framework contributes to reducing carbon emissions from Leicester's transport. Fleet operators to invest in low emission vehicles.

Principal risks: The congestion, accessibility, improving air quality & reducing noise and carbon reduction strategies are not delivered. Predicted reduction in carbon emissions due to vehicle and fuel technology not realised.

Risk management: Robust project management and working with the bus companies through the QBP and road haulage companies through the FQP. Close working with the Pollution Control, Environment and Planning teams and the Health authorities. Senior council officers to regularly review progress with the implementation of the carbon reduction, congestion, accessibility, improving air quality and reducing noise strategies; and if necessary realign priorities, staff and resources. The Council and its partners will be developing a 'roadmap' during 2011 for achieving the city-wide 2025 target. If this work suggests that a rebalancing of the relative reductions targeted for transport, commerce/industry and domestic sectors is recommended, target L LTP12 may need to be reviewed. Developments with vehicle and fuel technology are issues outside of our control.

3.27 Performance Indicator L LTP 13: Adapting to climate change

The rationale is to ensure that the council is prepared to manage the risks to service delivery, the public, local communities, local infrastructure, businesses and the national environment from a changing climate, and to make the most of new opportunities. The indicator measures progress on assessing and managing climate risks and opportunities: and incorporating appropriate action into local authority and partners' strategic planning. The impacts might include increases in flooding, temperature, drought and extreme weather events. These could create risks and opportunities such as: impacts on transport infrastructure from melting or flooded roads or increases in tourism. Local authorities should report the level of

preparedness they have reached against the five levels of performance, graded 0 to 4, the higher the number, the better the performance.

Ambition: The council has produced an Adaptation Action Plan, and its 2010/11 EMAS target is to achieve the equivalent of Level 4 from National Indicator 188; the best performance.

Realism: The council is currently at Level 3: comprehensive action plan and prioritised action in all priority areas.

Comparative analysis: Leicester is ahead of most local authorities with regard to adaptation. This is because the council was working on adaptation issues before it became a local authority obligation under the National Indicator regime.

Our key actions: To continue with actions identified within the Adaptation Action Plan and to work with external partners to implement the comprehensive action plan across the local authority area. Ensure there is a robust process for regular and continual monitoring and review to ensure progress with each measure and updating of objectives. In this way Leicester's highway infrastructure will become progressively more resilient to the potential impacts of climate change.

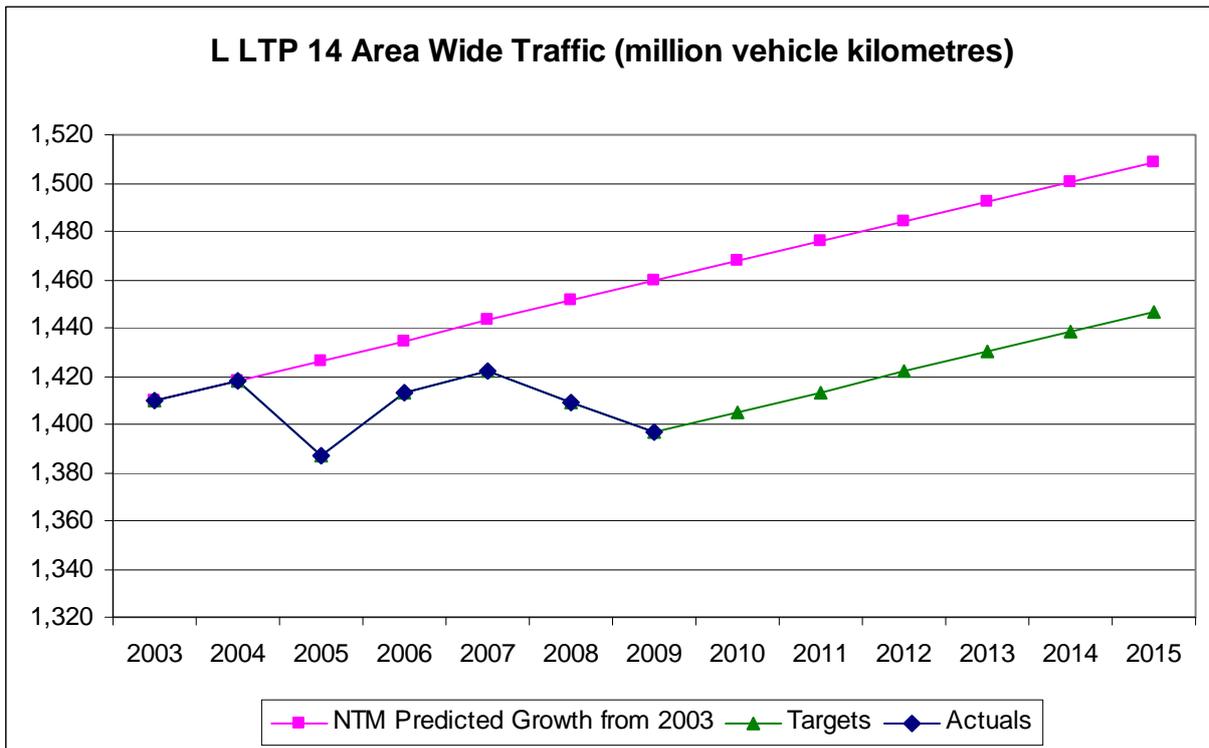
Partners' key actions: To work with the council to develop and implement the comprehensive action plan across the local authority area. Ensure there is a robust process for regular and continual monitoring and review to ensure progress with each measure and updating of objectives. In this way Leicester's highway infrastructure will become progressively more resilient to the potential impacts of climate change.

Principal risks: Funding pressures curtail the work and leave the highway and drainage network vulnerable to the impacts of climate change.

Risk management: The three significant effects (flood risk, summer heat waves and prolonged periods of increased average temperatures, water availability) and five objectives have been included in the Council's EMAS Significant Effects Register and the Adaptation Plan will be managed within the EMAS system. This issue has also been included in the One Leicester priority of 'Reducing Our Carbon Footprint'. Actions will be monitored and reviewed within the timescales given and progress updated annually.

3.28 Performance Indicator L LTP 14: Area-wide traffic (Million vehicle kilometres)

This is a proxy for reduced carbon dioxide emissions. Data is taken from the National Road Traffic Survey. Leicester's traffic flow figure has been falling since 2007. This puts Leicester's growth below that predicted by the National Transport Model (2009 forecast). This predicts national growth trends of 7% between 2003 and 2015. That average growth rate has been applied to Leicester's figure from 2009 onwards to give us our target for 2015 (see graph below).



Ambition: As our aim is to increase the amount of travel by modes other than the single occupancy car, and in keeping with our use of this measure as a proxy for carbon emissions, our aim is to keep any increases in vehicle kilometres under that of the predicted national trend, without putting any unnecessary restrictions on growth and accessibility. (As this figure does not include vehicle occupancy, cyclists or pedestrians, an increase in modal shift from cars to other modes, or more car sharing, could result in lower vehicle kilometers travelled while the number of trips being made remained the same or even increased.)

Realism: Wider factors are also at work here, such as the recession, and increasing petrol prices, illustrated by the reductions between 2007 and 2009.

Comparative analysis: The DfT warns against using these figures to compare local authorities against each other. In terms of change over the last five years however, of the three cities only Derby has seen an increase (of 3%), while Leicester and Nottingham have both reduced slightly (by 1%). All the East Midlands Local Authorities (with the exception of Nottingham) saw a fall in total vehicle kilometres between 2008 and 2009.

Our key actions: To deliver the Congestion, Carbon Reduction, Improving Air Quality and Accessibility Strategies and our Rights of Way Improvement Plan. In particular deliver the city centre bus scheme.

Partners' key actions: The bus and freight companies continue to assist the delivery of the Congestion, Carbon Reduction, Improving Air Quality and Accessibility Strategies; businesses and schools continue to implement and introduce travel plans.

Principal risks: The main risk is delayed implementation of the Congestion Strategy and Accessibility Strategy schemes with regeneration proceeding on schedule. Partners don't maintain, implement or introduce travel plans.

Risk management: Robust project management and working with the bus companies through the QBP and the FQP. Travel plans are required through the planning process and we will recruit extra travel plan officers. Road safety funding around schools linked to school development of travel plans. We are developing and implementing our Rights of Way Improvement Plan.

3.29 Performance Indicator L LTP 15: Proportion of urban trips under 5 miles taken by i) walking or cycling ii) public transport

This is an emerging indicator which we want to adopt. We will work with the DfT and set a target in due course.

Ambition: To increase the proportion of urban trips made by walking, cycling and public transport.

Realism: Indicator will only be for the region, and probably based on a relatively small sample.

Comparative analysis: As this is an emerging indicator no comparisons are possible yet.

Our key actions: To deliver the Congestion, Active Travel and Road Safety Strategy. We will engage with companies to ensure that the benefits of a travel plan are better known, including both the environmental, economic and health benefits. This will be achieved by shifting attitudes to travel and trying to change established habits. We will continue to develop and assist in developing key products and measures with our main partners namely the bus companies. We will deliver the city centre bus scheme.

Partners' key actions: Bus companies cooperate in the delivery and use of the city centre bus scheme. Partner's adopt, maintain and implement their travel plans.

Principal risks: Bus companies do not cooperate. Partner's do not make full use of their travel plans. Lack of resources within the council or companies meaning that momentum is lost in developing travel plans and resulting in their being implemented at a slower rate.

Risk management: Senior council officers to review progress of the Congestion Strategy and Leicester City Council Travel Plan, and if necessary realign priorities, staff and resources. We will ensure that the benefits of travel plans are fully explained in order that there be broad understanding and acceptance within the business/workplace of their role in helping develop the plans and the subsequent measures. Our travel plan officers and development control officers receive progress reports on implementation of planning process secured travel plans and seek to agree remedial action with organisations where necessary.

3.30 Performance Indicator L LTP 16: Number of travel plans adopted by businesses in the CTZ

We intend to increase the number of business Travel Plans adopted in the CTZ from a baseline of 30 in 2010/11 to 70 in 2014/15. Travel Plans can be voluntary or part of the planning process. The CTZ has good public transport links, which should make it easier to encourage mode switching than in less well-served areas. The data for the indicator will be collected by the Travel Plan and Development Team.

Ambition: We have set a target of an additional 40 businesses within the CTZ having approved travel plans by 2014/15, more than doubling the existing number of Travel Plans within the CTZ. The current 30 Business Travel Plans in the CTZ have been undertaken since March 2003. The target set of 40 to be undertaken from 2011/12 – 2014/15 is a greater number of Travel Plans to be undertaken in a shorter period.

Realism: The target is achievable within current staff and resource levels. Travel plans are a very cost effective way of reducing vehicular traffic.

Comparative analysis: Derby City Council had set a target of 50 Business Travel Plans were required to be undertaken from the baseline 2001/02 to 2010/2011 in their equivalent CTZ. They do not make a distinction of the actual number of employees covered, but just the number of Business Travel Plans in the specified area. The Travel Plan team have confirmed on average they receive 5 Travel Plans in their

equivalent CTZ a year, with a majority of Travel Plans coming in outside that area.

Our key actions: We will engage with companies to ensure that the benefits of a travel plan are better known, including both the environmental, economic and health benefits. This will be achieved by shifting attitudes to travel and trying to change established habits. We will try to raise awareness of sustainable travel for the journey to and from work, including from a health benefit viewpoint. We will continue to develop and assist in developing key products and measures with our main partners namely the bus companies. Progress will be helped by regeneration where developers will be encouraged to have travel plans even when they are not required as part of a condition on planning approval.

Partners' key actions: CTZ companies should implement travel plans and bus companies should work towards offering additional products.

Principal risks: Lack of resources within the council or companies meaning that momentum is lost in developing travel plans and resulting in their being implemented at a slower rate. The ongoing economic situation also means a greater risk of businesses applying for planning permission (which would require a Travel Plan) and potentially starting work on the Travel Plan, but not finishing it off as budgetary constraints mean the development does not go ahead.

Risk management: Senior council officers to review progress of the Congestion Strategy and Leicester City Council Travel Plan, and if necessary realign priorities, staff and resources. We will ensure that the benefits of travel plans are fully explained in order that there be broad understanding and acceptance within the business/workplace of their role in helping develop the plans and the subsequent measures. Our travel plan officers and development control officers receive progress reports on implementation of planning process secured travel plans and seek to agree remedial action with organisations where necessary.

3.31 Performance Indicator L LTP 17: Percentage of all state schools covered by Travel Plans

School Travel Plans consider all possible modes of travel to school and encourage pupils to consider using these modes where possible. The data for the indicator is collected by the Education Department's Statistics and Information Team via the PLASC survey.

Ambition: The Government has stipulated that all schools should have a Travel Plan by 2010. In 2009 91% of state schools were covered by Travel Plans. It will be a challenge for existing staff and for any new staff allocated to school travel plans when Government funding ceases in March 2011.

Realism: The target is achievable within current staff and resource levels. The target refers to the percentage of state schools with travel plans, as we have no influence over independent schools (although we will of course work with them should they wish to adopt one). Government funding for a school travel plans officer ceases in March 2011.

Comparative analysis: As the Government has stated its desire for all schools to have travel plans, other regions and authorities are in a similar position.

Our key actions: The council will facilitate the implementation of school travel plans through provision of advice and guidance and enabling quality alternatives to single child car journeys. Where appropriate, safer routes to school will be tied into the school travel plan programme. We will ensure sufficient staff resources are allocated.

Partners' key actions: Schools should implement travel plans.

Principal risks: Momentum is lost in developing school travel plans and they are implemented at a slower rate. Schools show no interest in travel plans or do not co-

operate with transport officers.

Risk management: Senior council officers to review progress of the Congestion Strategy and if necessary realign priorities, staff and resources. Transport officers will engage with schools to facilitate implementation. We develop our Safer Routes schemes with schools who engage in travel planning thus providing incentive and reward as appropriate.

3.32 Performance Indicator L LTP 18: Number of Area Wide Travel Plans introduced

An Area Wide Travel Plan covers a defined area (e.g. an industrial estate, or recognised part of the city) and incorporates a number of individual Travel Plans for individual businesses and organisations within that area. The four areas proposed for AWTPs in the LTP3 period are Beaumont Leys, Aylestone Road (including Leicester Tigers, Leicester College, UHL NHS Trust, DeMontfort University etc), Braunstone Frith Industrial Estate and the Cobden Street Industrial area. These have been chosen based on a combination of trip rates/size and strategic location. The data for the indicator will be collected by the Travel Plan and Development Team.

Ambition: We have set a target of four Area Wide Travel Plans being implemented during the LTP3 period. As each area can contain many organisations, each AWTP represents a considerable amount of time and effort. Work has already begun on Beaumont Leys, as it will possibly influence the proposed Ashton Green development.

Realism: We are satisfied that the target is achievable within current staff and resource levels. We have good contacts established through current businesses within the areas, ongoing partnerships through initiatives (Healthy Lifestyle, Skyride etc), regeneration projects in the area, and also partnerships with Leicester Business Forum, Prospect Leicester, Leicester Small Business Forum, and Act Travelwise. Businesses are keen to work with us and the Travel Plan Officer has made inroads in particularly with Leicester Business Voice (which covers many businesses in the CTZ region and Area Wide regions of the city).

Comparative analysis: Other Local Authorities (such as Sutton) have adopted similar approaches to deliver area-wide benefits. Nottingham City has in the past used the commuter planners club approach to achieve similar aims.

Our key actions: To closely work with the relevant businesses where we want to introduce such plans.

Partners' key actions: To identify actions that they can implement to the benefit of all businesses in the area (e.g. communal work buses, shared shower and changing facilities for cyclists, public transport information etc).

Principal risks: Businesses do not engage in the process and therefore communal action is not possible.

Risk management: Ensure appropriate forums are set up to ensure that businesses are aware of the benefits of working together to deliver sustainable travel initiatives as part of the implementation of area wide travel plans.

3.33 Performance Indicator L LTP 19: Percentage of freight/goods destinations properly direction signed

This indicator measures the completion of signage in and around the larger industrial estates in Leicester, as shown on the Leicester Freight Routing Map. Data is collected via local surveys. The indicator and target monitoring progress on freight signing is a proxy for better general signing as all traffic is able to benefit from improved signing.

Ambition: Three-quarters of the major freight destinations shown on the Leicester

Freight Routing Map received new signage during LTP2. In LTP3 we intend to complete the work and expand signing for the smaller Brailsford Industrial Estate and Faircharm Trading Estate. It may be possible to make signage improvements at destinations not featured on the Leicester Freight Routing Map if this work is completed before the end of LTP3.

Realism: We made good progress with this indicator during LTP2 and exceeded our 10/11 target. Progress in LTP3 will be dependent on the amount of resources available.

Comparative analysis: We have been unable to identify authorities with a similar indicator. It is of direct benefit to the road haulage industry, and as it means less lost vehicles in circulation, it has the broader benefit of reducing congestion, carbon and improving air quality.

Our key actions: Deliver the Signing Strategy.

Partners' key actions: Distribution companies and FQP to assist with identification of weak signing areas and help with the sign sites.

Principal risks: The Signing Strategy is not delivered on programme.

Risk management: Senior council officers to review progress of the Signing Strategy as part of the Congestion Strategy, and if necessary realign priorities, staff and resources. The FQP regularly to receive reports on progress and consider recommendations for action.

3.34 Performance Indicator L LTP 20: Number of newly registered Ultra Low Emission vehicles in Leicester

To help improve air quality and reduce transport's carbon emissions there is now increased focus on the role of ultra low emission vehicles (ULEVs). There are national initiatives to facilitate the development and introduction of these alternatively fuelled vehicles; along with providing the necessary infrastructure to support their operation. The DfT has confirmed that purchase grants for electric vehicles will continue to be available. This indicator is for monitoring purposes only. Data to be provided by the DVLA (Driver and Vehicle Licensing Agency).

Ambition: We are aware that achieving our target for limiting the growth in vehicle kilometres (L LTP14) will not be enough, on its own, to deliver the carbon reductions we need (target L LTP12). We will need to see a substantial shift in Leicester's vehicle fleet towards lower average carbon emissions per km travelled. The strengthening EU emissions standards for new cars will help to achieve this, but there is an important role too for ultra low emissions vehicles. Part of Leicester's strategy is therefore to support and encourage their uptake. Electric, hydrogen fuel cell and biomethane technologies have been considered by Leicester City Council. There are actual and potential developments in the short term regarding the electric and hydrogen fuel cell options respectively; described in Chapter 3 of the L LTP Strategy document.

Realism: It is still early days for the widespread uptake of ULEVs, and robust answers are awaited on a range of practical issues. Whilst all of the above technologies would be suitable for car/light van applications, (biomethane also suitable for medium/heavy applications), each has its advantages and disadvantages. Thus, current uncertainties on which is the most appropriate technology for a particular application, acts as a break on faster roll out.

Comparative analysis: Leeds hope to build on low emission vehicle trials in the city to develop a Low Emission Vehicle Demonstration Handbook. Leeds will shortly be starting the demonstration of dedicated and prototype dual fuel RCVs as part of their biomethane vehicle trials – operating vehicles on fuel made from waste. Sheffield has a delivery plan for the development of low emission refuelling infrastructure and

promotion of low carbon vehicles.

Our key actions: We hope that successful outcomes to the Plugged in Places bid and potential joint initiative with the RiverSimple company, will mean plenty of work piloting the operation of ULEVs in Leicester. However, there remains plenty of existing good practice for us to learn from and seek to apply. With our partners, we intend to produce a 'roadmap' setting out how we will reach our 50% reduction target for city-wide carbon emissions. This will include a proposal for the contributions expected from transport measures to stimulate the uptake of ULEVs.

Partners' key actions: A successful outcome to the Plugged in Places bid and potential joint initiative with the RiverSimple company, will mean plenty of work piloting the operation of ULEVs in Leicester. However, there remains plenty of existing good practice to learn from and seek to apply in partnership.

Principal risks: Failure of the Plugged in Places bid and/or the HyTrue Project would represent set backs for increasing the use of ULEVs in Leicester in the short term. Current uncertainties on which is the most appropriate technology for a particular application, also acts as a break on faster roll out.

Risk management: Participation in the Plugged in Places initiative and the HyTrue Project would mean that Leicester was playing its part in pioneering the field trials of ULEVs. This would help answer the range of practical questions concerning the uptake of ULEVs. In turn, this would provide greater assurance on how to proceed with their greater roll out. The council accepts the need for ULEVs, and will remain alert for other initiatives and opportunities to facilitate their introduction.

Table 3.4 To Improve Connectivity and Access Performance Indicators and Targets									
PI Category	Ref. No,	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
Outcome	L LTP 21	Percentage households with good access to key services or work – access to employment	85%	2009 = 85% England = 83%	85%	85%	85%	85%	DfT
	L LTP 22	Access to major hospitals i) LRI ii) General iii) Glenfield 730-930am, no car households within 30 minutes	a) 90.0% b) 48.3% c) 71.7%	2009/10 = a) 90.0% b) 48.3% c) 71.7% within 30 minutes	a) 90.0%	b) 48.3%	c) 71.7%		Transport Strategy Team
	L LTP 23	Access to Leicester Railway Station (No car households)	93.6%	2009/10 = 93.6% within 30 minutes	93.6%	93.6%	93.6%	93.6%	Transport Strategy Team
Non transport Outcome	L LTP 24	Use of public libraries (in the last 12 months)	Monitoring only	2,100,457 (08\09) 2,015,393 (09\10) 2,100,000 (10\11)	Monitoring only	Monitoring only	Monitoring only	Monitoring only	Residents Survey
Contributory Output	L LTP 25	Percentage of low-floor buses in Arriva and First fleet	100%	2008/09 = 78.9% 09/10 & 10/11 Targets = 82.4% & 85.9%	89.4%	93%	96.5%	100%	Local Survey
	L LTP 26	Percentage of level access bus stops	95%	2009/10 = 74% 2010/11 Target = 78.2%	82.4%	86.6%	90.8%	95%	Local Survey

To Improve Connectivity and Access

3.35 Six indicators have been adopted to monitor progress in achieving this goal. Each indicator and target is briefly described, with the aid of a simple graph where appropriate, showing the trajectory for the target.

3.36 Performance Indicator L LTP21: Percentage households with good access to key services or work – access to employment The percentage of economically active people with access to employment by public transport, walking or cycling. The target population are 16-74 year olds. This is a continuous indicator, which is based on the sensitivity of the population to the travel time for each service (i.e. the longer it takes to get to a particular service, the less people will go). This measure is more sensitive to changes in accessibility, however it should be remembered that it is impossible to achieve 100% on this measure of accessibility. The DfT calculate this indicator using AutoPTpath software and inputs from the NPTDR (National Public Transport Data Repository), the ITN (integrated Transport Network) road network and the ONS Annual Business Inquiry (for the employment destinations).

Ambition: To keep the indicator at its existing level of 85%.

Realism: It will be a challenge to prevent this indicator from falling given the impending cuts to commercial and supported services and possible reductions in available employment destinations. The planned improvements to Humberstone Gate, the new Park and Ride service from Birstall and the Humberstone Road Quality Bus Corridor should improve accessibility.

Comparative analysis: In 2009 Leicester's NI176 measure was 85%, Derby's was 82% and Nottingham's was 86%.

Our key actions: Deliver the Congestion and Accessibility Strategies and in particular the bus strategy. Improvements to Humberstone Road, facilitating the improvement of bus priorities, the travelling environment, links and information. Improving scope of walking and cycling networks, including the Rights of Way Network.

Partners' key actions: The bus companies to continue to introduce new, low floor, low emission buses to their fleets and reflect any journey time improvement through bus priorities in their timetables.

Work in partnership with Prospect Leicestershire to attract new employers to Leicester.

Principal risks: The Accessibility Strategy is not delivered on programme. Bus companies' priorities change. Difficulties are encountered in financing orbital bus services. Bus journey times extended to improve punctuality. Number of employers declines.

Risk management: Senior council officers to review progress of the Accessibility Strategy, and if necessary realign priorities, staff and resources. The QBP, including the Bus Operations Group and bi-laterals, regularly to receive progress reports on bus improvements and consider recommendations for action. Prioritising schemes that improve accessibility.

3.37 Performance Indicator L LTP 22: Access to three major hospitals (Leicester Royal Infirmary, General and Glenfield) The percentage of No Car Households in the city within 30 minutes of each of the three main hospitals in Leicester. Calculated using ACCESSION software and the NPTDR by the Transport Strategy Team.

Ambition: To keep the indicators at their existing levels.

Realism: Access to the LRI is good, which is unsurprising as it is very close to the city centre. Access to the General and Glenfield hospitals is not as good as both are on the outer areas of the city. Accessibility to all three hospitals has recently been vastly

improved by the introduction of the UHL Hospital Hopper. It will be a challenge to prevent these indicators from falling given the impending cuts to commercial and supported services. The planned improvements to Humberstone Gate and the Humberstone Road Quality Bus Corridor should improve accessibility. However, the Park and Ride services will not contribute to these indicators because they are outside the city.

Comparative analysis: The DfT's own indicator for access to hospitals shows Leicester to be well above the national average figure.

Our key actions: Deliver the Congestion and Accessibility Strategies and in particular the bus strategy. Improvements to Humberstone Road, facilitating the improvement of bus priorities, the travelling environment, links and information. Improving scope of walking and cycling networks, including the Rights of Way Network.

Partners' key actions: The bus companies to continue to introduce new, low floor, low emission buses to their fleets and reflect any journey time improvement through bus priorities in their timetables.

Principal risks: The Accessibility Strategy is not delivered on programme. Bus companies' priorities change. Difficulties are encountered in financing orbital bus services. Bus journey times extended to improve punctuality.

Risk management: Senior council officers to review progress of the Accessibility Strategy, and if necessary realign priorities, staff and resources. The QBP, including the Bus Operations Group and bi-laterals, regularly to receive progress reports on bus improvements and consider recommendations for action. Prioritising schemes that improve accessibility.

3.38 Performance Indicator L LTP23: Access to Leicester Railway Station

The percentage of No Car Households in the city within 30 minutes of the London Road railway station entrance. Calculated using ACCESSION software and the NPTDR by the Transport Strategy Team.

Ambition: To keep the indicator at or above its existing level of 93.6%.

Realism: Access to the railway station is good from most parts of the city, as it is very central. Only potential areas for improvement are on the outer edges of the city (Beaumont Leys, Hamilton and Braunstone Frith) and shortening these journey times will not be easy. It will be a challenge to prevent these indicators from falling given the impending cuts to commercial and supported services. The planned improvements to Humberstone Gate and the Humberstone Road Quality Bus Corridor should improve accessibility. However, the Park and Ride services will not contribute to these indicators because they are outside the city.

Comparative analysis: Probably a priority for most local authorities

Our key actions: Deliver the Congestion and Accessibility Strategies and in particular the bus strategy. Improvements to Humberstone Road, facilitating the improvement of bus priorities, the travelling environment, links and information. Improving bus station and interchanges.

Partners' key actions: The bus companies to continue to introduce new, low floor, low emission buses to their fleets and reflect any journey time improvement through bus priorities in their timetables.

Principal risks: The Accessibility Strategy is not delivered on programme. Bus companies' priorities change. Bus journey times extended to improve punctuality.

Risk management: Senior council officers to review progress of the Accessibility Strategy, and if necessary realign priorities, staff and resources. The QBP, including the Bus Operations Group and bi-laterals, regularly to receive progress reports on bus improvements and consider recommendations for action. Prioritising schemes that improve accessibility.

3.39 Performance Indicator L LTP 24: Use of public libraries

There are 18 library buildings in Leicester, and whilst the Leicester Central Library is in the city centre, the remainder are dispersed throughout the city. The majority of residents in the city live within one mile of a library building, and therefore it should be possible to encourage people to walk or cycle to the building. However, if libraries were to begin to specialise, access to them needs to be considered from further afield. The central city centre library is based in the south of the city centre, approximately 13 minutes walk from the main bus stations.

The residents' survey reported that 87% of people who used the library thought the experience was good or very good. However, it is unlikely that this form of monitoring (or the National Place Survey, see below) will be continued on a regular basis and, therefore, future monitoring will be carried out through door counts carried out as part of the Service Improvement & Efficiency Plans for Libraries and for Cultural Services.

Ambition: From Spring 2011 all the central library services will be brought together under one roof, in the existing Central Learning and Information Library building on Bishop Street. The refurbished "Leicester Central Library" will offer longer opening hours, which should improve accessibility. Despite more people accessing library services remotely (i.e. via the internet), good access to library buildings by bus, walking and cycling remains vital if the library buildings are to become 'places where communities can come together' as outlined in "Better Libraries-Better Lives", the Libraries Strategy for 2008-2013. Over the last three years the target for number of visits to libraries has stayed constant at 2.1 million. This target was slightly exceeded in 2008/09 it was below target in 2009/10, we await the setting of fresh targets in the Service Improvement & Efficiency Plans for Libraries and for Cultural Services.

Realism: The general use of libraries is reliant on a number of factors, including the ability to renew books online, and many reference books are also available online and therefore visits to libraries are on the decline nationally. Leicester is no exception to this, with numbers declining over the last two years. However, as Leicester suffers with a poor average reading age, it is important, therefore, that transport supports the libraries in maintaining visitor numbers.

Comparative analysis: The 2008 National Place Survey showed that in Leicester 63.1% had visited a library in the previous 12 months. In the East Midlands the equivalent figure was 58.4%. In Leicestershire it was 60.1%, and in the city of Nottingham, the equivalent figure was 58.8%.

Our key actions: To ensure good walking and cycling routes to the libraries. Ensure good public transport access to the city centre for the central library. To ensure adequate cycle parking provision at all libraries.

Partners' key actions: Schools need to play a large role in encouraging the use of libraries and educating people on how to get the best out of their library. Leicester's Library Strategy aims to:

- Make library services more accessible
- Promote reading and learning to improve quality of life
- Support mainstream learning provision for children and adults
- Respond to changes in society and use new technology to improve services to reduce the digital divide

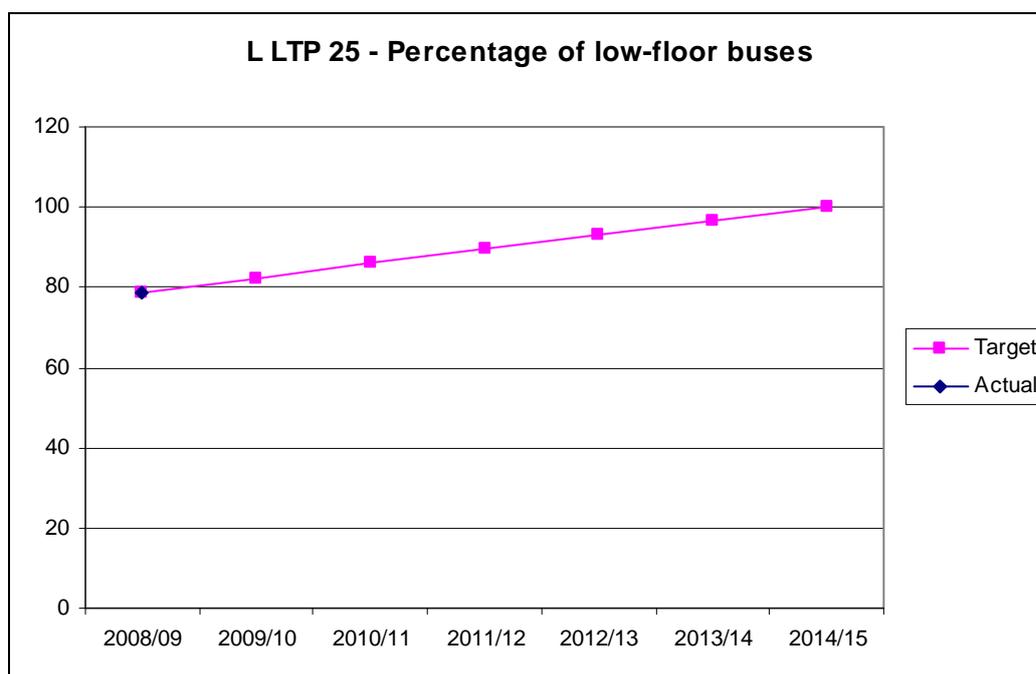
Libraries can play an important role in providing transport information to residents and in making residents aware of the facilities within their local area reducing the need to travel to services further afield.

Principal risks: The Accessibility Strategy is not delivered on programme. Bus companies' priorities change. Difficulties are encountered in financing city centre bus access. Difficulties are encountered in financing walking and cycling routes to outlying libraries.

Risk management: In the greater scheme of things transport is becoming less important in the take up of activities provided by libraries, as more information is available on-line. However, co-operation with the libraries particularly where patrons find it difficult to walk or cycle is important.

3.40 Performance Indicator L LTP 25: Percentage of low-floor buses in Arriva and First fleet

The target relates to the percentage of the bus fleets serving Leicester belonging to First and Arriva, which are low floor. The data is collected locally.



Ambition: For 100% of buses in the First and Arriva fleets to be low-floor. We are aiming to beat the legal requirement by at least two years (see below).

Realism: Between 2003/04 and 2008/09 the percentage of low floor buses serving the Greater Leicester area grew by 38.9%.

Comparative analysis: The Disability Discrimination Act requires that all public bus services are upgraded to low floor buses by 1st January 2017.

Our key actions: We need to ensure that the operating conditions in Leicester are better than elsewhere so that the bus companies serving Leicester will continue to favour investment in new buses here, as all new buses are low-floor. Continually to seek improved effectiveness from the QBP.

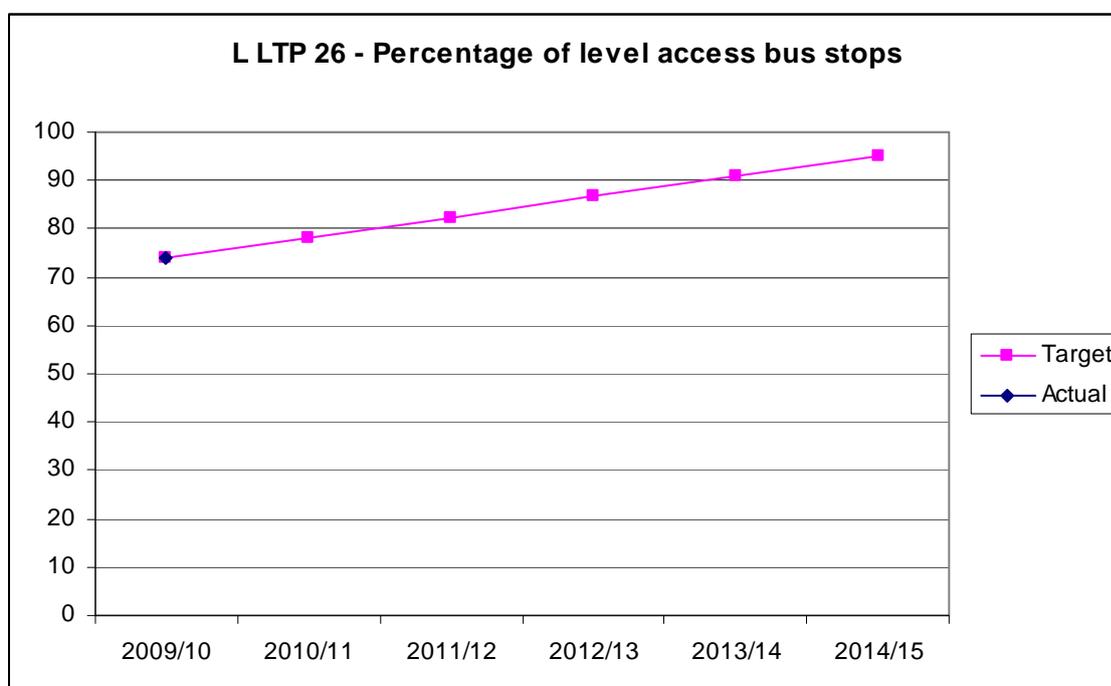
Partners' key actions: Bus companies to continue to introduce new, low-floor, low emission buses to their fleet. Continually seek improved effectiveness from the QBP.

Principal risks: Bus companies' priorities change. Council unable to deliver the Congestion and Accessibility Strategies. Park and Ride does not happen or is delayed.

Risk management: The QBP – including the Bus Operations Group and bi-laterals – regularly to receive progress reports on bus improvements and consider recommendations for action. Progress against the target to be reviewed annually through bus fleet profiles.

3.41 Performance Indicator L LTP 26: Percentage of level access bus stops

This indicator helps us monitor our progress in modifying bus stops to improve accessibility. The programme is designed to complement the bus companies' investment in new low floor vehicles. Progress towards meeting the target is monitored through the year, enabling the implementation programme to be changed if necessary.



Ambition: To have made 95% of bus stops level access by 2014/15.

Realism: Good progress has been made in the last two years with over half of the total number of stops already modified. Many of the more complex sites still need to be tackled. More complex sites can face local opposition. Average costs per stop are rising as we are now working on complex sites: for example, build outs may have to be constructed in areas where local parking is provided.

Comparative analysis: The Disability Discrimination Act requires that all public bus services are upgraded to low floor buses by 1st January 2017.

Our key actions: Continued investment in providing level access stops.

Partners' key actions: Private developers will provide suitable facilities in new developments.

Principal risks: We don't deliver our programme of works. Local consultation on the more complex bus stop sites may delay implementation.

Risk management: Senior council officers to review progress and consider realigning priorities, staff and resources as necessary. Early involvement of consultees, both statutory and local residents. Secure new or modified bus stops through the planning process.

Table 3.5 To Improve Safety, Health and Security Performance Indicators and Targets									
PI Category	Ref. No.	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
Outcome	L LTP 27	Total number of casualties from road traffic accidents	1222	1328 2004-2008 average	1302	1275	1249	1222	Police
	L LTP 28	Total number of child casualties from road traffic accidents	162	176 2004-2008 average	173	169	166	162	Police
	L LTP 29	a. Number of people killed or seriously injured in road traffic accidents b. Number of Children killed or seriously injured in road traffic accidents c. Number of Pedestrians killed, seriously or slightly injured in road traffic accidents d. Number of Pedal Cyclists killed, seriously or slightly injured in road traffic accidents e. Number of Powered Two Wheeler Occupants killed, seriously or slightly injured in road traffic accidents	80 13 234 118 81	87 2004-2008 average 14 2004-2008 average 255 2004-2008 average 128 2004-2008 average 88 2004-2008 average	85 14 250 126 86	84 13 244 123 85	82 13 239 121 83	80 13 234 118 81	Police
Non – transport Outcome	L LTP 30	Perceptions of anti-social behaviour	To be set	To be established	To be set	To be set	To be set	To be set	Local Survey
	L LTP 31	Obesity among primary school age children in Reception Year	To be set	10%	8.8%	To be set	To be set	To be set	Local Survey
	L LTP 32	Obesity among primary school age children in Year 6	To be set	18.0%	14.8%	To be set	To be set	To be set	Local Survey
Intermediate	L LTP 33	Cycling Trips	170	100 =	140	150	160	170	Local Survey

Outcome				2007/08					
	L LTP 34								
	L LTP 35	Adult participation in sport	25%	17.4% in 2010	19%	21%	23%	25%	Sport England
Contributory Output	L LTP 36	Percentage of Children receiving Pedestrian Training (School Years 1 & 2)	2400	2009/10 1700				2400	Local Survey
	L LTP 37	Percentage of Children receiving Cycle Training (School Years 5 & 6)	2100	2009/10 1500				2100	

To Improve Safety, Health and Security

3.42 Eleven indicators have been adopted to monitor progress in achieving this goal. Each indicator and target is briefly described, with the aid of a simple graph where appropriate, showing the trajectory for the target.

3.43 Performance Indicator L LTP 27: Total number of casualties from road traffic accidents

National casualty reduction targets have in the past been set using a baseline 1 year average from 5 years data and have previously been adopted by Leicester City Council. Given the absence of current National Targets, a 20% reduction in the total number of people killed, seriously, or slightly injured in road traffic accidents by 2020 appears a reasonable target for Leicester. The baseline of 1,328 casualties used to set this target is a 1 year average from the period 2004 to 2008. This gives a target of less than 1,222 casualties in 2014 to be achieved by LTP3.

Ambition: It is more realistic to use all road casualties rather than just KSI's in the absence of National Targets, due to the small numbers of KSI's in the city and large fluctuations from year to year due to statistical insignificance. This target will be ambitious due to the expected growth in population in the next 10 years.

Realism: We have achieved significant reductions in the number of people killed or seriously injured on Leicester's roads, however since 2002 it has been difficult to continue the downward trend.

Comparative analysis: In the absence of current National Targets and the lack publication of targets by other local authorities of a similar nature in the region it is not yet possible to carry out any comparative analysis.

Our key actions: Implementing our Active Travel and Road Safety Strategy. Doing accident remedial schemes, and safety audits to ensure that our own schemes and those of developers incorporate appropriate road safety features. Targeting road safety education, training and publicity initiatives at the right road user groups.

Partners' key actions: Police and media to continue working with us on road safety awareness, enforcement, and education. Leicestershire Police, Fire Service, Heath Authorities and the Highways Agency to continue working with us through the Road Safety Partnership. Education Department promoting safer routes schemes and school travel planning within establishments. Developers to ensure road safety features are built into their designs.

Principal risks: The Active Travel and Road Safety Strategy not delivered on programme. Developers cannot fund improvements. Road user behaviour becomes more dangerous leading to an increase in accidents. Population growth makes targets harder to achieve, due to greater levels of exposure to risk.

Risk Management: Senior Council officers should review the progress of the Safer Roads Strategy and if necessary realign priorities, staff and resources. Our highways development control officers require private developers to provide suitable crossings to or near new developments. We will continue to educate and retrain road users as much as possible through the work of the Council's Road Safety Team and the Road Safety Partnership.

3.44 Performance Indicator L LTP 28: Total number of child casualties from road traffic accidents:

National casualty reduction targets have in the past been set using a baseline one year average from five years data and have previously been adopted by Leicester City Council. Given the absence of current National Targets a 20% reduction in the total number of children killed, seriously, or slightly injured in road traffic accidents by 2020

appears a reasonable target for Leicester. The baseline of 176 casualties used to set this target is a one year average from the period 2004 to 2008. This gives a target of 162 child casualties in 2014 to be achieved by LTP3.

Ambition: It is more realistic to use all child road casualties rather than just KSI's in the absence of National Targets, due to the small numbers of child KSI's in the city, and large fluctuations from year to year due to statistical insignificance. This target will be ambitious due to the expected growth in child population in the next 10 years.

Realism: We have achieved significant reductions in the number of children killed or seriously injured on Leicester's roads, however since 2003 it has been difficult to continue the downward trend.

Comparative analysis: In the absence of current National Targets and the lack publication of targets by other local authorities of a similar nature in the region it is not yet possible to carry out any comparative analysis.

Our key actions: Implementing our Active Travel and Road Safety Strategy, particularly safer routes schemes, road safety education and pedestrian and cyclist training for children.

Partners' key actions: Police and media to continue working with us on road safety awareness, enforcement, and education. Leicestershire Police, Fire Service, Heath Authorities and the Highways Agency to continue working with us through the Road Safety Partnership. Education Department promoting safer routes schemes and school travel planning within establishments.

The building schools for the future programme and the primary capital programme are an important facilitator in improving safety features around schools, and in this context, developers to meet their responsibilities, in particular by providing appropriate contributions. We will continue to educate and re-train road users as much as possible through the work of the Road Safety Partnership.

Principal risks: The Active Travel and Road Safety Strategy not delivered on programme. Developers cannot fund improvements. Road user behaviour becomes more dangerous leading to an increase in accidents. Rapid school population growth makes targets harder to achieve, due to greater levels of exposure to risk.

Risk management: Senior Council officers to review progress of the Safer Roads Strategy, and if necessary realign priorities, staff and resources. Meetings between Senior Council officers responsible for delivering the LTP and the education department, including continued close liaison with school principals, will ensure joint delivery of LTP aims. Road safety funding around schools linked to school development of travel plans.

3.45 Performance Indicator L LTP 29: Road casualties of various classes and severities involved in road traffic accidents:

National casualty reduction targets are normally set using a baseline one year average from five years data and have previously been adopted by Leicester City Council. Given the absence of current National Targets a 20% reduction in the total number of people (LTP27) and children (LTP28) who become casualties in road traffic accidents by 2020, appears to be a reasonable target for Leicester. With this in mind it has been decided to also target specifically casualties killed or seriously injured (LTP29a), children killed or seriously injured (LTP29b), pedestrian casualties (LTP29c), pedal cycle casualties (LTP29d), and powered two wheeled vehicle casualties (LTP29e) to see how the work to reduce LTP27 and LTP28 impacts on these classes of casualties. All with proposed reductions of 20% from baseline one year averages for the period from 2004 to 2008.

Ambition: It is more realistic to use all road casualties for the vulnerable road user groups rather than just KSI's in the absence of National Targets, due to the small numbers of KSI's in the city and large fluctuations from year to year due to statistical insignificance. This target will be ambitious due to the expected growth in population in the next 10 years. However, it is still important to monitor KSI casualties as a sub-group of this target.

Realism: We have achieved significant reductions in all the above casualty classes, however since 2003 it has been difficult to continue the downward trend.

Comparative analysis: In the absence of current National Targets and the lack publication of targets by other local authorities of a similar nature in the region it is not yet possible to carry out any comparative analysis.

Our key actions: Implementing our Active Travel and Road Safety Strategy, particularly safer routes schemes, road safety education and pedestrian and cyclist training for children.

Continue enforcing TROs using powers under decriminalised parking enforcement (DPE) legislation.

Partners' key actions: Police and media to continue working with us on road safety awareness, enforcement, and education. Leicestershire Police, Fire Service, Heath Authorities and the Highways Agency to continue working with us through the Road Safety Partnership. Education Department promoting safer routes schemes and school travel planning within establishments.

The building schools for the future programme and the primary capital programme are an important facilitator in improving safety features around schools, and in this context, developers to meet their responsibilities, in particular by providing appropriate contributions. We will continue to educate and re-train road users as much as possible through the work of the Road Safety Partnership.

Principal risks: The Active Travel and Road Safety Strategy not delivered on programme. Developers cannot fund improvements. Road user behaviour becomes more dangerous leading to an increase in accidents. Rapid general and school population growth makes targets harder to achieve, due to greater levels of exposure to risk.

Risk management: Senior council officers to review progress of the Safer Roads Strategy, and if necessary realign priorities, staff and resources. Meetings between Senior Council officers responsible for delivering the LTP and the education department, including continued close liaison with school principals, will ensure joint delivery of LTP aims. Road safety funding around schools linked to school development of travel plans.

3.46 Performance Indicator L LTP 30: Perceptions of anti-social behaviour

The Safer Leicester Partnership's Anti-social Behaviour Strategy defines anti-social behaviour as:

- Harassment (including racial harassment, homophobic harassment, and harassment on religious grounds)
- Verbal and physical abuse and intimidation
- Damage to property, including graffiti and vandalism
- Nuisance from vehicles, including parking, street repairs, and abandoned cars
- Noise – music, vehicles, alarms, and other types of noise
- Littering and fly-tipping (includes dumping of rubbish, white-goods, and furniture)
- Using and/or selling drugs

In the 2008 National Place Survey 24.9% of Leicester's residents thought that anti-social behaviour in their area was a problem. Anti-social behaviour is also measured

in the police-managed CRAVE survey where in 2010 16.4% of the population of Leicester thought that anti-social behavior was a problem. The council is considering how to continue to measure anti-social behaviour, and therefore, we will not be setting a target for this indicator in the Implementation Plan until a measure for all the One Leicester priorities is established.

Ambition: Reduce the level of Leicester's residents who think that anti-social behaviour in their area is a problem. Transport can help to reduce harassment and abuse on public transport through partnership working with the bus companies. It can help reduce damage to its own infrastructure through its contract with the bus shelter providers and security measures in the bus stations. The local authority now has powers to ticket vehicles on waiting restrictions and remove abandoned vehicles. The police have the power to issue a fixed penalty notice to vehicles obstructing the highway (including the footway).

Realism: Although the Transport Asset Management Plan (TAMP) and Network Management Plan can mitigate the effects of anti-social behaviour, the reduction of anti-social behaviour in the first place is through education and enforcement carried out by Community Safety Services and the police.

Comparative analysis: Nationally in the Place Survey 20% of people felt that there was anti-social behaviour in their area. In the Nottingham city area it was 28.9%.

Our key actions: Work with the Safer Leicester Partnership to carry out the objectives of the Anti-Social Behaviour Strategy. Particularly through maintaining and cleaning our infrastructure; maintaining a level of community street lighting; working with the bus companies (where we have the powers); removing obstacles from the highway and continuing to carry out inspections (or "Patch Walks") to assess lighting, visibility and fear of crime.

Partners' key actions: Carrying out the objectives of Leicester's Anti-Social Behaviour Strategy. Maintain the presence of City Wardens. Leicestershire Constabulary continue to roll out their Safer Streets programme.

Principal risks: Insufficient funding to deliver solutions. Partners are unable to fund solutions. It is particularly important that partners are able to continue to fund key actions in the Anti-Social Behaviour Strategy, as these actions work to reducing damage to transport infrastructure and the perceptions of the safety of the transport provision.

Risk management: Seek provision of resources, and work with partners to maximise the effects.

3.47 Performance Indicator L LTP 31: Obesity among primary school age children in Reception Year

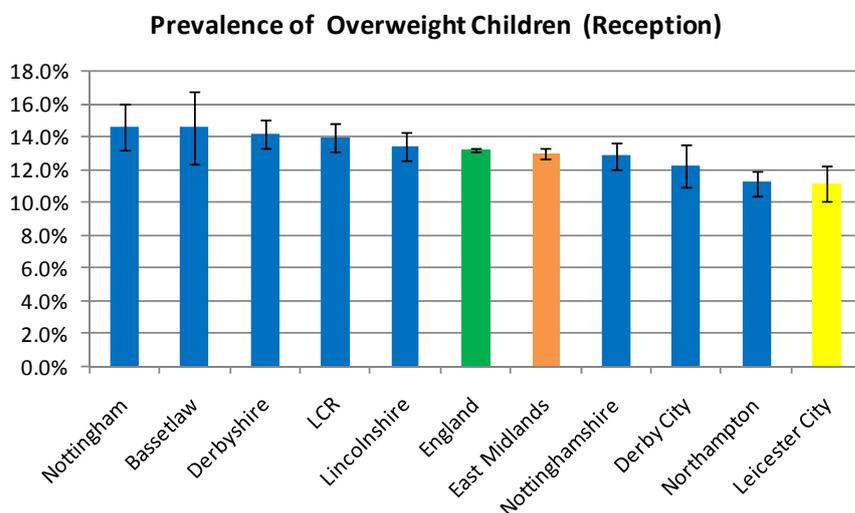
The Chief Medical Officer has stated that physical activity is critical to good health. In 45 minutes of walking and cycling a 45lb child may be expected to burn off 90 and 135 calories respectively. (A regular fast food burger meal is 600 calories). Leicester takes part in the National Childhood Measurement Programme. Reception year results in 2008/09 showed that 11.2% of pupils were overweight and 10% obese. The encouragement of walking and cycling to school and as part of everyday life through training and promotions such as Bikelt and Star Walkers can contribute to the reduction in the number of overweight pupils.

Ambition: Leicester's childhood healthy weight strategy has a target to reduce the number of reception age children who are obese to 8.8% of reception age children by 2011. Future targets are yet to be set.

Realism: Leicester's Corporate Plan does not have a target for reception year children. Whilst we are below national and regional averages, the numbers of Leicester's First Implementation Plan 2011 – 2015 (LTP3 – Part B)

Leicester's Reception age pupils who are overweight and those who are obese have risen from 2006/07.

Comparative analysis: The National average for overweight Reception age children is 22.8%. The National average for obese Reception age children is 9.6%. Therefore, we are significantly below the national average at 11.2% and 10% respectively.



Our key actions: The key actions are to concentrate the promotion of walking and cycling to school such as Bike It, Starwalkers, Walk to School events in wards where obesity is highest. Similarly pedestrian training and cycle training will also be prioritised at schools where obesity is highest.

Partners' key actions: We will work closely with dieticians, sports staff and school staff to co-ordinate activities through the Healthy Weight Strategic Group and Physical Activities Group.

Principal risks: It is unknown the effect of the Health Paper 'Liberating the NHS' published July 2010 will have on the provision of physical activity encouragement

Risk management: To maintain good relations with public health officials and to set up relationships with the GP consortia once they are set up.

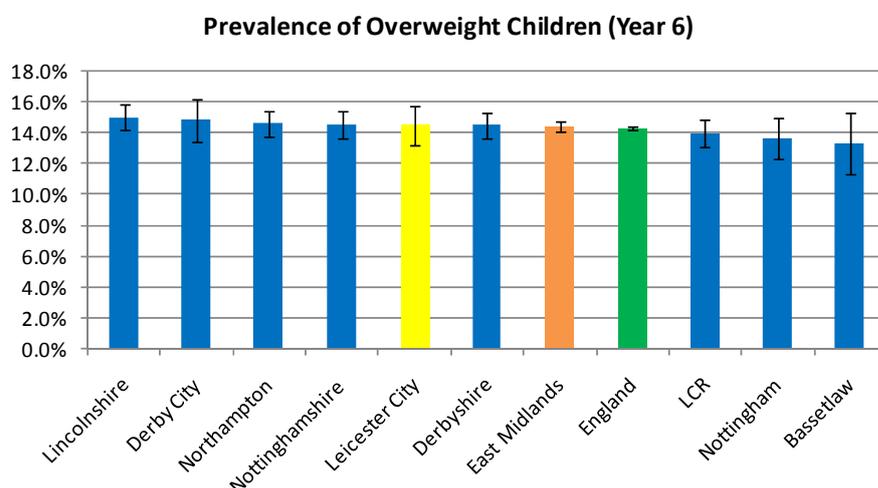
3.48 Performance Indicator L LTP 32: Obesity among primary school age children in Year 6

The Chief Medical Officer has stated that physical activity is critical to good health. In 45 minutes of walking and cycling a 45lb child may be expected to burn off 90 and 135 calories respectively. (A regular fast food burger meal is 600 calories). Leicester takes part in the National Childhood Measurement Programme which measures the weight of pupils in Reception and Year 6. Year 6 pupil results in 2008/09 showed that, 14% were overweight and 18% obese. The encouragement of walking and cycling, to school, and as part of everyday life, through training and promotional initiatives, such as Bikelt and Star Walkers, helps to increase the levels of physical activity in school age children.

Ambition: The Leicester City Corporate Plan has the following targets for Year 6 obesity levels: 10/11: 19.6% 11/12: 19.3% 12/13: 19% Year 6 childhood obesity levels have already fallen below these targets and as such, Leicester's Childhood Obesity Strategy has a target to reduce the number of children who obese to 14.8% in School Year 6 by 2011. Future targets are yet to be set.

Realism: The current rate of 18% of Yr 6 pupils obese is up from 15% in 2007/08. Therefore, whilst we are on track with the Corporate Plan targets, we are unlikely to achieve the 14.8% target set in the Childhood Obesity Strategy.

Comparative analysis: The national average for obese Year 6 age children is 18.8%. Therefore we are below the national average. Wokingham currently holds the best results of 13.5% obese in 2007/08. The national average for overweight is 13.9%, therefore at 14.3% we are above the national average.



Our key actions: The key actions are to concentrate the promotion of walking and cycling to school such as Bike It, Starwalkers, Walk to School events in wards where obesity is highest. Similarly pedestrian training and cycle training will also be prioritised at schools where obesity is highest.

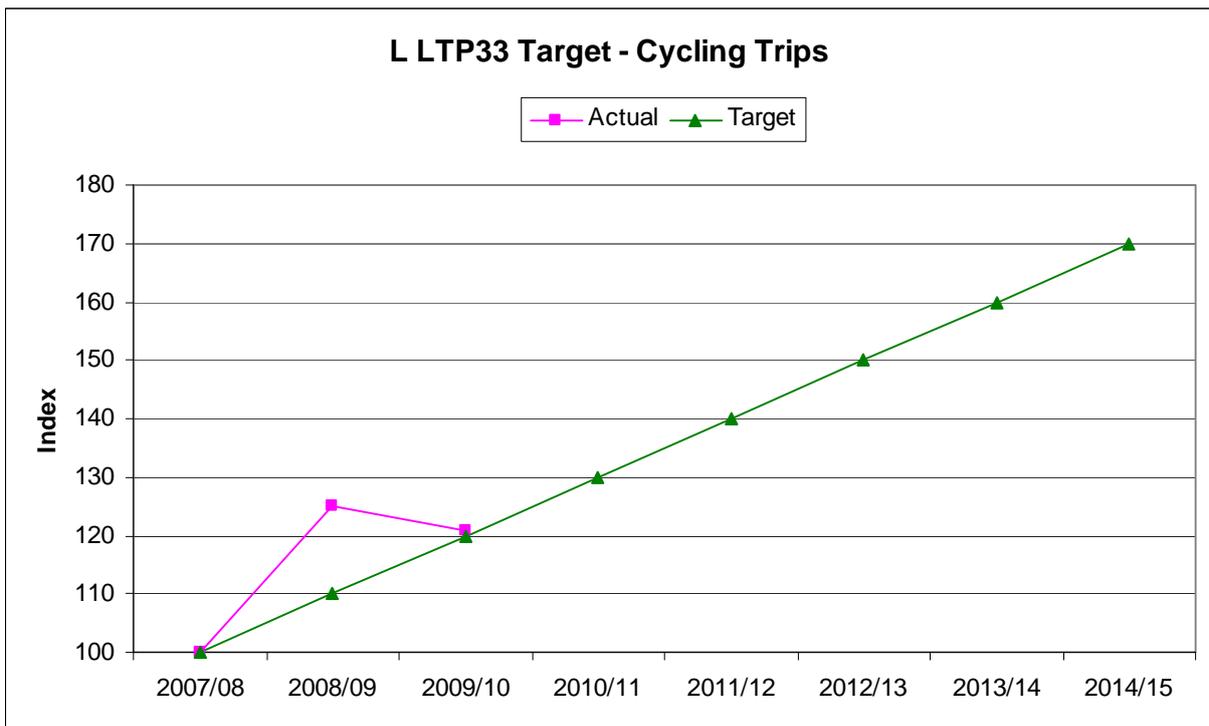
Partners' key actions: We will work closely with dieticians, sports staff and school staff to co-ordinate activities through the Healthy Weight Strategic Group

Principal risks: It is unknown the affect of the Health Paper 'Liberating the NHS' published July 2010 will have on the provision of physical activity encouragement

Risk management: To maintain good relations with public health officials and to set up relationships with the GP consortia once they are set up.

3.49 Performance Indicator L LTP 33: Cycling Trips

The indicator measures the two-way cycling activity over 12 hours across three cordons (the inner and outer ring roads and the CTZ). The data is collected as part of the Strategic Cordon Surveys. Cycling data is also collected via a system of radar counters on designated cycle routes. These are not used in the formation of the indicator but can perform a useful valedictory function.



Ambition: Leicester has performed very well recently with an increase in cycling of 77% between the original baseline in 2003/04 and 2009/10. This is greater than any of the cycle demonstration towns which saw an average increase in cycling of 27% over the same period. This works out at an average rise in cycling of 12.8% per annum, well above the target set in our previous LTP. We have set a target for LTP3 of 10% per annum.

Realism: Although this is slightly lower growth than the average achieved during LTP2 it is still very high compared with growth achieved in other areas which received extra funding (see Comparative analysis below). Despite all the recent growth in cycling numbers the 12 hour cordon count across the inner ring road shows a modal share in 2010 of only 1.1%. This shows the amount of potential for further growth, but also that cycling is currently the mode of choice for only a small minority of travellers.

Comparative analysis: The cycling demonstration towns of Aylesbury, Brighton & Hove, Darlington, Derby, Exeter and Lancaster with Morecambe have shown an average increase in cycling since 2004 of 27%. Darlington showed the highest increase of 30%. Results of the 2008 tranche of cycle demonstration towns are not yet known. Bristol, which was selected as Britain's Cycle City in 2008 has the ambition to double the number of people cycling in 2.5 years with £22.8 million investment in cycling. Transport for London has set a target of increasing cycling as modal share to 10% by 2025, although there are signs that the Mayor may be increasing this to 20%.

Our Key Actions: Deliver the Congestion, Carbon Reduction, Accessibility Active Travel and Safety Strategies. We will continue to invest in infrastructure (cycle lanes, junction treatments and cycle parking) and safety schemes to address dangerous cycling locations. However, our main priority will be to increase the Smarter Choices work which will include journey and travel planning with residents, employers and schools, increased working with partners, cycle parking hubs, cycle hire schemes, cycle route finding and comprehensive promotion and marketing of the health benefits of cycling. We will expand the delivery of adult and child cycle training. Continuation of community bike maintenance and recycling enterprises.

Partners' key actions: Local projects and schools will help deliver cyclist training. Local cycling interest groups and projects will contribute financially to cycle marketing and promotion. Sustrans rangers will help us with data collection/monitoring of the

cycle network. Developers will be required to provide facilities for cyclists within their developments.

Principal risks: The strategies are not delivered to programme. Unresolved land ownership issues on routes where new cycle links are proposed. Funding to adequately promote the network, in particular affecting the recruitment of school based cycle training champions.

Risk management: The council will seek partnership funding for promoting the network from the larger organisations developing travel plans. Any such information will increase value for money of any spent on cycle trip end facilities. Our Property Services Department to resolve land ownership issues before they arise. We will continue to work with partners such as Sustrans and NHS to provide value for money.

3.51 Performance Indicator L LTP 35: Adult participation in sport and active recreation

Around 25% of Leicester's population are overweight or obese. This is lower than the national average. However, Leicester is in the bottom 25% nationally for participation in sport with only 15% taking at least one walk of moderate intensity per week and only 6% taking at least one cycle ride per week. The majority of Leicester's deaths are cardiovascular related. Active Travel can play an important part in increasing the level of physical activity through every day activity. Data for NI8 is collected by the Sport England Active People Survey.

Ambition: The creation of a physical activity co-ordinator post at the city council, who has worked closely alongside Transport Officers to encourage Active Travel has helped to increase the number of people participating in at least 3 x 30mins of moderate physical activity in a week in Leicester from 13.4% in 2008 to 17.4% in 2010. Continuing this trajectory would lead to a 2% increase annually.

Realism: Nationally the levels of participation have gone from 16.4% of the population in 2008 to 16.7% in 2010. Sport England has set Leicester a target of increasing the year on year target by 1%.

Comparative analysis: Leicester was considerably below the national average two years ago, and is now nearly 1 % above the national average. Nottingham has gone from 23% in 2008 to 16.9% in 2009, and Leicestershire has gone from 18.1 to 17.1% over the same period.

Our key actions: Working with the physical activity co-ordinator on walking for health schemes, organised cycle rides, Active Travel as part of GP referral, continuing to lead on encouragement of walking and cycling to school, continuing the programme of walking and cycling promotions and infrastructure provision.

Partners' key actions: Continuing to co-ordinate with Transport Officer on the 3 x 30 pledge, FAB programme of activities, Active Lifestyle scheme and Lets Get Moving GP Referral scheme.

Principal risks: The Physical Activities Co-ordinator post is currently funded to 2012. It is part funded by Sport England and its future is uncertain beyond 2012. It is likely that without this role the levels of physical activity could fall again.

Risk management: A physical activities co-ordination group has been set up as part of Leicester's Sports Partnership Trust Chaired by Rory Underwood, to ensure co-ordination of sports, health and transport officers

3.52 Performance Indicator L LTP 36: Percentage of Children receiving Pedestrian Training (School Year 2)

We are currently training 1,700 pupils per annum. This pedestrian training scheme works well in conjunction with the Star Walker Scheme. The target will be monitored

throughout the year via an appraisal of the deliverables from the pedestrian training scheme. This area of work is very important and cost effective. It will contribute to reduced casualties and to walking as an alternative to car use.

Ambition: There are currently approximately 3,700 pupils in Year 2 in schools throughout Leicester. We have found that Year 2 are more receptive to practical training. We aim to increase the numbers trained to 2,400 per annum. The target will only be achieved with a combination of paid Road Safety Team staff and volunteers from the schools helping us to deliver the training.

Realism: This target is dependent on availability of paid staff to co-ordinate and deliver the training.

Our key actions: Delivering our Safer Roads Strategy, and continuing to focus our road safety education strategy on pedestrian and cyclist training, and ensure that training becomes incorporated formally into the school curriculum. To recruit and work with volunteers and Road Safety Team staff to help with the training.

Partners' key actions: Education to encourage schools to take up the training as an important life skill.

Principal risks: Lack of support from schools. Lack of Road Safety Team staff.

Risk management: Senior council officers to review progress of the road safety education strategy, and if necessary realign priorities, staff and resources. We will ensure that we have access to a suitable trained pool of staff to deliver pedestrian training.

3.53 Performance Indicator L LTP 37: Percentage of Children receiving Cycle Training (Level 2 Bikeability) (School Year 6)

The target will be monitored throughout the year via an appraisal of the deliverables from the Bikeability cycle training scheme. We will be increasing resources (funded from Department for Transport Bikeability Funding) to deliver more training than in the previous five years. It will contribute to helping deliver all three safer roads targets, also encourage cycling, not only to school, but also later in life, to work.

Ambition: We are aiming to provide more training than in the past five years.

Realism: We will ensure that we have access to a suitably trained pool of experienced staff to deliver cycling training to national Bikeability standards and are reviewing the whole range of road safety education delivery.

Partners' key actions: Education to encourage schools to take up the training as an important life skill.

Principal risks: Lack of support for school-based training. Lack of Road Safety Team staff.

Risk management: Senior council officers to review progress of the road safety education strategy, and if necessary realign priorities, staff and resources. We will ensure that we have access to a suitably trained pool of staff to deliver Bikeability training.

Table 3.6 To Improve Air Quality and Reduce Noise, Quality of Life, Manage to Better Maintain Transport Assets Performance Indicators and Targets

PI Category	Ref. No,	Description	Target 2014/15	Baseline Data	11/12	12/13	13/14	14/15	Source of Data
Non – transport Outcome	L LTP 38	Self-reported measure of people’s overall health and wellbeing	To be set	To be established	To be set	To be set	To be set	To be set	Local Survey
Outcome	L LTP 39	Air Quality Annual Mean Nitrogen Di-Oxide		Average, measured annual mean NO ₂ 2007-9					Local Survey
		Abbey Lane	45	48				45	
		Melton Road	50	54	Not set – monitoring only	Not set – monitoring only	Not set – monitoring only	50	
		St Matthew’s Way	48	54				48	
		Glenhills Way	63	69				63	
	L LTP 40	Approximate number of dwellings and associated population per authority to be investigated as a first priority due to noise from those roads mapped	Not set – monitoring only	200 2009/10	Not set – monitoring only	DEFRA			
	L LTP 41	Principal roads where maintenance should be considered	5%	5% 2009/10	5%	5%	5%	5%	Local Survey
	L LTP 42	Non-principal roads where maintenance should be considered	5%	5% 2009/10	5%	5%	5%	5%	Local Survey
	L LTP 43	Unclassified Road Condition		19% 2009/10	20%	18%	16%	14%	Local Survey

	L LTP 44	Footway Condition		50% 2009/10	50%	45%	36%	32%	Local Survey
	L LTP 45	Percentage of footpaths easy to use - that is: signed, well surfaced and way-marked	97.5%	2009/10 95%	96%	96.5%	97%	97.5%	Local Survey
	L LTP 46	Bridge Condition Index	87%	87% 2009/10	87%	87%	87%	87%	Local Survey
	L LTP 47	Traffic Signal Condition Index	tbe	tbe	tbe	tbe	tbe	tbe	Local Survey
	L LTP 48	Street Lighting Condition Index	40%	40% 2009/10	40%	40%	40%	40%	Local Survey

To Improve Air Quality and Reduce Noise, Quality of Life, Manage to Better Maintain Transport Assets

3.54 Each indicator and target is briefly described, with the aid of a simple graph where appropriate, showing the trajectory for the target.

3.55 Performance Indicator L LTP 38: Self-reported measure of people's overall health and wellbeing

In the 2008/09 National Place Survey 72% of Leicester's residents reported their health as good or very good. Focus group studies carried out by the Transport Strategy Section in November 2010 considered that quality of life in Leicester was 'average' 'ok' or 'good'. This is an improvement on the views of focus groups in 2008. The Place Survey which had begun to measure wellbeing and health is not continuing beyond 2009. The council is considering how to continue to measure wellbeing, and therefore, we will not be setting a target for this indicator in the Implementation Plan until a measure for all the One Leicester priorities is established.

Ambition: Promoting walking and cycling as modes of transport will help people to exercise more and feel better about themselves. Even walking to and from bus stops rather than going by car could be beneficial.

Realism: People's overall wellbeing and health is the result of so many combined factors (diet and regular exercise being two of the main ones) that transport can have only a relatively minor positive influence.

Comparative analysis: In the 2008/09 National Place Survey 75.4% of Nottingham's and 73.8% of East Midlands residents reported that their health was good or very good.

Our key actions: We will continue to try to understand people's attitudes to transport through focus groups, Ward Committee Meetings and the Equality Impact Assessment. Through our Active Travel Strategy, we will work to encourage more people to walk or cycle both as a form of transport and as a way of keeping physically active, through travel planning, improved infrastructure and campaigns. Through the Air Quality Action Plan, we will continue to monitor levels of NO₂ emitted by transport, and work to reduce these levels by reducing the levels of singular occupancy vehicles on the transport network, through Smarter Choices packages.

Partners' key actions: Partners in the Air Quality Action Plan need to support the Smarter Choices work we do and the Health Authority and Sports Partnerships need to support the promotion of Active Travel.

Principal risks: Lack of funding prevents identified actions being taken. Travel plans/packs not taken up. Other (non-transport related) factors will have a far greater influence on the indicator than our efforts.

Risk management: Senior council officers to review progress of the Active Travel and Road Safety strategy, and if necessary realign priorities, staff and resources.

3.56 Performance Indicator L LTP 39: Air Quality Annual Mean Nitrogen Dioxide

Air quality is a health issue. Taking the air quality related mortality figures for the UK pro-rata, gives an estimate that poor air quality would lead to at least 250 premature deaths per annum in Leicester. Key outcome targets have been set for four nitrogen dioxide sites in Leicester's Air Quality Management Area with the worst nitrogen dioxide pollutant concentration. Automatic monitoring stations at these locations enable progress to be monitored.

Setting a single trajectory to monitor nitrogen dioxide for Leicester's Air Quality Management Area is inappropriate as excess levels of nitrogen dioxide are network

wide and key locations experience significantly different maximum annual mean values. Different projects will exert different effects on different areas and parts of the road network. Year-on-year, annual mean values will vary unpredictably with the vagaries of the weather and other extraneous factors.

Four intermediate outcome indicators will also be used to help monitor progress in improving air quality; congestion (L LTP 1), bus patronage (L LTP 2), mode of travel to school (L LTP 8), area wide travel mileage (L LTP 14). We are also able to monitor changes in peak period traffic flows.

For LTP3 target setting we have considered the following points:

- Interventions likely to be feasible and in place by 2016 are unlikely to achieve the air quality Objectives for nitrogen dioxide;
- Past and current predictions using recognised nationally and locally deployed modelling methodologies are likely to be significantly underestimating annual mean levels;
- This has been the case over the lifetime of the 2006–11 LTP and the situation, if anything, appears to be deteriorating;
- There is significant uncertainty as to the progress of air quality in the next five years; This range of uncertainty is critical in the sense that it lies either side of the Objective criterion for nitrogen dioxide (40 microgrammes per cubic metre). I. e. it represents the difference between significant change for the better in air quality on the one hand and little or no change (or even some deterioration) on the other;
- More work needs to be completed nationally and locally in order to resolve these issues.

For these reasons, a range of values for each receptor point was calculated, framed between “high” and “low” scenarios, in order to compress the range of uncertainty somewhat. The following scenarios were assumed:

- ‘Pessimistic scenario’: No improvement in fleet, small impact of LTP-3 interventions (1%)
- ‘Optimistic scenario’: Predicted improvement in fleet realised, large impact of LTP-3 interventions (10%)

The various estimates are set out for comparison in Table 3.13.3 of Leicester City’s Air Quality Action Plan 2011-2016. As can be seen and as stated, the issue with this range of projections is that they encompass the annual mean Air Quality Objective for nitrogen dioxide (40 microgrammes per cubic metre), i.e. they represent the different between achieving, or failing to achieve, the Objective.

A baseline was established by taking the average of the annual mean values for the three years 2007 - 2009.

The final LTP targets were set by using professional judgement to establish a likely, realistic compromise between the 'high' and 'low' potential outcomes. On balance, it is considered that an outcome towards the 'pessimistic/high' scenario is more likely in the short term to 2014/15. The values set still represent continuing exceedances of the air quality Objective criterion.

It should also be noted that while a five year time scale was adopted for the Air Quality Action Plan (for statutory reasons), a shorter time scale (2014/15) was adopted for the formal LTP targets, in line with the shorter-term delivery programme.

Further work is being put in hand as soon as possible to refine and update these conclusions during the rollout of the LTP programme.

Ambition: Euro standards regulate NO_x emissions, not NO₂ and some vehicle technologies appear to be increasing the NO₂: NO_x ratio especially in diesels. Less NO_x is being emitted but more of it is being emitted as NO₂. This increase in the relative proportion of NO₂ in overall NO_x is making it harder to meet UK air quality objectives and EU limit values. The above national trends are borne out by local monitoring data, which show little evidence of a robust downward trend in the figures. The "transport" strategy for Improving Air Quality in Leicester is focused on reducing air and noise pollution and carbon emissions caused by traffic; by encouraging and facilitating more people to travel by public transport, walking and cycling. In this way we hope to maximise our contribution to improving air quality.

Realism: In response to the difficulties described above, we have drafted less ambitious targets for the five year period ending 2015/16, compared to those set for the five year period ending in 2010/11. Taking action to reduce the effects of climate change provides an excellent opportunity to deliver further benefits to both air pollution and greenhouse gas emissions. Both arise from broadly the same sources and will therefore benefit from many of the same measures. Thus the combined benefits are substantially greater, when we compare them with the costs, rather than if we look at each group of benefits in isolation. It is important to consider how we can achieve these additional benefits, particularly from improving public health, through a closer integration of air quality and climate change policies.

Comparative analysis: In the Sustainable Cities Index 2010, Leicester's air quality score was: better than London's and Manchester's; slightly worse than Birmingham's and Nottingham's; and considerably worse than Edinburgh's and Sheffield's.

Our key actions: Work to improve air quality will be achieved mainly through delivering our improving air quality & reducing noise strategy, congestion strategy, active travel and road safety strategy and the carbon reduction strategy. The improving air quality & reducing noise strategy, congestion, carbon reduction and active travel strategy strategies and programme of schemes therein are informed by and have influenced the preparation of the latest edition of Leicester's Air Quality Action Plan. Delivering these strategies will help improve air quality by; reducing vehicle-kilometres travelled, reducing emissions per vehicle kilometre and repositioning/changing traffic flows, in relation to critical, sensitive locations.

Partners' key actions: Partners in the QBP and the FQP helping to deliver the congestion strategy, health authority partners helping to deliver the active travel strategy. Close working with the City Council's Pollution Control, Environment and Planning teams to respectively deliver; non-LTP pollution reducing initiatives, maximised synergies between improving air quality and reducing carbon emissions, and ensure the Local Development Framework contributes to improving air quality. Fleet operators to invest in low emission vehicles.

Principal risks: Delayed implementation of the improving air quality & reducing noise, congestion, carbon reduction and active travel strategies. Delayed implementation of national policy measures such as scrappage incentive schemes. Sustained adverse weather affecting pollution concentrates. Predicted reduction in emissions due to vehicle and fuel technology not realised.

Risk management: Robust project management and working with the bus companies through the QBP and road haulage companies through the FQP. Close working with the Pollution Control, Environment and Planning teams and the Health authorities. Senior Council officers to regularly review progress with the implementation of the carbon reduction, congestion, accessibility, improving air quality & reducing noise strategies; and if necessary realign priorities, staff and resources. Weather conditions and developments with vehicle and fuel technology are issues outside of our control.

3.57 Performance Indicator L LTP 40: Approximate number of dwellings and associated population per authority to be investigated as a first priority due to noise from those roads mapped

In March 2010 Defra published Leicester's Noise Action Plan. Leicester City Council as highway authority has responsibility for noise from road traffic sources. Defra has also produced a Strategic Noise Map for the Leicester agglomeration showing First Priority Locations. This map shows the locations of approximately 200 dwellings and associated population to be investigated as a first priority due to noise from the roads. A second round of mapping will take place in 2012, re-mapping the areas covered in the first round and adding roads with more than 3 million vehicles passages a year.

Ambition: Not applicable as this indicator is for monitoring only.

Realism: The noise map has been created via modelling techniques. No actual noise measurements have been made. The identified locations are therefore merely a starting point for investigation.

Comparative analysis: Leicester is one of 23 urban areas for which these maps have been produced.

Our key actions: A web-based support tool is currently being developed which is scheduled to go live on 1st April 2011. This is to be used by the local highway authorities to investigate and assess the First Priority Locations and decide at which locations it is possible to implement any action to reduce noise levels.

Partners' key actions: The above decisions will be passed to the relevant department with responsibility for the communities affected by the noise source (e.g. the land use planning and/or environmental health department). They will have the opportunity to comment on the highway authority's assessments, and the highway authority will make changes in response to their comments (or, if not, provide an explanation as to why not). These agreed assessments will then be passed on to Defra.

Principal risks: Lack of response from relevant department. There is currently no time period set in which they have to respond. Web tool is not made available on promised date.

Risk management: Whilst awaiting web-tool and investigations, avoid any actions which would increase noise levels (e.g. increasing traffic flows, using cheaper, but noisier road surface materials).

3.58 Local Performance Indicators L LTP 41, 42, 43 & 44: Principal Road Network (PRN), Non-Principal Road Network (Non-PRN), Unclassified Road Network (U Road) and Footways/Footpaths where maintenance should be considered

The government has abolished the National Indicators (NI's 168, 169, 187 and 224b) set. Authorities are no longer required to report the condition of the PRN, Non-PRN and U road networks to central government however for deterioration modelling and trend analysis we will continue to survey these networks using UKpms machine and visual surveys. SCANNER machine and Course Visual Inspections (CVI) will survey the PRN, Non-PRN, Unclassified Road Network and Cycle Tracks. The condition data collected will be analysed using the latest version of the pavement management system (MARChpms) to derive a robust highways maintenance programme.

Ambition: Our ambition 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 further deterioration of the condition of the Principal and Non-Principal Classified Roads (carriageway) network.

Realism: Analysis from MARChpms shows that road and footway surface deterioration is on the increase. Planned maintenance programmes are being developed to improve the condition of the overall network.

Comparative analysis:

Our key actions: Develop TAMP policy and implement a robust highway maintenance programme of works for the carriageways, footway/paths and cycle tracks.

Partners' key actions: The utility companies and developers to plan and co-operate in co-ordinating their works with our planned maintenance schemes.

Principal risks: Reduced levels of funding. Delayed implementation of identified works due to unforeseen public events and works by statutory authorities. Increasing inflation in the cost of the construction materials.

Risk management: To continue to justify the need to invest in highway maintenance using our Transport Asset Management Plan. Implementation of our revised procurement strategy to increase cost certainty and offset construction sector inflation as far as possible. To have reserved schemes of the same criteria ready to implement if difficulties are encountered and to maintain regular co-ordination with the statutory authorities. Implementing the Traffic Management Act through Traffic Management Act Action Plan.

3.59 Performance Indicator L LTP 45: Percentage of paths easy to use

'Easy to use' means a path that is signposted or waymarked, free from unlawful obstruction, overhanging vegetation and has surfaces and lawful barriers in good repair. Our rights of way network is an integral part of the highway network and as such plays an important role in improving accessibility to everyday facilities as well as the wider rights of way network within the county. This indicator is monitored via an annual survey. We will be allocating sufficient staff resources to make rapid progress to 97½% as this represents good VFM. Progress will be slower after that as more staff time will be required for awkward sections of the network.

Ambition: A target of 97½% is ambitious as we have already made significant improvements in this area. Implementation of the recommendations made within our Rights of Way Improvement Plan 2011 to 2021 should however, ensure that this target is attained, or even exceeded.

Realism: We have an active Local Access Forum that can help us monitor the condition of our established network, enabling us to become more pro active in our maintenance. Additional resources have also been allocated to this area.

Our key actions: To improve signing, surfacing and waymarking of footpaths and to ensure they are free of unlawful obstructions and vegetation. Legal diversion of paths

which are permanently obstructed.

Partners' key actions: Landowners ensuring rights of way are free from obstructions. The Local Access Forum and path users, to assist with monitoring the condition of the network.

Principal risks: Reduced levels of funding. New paths are continually being added to the rights of way network, but are incorporated without investigation. This funding pressure creates a risk that the quality of the network deteriorates faster than we can maintain it. Furthermore deterioration in the condition of the network means that paths can become obstructed or fail to be considered as easy to use.

Risk management: It is a condition of our RoWIP that adequate resources are provided. Senior council officers to review progress and if necessary realign priorities, staff and resources. Effective management of the network through better monitoring and more proactive maintenance through improved targeting of resources. Ensuring all our transport schemes consider their interface with the rights of way network. If necessary the council can exercise its legal powers, to require private landowners to remove obstructions from rights of way.

3.60 Local Performance Indicators L LTP 46: Bridge Stock Condition Indicator

We currently maintain 135 highway bridges and 60 footbridges. The other highway structures include retaining walls, embankments, cuttings gantries, tee posts and high mast lighting. 'The Management of Highway Structures' A Code of Practice produced by the Roads Board guides our maintenance regime. Our highway road bridge stock condition indicator (average value, weighted by deck area) is 88% in 2009/10 up from 86% in 2007/08. The percentage of planned routine inspections completed on time is 100% in 2009/10. Over the last five years we have strengthened and/or maintained five bridges on the primary route network, six other bridges on the highway and five footbridges on the Public Rights of Way.

The bridge maintenance strategy aims to maximise the benefits of the funding available to keep all bridges fit for purpose and safe for use. It includes a mixture of bridge strengthening and major maintenance works on bridges on both the Primary and Non-Primary Route Network.

Ambition: We intend to be on target with bridge inspections and carry out routine strengthening/maintenance works. We have planned to carry out 12 major maintenance works and four bridge strengthening works during the next four year period 2011-15.

Realism: Planned maintenance programmes are being developed to improve the bridge stock condition.

Our key actions: Develop TAMP policy and implement a robust structural maintenance programme of works.

Partners' key actions: The utility companies and developers to plan and co-operate in co-ordinating their works with our planned strengthening/maintenance schemes.

Principal risks: Reduced levels of funding. Delayed implementation of identified works due to unforeseen public events and works by statutory authorities. Delay on the other projects on the main road network having a knock-on effect. Increasing inflation in the cost of the construction materials.

Risk management: To continue to justify the need to invest in bridge maintenance using our Transport Asset Management Plan. Implementation of our revised procurement strategy to increase cost certainty and offset construction sector inflation as far as possible. To have reserved schemes of the same criteria ready to implement if difficulties are encountered and to maintain regular co-ordination with the statutory

authorities. To proactively engaged in network co-ordination meetings, to be aware of and help address effects of delays on other schemes.

3.61 Performance Indicator L LTP 47: Traffic Signal Condition Index

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 five years 66 installations have been replaced. Lifetime of installations is 15 years. There are still 69 installations in the city which are 15 or more years old and needs replacing. It would require approximately £300,000 every year for the next four year period from 2011-15 for signal renewals. 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 and CCTV networks. 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.

Ambition: Our ambition is to replace the installations as much as possible which are more than 15 years old. We also aim to reduce electricity consumption and in turn help to reduce CO2 emissions by using the latest signal equipment which will be a combination of Extra Low Voltage (ELV) and Light Emitting Diodes (LED) signals.

Our key actions: Develop TAMP policy and implement a robust traffic signal and associated equipment maintenance plan.

Partners' key actions: All partners to work in close association with the Traffic Signals Maintenance and Systems support team and Operations and Network Management Team for all schemes.

Principal risks: Reduced levels of funding. Delayed implementation of identified works due to unforeseen public events and works by statutory authorities. Knock-on effect and subsequent delay by the other projects when signal works were combined with them.

Risk management: The need to ensure installations are renewed at the appropriate times crucial to the safety and longevity of those installations. The proposed four year 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. To continue to justify the need to invest in traffic signal and other associated maintenance using our Transport Asset Management Plan. To have reserved schemes of the same criteria ready to implement if difficulties are encountered and to maintain regular co-ordination with the statutory authorities. To proactively engaged in network co-ordination meetings, to be aware of and help address effects of delays on other schemes.

3.62 Performance Indicator L LTP 48: Street Lighting Condition Index

The majority of our lighting stock is in a good condition due to a proactive column replacement work program carried out over the last 20 years. However, there are still over 1,100 structurally unsound steel columns and 1,750 concrete columns that require replacing. The street lighting stock condition indicator for 2009/10 was 39.10%, which is not on track due to limited funding. However we are continuing with the replacement of our High Pressure Sodium units by CosmoPolis or LED units resulting in a reduction in our energy usage and therefore our carbon emissions. 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.

Ambition: We will aim to continue to replace our remaining concrete columns and structurally unsound steel columns with new steel columns as they are beyond their

design life. We plan to reduce the energy consumption and in turn reduce carbon emissions by using High Pressure Sodium units by CosmoPolis or LED units.

Our key actions: Develop TAMP policy and implement a robust street lighting maintenance plan.

Partners' key actions: The utility companies, developers and all partners to plan and co-operate in co-ordinating their works with our planned street lighting schemes.

Principal risks: Reduced levels of funding. Delayed implementation of identified works due to unforeseen public events and works by statutory authorities. Knock-on effect and subsequent delay by the other projects when street lighting works were combined with them. Increasing inflation in the cost of the lighting materials.

Risk management: We will aim to continue to replace our remaining concrete columns and structurally unsound steel columns with new steel columns as they are beyond their design life. We are re-testing our 'at risk' columns every five years. We are identifying and replacing or repairing our steel columns that have corroded at ground level due to road salt and dog urine. We are assessing the replacement of illuminated bollards with reflective ones to cut down on energy consumption and the retrofitting of illuminated sign lighting units with LED gear trays. To continue to justify the need to invest in street lighting using our Transport Asset Management Plan.

4. Funding Leicester's Local Transport Plan Programme

4.1 This chapter of the plan explains the likely level of funding available from various sources and how this funding is to be used in pursuit of our transport objectives. The two main sources of funding are public sector, from central government or local government, and private sector, such as from developer contributions secured through the planning process and income from on and off street parking services.

4.2 As part of the Government's Comprehensive Spending Review in October 2010 the number of Department for Transport funding streams was reduced from twenty-six to four. The four funding streams are:

- Block funding for small (less than £5m) transport improvement schemes (the Integrated Transport Capital allocation).
- Block funding for highways maintenance (the Highway Maintenance Capital allocation)
- The Local Sustainable Transport Fund (revenue and capital)
- Major Schemes (more than £5m) (capital)

4.3 The Local Sustainable Transport Fund is a new fund announced in October 2010. The fund is £560m over four years (2011-2015), made up of £350m revenue and £200m capital. It will fund packages that support economic growth and reduce carbon emissions as well as improving air quality, enhancing safety and reducing congestion. We are currently working on potential bids following the release of guidance by DfT.

4.4 Other sources of funding such as city council capital allocation, capital receipts, regional growth fund and European funding finance some specific projects. Local Government revenue funding along with income from our on and off street parking services finance many of the day to day highways and transport services provided by us as the Highway Authority described in this plan.

4.5 As Highway Authority we work closely with the Planning Authority and adjacent district (planning) authorities and Leicestershire County Council to secure funding for improvements and direct highway and transport improvements through the planning process.

4.6 As noted earlier, ensuring value for money and efficient delivery is our key objective in delivering this Implementation Plan. We have analysed in our strategies 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 available.

Local Transport Plan Integrated Transport and Capital Maintenance Funding

4.7 DfT has provided capital funding levels based on a formulaic representation of local transport pressures. The allocation for Leicester for integrated transport (highway and transport infrastructure schemes) is scheduled as follows:

Table 4.1 Local Transport Plan Integrated Transport and Capital Maintenance allocations, £m

Block	2011/12	2012/13	2013/14	2014/15	Total
Integrated Transport	2.847	3.037	3.037	4.271	13.192
Capital Maintenance	2.104	2.133	2.200	1.936	8.373

4.8 The targets and objectives for the Local Transport Plan represent the best achievable outcomes and outputs using the allocations above, allowing for revenue funding, Council capital funding and external funds that can be levered in, such as developer contributions. This has resulted in the following integrated transport capital spend against each objective and monitoring:

Table 4.2 Integrated Transport Capital Spend by Objective, £m

Objective	2011/12	2012/13	2013/14	2014/15
Congestion and Carbon	3.00	2.72	tbe	tbe
Accessibility	2.14	0.24	tbe	tbe
Active Travel and Road Safety	0.36	0.21	tbe	tbe
Air Quality	Included in Congestion			
Monitoring	0.30	0.30	tbe	tbe

4.9 The equivalent table for Capital Maintenance is as follows:

Table 4.3 Capital Maintenance Spend by Asset Group, £m

Asset Group	2011/12	2012/13	2013/14	2014/15
Principal roads	0.58	0.29	tbe	tbe
Non-principal roads	0.50	0.50	tbe	tbe
Unclassified road	0.18	0.18	tbe	tbe
Footway & cycle route	0.23	0.25	tbe	tbe
Bridges	0.46	0.62	tbe	tbe
Traffic Signals	0.32	0.27	tbe	tbe
Street Lighting	0.04	0.04	tbe	tbe
Vehicle Activated Signs	0.01	0.01	tbe	tbe
Management	0.03	0.03	tbe	tbe
Potholes	0.40	tbe	tbe	tbe

Major Scheme Funding

Leicester City Centre New Bus Termini and Routing Scheme

4.10 The recommendations for transport priorities in the East Midlands as part of the first Regional Funding Allocation (RFA) process was submitted, by the former East Midlands Regional Assembly and East Midlands Development Agency, to Government in January 2006. The Government confirmed acceptance in July 2006. In 2008 Government asked regions to update their prioritisation methodologies and re-apply them for the period 2009/10 to 2018/19 by February 2009. Steer Davies Gleave was appointed by EMRA to review the RFA1 prioritisation methodology in light of revised guidance from Government for the second RFA round and development in the regional and national policy context. The outcome of this review of regional priorities resulted in the Leicester City Centre New Bus Termini and Routing Scheme being ranked as “High scoring” and being included in the regional programme of schemes to start in the first five years of the RFA2 programme. The Government confirmed acceptance of the revised regional advice in July 2009.

4.12 Preparation of a major scheme business case was on target for submission in March 2011 when the coalition government suspended major schemes guidance and process in June 2010. As part of the October 2010 Comprehensive Spending Review DfT announced £1.7bn of major scheme funding during the current parliament. However, this is less than the value of schemes currently in the DfT process. This has resulted in us reviewing the scope, cost and phasing of the proposed scheme and developing various scenarios to cater for possible funding opportunities as they arise. These opportunities include funding from the Integrated Transport Capital Programme, Local Sustainable Transport Fund and Regional Growth Fund, as well as our own capital programme, capital receipts and developer contributions. We believe that the scheme will be a strong contender for DfT major scheme funding, when applications for funding open again, as it delivers sustainable, low carbon transport with improved air quality, underpinning Leicester's economic development and protecting and creating jobs. It is the only viable package of interventions that will deliver Leicester's growth in jobs and housing. It will be the key gateway into Leicester and will facilitate city centre regeneration and improved urban realm.

Leicester City Council Capital Funding

4.13 Leicester City Council's annual highways capital funding for the next three years is being focussed on our goal "Leicester – a truly beautiful place: improving Quality of Life and a Healthy Natural Environment" is as follows:

Table 4.4 Leicester City Council Capital Works Programme, £m

Income	11/12
Local Environmental Works	0.40
Bridge Refurbishment (City Owned Structures)	0.15
Watercourse Maintenance	0.05
Pothole Repairs	0.50
Total	1.10

Leicester City Council Revenue Funding

4.14 Revenue funding is primarily to maintain services at current levels. The Table below shows the estimated transport related revenue expenditure for 2011/12 and how it links to the transport goals.

Table 4.5 Leicester City Council's Estimated Transport Related Revenue Expenditure for 2011/12 linked to the transport goals

Public transport	Approx. Amount per year (£'s)	Relevant Transport Targets		
		Transport Goal	Local Targets	National Targets
Concessionary fares support	£10.5m	Equality of opportunity, economic growth	Increasing bus use Reducing car trips	Improving accessibility of local public transport

Support for bus services	£430,000	Equality of opportunity, economic growth, better safety, security and health	Increasing bus use Reducing car trips Improving air quality	Improving accessibility of local public transport Improving air quality
Support for dial-a-ride services	Included in concessionary fares support	Equality of opportunity	Increasing bus use Reducing car trips	Improving accessibility of local public transport
Totals	£10.93m			
Education Transport	Approx. Amount per year (£'s)	Relevant Transport Targets		
		<i>Transport Goal</i>	<i>Local Targets</i>	<i>National Targets</i>
Special needs	tbe	Equality of opportunity, economic growth, better safety, security and health	Increasing bus use Improving air quality	Improving accessibility of local public transport Improving air quality
Mainstream	tbe	Equality of opportunity, economic growth, better safety, security and health	Increasing bus use Improving air quality	Improving accessibility of local public transport Improving air quality
Totals	tbe			
Road Safety and Speed Management				
Traffic Regulation Orders	£30k	economic growth, better safety, security and health	Reducing congestion	Reducing congestion
Road Safety	£240k	better safety, security and health	Reducing number of people killed and seriously injured	Reducing number of people killed and seriously injured
Totals	£270k			

Traffic Management and Control				
Traffic signal maintenance and improvements	£487k	Equality of opportunity, economic growth, better safety, security and health	Increasing bus use Increasing walking/cycling Improving air quality	Reducing congestion Increasing cycling Improving air quality Reducing congestion Increasing cycling Improving air quality
Urban Traffic Control system maintenance	£262k	Equality of opportunity, economic growth, better safety, security and health		
Other traffic schemes and programs	£120k	Equality of opportunity, economic growth, better safety, security and health	Various	Various
Totals	£869k			
Maintenance	Approx. Amount per year (£'s)	Relevant Transport Targets		
		<i>Transport Goal</i>	<i>Local Targets</i>	<i>National Targets</i>
Structural maintenance	£1,094k		Halting deterioration in the condition of local roads and footways	Halting deterioration in the condition of local roads and footways
Safety maintenance	£1,239k	better safety, security and health	Reducing number of people killed/seriously injured Increasing walking/cycling	Reducing number of people killed and seriously injured Increasing cycling
Environmental maintenance	£747k	Equality of opportunity, better safety, security and health	Halting deterioration in the condition of local roads and footways	Halting deterioration in the condition of local roads and footways

Public lighting energy	£1,210k	better safety, security and health	Reducing number of people killed and seriously injured Increasing walking/cycling	Reducing number of people killed and seriously injured Increasing cycling
Winter service	£210k	Equality of opportunity	Reducing number of people killed and seriously injured	Reducing number of people killed and seriously injured
Highway insurance	£580k	None relevant	None relevant	None relevant
Public Rights of way	£5k	Equality of opportunity	Percentage of rights of way that are easy to use by the public	None relevant
Miscellaneous Maintenance	£524k	better safety, security and health	Various	Various
Totals	£5,609k			

Revenue Income

4.15 On street parking charges net income estimated at around £1.8 m/year and is earmarked to be spent as follows in 2011/12:

Table 4.6 Spending of On Street Parking Income on Transport Services

Concessionary Fares Support	£1m
Local Bus Services	£0.43m
Total	£1.43m

4.16 Supplementary income from DPE for 2011/12 is estimated at around £tbe/year and will be re-invested in the Highways and Transportation Service.

4.17 Bus shelter replacement contract advertising income is £tbe/year and is to be used to expedite the bus shelter replacement programme.

Other (External) funding

4.18 There is direct funding that is levered in from, for example, regeneration agencies and developers and also from other Government departments and Council capital reserves. This type of funding is set out in the following paragraphs. There is also indirect investment that is levered in from, for example, the bus companies by way of new buses linked to our infrastructure improvements. We are unable to present this type of information for the future due to commercial confidentiality between the bus companies.

Developer Contributions Funding

4.19 The development coordination role of the Highway Authority continues to play an

important role in delivering the LTP through the planning process and the use of developer contributions. The Highway Authority, in conjunction with the county council, have updated the Highway, Transport, Development Guide, which assists developers in understanding the requirements of the Highway Authority for development within the city. The guide sets out standards, guidance, specifications and materials that are deemed acceptable. It also sets out the commuted sums that the development will be expected to meet. For example, developer contributions received from Tesco as part of a major supermarket development in East Leicester were used to promote sustainable forms of transport through the provision of a new frequent bus service, augmenting integrated transport funds to extend the cycle network and providing a local traffic calming scheme in the East Hamilton housing estate.

4.20 The infrastructure and 'soft' measures obtained through developer contributions is a major input to the delivery of LTP targets and indicators. The city council has 'standard conditions' which aim to balance the impact of a development. The use of contributions from major developments will continue to be coordinated with the LTP maintenance and capital expenditure programme in order to coordinate works to achieve value for money and use of resources.

5. Governance and Reporting Arrangements

5.1 This chapter details our programme governance and reporting arrangements. Our programme will be delivered using the principles of Managing Successful Programmes (MSP), the Government's programme management methodology, and with individual schemes within the programme being delivered using PRINCE2, the Government's project management methodology. Progress reporting and re-prioritising of resources to keep our performance on track will continue to be through our Quality Management Review process of our Quality Management System.

5.2 We are using MSP to co-ordinate the organisation, direction and implementation of the portfolio of schemes and activities that together will help us achieve the desired outcome and will realise the benefit of meeting our targets. We have a close link between programme management and project, measures and services management because the programme can only succeed if these elements within it succeed. MSP is important to help us:

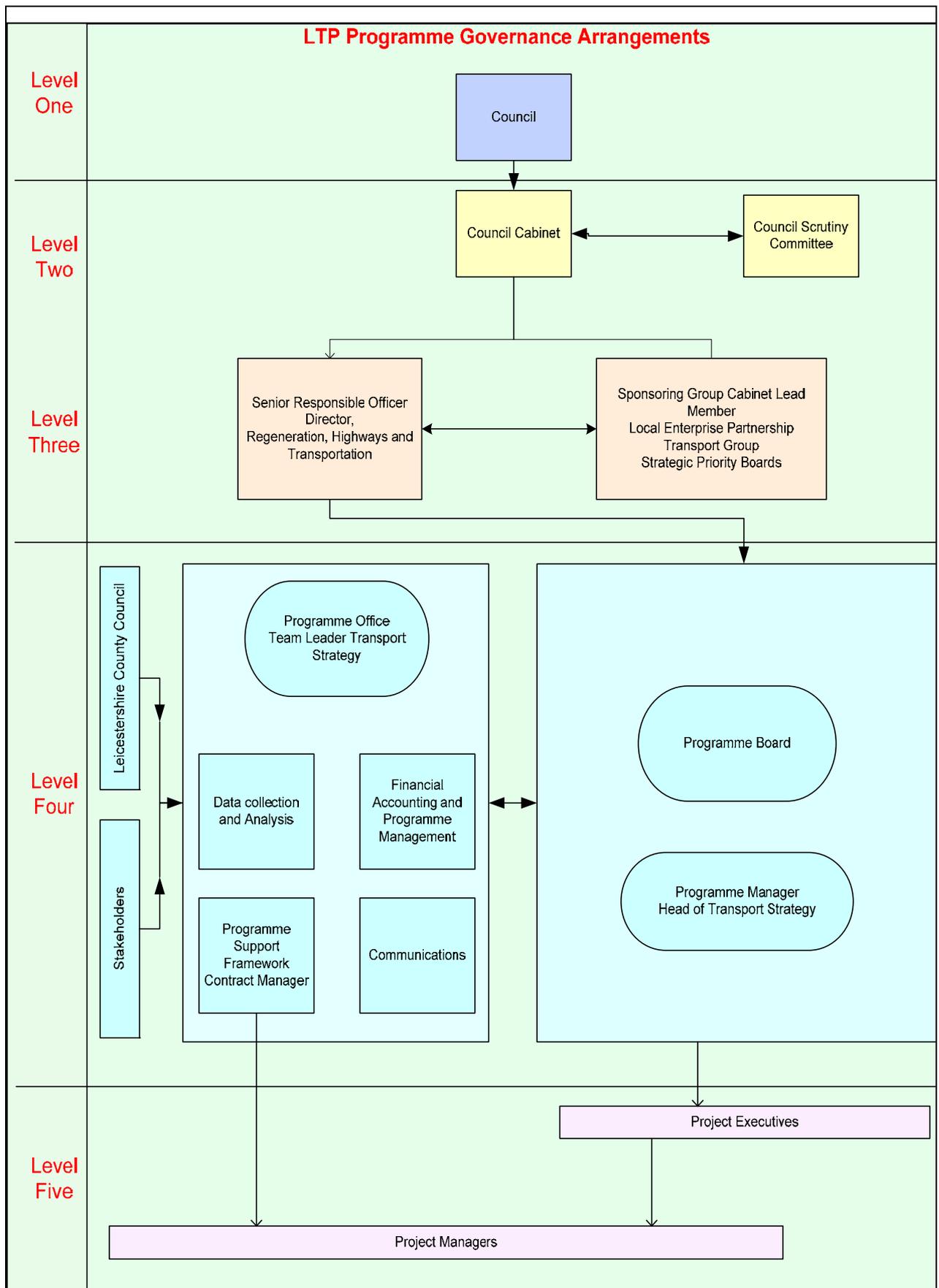
- Organise people to ensure responsibilities and lines of communication are clear
- Plan the work in a way which achieves results
- Ensure that all our stakeholders are involved
- Ensure the required impacts are delivered
- Ensure the delivery programme is adhered to and reprioritised when necessary
- Adhere to timescales and key milestones
- Resolve issues which arise
- Identify and manage risks
- Regularly carry out reviews and keep up to date information
- Audit a programme to ensure standards are being followed

5.3 The processes we have adopted are to:

- Identify the aim and envisaged benefits of our programme
- Establish the programme from our transport strategies
- Monitor and co-ordinate the projects, measures and services
- Review the programme and ensure our targets are being achieved

5.4 The programme governance arrangements are shown in the following chart with explanations of the levels described after the chart. This structure is appropriate for us as it:

- Fits well with our existing management structure where lines of communication are well known
- Utilises the strengths in terms of delegated authority that Senior Council Officers already have to reallocate staff and financial resources to tackle problems that arise.
- Connects to the Local Enterprise Partnership Governance arrangements



Level 1:

5.6 The 54 members of the city council are the ultimate decision making body of Leicester City Council. Some business can only be determined by the full council. This includes approving the Local Transport Plan. The council also deals with objections made by councillors to Cabinet decisions. The implementation plan is endorsed by the council.

Level 2:

5.7 The Cabinet is the main “Executive” decision making body of the council, apart from those decisions that can only be made by the full council. The Cabinet delegates decisions to officers at director level. This delegation includes reprioritising the Local Transport Plan Programme informed by progress reporting.

Level 3: *This is the top officer operational level and strategic decision making level*

5.8 The Sponsoring Group consists of the Senior Responsible Owner, the council’s Cabinet Lead Member and Strategic Priority Boards and the Transport Group of the Local Enterprise Partnership. The Senior Responsible Owner consults with the sponsoring group members when taking delegated decisions. The role of this group includes:

- Making the investment decision and approving top level endorsement of rationale and objectives in the programme
- Providing continued commitment and endorsement of the senior responsible owner
- Providing visible leadership and commitment to the programme at communication events

5.9 The Senior Responsible Owner is the Director for Regeneration, Highways and Transportation. This role includes:

- Owning the vision for the programme and providing clear leadership
- Owning the targets and responsibility for achieving the targets
- Providing overall direction and leadership for implementation of the programme
- Maintaining the programmes alignment to achieve the targets, including using delegated powers from the council (in consultation with the lead member) to vary the programme or reallocate staff resources if monitoring highlights failing performance or in the light of experience over time.
- Managing and supporting the programme manager

Level 4: *This is the programming and monitoring level*

5.10 The Programme Board consists of the Division’s Senior Management Team. The Board is chaired by the Divisional Director. The Programme Manager is the Head of Transport Strategy. The role includes:

- Planning/designing the programme and proactively monitoring progress
- Managing budgets on behalf of the senior responsible owner
- Managing third party contributions to the programme
- Managing communications with stakeholders
- Managing dependencies and interfaces between projects, measures and services

- Ensuring briefs are given to the project executive for schemes at project level that are being delivered using PRINCE2 methodology

5.11 The Programme Office is led by the Transport Strategy Team Leader. The role includes:

- Working with programme manager to ensure the programme delivers to meet targets
- Working with Leicestershire County Council as a key LTP partner
- Being responsible for monitoring outcomes against what was predicted and reporting to the Divisional Quality Management Review meetings
- Managing stakeholder involvement including arranging discussion meetings, presentations, information dissemination and partnership meetings
- Receive stakeholder views and gauge their attitude to the delivery of the interventions and the targets including those from the Quality Bus Partnership and Freight Quality Partnership for example

5.12 In addition, the Programme Office also provides an information hub for the programme including:

- Progress reporting on projects and services to the bi-monthly Programme Board
- Information Management
- Financial accounting
- Carrying out programme health checks: through consultations with stakeholders and scheme level project managers

Level 5: *This is the project and service area management level with project executives and project managers for schemes and measures and service managers*

5.13 Clear and concise briefs and service plans are drafted for the implementation of all LTP policies and schemes including financial information, programming details and financial risks. A project manager is appointed with responsibility to take forward each policy (or groups of policies) and/or schemes in accordance with the brief and to manage the risks that may affect progress and spending. This is managed using PRINCE2 methodology. Monthly reports are produced highlighting exceptions to the requirements of the briefs. Table 5.1 identifies the key roles and respective personnel for this management level.

Table 5.1 Programme Management Level 5 Key Roles and Personnel					
Type Project. Sub- Programme	Project Executive	Senior User	Senior Supplier	Project Manager	CDM Co-ordinator
Major Scheme	Project specific appointment	Head of Transport Strategy	Head of Project Management and Design Project specific appointments	Project specific appointment	From Project Management and Design Section
Highway Infrastructure Improvement Integrated Transport Capital	Head of Project Management and Design	Head of Transport Strategy	Head of Project Management and Design or external Consultant City Highways or Framework Contractor	From Project Management and Design Section	From Project Management and Design Section
Highway Replacement/Refurbishment Capital Maintenance	Head of Highway Maintenance	Head of Transport Strategy	Head of Highway Maintenance City Highways or Framework Contractor	From Highway Maintenance Section	From Project Management and Design Section or Highway Maintenance Section
Bridge Refurbishment Capital Maintenance	Head of Project Management and Design	Head of Transport Strategy	Head of Project Management and Design or external Consultant Framework Contractor	From Project Management and Design Section	From Project Management and Design Section or Highway Maintenance Section
Traffic Signal Maintenance Capital Maintenance	Head of Traffic Management	Head of Transport Strategy	Head of Traffic Management and Design or external Consultant Framework Contractor or Term Maintenance Contractor	From Project Management and Design Section	From Traffic Management or Project Management and Design Section or Highway Maintenance Section
Public Lighting Integrated Transport Capital Capital Maintenance	Head of Highway Maintenance	Head of Transport Strategy	Head of Highway Maintenance Term Maintenance Contractor	From Highway Maintenance Section	From Highway Maintenance Section
Highway Infrastructure Improvement Developer Funded	Head of Project Management and Design	Team Leader Travel Planning and Development Control	Head of Project Management and Design or external Consultant Framework Contractor or Developers Contractor	From Project Management and Design Section	From Project Management and Design Section or Highway Maintenance Section
Smarter Choices Programme	Head of Transport Strategy	Head of Transport Strategy	Head of Transport Strategy Design or external Consultant Framework	From Transport Strategy or Project Management and Design Section	

6. The Programme - Projects, Measures and Services

6.1 This chapter explains how the programme of interventions has been prepared and is developed on an on-going basis. It details all the projects, measures and services to deliver our transport strategies and hence ultimately our transport and wider goals. Details include projected budgets and timescales. The programme consists of six main sub-programmes plus Major Schemes as appropriate. The sub-programmes include both infrastructure and “smarter choices projects and initiatives” and are detailed in this chapter. The programme includes:

The Local Transport Plan Programme

- The Integrated Transport Capital Programme
- The Capital Maintenance Programme
- The Developer Funded Programme
- The City Council Capital Programme (includes projects funded from external sources)
- The Smarter Choices Programme

6.2 In preparing the programme, an established prioritisation mechanism is used that ensures best value for money projects and initiatives are delivered. The factors include:

- Contribution and impact to targets.
- Deliverability
- Political will both at the strategic and local level
- Degree of support by local community
- Resource availability – capacity and capability of workforce
- Planning and co-ordination with footway, road and bridge maintenance schemes
- Planning and co-ordination with projects by others
- Contribution to other initiatives, predominately regeneration and targeting disadvantaged areas to achieve distributional impact.
- Cost benefit analysis, e.g. extension of existing bus lane vs. new bus lane on a radial corridor
- Exploitation of existing assets
- Utilising capacity of assets, such as roads that are not operating at full capacity.
- Opportunity of replacing proposed scheme with similar scheme due to implementation difficulties.

6.3 Once the sub - programmes of infrastructure projects are established the Smarter Choices sub – programme is developed to help “lock in” the benefits of the infrastructure projects. For example, Personalised Travel Planning in specific areas follows completion of a Sustainable Transport Corridor Scheme.

6.4 The on-going development and implementation of the programme, and the projects and initiatives within the programme, is carried out in accordance with our Programme Development, Programme Management, Project Delivery and Team Specific quality management system procedures. The programme manager, supported by the programme office, tracks and records project progress and completion and tracks benefits delivered. This is facilitated by requiring project managers to ensure “before and after studies” are prepared for each project or group of similar projects where appropriate to help shape the on-going programme. The

programme manager keeps a log of completed schemes, their outputs and their impacts from before and after study reports.

Integrated Transport Capital Programme

6.5 The Integrated Transport Capital Programme includes all highways and transport infrastructure improvement schemes that are wholly or partly funded from our Integrated Transport Block funding allocation. The programme is provided in Table 6.1

The Capital Maintenance Programme

6.6 The Capital Maintenance Programme is derived from analysis of future demand on the highways and transport network in conjunction with analysis of the condition of the highway and transport asset. Prioritisation of the works is based on 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 transport strategy. To maximise value for money and minimise disruption the prioritised list of works is co-ordinated with other maintenance works and integrated transport schemes. The programme is provided in Table 6.2

The Developer Funded Programme

6.7 The developer funded programme consists of projects required by the Planning Authority relating to developments that impact on the public highway. The projects are either led by the developer where we contribute to delivery of the project or are solely managed by our Division and are fully funded by the developer. The programme is provided in Table 6.3

The City Council Capital Programme (includes projects funded from external sources)

6.8 The annual highways capital programme consists of scheme financed from capital receipts or from external sources (the external sources are added to the council's capital programme in accordance with financial rules. The capital receipts funded schemes are focussed on our goal "Leicester – a truly beautiful place: improving Quality of Life and a Healthy Natural Environment". The programme is provided in Table 6.4

The Smarter Choices Programme

6.11 The programme is provided in Table 6.5

Table 6.1 The Integrated Transport Capital Programme 2011/12 to 2014/15

Project	Description	Estimated Cost	Design Start	Site finish
CONGESTION AND CARBON STRATEGIES				
Quality Bus Corridors (QBC's)/ Junction Improvements				
Small Highway Improvements to reduce congestion	Minor improvements at junctions or "pinch points" on arterial routes	£120,000	various	2014/15
Melton / Troon Junction Improvement	Improvement scheme to reduce delays to traffic and improve road safety	£610,000 – to be established with developer	2011/12	2013/14
A426 Aylestone Road Quality Bus Corridor	Improvement scheme to reduce delays to traffic and improve road safety particularly at Soar Valley Way/Lutterworth Road Junction	To be established post 2011/12	2010/11	2014/15
A50 Groby Road QBC: Sanvey Gate Junction Improvement	Improvement scheme to reduce delays to traffic and improve road safety particularly at Sanvey Gate/Highcross Street Junction	£3,100,00	2009/10	2011/12
Humberstone Road Quality Bus Corridor Phase 2	Improvement scheme to reduce delays to traffic and improve road safety	To be established, initial budget for 2012 £20,000	2012/13	To be established
Ashton Green Off-site Highway Improvements	Project management and design of highway improvement schemes at the boundaries of Ashton Green	To be established initial budget for 2012 to 2013 £80,000	2011/12	To be established
Signing				
Variable Message Signs	On street variable message signs giving information about journeys and car parks	To be established initial budget for 2012 to 2013 £20,000	2012/13	To be established
Road Signing and Lining	Improved road signing and road markings to help reduce congestion	£20,000	2011/12	2012/13
New Signing and Lining (Industrial Areas)	Improved road signing and road markings to help reduce congestion on route to industrial areas	£20,000	2011/12	2012/13
Road Signing and Lining: Outer Ring	Improved road signing and road markings at outer ring road junctions to help reduce congestion	To be established	2013/14	2014/15
Traffic Management				
Traffic and Travel Information		£50,000 per annum	2011/12	2014/2015
Network Improvements (SCOOT etc)	Connecting traffic signal sets together along main roads to make them better co-ordinated	£60,000	2011/12	2012/13
CCTV Developments	Installation of cctv cameras to help manage traffic	£100,000	2011/12	2012/13

Network Performance Monitoring		£60,000	2011/12	2012/13
Systems Integration / Upgrade		£60,000	2011/12	2012/13
Travel Plans	Minor highway improvements in conjunction with workplace travel plans	£5,000 per annum	2011/12	2014/15
Establish Smarter Choices Company, Trust or similar		To be established		
Public Transport Interchanges				
City Centre Bus Scheme – Major Scheme Business Case plus PH6-11	Preparation of Major Scheme Business Case to be submitted to the DfT and design and build of scheme phases 6 to 11	To be established, £370,000 in 2011/12	2010/11	2017/18
City Centre Bus Scheme Phase 2a Bus Lane Enforcement	CCTV enforcement cameras to help minimise disruption to bus services	£155,000	2010/11	2012/13
City Centre Bus Scheme Phase 2b Statutory Quality Bus Partnership	Development of arrangements to ensure better bus utilisation of roads and bus stops in the city centre through formal arrangements such as a Statutory Bus Partnership	£230,000	2010/11	2012/13
City Centre Bus Scheme Phase 2cd Humberstone Gate	Provision of new bus stops on Humberstone Gate	£875,000	2010/11	2012/13
City Centre Bus Scheme Phase 3 Charles Street North (Southbound)	Provision of new bus stops on Charles Street North	£1,145,000	2010/11	2013/14
City Centre Bus Scheme Phase 4 Taxi Reservoir	Provision of taxi parking outside of the inner ring road	£360,000	2010/11	2012/13
City Centre Bus Scheme Phase 5 Haymarket B e l g r a v e G a t e	Highway alterations to improve bus routing	£245,000	2010/11	2013/14
Leicester Tram Business Case Development	Develop the business case for Leicester Trams	£100,000 in 11/12	2011/12	On-going
New bus shelters	Continued provision of new bus shelters at various locations	£30,000 per annum	2011/12	2014/15
Bus Improvements				
New Bus Real Time Information System	Develop new real time information system to replace Star Trak	£260,000	2011/12	2013/14
Level access at bus stops (in addition to QBC budgets)	Continue to raise footway at bus stops to provide level access onto buses in accordance with the Disability and Discrimination Act (by 2017)	£150,000 per annum	2011/12	2014/15
ACCESSIBILITY STRATEGY				
Walking and Cycling				
Walking and cycling promotion of infrastructure		£10,000 per annum	2011/12	2014/15
Dropped kerbs	Dropped kerbs at road crossing points to make it easier for mobility impaired and pushchairs to cross	£20,000 per annum	2011/12	2014/15
East Park Road / Bradbourne Road & Normanton Rd	Completion of new crossing facilities	£30,000	2010/11	2011/12

/ East Park Road Zebras				
Humberstone Lane / The Roundway Zebra / Refuge	Completion of new crossing facilities	£25,000	2010/11	2011/12
Barkby Road / Wyvern Avenue Pedestrian Facilities	Completion of new crossing facilities	£40,000	2010/11	2011/12
Granby Street Gateway	Completion of new crossing facilities and public realm improvements from Leicester Rail Station along Granby Street to Rutland Street	£3.2m approx	2010/11	2011/12
Kedlestone Road footway/cycleway	New footway through allotments off Kedlestone Road	£60,000	2010/11	2011/12
New footways – schemes to be identified	New sections of footway identified by the public and/or from our on-going accessibility planning work	£15,000 per annum	2011/12	2014/15
St. Barnabas Road Pedestrian Crossing	New crossing facilities – build outs	£20,000	2012/13	2012/13
Queens Road Pedestrian Crossing	New crossing facilities – build outs	£20,000	2012/13	2012/13
Chesterfield Road Pedestrian Crossing	New crossing facilities – build out and road markings	£10,000	2012/13	2012/13
Hamilton Way Walking and Cycling Route		£70,000	2011/12	2012/13
Knighton Road/Carisbrooke Road Pedestrian Crossing	New crossing facilities – refuge and road narrowing of Southernhay Road	tbe	2014/15	2014/15
Marwood Road Pedestrian Crossing	New crossing facilities – new signs and road markings	tbe	2013/14	2013/14
Cycle Hire Scheme Business Case	Preparation of a business case for a London Style Cycle Hire Scheme	£20,000	2011/12	tbe
Cycle Route Signing – New Walk	Review and provision of signing as recommended by scrutiny task group	£10,000	2011/12	2011/12
Cycle facilities: Town Hall Refurbishment	Refurbishment of the Town Hall bike part	£150,000	2011/12	2011/12
Cycle path links from University to Victoria Park Road	Final link from the Halls of Residence to the university via bicycle across Victoria Park including widening the heavier used paths and adding entrances from the campus super bike store to the coach park and improving access from Granville Road. It also includes links to St Leonards Road and Alderley Road	£20,000	2011/12	2011/12
Filling the gaps of existing Cycle provision on London Road		£40,000	2011/12	2012/13
Provide Toucan Xing on Welford Road by Clarendon Park Road	to improve links from the University to Aylestone and the Great Central Way	£60,000	2011/12	2011/12
Review Victoria Park Road/Queens Road Crossing	to improve legibility and include advanced stop lines on all approaches	£60,000	2011/12	2011/12
Welford Road/University Road Toucan Xing	to improve legibility and include advanced stop lines on all approaches	tbe	2013/14	2013/14
Provide Toucan Xing London Road/Regent Street	this is part of the work carried out with the University of Leicester to improve cycle links between the University and the train station.	tbe	2013/14	2013/14

Tigers Stadium / Waterloo Way Link	To provide a link from the railway station to the A426 corridor.	tbe	tbe	
Belgrave Gate Link	reallocate road space and provide for two-way cycling via Abbey Street and St. John's to Abbey Park. Improved provision on Haymarket and conversion of paths to shared-use on Burleys Way (A46) will help provide a choice of routes to the city centre from the north.	tbe	tbe	
Abbey Park Road Link	upgrading pelican crossing to a toucan crossing over Abbey Park Road	£12,000	2011/12	2011/12
Train Station Bike Park	feasibility and match funding for station cycle parking provision	£20,000	2011/12	2011/12
Rights of Way Improvements				
Small Projects	Small improvements to the rights of way network	£10,000 per annum	2011/12	2014/15
Lighting				
Community safety lighting	Upgrade or new provision of public lighting to help prevent crime and/or fear of crime at various locations citywide	£10,000 per annum	2011/12	2014/15
Beaumont Sports Complex Access Road	Upgrading of existing road and footways to adoptable standard for new development	£185,000	2010/11	2012/13
Belgrave Area Parking and Accessibility – Preliminary Design				
		£10,000	2011/12	tbe
ACTIVE TRAVEL AND ROAD SAFETY STRATEGY				
Safer Routes to School (SRS)				
Netherhall Road Safer Routes to School	Completion of scheme including any remedial works	£170,000	2010/11	2011/12
Overdale School Safer Routes Scheme	Build outs at junctions and possible vehicle activated sign	£100,000	2010/11	2011/12
Local Safety Schemes (LSS)				
Safety Camera Scheme	Provision of hard standing for new mobile camera sites as required, refresh of existing camera sites	£30,000 per annum	2011/12	2014/15
Thurmaston Lane / Barky Road / Humberstone Lane	Small highway improvements to reduce accidents at the junction	£5,000	2011/12	2011/12
Kingsway Road / Highway Road	Small highway improvements to reduce accidents at the junction	£10,000	2011/12	2011/12
Narborough Rd / Narborough Rd North / Hinckley Road	Small highway improvements to reduce accidents at the junction	£10,000	2011/12	2011/12

Welford Road / Overdale Road / Aberdale Road	Small highway improvements to reduce accidents at the junction	£50,000	2011/12	2011/12
Welford Road / Chapel Lane / Knighton Lane East	Small highway improvements to reduce accidents at the junction	tbe £50,000 in 2012/13	2012/13	2013/14
Evington Drive / Baden Road / Kilworth Drive	Small highway improvements to reduce accidents at the junction	£1,500	2011/12	2011/12
The Parkway / Havencrest Drive	Small highway improvements to reduce accidents at the junction	£5,000	2011/12	2011/12
Beaumont Leys Lane	Small highway improvements to reduce accidents at the junction	£16,000	2011/12	2011/12
A594 Southgates	Small highway improvements to reduce accidents at the junction	£7,000	2012/13	2012/13
A594 Burleys Way	Small highway improvements to reduce accidents at the junction	£10,000	2012/13	2012/13
Speed and Danger Reduction				
Gleneagles Avenue Traffic Calming Scheme	Remedial works, if any, following scheme completion in 2010/11	£5,000	2011/12	2011/12
Vehicle Activated Signs Citywide	Provision of new vehicle activated signs at various locations to help prevent accidents	£40,000 over three years	2011/12	2013/14
Speed Limit Review Implementation	Implementation of revised speed limits on existing A roads following a review of speed limits on all A roads as required by the Department of Transport	£70,000	2011/12	2011/12
20mph zones	Introduction of 20mph speed limits on residential roads, programme over ten years	£100,000 per annum	2011/12	2014/15
LTP MANAGEMENT & MONITORING				
Fixed Monthly Charges for LTP management	Management costs of preparing, managing and monitoring the LTP programme including commissioning traffic surveys and returns required by Government	£300,000 per annum	2011/12	2014/15

Table 6.2 The Capital Maintenance Programme 2011/12 to 2014/15

Project	Description	Estimated Cost	Design Start	Site finish
Principal and Primary Roads Network				
Abbey Lane – Blackbird Road to Beaumont Leys Lane	Repairs to road surface	£290,000	2011/12	2011/12
Abbey Lane – Corporation Road to Abbey Park Road	Repairs to road surface	£290,000	2011/12	2011/12
AYLESTONE ROAD – LUTTERWORTH RD TO DUNCAN RD	Repairs to road surface	tbe	tbe	tbe
AYLESETONE ROAD – SAFFRON LANE TO RAW DYKES ROAD	Repairs to road surface	tbe	tbe	tbe
ANSTEY LANE	Repairs to road surface	£97,000	2011/12	2011/12
RED HILL WAY – WESTBOUND DUAL C/W TO KREFELD WAY	Repairs to road surface	£97,000	2012/13	2012/13
Shady Lane	Repairs to road surface			
HRA Repairs (Ongoing Works)	Repairs to road surface	£115,000 per annum	2011/12	2014/15
Surface Dressing/Thin Surfacing Ongoing Works	Repairs to road surface	£115,000 per annum	2011/12	2014/15
Surface Dressing Pre-patching Ongoing Works	Repairs to road surface	£57,000 per annum	2011/12	2014/15
Joint Sealing Ongoing Works	Repairs to road surface	£23,000 per annum	2011/12	2014/15
Footway Slurry Sealing & Patch Ongoing Works	Repairs to road surface	£34,000 per annum	2011/12	2014/15
Concrete Repairs Ongoing Works	Repairs to road surface	£57,000 per annum	2011/12	2014/15
Footways (Category 1, 1a & 2)				
LINKWAY GARDENS-FOSSE ROAD TO CDS (EXCEPT O/S HEALTH CENTRE)	Repairs to footway surface	£10,000.00	2011/12	2011/12
WEST STREET	Repairs to footway surface	£2,000	2011/12	2011/12
PRINCESS ROAD WEST	Repairs to footway surface	£9,000	2011/12	2011/12
CARLTON STREET	Repairs to footway surface	£6,000	2011/12	2011/12
GRANVILLE ROAD	Repairs to footway surface	£10,000	2011/12	2011/12
SHARMON CRESENT – NEW PARKS CRESENT TO BREX RISE	Repairs to footway surface	£6,000	2011/12	2011/12
GOWER STREET	Repairs to footway surface	£7,000	2011/12	2011/12
CRESENT STREET	Repairs to footway surface	£2,000	2011/12	2011/12
DARLINGTON ROAD	Repairs to footway surface	£9,000	2011/12	2011/12
BLACKETT AVENUE	Repairs to footway surface	£1,600	2011/12	2011/12
DOWNING DRIVE – SPENCEFIELD LANE TO WOOD ROAD	Repairs to footway surface	£90,000	2011/12	2011/12
EBCHESTER ROAD	Repairs to footway surface	£16,000	2011/12	2011/12
KNIGHTON DRIVE – KNIGHTON ROAD TO LONDON ROAD	Repairs to footway surface	£15,000	2011/12	2011/12

FREEMANTLE ROAD – GUILDFORD ROAD TO CITY BOUNDARY	Repairs to footway surface	£11,000	2011/12	2011/12
CHAPEL LANE – WELFORD ROAD TO KNIGHTON ROAD	Repairs to footway surface	£10,000	2011/12	2011/12
ETON CLOSE	Repairs to footway surface	£6,000	2011/12	2011/12
WOKINGHAM AVENUE	Repairs to footway surface	£8,000	2011/12	2011/12
SALKELD ROAD – FEATHERSTONE ROAD TO MONMOUTH DRIVE	Repairs to footway surface	£10,000	2011/12	2011/12
SHACKERDALE ROAD-RING ROAD TO ASQUITH BLVD	Repairs to footway surface	£3,000	2012/13	2012/13
KNIGHTON LANE EAST-WELFORD ROAD TO WHITTIER ROAD	Repairs to footway surface	£42,000	2012/13	2012/13
CLIFFORD STREET-O/S NO 18 TO CDS	Repairs to footway surface	£2,000	2012/13	2012/13
GREENHITHE WALK	Repairs to footway surface	£7,000	2012/13	2012/13
MACAULAY STREET(AYLESTONE REC TO SAFFRON SPOTRS CENTRE)	Repairs to footway surface	£19,000	2012/13	2012/13
EVINGTON VALLEY ROAD – ETHEL ROAD TO EVINGTON DRIVE	Repairs to footway surface	£97,000	2012/13	2012/13
BELGRAVE BOULEVARD – BEAUMONT LEYS LANE TO CUL DE SAC	Repairs to footway surface	£84,000	2012/13	2012/13
Category 3 and 4 footways, schemes yet to be identified	Repairs to footway surface	tbe	2013/14	2014/15
Unclassified Road				
Barkby Road	Repairs to road surface	£43,000	2011/12	2011/12
Coleman Road	Repairs to road surface	£69,000	2011/12	2011/12
Gleneagles – Wyvern to Roseway	Repairs to road surface	£33,000	2011/12	2011/12
Gedding Road o/s blind centre	Repairs to road surface	£34,000	2012/13	2012/13
Gwendoline Road	Repairs to road surface	£57,000	2012/13	2012/13
St. Peters Road	Repairs to road surface	£69,000	2012/13	2012/13
Stoughton Lane (Shady lane to boundary)	Repairs to road surface	£38,000	2011/12	2011/12
Bridges				
Inspections and Assessments	Programme of bridge Inspections and Assessments	£20,000 per annum	2011/12	2014/15
Whittier Road	Repair works to bridge	£150,000	2011/12	2011/12
Fernie Road Bridge	Repair works to bridge	£200,000	2010/11	2011/12
Krefeld Way Bridge	Repair works to bridge	£300,000	2012/13	2012/13
Abbey Park Road	Repair works to bridge	tbe	2011/12	tbe
Soar Valley Way	Repair works to bridge	£30,000	2010/11	2011/12

Traffic Signal Renewals				
St. Georges Way/Charles Street Junction	Replacement of life expired traffic signals	£40,000	2011/12	2011/12
Abbey Park Road / Swithland Avenue Pelican	Replacement of life expired traffic signals	£20,000	2011/12	2011/12
New Parks Way/Park View Pelican	Replacement of life expired traffic signals	£20,000	2011/12	2011/12
Regent Road/West Walk Pelican	Replacement of life expired traffic signals	£20,000	2011/12	2011/12
Catherine Street/Surrey Street Pelican	Replacement of life expired traffic signals	£20,000	2011/12	2011/12
Narborough Road/Harrow Road Pelican	Replacement of life expired traffic signals	£20,000	2011/12	2011/12
Welford Road/University Road Junction	Replacement of life expired traffic signals	£40,000	2011/12	2011/12
Vaughan Way Slip Road Pelican	Replacement of life expired traffic signals	£20,000	2011/12	2011/12
Abbey Lane/Beaumont Leys Lane Junction	Replacement of life expired traffic signals	£60,000	2011/12	2011/12
Belgrave Gate/Orchard Street Pelican	Replacement of life expired traffic signals	£20,000	2011/12	2011/12
Granville Road/New Walk Pelican	Replacement of life expired traffic signals	£20,000	2011/12	2011/12
Asquith Way/Shackerdale Road Pelican	Replacement of life expired traffic signals	£20,000	2011/12	2011/12
Green Lane Road/Mere Road Pelican	Replacement of life expired traffic signals	£20,000	2012/13	2012/13
Fosse Road/Upperton Road Junction	Replacement of life expired traffic signals	£40,000	2012/13	2012/13
Melton Road/Moores Road Pelican	Replacement of life expired traffic signals	£20,000	2012/13	2012/13
Melton Road/Down Street Pelican	Replacement of life expired traffic signals	£20,000	2012/13	2012/13
Melton Road/Windsor Street Toucan	Replacement of life expired traffic signals	£20,000	2012/13	2012/13
St. Saviours Road/Copedale Street Pelican	Replacement of life expired traffic signals	£20,000	2012/13	2012/13
Redhill Way/Beaumont Leys Lane Pelican	Replacement of life expired traffic signals	£30,000	2012/13	2012/13
Welford Road/Oakland Road Pelican	Replacement of life expired traffic signals	£30,000	2012/13	2012/13
Welford Road/Baldwin Road Pelican	Replacement of life expired traffic signals	£20,000	2012/13	2012/13
Saffron Lane/Duncan Road Pelican	Replacement of life expired traffic signals	£20,000	2012/13	2012/13
Melton Road/Jacklin Drive Pelican	Replacement of life expired traffic signals	£30,000	2012/13	2012/13
Saffron Lane/Burnaston Road Pelican	Replacement of life expired traffic signals	£20,000	2012/13	2012/13
Street Lighting Renewals				
	Replacement of life expired steel and concrete street lighting columns	£40,000 per annum	2011/12	2014/15
Vehicle Activated Signs				
	Replacement and/or maintenance of vehicle activated signs	£10,000 per annum	2011/12	2014/15
Management and Support				
Fixed Monthly Charges for LTP management	Management costs of preparing, managing and monitoring the LTP programme including commissioning traffic surveys and returns required by Government	£70,000 per annum	2011/12	2014/15
Funding for potholes		£400,000	2011/12	

Table 6.3 The Developer Funded Programme 2011/12 to 2014/15

Project	Description	Estimated Cost	Design Start	Site or project finish
Upperton Road, Bede Island South	For traffic regulation orders (can only be implemented when second bridge to site is built – revised planning application expected)	£10,000		17/10/09
Upperton Road, Bede Island South	Improvement of public transport to the site, or in the vicinity (can only be implemented when second bridge to site is built – revised planning application expected)	£50,000		N/A
Eastern Boulevard/Walnut Street	Towards improvement of the street environment in the vicinity of the application	£20,000		N/A
35/45 Blackbird Road	Works to the pavement of Bradgate Street and Blackbird Road adjoining	£6,000	2011/12	N/A
Rutland Street – Alexandra House	Improvement of public highways in St. George’s South including but not limited to the area around the site	£75,000		17/02/10
Gipsy Lane, Towers	Off-site Highway Works Contribution	£75,000		
38 Braunstone Gate	Towards highway improvements in the vicinity of the application site			12/10/12
17-19 Yeoman Street	Contribution to highway improvements	£15,000	2011/12	04/10/12
224 Milligan Road	Provide one free adult Travel Pass for each of the eight residential units for five years			N/A

224 Milligan Road	Towards residents parking scheme	£5,500		25/02/13
Abbey Park Road Bus Depot	Develop the highway infrastructure within the site which allows development of Wolsey Island (New Application)			N/A
15-19 Dartford Road (East Part)	Parking improvements in the area in the form of a residents parking scheme and amendments to the existing Traffic Regulation Orders			N/A
14-38 Colton Street	Street improvements to be carried out within 100 metres of the Application Site	£17,500		
309-311 Saffron Lane	Implementation of a residents parking scheme in the area			N/A
25-27 Bede Street	Improvements to Braunstone Gate or Weston Road	£10,000		N/A
Thurmaston Lane, Land at Manor Farm	Improvements to Thurmaston Lane and traffic calming in the area secured through S278 Agreement			
Thurmaston Lane, Land at Manor Farm	Public transport facilities	£42,750		N/A
Land Bounded by the Newark Street / Oxford Street	Travel Plan for 10 years			N/A
Filbert Street	a) Brazil St/Aylestone Road b) cycleway contraflow on Burnmoor St c) improvements to the junction of Brazil St & Burnmoor St			
Aylestone Road, Granby Road, Disraeli St & Canal St (residential)	Highway improvements & any necessary TRO secured through S278 Agreement		2011/12	-

Aylestone Road, Granby Road, Disraeli St & Canal St	Travel Plan prior to commencement including Travel Packs		2011/12	N/A
Aylestone Road – Aldi	Bus shelters and other highway works	£35,000	2011/12	
Tudor Road, Five Ways House	Travel Packs			N/A
216 Jarrom Street / 219 Walnut St	One adult annual Travel Pass for each of the 19 nominated Residential Units for a period of 3 years			N/A
2-4 Colton Street	a) installation of additional street lighting on Colton Street / Rutland Street b) improved pedestrian facilities on Colton Street / Rutland Street			N/A
Belgrave Gate	Towards construction of a footbridge			
Belgrave Gate	Off-site cycle facilities			
Belgrave Gate	Bus Stop Improvements Contribution			
Belgrave Gate	Towards provision of a Pedestrian Crossing across Belgrave Gate at the southern end of Belgrave Circle Flyover			
Belgrave Gate	Towards construction of a footbridge			
35 Rutland Street	highway improvements within the St George's New Community Area and Cultural Quarter			N/A
Abbey Park Road	Traffic signalisation of the internal road servicing the development with the junction of Abbey Park Road			N/A
Abbey Park Road	Travel Plan			N/A

45 Briton Street, 72-74 Western Road	West End Residents parking scheme & a contribution of £500 per unit towards the provision of a Travel Pack for residents to include route maps for cycles, pedestrians and buses, cycle vouchers or bus permits etc	£9,000		N/A
Midland St, Morledge St	Towards the promotion of sustainable transport by the HA			N/A
Bath Lane, All Saints Rd, Jarvis St, St, Blackfriars St	Highway improvements, public realm improvements and Travel Plan			N/A
44a-44b Western Road	Wilberforce Road alternative cycle route			N/A
44a-44b Western Road	Travel Plan/Travel Pack			N/A
461 St. Saviours Road – Planning application for extension	Travel Plan			N/A
142 Knighton Fields Road West	Prior to the occupation of the first flat, each flat shall be provided with an up to date 'New Residents Travel Pack' that shall contain walking, cycling and bus maps, latest relevant bus timetable information and discounted bus travel or cycle vouchers. At least two of the travel packs shall include an annual bus pass (renewable for 3 years)			N/A
21 Careys Close	improve footway/cycle facilities on Peacock Lane			N/A
21 Careys Close	enhanced cycle & pedestrian crossing facilities in the vicinity			N/A
21 Careys Close	details of enhanced cycle routes linking the application site to The Magazine			N/A

Midland Street, Morledge St (Phoenix)	Towards the promotion and marketing of sustainable transport by the Highways Authority, monitoring schedules etc			N/A
Midland Street, Morledge St (Phoenix)	Provision of traffic and parking management in the vicinity of the site			N/A
Sangra Shonki Building, (Abbey Mills) Abbey Park Street	travel pack to be supplied to new residents		2011/12	N/A
11 Percy Road	Residents travel pack			N/A
58 Cavendish Road	Highway improvements as part of the Aylestone Road Resident's Parking Scheme			N/A
58 Cavendish Road	'New Residents Travel Pack'			N/A
16-26 Oxford Street & 28 Newarke Street	Travel pack to be supplied to new residents to promote sustainable means of transport			N/A
Land to rear of 71-173 Wycombe Road	Details of a 'New Residents Travel Pack' for each of the dwellings			N/A
31 Pine Tree Avenue (Land at the rear of 25-29)	Prior to occupation issued New Residents Travel Pack			N/A
144 Charles St, 2 Church St	Travel Plan submitted & agreed			N/A
Land at Chatham St & York St (rear 91 Granby St)	Contributions towards the cost of works to the footways and amendments to the existing Traffic Regulation Orders on Chatham Street			N/A
26 Severn Street & 564 Highfields Street	Issue travel packs			N/A

Abbey Park Lane & Abbey Park Road (Former Linread Site)	Travel Pack			N/A
Abbey Park Lane & Abbey Park Road (Former Linread Site)	Cycle Lane			N/A
61 Oxford Street	Travel Plan		2011/12	N/A
Bath Lane (Former Friars Mill) Donisthorpe	Travel Plan			N/A
4 Clarendon Park Road	'New Residents Travel Pack' for each dwelling			N/A
309-311 Saffron Lane	New Residents Travel Packs			N/A
309-311 Saffron Lane	Improvements to parking management on streets in this area			N/A
Lee Street	Travel Pack			N/A
203 Belgrave Gate	Travel Plan			N/A
St Augustine's (Former Bowbridge Works)	Not to erect any buildings, structures or landscaping within a 4.5 metre wide zone along the northern boundary of the Application Site			N/A
St Augustine's (Former Bowbridge Works)	proposed new Waterside Link Road to be constructed by the Council alongside the western boundary of the Application Site			N/A
321 Aikman Avenue, , land adjacent to New Parks Customer Service Centre	TRO			N/A
23-29 Carpe Road & Land rear of	Travel Packs			N/A

Dillon Way, Garages Site	Travel Pack			N/A
Merlin Work, Bath Lane	Travel Plan			N/A
Towle Road, rear 22-24	Travel Packs			N/A
188 - 190 Uppingham Road	Residents Travel Pack			N/A
206 East Park Road	Residents parking scheme in the area			N/A
372-374 Western Road	Residents travel pack			N/A
84-86 Charles Street	Travel plan shall be submitted & implemented within two months of that approval			N/A
Progress Way, Land east of Gipsy Lane Brickworks	Travel plan to be submitted to LPA and approved			N/A
1-7 Harrow Road	New Travel Pack			N/A
66 London Road	New Residents Travel Pack			N/A
Abbey Lane, Science Park, Phase 2	Travel Welcome Pack			N/A
100 Vaughan Way	New Residents Travel Packs			N/A
119-121 Glenfield Rd and Michael Lewis House 8 Sandhurst Rd	New Residents Travel Pack			N/A
Woodgate, Bradgate St Former Nabisco Site	Travel Plan			N/A
Bath Lane, All Saints Rd, Jarvis St, Ruding St, Blackfriars St	Travel Plan			N/A
102-106 Granby Street	New residents travel packs			N/A

Land off 20 Calais Hill	New Residents Travel Information Packs			N/A
20 Acorn Street	New residents travel packs			N/A
Lower Lee Street, Car Park	New residents travel packs			N/A
Ramsey Way, former Golden Age public house	Travel Plan			N/A
2 Cedar Road	New Residents Travel shall be provided			N/A
32a Belvoir Street	New Residents Travel Pack			N/A
116 Queens Road	New Residents Travel Packs			N/A
9 Bath Street	Travel Plan			N/A
93-95 Commercial Square	Travel plan shall be submitted & approved			N/A

Table 6.4 The City Council Capital Programme 2011/12 to 2014/15

Project	Description	Estimated Cost	Design start	Site finish
Local Environmental Works – programme to be developed during 2011/12 once Council budget process complete				
	- total programme £400,000 per annum			
Bridge Refurbishment (City Owned) – programme to be developed during 2011/12 once Council budget process complete				
	- total programme £150,000 per annum			
Pothole repairs – total programme £500,000 (includes £260,000 DfT allocation)				
Watercourse Maintenance– programme to be developed during 2011/12 once Council budget process complete				
	- total programme £50,000 per annum			

Table 6.5 The Smarter Choices Programme 2011/12 to 2014/15

Project/Initiative	Description	Estimated Cost	Timescale
Working with Partners	We will work with partners such as: bus companies to continue to improve bus services, the police, Leicestershire County Council and Rutland County Council to improve road safety cycle training providers to help encourage and improve skills of cyclist businesses to develop travel plans and hence reduce reliance on the car freight operators to reduce congestion and “lost mileage” SKY TV to promote cycling through mass participation cycle rides Local Access Forum to manage and promote Leicester’s Public Rights of Way network Primary Care Trust, GP Practices, Leicestershire County Council on projects such as the Active Lifestyle Scheme	Use existing staff resources and bid for funds as opportunities arise	On-going
Undertake campaigns	We will undertake campaigns to promote sustainable travel: by marketing and promoting park and ride, car sharing road safety campaigns such as “Bare Bones” (aimed at young motorcyclists)	Use existing staff resources and bid for funds as opportunities arise	On-going
Journey Planning	We will support businesses, particularly through the planning application process, giving travel planning advice We will support schools to develop and implement school travel plans We will carry out personalised travel planning projects as funds allow	Use existing staff resources and bid for funds as opportunities arise	On-going
Car Sharing	We will continue to operate Leicestershare with our partners	Use existing staff resources of the city council and partners	On-going
Traffic Management	We will continue to manage the highway network using duties and powers of the Traffic Management Act	Use existing staff resources	On-going

Bus Information	We will continue to provide public transport information with our partners	Use existing staff resources of the city council and partners and funds provided by bus companies	On-going
Smart Ticketing	We will continue to lead the Smart Ticketing project which is being progressed with partners – Leicestershire County Council and bus companies. Smart tickets to be introduced during 2011/12 and then scheme expanded to more customers and more products developed	£2.2m in 2010/11 and DfT funded ongoing	On-going
Maps	We will continue to provide bus route maps		On-going
Supported bus services	We will continue to subsidise some bus services	See Chapter 4 for budget details	On-going
Bikeability (cycling) training	We will continue to provide cycle training to both school children and adults. We anticipate continued funding from the Department for Transport via the Local Sustainable Transport Fund	£40 per person trained	On-going
Leicester Cycle Hire Scheme	We will investigate the option of introducing a cycle hire scheme similar to the successful London scheme	Feasibility work to be conducted in-house	2011/12
Independent Travel Training	The “VALUES – Travel Training” Project is provided by Voluntary Action Leicestershire (VAL) and is focussed on people with learning disabilities. They support both young people and adults and are mainly funded via the council but have had independent charitable funding as well. Leicester City Council employs a travel buddy - someone that trains people with learning disabilities how to travel independently using public transport to get to and from different destinations (e.g. home to work).	Provide by city council staff and volunteers	On-going
Pedestrian training	We will continue to provide pedestrian training to school children	Provide by city council staff and volunteers	On-going
Road Safety Training	We will continue to provide Greener safer Driver Training, We will start to provide pre driver training We will continue to provide speed awareness and red light running	Provide by city council staff and driving instructors funded by	On-going

	training	businesses and fees paid by offenders	
Road Safety Auditing	We will continue to audit highway improvement and maintenance schemes as appropriate	Conducted by city council staff funded through highway improvement projects	On-going

7. Locking in the benefits

7.1 In order to maximise the outcomes of the implementation programme, we need to lock in the benefits (also termed benefits realisation) in deploying resources. For example, when a scheme is implemented that includes provision of bus lanes and other bus priorities, we then promote these new facilities with the bus companies to encourage new users to the enhanced bus services. Much of our 'locking in the benefits' work is provided through our smarter choices sub-programme of the LTP Programme described in Chapter 5. Table 7.1 details our arrangements.

Table 7.1 LTP Programme Benefits Realisation Plan

Benefit Description	Benefit Owner	Realisation Date	Activities to Realize Benefit	Start date	End date	Activity Owner	Benefit Review Milestone dates
To Reduce Congestion and Improve Journey Times	L LTP 1 to 7, Team Leader Sustainable Transport	On-going	Provision of bus service information Management of bus related highway infrastructure Management of St Margaret's Bus Station Management of Park and Ride Services	On-going	On-going	Team Leader Sustainable Transport	Annually in October through the Quality Management Review process
	L LTP 11 Traffic Manager /Head of Traffic Management	On-going	Day to day traffic management of the highway network through the urban traffic control system Implementation of the Traffic Management Act and Network Management Duty Work with bus companies to secure real-time information enabled buses	On-going	On-going	Traffic Manager /Head of Traffic Management	Annually in October through the Quality Management Review process
	L LTP 8, Team Leader Road Safety	On-going	School Travel Planning	On-going	On-going	Team Leader Road Safety	Annually in October through the Quality Management Review process
	L LTP 10, Team Leader Travel Planning and Development Control	On-going	Workplace Travel Planning Area wide travel planning Securing Travel Plans through the planning system	On-going	On-going	Team Leader Travel Planning and Development Control	Annually in October through the Quality Management Review process
	L LTP 9 Head of Transport Strategy/Bus Company Managers	On-going	Chair the Quality Bus Partnership Encourage bus companies to use bus priority measures, smart ticketing	On	going	Head of Transport Strategy	Annually in October through the Quality Management Review process At QBP meetings
	L LTP 19 Team Leader Transport Strategy	On-going	Chair the Quality Freight Partnership Encourage freight companies to use designated routes to industrial estates and retail areas	On-going	On-going	Team Leader Transport Strategy	Annually in October through the Quality Management

							Review process At QFP meetings
To Reduce Carbon Emissions	L LTP 17, Team Leader Road Safety	On-going	School Travel Planning	On-going	On-going	Team Leader Road Safety	Annually in October through the Quality Management Review process
	L LTP 16, 18 Team Leader Travel Planning and Development Control	On-going	Workplace Travel Planning Securing Travel Plans through the planning system	On-going	On-going	Team Leader Travel Planning and Development Control	Annually in October through the Quality Management Review process of the RHT Division
	L LTP 20 Head of Design and Project Management	On-going	Work with business to promote production of ultra low emission vehicles	On	going	Head of Design and Project Management	Annually in October through the Quality Management Review process of the RHT Division
	L LTP 15 Team Leader Sustainable Transport	On-going	Promote use of the city's public rights of way network Promote walking and cycling through campaigns such as the Star walker Scheme, Leicester SkyRide	On	going	Team Leader Sustainable Transport	
To Improve Connectivity and Access	L LTP 21 to 26 Team Leader Sustainable Transport	On-going	Provision of bus service information Management of bus related highway infrastructure Management of St Margaret's Bus Station Management of Park and Ride Services Promote use of the city's public rights of way network	On-going	On-going	Team Leader Sustainable Transport	Annually in October through the Quality Management Review process of the RHT Division
To Improve Safety, Health and Security To Improve Air Quality and Reduce Noise	L LTP 27, 28, 29, 36, 37 Team Leader Road Safety	On-going	Promoting road safety through campaigns, Wasted Roadshow, education and training Provision of pedestrian training Provision of cycle training Provision of driver awareness training through	On-going	On-going	Team Leader Road Safety Education	Annually in October through the Quality Management Review process

			the Leicester, Leicestershire and Rutland Road safety Partnership Running Junior Road Safety Officers Scheme				
	L LTP 31 to 35 Team Leader Sustainable Transport		Provision of bus service information Management of bus related highway infrastructure Management of St Margaret's Bus Station Management of Park and Ride Services Promote use of the city's public rights of way network Promote walking and cycling through campaigns such as the Star Walker Scheme, Leicester SkyRide				
To Improve Quality of Life Manage to Better Maintain Transport Assets	L LTP 41 to 48 Team Leader Transport Strategy	On-going	Commission planned and routine maintenance	On-going	On-going	Team Leader Transport Strategy	Annually in October through the Quality Management Review process

8. The Delivery Chain

8.1 The key stakeholders in the delivery chain fall into three categories. The first are those internal to Local Government and Central Government. These tend to have a direct responsibility for delivery and without them schemes and policies would not happen. The second are those external to Local/Central Government who directly help deliver schemes such as external consultants, contractors and suppliers. The third category is partners who mainly help us with delivery of the outcomes. This includes the key partners such as the Bus Companies, key business representatives such as Leicestershire Business Voice, British Cycling, NHS and utility companies.

8.2 The procurement strategies we engage in delivering our LTP Programme are described in detail in our Transport Asset Management Plan. Our delivery arrangements are briefly described in the following paragraphs.

Internal to Local/Central Government

8.3 Our Transport Strategy Section led the preparation of the LTP and this Implementation Plan. The section is responsible for highways development control, commercial travel planning, encouraging rail travel and programme management, project managing major schemes and many of the smarter choices projects. Development control is important due to regeneration that will increase the number of trips into Leicester over the next four years. We concentrate on locational access – ensuring major trip generators can be accessed by a variety of modes - as well as policies to actively encourage alternative modes to the private car. A key component is the receipt of developer contributions to help pay for the transport requirements of the new development. We work closely with our partner organisation Prospect Leicestershire to ensure that transport is given a high priority in the new Leicester that is currently taking shape. The section is also responsible for school travel planning, encouraging walking and cycling, bus infrastructure, managing the park and ride site/s, bus coordination and road safety education and road safety auditing.

8.4 Our Traffic Management Section is responsible for developing and implementing traffic signal control, real time journey information, roadwork coordination, pre-journey and in journey information, other network management measures including planned and unplanned events in the Highway. The Section is responsible for the implementation of the Traffic Management Act and owns our Network Management Plan. The section also provides our traffic regulation order service and manages our on and off street parking service.

8.5 Our Project Management Design Section project manages and designs our highway infrastructure and bridge projects. We commission external consultants to design schemes to supplement our in-house resource as and when necessary.

8.6 Our Highway Maintenance Section project manages, designs and constructs highway improvement and highway maintenance schemes. We engage external civil engineering contractors to supplement our in-house resource as and when necessary.

8.7 A major strength of our delivery arrangements is the partnership working between the City and County Councils. We procure and manage bus services jointly, (County led); we manage the transport network jointly, (City led); we procure, manage and operate the Central Leicestershire Transport Model (County led); we are rolling out StarTrak real time information jointly (City led); we jointly monitor the transport network (County led); we jointly operate the park and ride service with the County leading on the bus service management and the City on the site management and we have joint

teams to develop strategy and scheme implementation. We also work closely together on the coordination of roadworks, co-operation on advanced direction signing and the effect of unplanned events on the local Highway Authorities network.

8.8 The Highways Agency is a key partner due to their role on the trunk roads, particularly around coordination of roadworks, co-operation on advanced direction signing and managing the effect of unplanned events on the highway network. They are also helping with travel planning and development control strands of the plan, together with data collection and modelling work.

8.9 There is also the higher level partner, the DfT. We work closely by having regular meetings with both organisations and by participating in seminars and workshop events that they arrange.

8.10 We need to keep the Councillors informed and receive feedback as early warning of any potential problems. Councillors were involved in the development of and have endorsed the LTP Programme. The proposed programme structure takes into account the importance of continued political support in helping to deliver our targets.

City Council colleagues are also involved in the wider agenda as follows:

Regeneration

8.11 Corporate work on regeneration is closely linked to economic development and the activities of the Economic Development Company Prospect Leicestershire. An overarching philosophy of the LTP is to facilitate the extra trips due to regeneration whilst eliminating or minimizing any negative impacts. There is a belief that successful quality regeneration can only be achieved if congestion is kept under control. A very congested City is not particularly attractive to investors.

Education and Lifelong Learning

8.12 We work with colleagues in education and schools on implementing our strategy for school travel plans and our LTP Safer routes investment, both aimed at encouraging walking and cycling to school, to reduce car use. We advise education colleagues on highways development control matters in relation to planning applications, conditions relating to transport assessments and mitigation, we provide schools special buses, and offer spare seats on other buses run for those entitled to free transport. This increases the value for money of the service, and provides for journeys that could otherwise have been undertaken by private car. We have facilitated an increase in cycling skills through training and providing facilities for cyclists in local secondary schools.

Housing

8.13 We advise colleagues on the transport implications of designating specific areas of land for house building: these land-use decisions are crucial to safeguarding the future of our transport networks with regard to the demand for travel, accessibility, safety and congestion. We also work to improve access to local facilities (and reducing the need to travel) through encouraging the retention and enhancement of shops in parades that are often located within outlying estates. Leicester City Council's Housing Allocation Policy awards additional points in certain circumstances that recognise the need for applicants to live in chosen neighbourhoods so that they can give or receive care and support without too much travel.

Waste Management

8.14 We work with operational staff to reduce the impact on traffic flow of refuse collection lorries servicing properties on the main road network during the peak hours.

Development control

8.15 The strategies within the Local Transport Plan have been developed in order to cater for an increase in the number of trips into Leicester as a result of regeneration and housing growth over the four years. Good relationships have been built up with colleagues in both development plans and development control over a number of years. Locational access policies – ensuring major trip generators can be accessed by a variety of modes - as well as policies to actively encourage alternative modes to the private car are already established. Councillors expect that ensuring adequate infrastructure is a key component of developer contributions: we have taken this forward and have a prioritised listing of outputs we expect from developments to ensure progress towards our LTP targets.

Leicester Partnership

8.16 In order to gain a fuller understanding of the business community's concerns an LTP 'workshop' session was carried out with the Leicester Strategic Partnership. Attendees were given a presentation and then invited to discuss the LTP priorities in groups. The two main areas that interested the groups were tackling congestion and delivering accessibility. The consultation strategy has been developed to foster close relationships with the business community who will be a key decision maker in terms of the acceptance of our work. We have a congestion indicator included within our local area agreement targets.

External to Local/Central Government

8.17 Our congestion strategy is bus based so the bus companies are key stakeholders as the Councils do not run their own buses. Work with the Quality Bus Partnership (QBP) was key to developing our congestion and accessibility strategies. Work on our punctuality improvement plan continues in partnership with the bus companies to improve bus service reliability. The bus companies are very supportive of what we are doing as it will increase bus patronage for the benefit of the companies, benefit the customers and also our delivery plan by facilitating better, more pleasant and easier travel in Leicester.

8.20 Statutory undertakers are key stakeholders due to the disruption that can be caused by their works. We work closely with them under the terms of the Traffic Management Act and the New Roads and Street Works Act, to minimise the impact of utility works on travellers of all types.

8.21 The key people/organizations we need to influence to make the above happen are the bus companies (in order to continue improving local bus services), parts of Leicester City Council as highway authority, as regeneration authority, as planning authority, as education authority, our local communities, the Leicester Partnership and the Utilities. The county council as partner and adjacent highway authority, and the Highways Agency as adjacent highway authority. The following tables show how we are going about this key task.

9. Risk, Issues and Dependencies Management

Risk Management

9.1 Risks to achieving our targets may occur at corporate, programme or project level. There are many different categories of risk; for example does the risk relate to customer perception, is it financial or does it relate to working with other organisations. These risks are managed using appropriate programme and project management arrangements and quality management processes and procedures, our consultation and stakeholder management strategy and weekly Lead Member briefings. The city and county councils meet regularly as principal partners at both Lead Member and officer level. Through joint steering groups and joint project boards for our bigger schemes potential problems are identified and solutions developed as early as possible in the delivery process. Risks specific to achieving particular targets are explained in the commentary for each target.

9.2 Risk management is conducted in accordance with our project management standards. The city adopted PRINCE2 in 2005 as the basis for its project management methodology and standards and has prepared guidance for staff to implement the principles of PRINCE2 at a local level. The Local Transport Plan Programme Management Team (levels 4 and 5 on chart 5.1) have risk management workshops annually to refresh the Programme Risk Register (and action plan). The risk register is reviewed by the Programme Board at its bi-monthly board meetings. The latest version of the risk register has been presented in the DfT format at the back of this document.

9.3 The risk register identifies the main risks to not meeting the LTP targets, the risk owner and manager and the actions employed to manage and mitigate the risks. In addition to the status options in the DfT template we have also considered whether or not a risk could be transferred to another organisation but believe that all the risks in the register should ultimately be owned by the city council.

9.4 The main risks to not meeting the targets are those associated with local politics, consultation during scheme design, encouraging organisations to adopt and implement travel plans, recruitment and retention of staff and delays to the larger schemes that have the most impact. Various appropriate actions have been identified and are or will be implemented to manage these risks. However, even after taking the actions the risks remain as detailed in the register but this is largely due to the nature of the local government environment and the construction industry environment.

9.5 Project, measures and service specific risk register's are prepared and managed by our project, measures and service managers and are reviewed at project board and service management meetings.

Issues Management

9.6 As soon as an uncertain event occurs at programme or project level that may affect the direction of the programme or project it is logged on the relevant programme and/or project issue log and the issue owner identified. The issue log is reviewed by the Programme Board at its bi-monthly board meetings. The latest version of the log has been presented at the end of this document.

9.7 Because issues might be raised by all stakeholders during the life of the project, project managers will keep a record of types of issue for their projects with headings Request for change, Off-specification and Problems & Concerns with corresponding definition of who raised the issue and why. Our strategy at project level is to identify

key issues faced with corresponding actions to mitigate the issues recorded on a standard reporting format to be completed for each project.

Dependencies Management

9.8 Dependency logs are kept and managed at programme and project level. The programme manager keeps and updates the programme dependency logs having reviewed the projects' logs". The programme manager will request a monthly update return for all medium and major projects to update the programme dependency log. The dependency log includes both internal project specific and external dependencies. The latter should include activities such as the request for service diversion works for projects, traffic management and road closures, political approval processes, to name just a few.

9.9 The programme dependency log will assist to interpret how each project's deliverables are being used by other projects within the programme. The latest version of the log has been presented the end of this document.

10. Communication and Stakeholder Management Strategy

10.1 We use our communications framework to converse with the wider team and the public. The framework has been devised to inform and involve stakeholders and partners. It also enables learning from each other and sharing of intelligence on issues of public and press interest. Very close and regular contact is maintained between the city and county councils and the Highways Agency as the authorities responsible for implementation in Leicester and Leicestershire. We have a policy of active engagement with the press to get good news out to the public.

10.2 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. We communicate with our stakeholders as we roll out the plan. Our annual LT Day, to which all our stakeholders are invited, is an opportunity for us to talk to the wider team and for stakeholders and partners to input their views.

10.3 We regularly contact our Local Strategic Partnership. We also work closely with the Prospect Leicestershire, our Economic Development Company, and partners through the Transport Group of the Local Enterprise Partnership. This will enable us to continue in particular the congestion and carbon footprint conversation with the business sector as the plan is delivered. This contact allows us to understand the business attitude to the achievement of our targets and enlist their support. They are very supportive of all that we are doing to tackle congestion and carbon emissions.

10.4 There are several forums which were initially established to inform and help deliver transport strategy in the first LTP that have continued to meet regularly to advice on implementation, such as the Quality Bus Partnership (QBP), the Freight Quality Partnership (FQP), the Leicester and Leicestershire Motorcycle Forum (LLMF), Cycle City Workshop and Special Interest Groups (SIG). Some initiatives which arose directly from our work with the LLMF include: completion of a comprehensive motorcycle survey, an anti-diesel spillage campaign, production of information cards to allow motorcyclists to inform us of potential hazards and the implementation of improved motorcycle parking facilities. Arising from the FQP was a freight signing strategy, a freight map, an industrial estate survey and a freight website. These are all intended to reduce 'lost' LGV mileage and hence contribute to tackling congestion as traffic flows will be effectively 'reduced'. Arising from the QBP – level access bus stops, StarTrak and StarText real time bus information and our ability to work closely with the bus companies. Arising from the Cycle City Workshop and SIG meetings was the suggestion, which we have acted on in LTP2, to change the emphasis of cycling policy to focus on cycle training, promotion and awareness events rather than concentrating exclusively on infrastructure improvements. These forums have helped us to formulate this implementation plan.

10.5 We regularly meet with the Highways Agency (HA) as part of the EM Transport Advisers Group and on an ad hoc basis as required. This enables the national and local highway networks to be managed in a consistent way and for any works to be jointly planned to minimise the impact for the benefit of all travellers.

10.6 We regularly meet as the QBP and present reports of progress on issues relating to buses. This allows us to understand the bus companies' attitude to the target and ensure their optimum contribution to achieving it.

10.7 The communication with the general public will continue to be by the internet, local radio and press and leaflets distributed to all households in the city with the city council's community paper 'The Link' and by inclusion, as appropriate, within the 'Leicestershire Matters' magazine, which goes to most households in the county. The leaflet will also be available on the city and county council's websites. Communication with the public through the press will also take place as opportunities arise, particularly through special features. We also have a policy of being proactive in preparing press statements in advance of likely press stories developing. This policy also maximises the opportunity to ensure that press stories are based on fact.

Table 10.1 Communications Plan

Stakeholders	When	How	Comments
Full Council	When seeking approval of strategy, programme or details of controversial scheme Monthly meetings held	Reports	
Cabinet	When seeking approval of strategy, programme or details of significant and/or controversial scheme Monthly meetings held	Reports Verbal presentation	
Cabinet Lead	When seeking approval of strategy, programme or details of significant and/or controversial scheme, or variations to programme or project. Weekly briefings held	Reports, Briefing paper Verbal briefing	
Ward Councillors	When seeking views on proposed schemes within ward, through ward	Reports, Briefing paper Verbal briefing Leaflet Letter Project Exhibition	
Dept for Transport	As required by DfT, When seeking advice/approval on specific scheme	Reports, Verbal briefing	
Leicestershire County Council	Bi-monthly meetings Project specific board, team	Meeting attendance	

	meetings		
Businesses	Ad hoc strategic level meetings During specific projects affecting businesses	Verbal briefing Leaflet Letter Project Exhibition Radio bulletin Local Press Scheme signs on site	
Public	During specific projects	Leaflet Letter Public Meeting Ward Community meeting Project Exhibition Radio bulletin Local Press Scheme signs on site	
Visitors	During specific projects	Radio bulletin Local Press Scheme signs on site	
Director RHT and SRO for programme	Board Meetings Project specific board and ad hoc meetings	Reports, Briefing paper Verbal briefing	
Forward Works Programme Manager	Board Meetings Project specific board and ad hoc meetings	Reports, Briefing paper Verbal briefing	
RHT staff (programme managers, project managers, designers, contractors)	Board Meetings Project specific board and ad hoc meetings	Reports, Briefing paper Minutes of meetings	

RHT staff (programme managers, project managers, designers, contractors)	Board Meetings Project specific board and ad hoc meetings	Reports, Briefing paper Minutes of meetings	
Consultants	During specific projects	Reports, Briefing paper Verbal briefing	
Contractors	Quarterly Framework Contractor Steering Grp mtg	Reports Verbal Briefing	Held with framework contractors and in-house contractor
Bus Companies	Quarterly Quality Bus Partnership Meetings Quarterly Meetings with individual companies During Project	Project briefings Letter Leaflet	
Freight Companies	Quarterly Freight Partnership Meetings	Project briefings	
Transport Lobby/Interest Groups	Annual Local Transport Day During projects	Project briefings Letter Leaflet Project Exhibition	

Table 10.2 Stakeholder Management Plan

Stakeholders	Influence and Impact	Main Area of Interest	Engagement with LTP and programme	Assessing satisfaction with programme realisation
Full Council	Low – approves LTP and programme every five years	Interested in whole programme and impact on city	Reports, including approval of LTP and programme	Support or objection to proposed programme, programme variations, specific schemes
Cabinet	Very High – approves LTP, programme, significant projects and project gateways	Interested in whole programme and impact on city	Reports, including approval of LTP, programme, specific projects (gateways)	Support or objection to proposed programme, programme variations, specific schemes
Cabinet Lead	Very High – approves LTP, programme, significant projects and project gateways	Interested in whole programme and impact on city	Briefings, Reports, including approval of LTP, programme, specific projects (gateways)	Support or objection to proposed programme, programme variations, specific schemes
Ward Councillors	Medium – supports or opposes project delivery in their ward	Interested in impact on ward	Briefings, Reports, mainly ward related, specific projects	Support or objection to proposed schemes
Dept for Transport	Very High – approves LTP, allocates capital funding, assess LCC performance	Interested in delivery of LTP and impact/benefit to Leicester, impact/benefit to UK (Leicester is 9 th largest transport area outside London)	Formal Progress Reports, DfT led workshops, Ministerial Visits	Assessment feedback – such as Urban Congestion Target assessment
Leicestershire County Council	High – joint promoter of LTP	Interested in delivery of LTP and impact/benefit to County part of Central Leicestershire		
Businesses	Medium – through Leicester Partnership,	Interested in transport and highway services	Use of highways and transport services,	Satisfaction performance indicators

	LTP strategy and project consultation lobby decision making	including delivery of LTP and impact/benefit to Central Leicestershire and their businesses	through strategy and project specific consultation	
Public	Medium – through project specific consultation can support or hinder project delivery	Interested in transport and highway services including delivery of LTP and impact/benefit to Central Leicestershire and their lives	Use of highways and transport services, through project specific consultation	Satisfaction performance indicators
Visitors	Low – provide feedback through local media	Interested in transport and highway services in Central Leicestershire and hence their experience of Leicester	Use of highways and transport services	
Director RHT and SRO for programme	Very High – approves LTP, programme, significant projects and project gateways	Interested in whole programme and impact on city, delivery performance	Leads strategy consultation, SRO and project executive on key projects, receives progress reports	
Forward Works Programme Manager	High – approves programme changes within context of FWP and recommends to SRO/Cabinet Lead	Interested in whole programme and impact on city, delivery performance	Leads preparation of LTP and programme, chairs FWP board	

Programme Manager	High – approves programme changes and recommends FWP manager where appropriate	Interested in whole programme and impact on city, delivery performance	Consultee on LTP and FWP, helps develop programme and manages programme	
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RHT staff (programme managers, project managers, designers, contractors)	High – through project performance affect programme delivery	Interested in whole programme and impact on city, delivery performance	Consultee on LTP and programme, help project delivery	
Consultants	Medium - through project performance affect programme delivery	Interested in whole programme and impact on city, delivery performance	Consultee on LTP and programme part of framework consultancy services arrangements	
Contractors	Medium - through project performance affect programme delivery	Interested in whole programme and impact on city, delivery performance	Consultee on LTP and programme, supplier to programme, part of framework contract arrangements	
Bus Companies	Medium – through Quality Bus Partnership, LTP strategy and project consultation lobby decision making	Interested in bus related infrastructure projects	Consultee on LTP and programme, projects – mainly through the Quality Bus Partnership	Satisfaction performance indicators
Freight Companies	Low – through Quality Freight Partnership, LTP strategy and project consultation lobby decision making	Interested in whole programme and impact on city,	Consultee on LTP and programme, projects – mainly through the Freight Partnership	Satisfaction performance indicators
Transport Lobby/Interest Groups	High – through strategy and project specific consultation can support or hinder programme	Interested in whole programme, particularly support sustainable transport projects	Consultee on LTP, programme and projects	Through direct feedback and lobbying

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 gridders 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

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Appendix B - Specific Asset Management Policies

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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

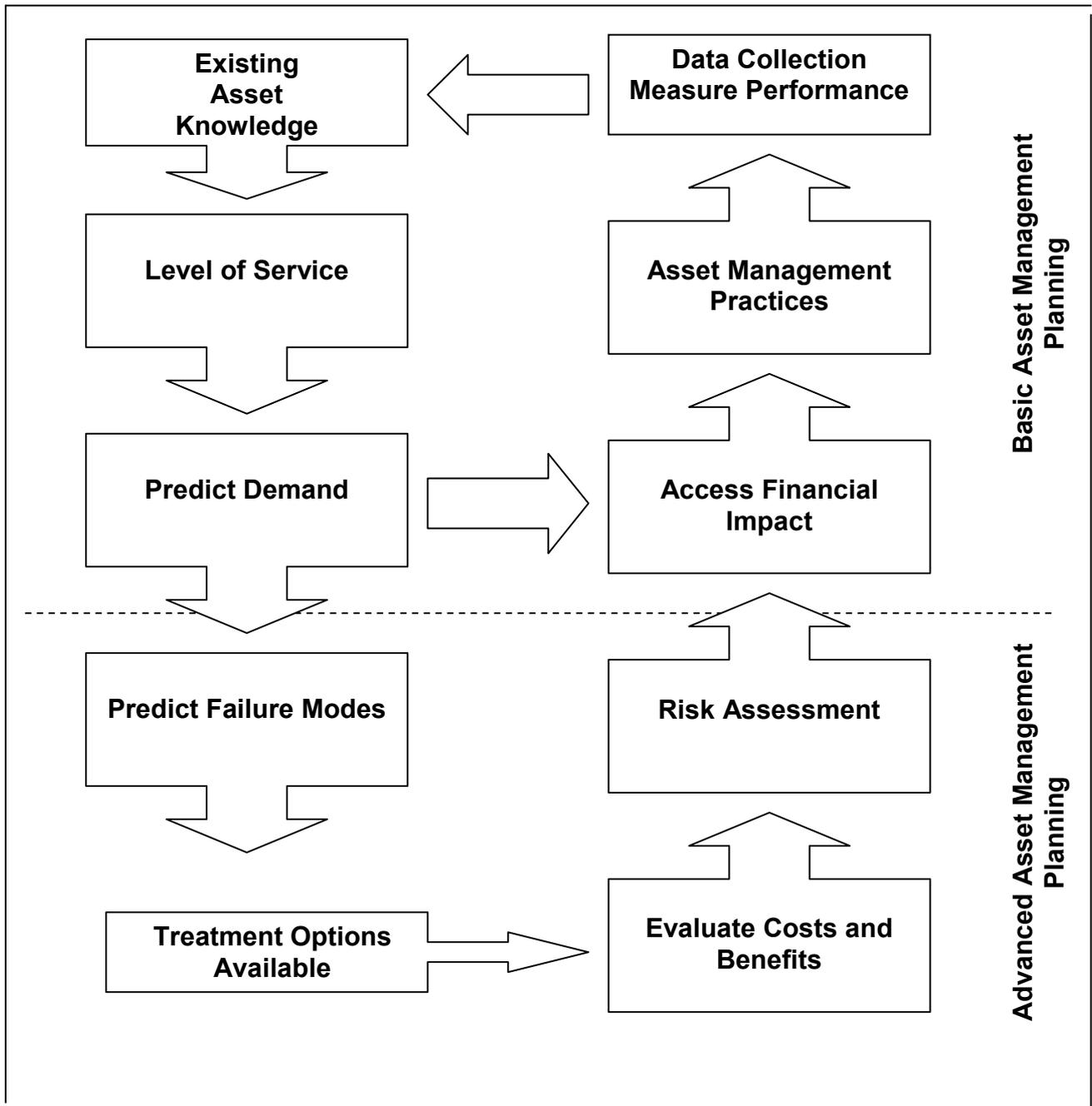
1.3.4 The adoption of a formalised asset management approach in Leicester builds on the foundations of existing practices but also represents a large step improvement in what we do. This plan sets out practices in regard to these

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 lightning	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 lightning	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:

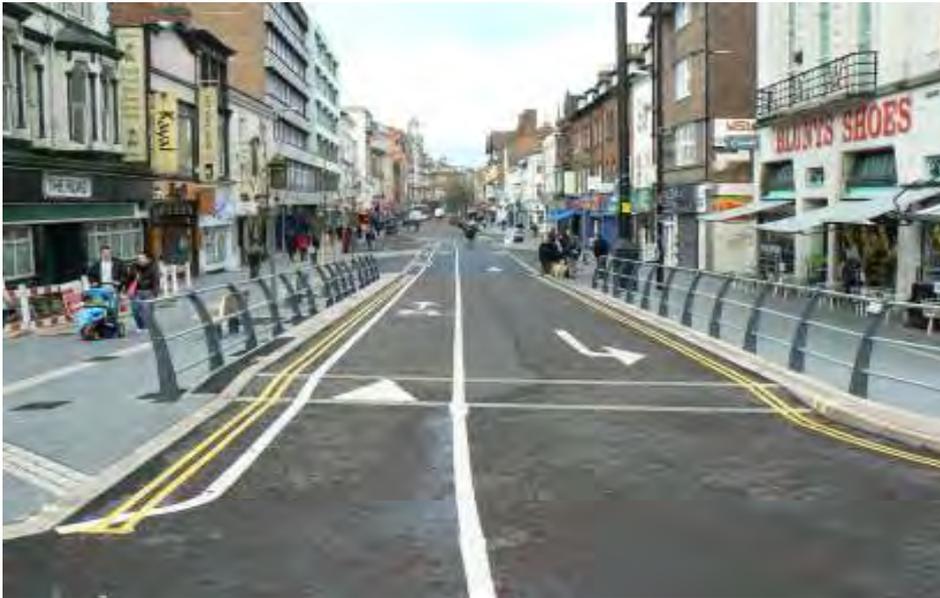
- Improve the general condition of roads
- Improve the general condition of footways
- Improve traffic management (traffic lights, yellow road markings, & co-ordination of street works)
- Improve facilities for cyclists and improve cycle route maintenance

- 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)

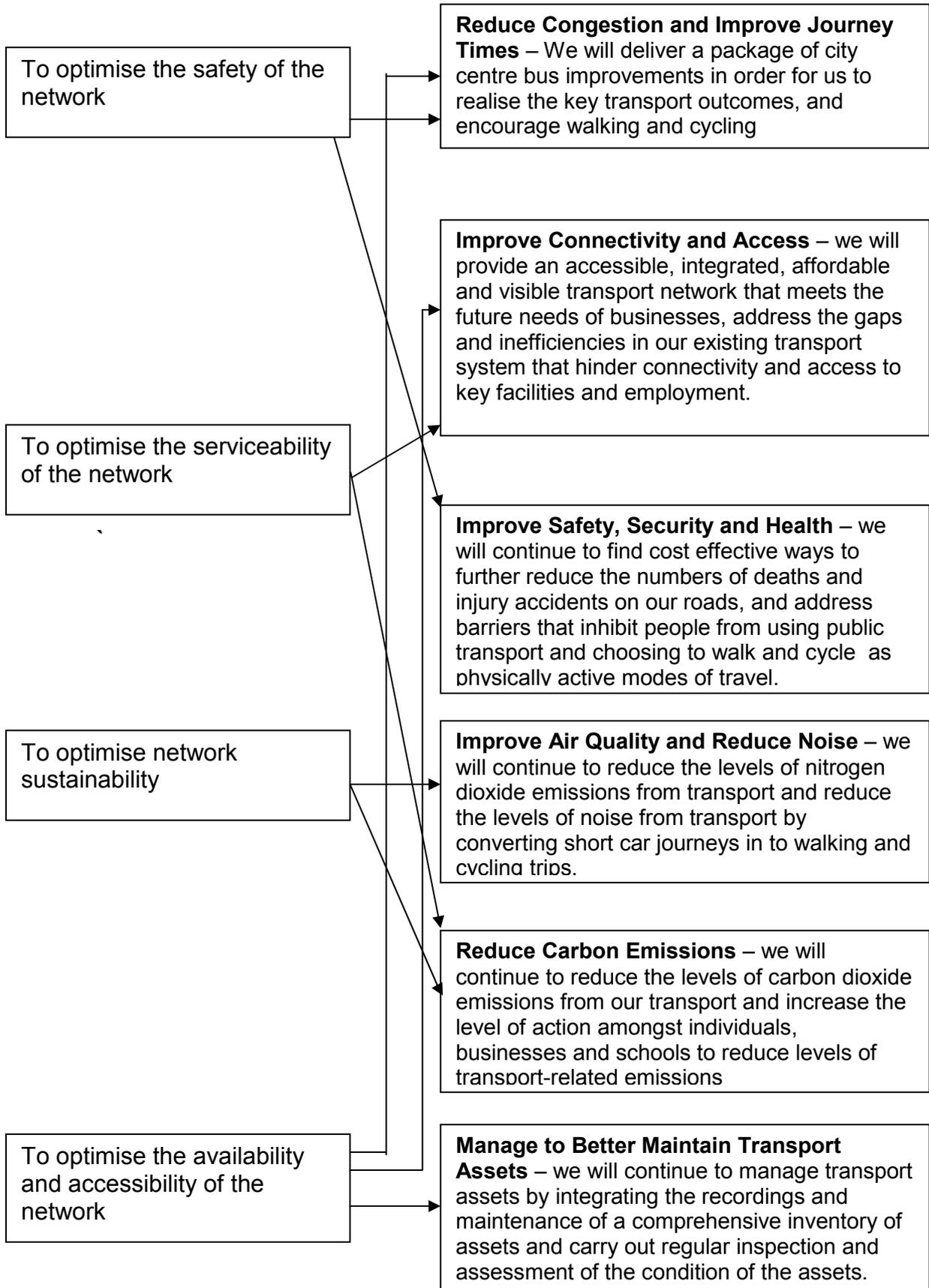


Newly developed pedestrianised area outside "Curve"

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.

Table 4.4 Cycle Track Hierarchy Definitions	
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.

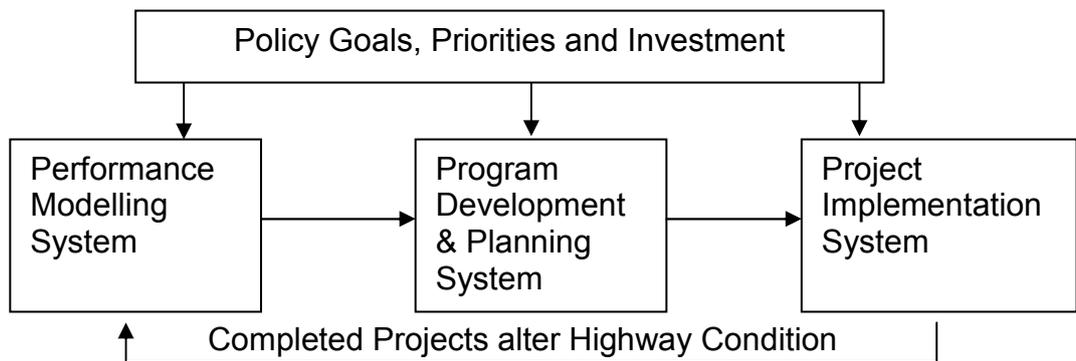
4.11.7 Framework Contract for Highway Works (General Civil Engineering & Repairs to Highway Structures) - works under this contract shall comprise schemes for highway and junction improvements, traffic calming, provisions for non-motorised users, safer routes to schools, lighting and signing improvements 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
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

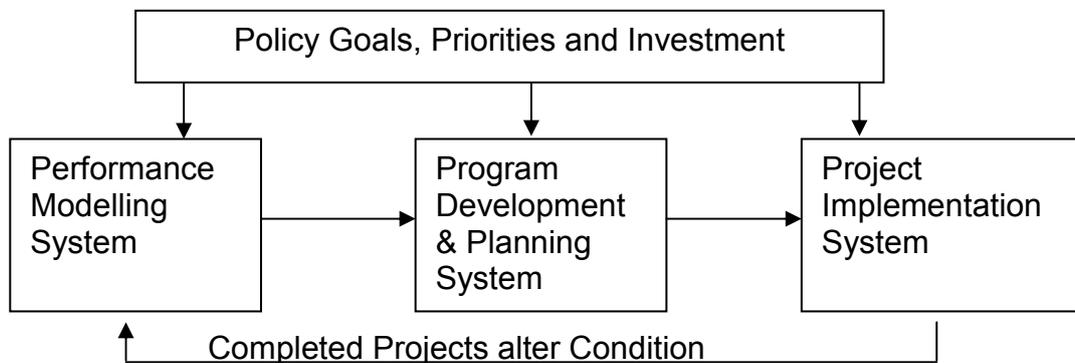
Service Delivery Locations

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
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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.

Table 6.1 Condition of Car Parks as at March 2011	
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.

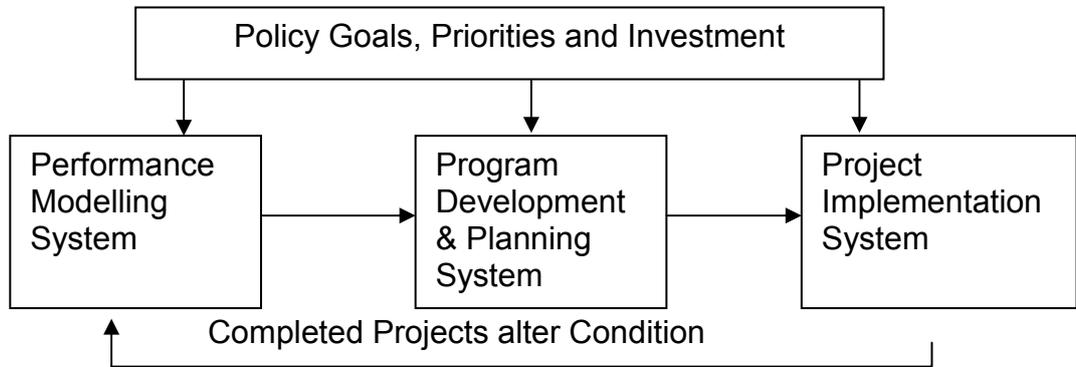
Service Delivery Locations

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	Illuminated Bollards – monthly Illuminated signs – 12 months Refuge Beacons – 6 months Gantries / Direction signs – 6 months
	Repainting	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 Inspections Annual improvement programmes	Based on results of electrical testing inspections of 1/6 of equipment. Based on BCC/Repair/survey visits to assets 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.

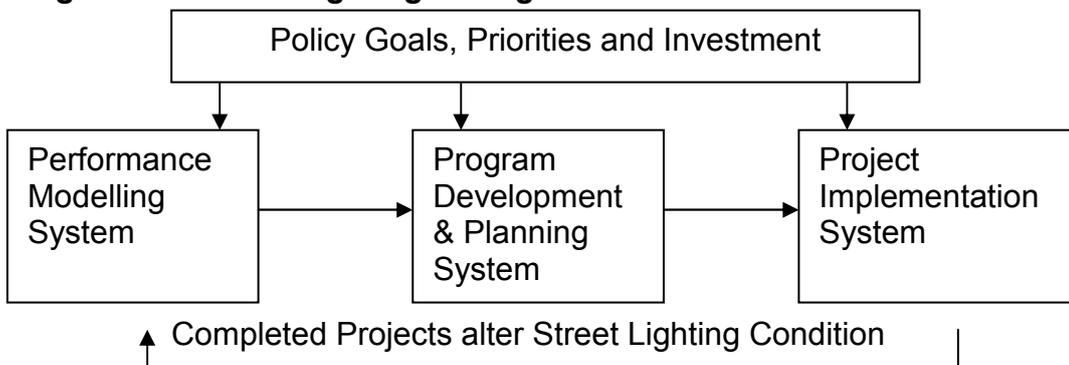
7.11.3 Service Delivery Arrangements – Procurement of Energy
 Since 1998 the Council has traded on the Half-Hourly electricity market for the supply of energy. This has been undertaken using the expertise of the Energy Team at Eastern Shires Purchasing Organisation to procure the best price available. 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

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

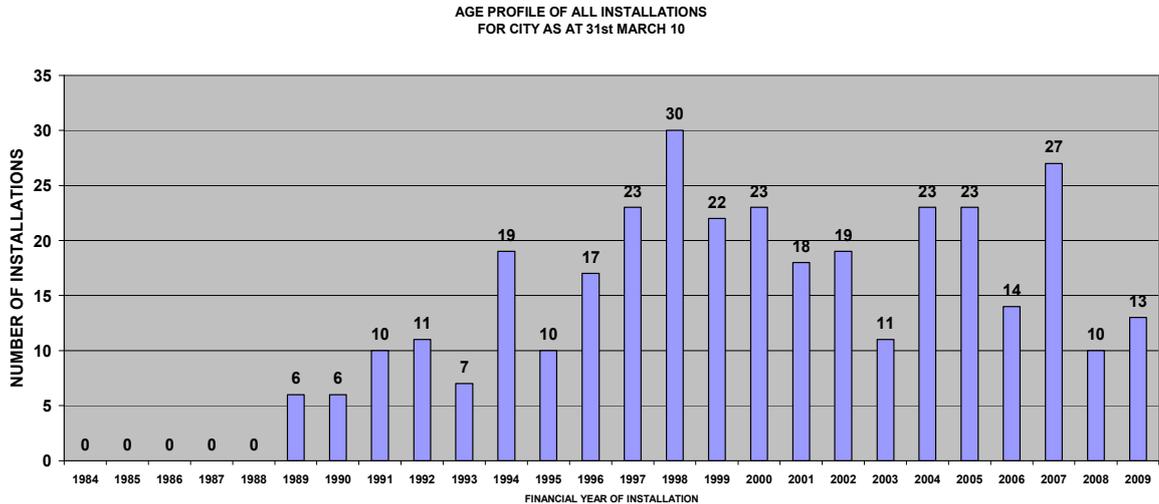


Table 8.5 Annual cost of required replacements by age profile

		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

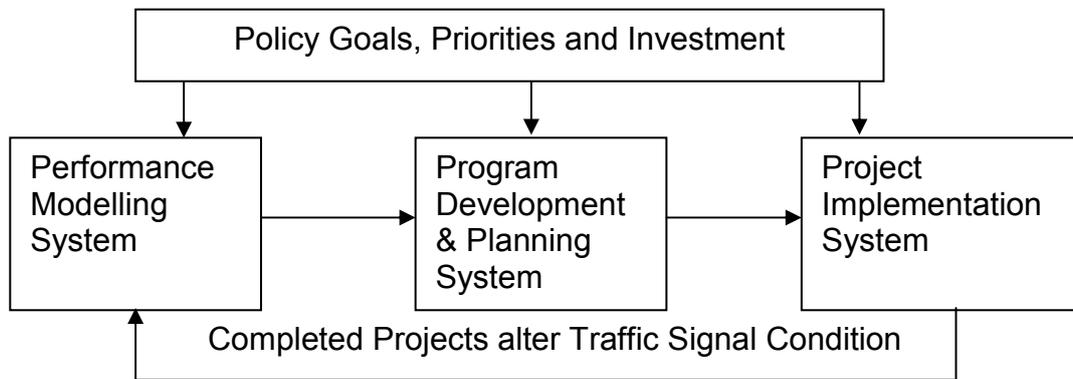
Service Delivery Locations

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

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 identify 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	✓	✓		✓

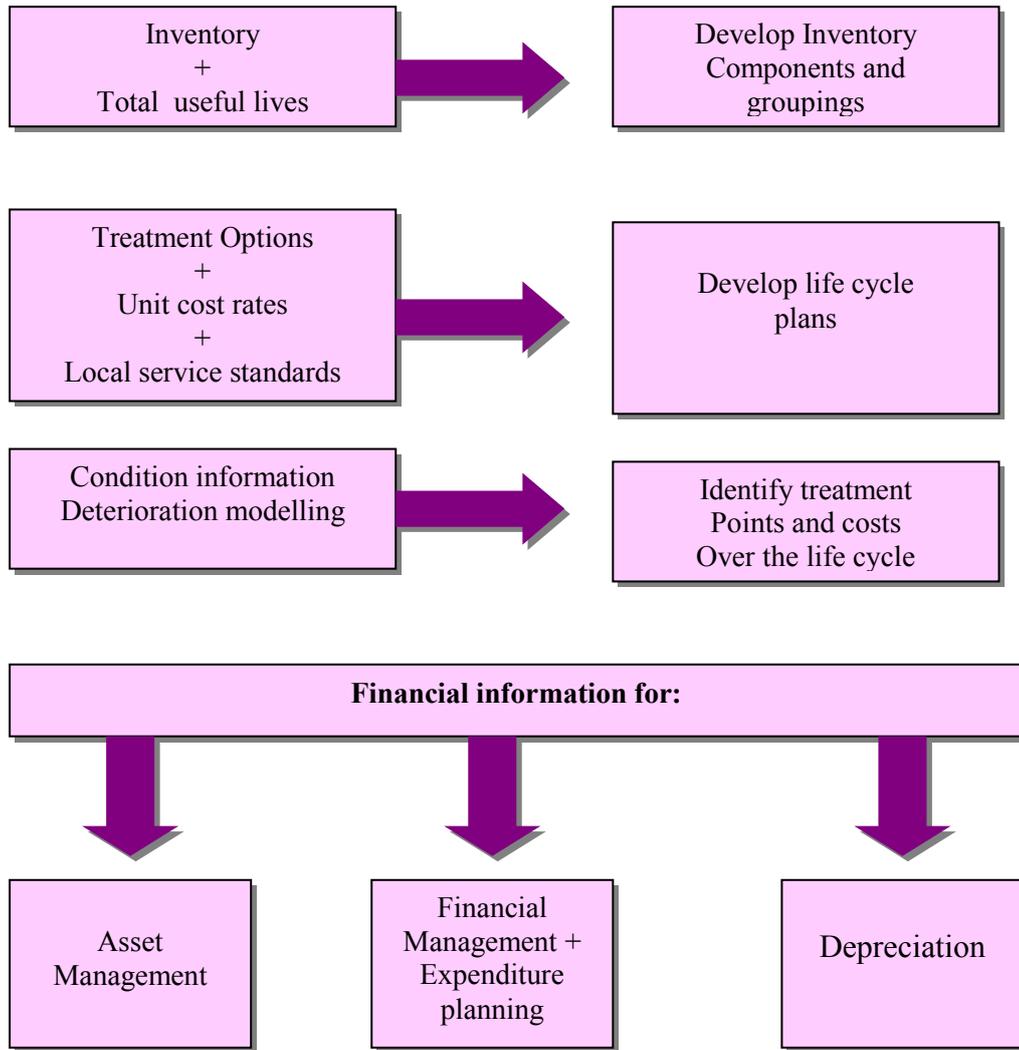
13.2 Financial Statements and Projections

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 = Gross Replacement Cost (GRC) – 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.

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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	NRSA 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.

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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	

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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 Buiding 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. Leaseses forum includes H&S	Med	Low	Low	Same

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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

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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

Appendixes

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	

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	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	

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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

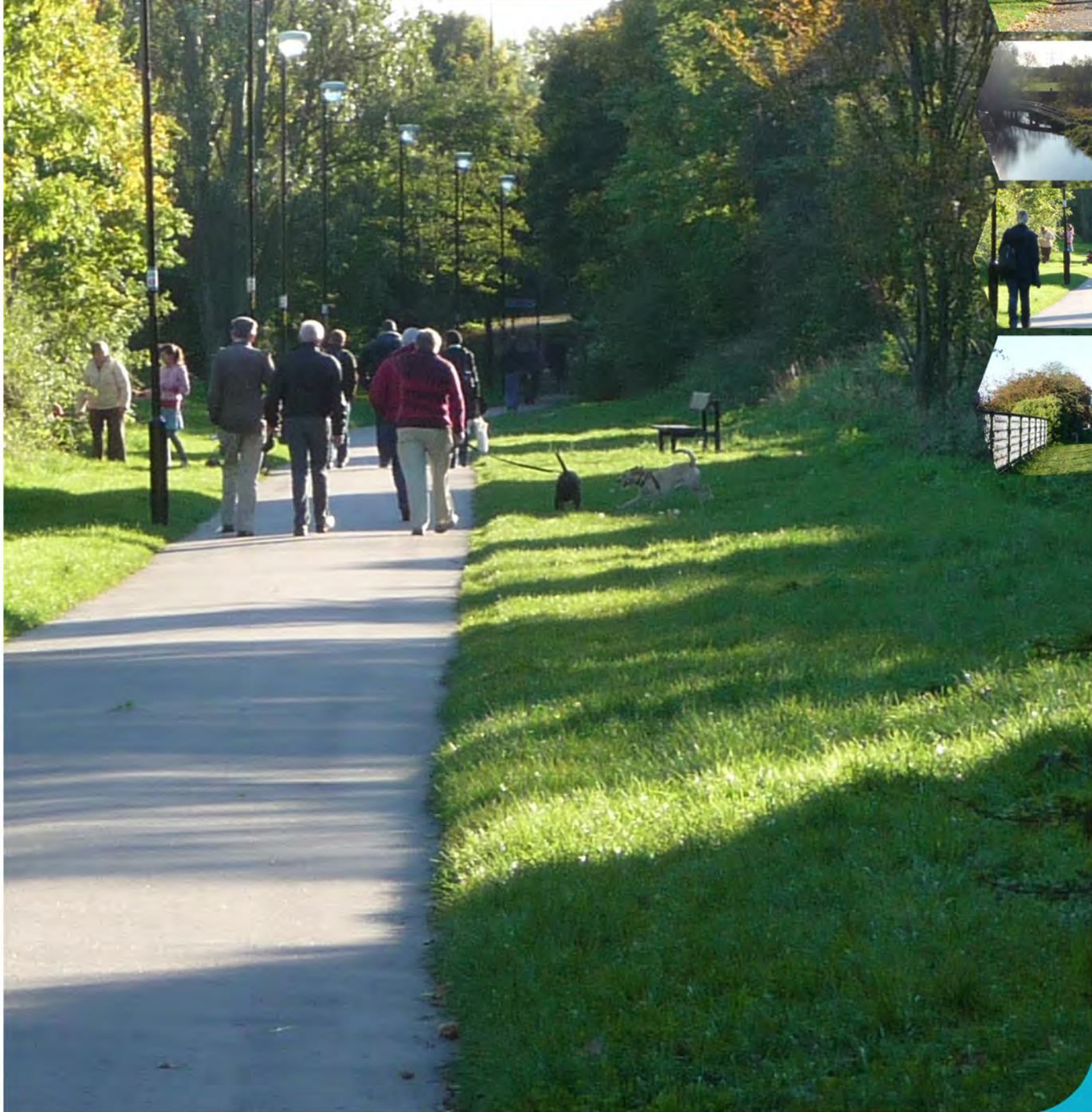
- 5.1 The Head of Community Safety will arrange for funding to meet the costs associated with the gating order, the physical works required to implement the order and the eventual revocation of the order and removal of the gates.
- 5.2 The Head of Community Safety will also allocate sufficient resources 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.

Leicester's Local Transport Plan
2011-2026

Leicester City's Rights of Way Improvement Plan 2011-2021



**LEICESTER'S LOCAL TRANSPORT PLAN
2011 TO 2026**

**LEICESTER CITY'S
RIGHTS OF WAY
IMPROVEMENT PLAN
2011 TO 2021**

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

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Contact Name:

Paul Standley

Tel No: 0116 252 6605

E-mail: paul.standley@leicester.gov.uk

Leicester City Council,
Regeneration, Highways & Transportation,
New Walk Centre,
Welford Place,
LEICESTER,
LE1 6ZG

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LEICESTER CITY'S RIGHTS OF WAY IMPROVEMENT PLAN 2011 to 2021

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Introduction

Welcome to Leicester City's Rights of Way Improvement Plan 2011 – 2021 (RoWIP). This plan has been developed in parallel with the preparation of Leicester's Local Transport Plan 2011 to 2026 "Planning For People Not Cars" (LTP3). The Rights of Way Improvement Plan is a statutory requirement set out in sections 60 and 61 of the Countryside and Rights of Way Act 2000.

In addition to the requirements of the legislation, the RoWIP explains what rights of way are and highlights some of the council's statutory duties in relation to their recording and maintenance. It also sets out our intentions for how our network of rights of way will contribute to our wider corporate vision and transport strategies.

Leicester's first RoWIP was published in October 2007 and was intended to cover a ten year period up to 2017. The first RoWIP was integrated within the Central Leicestershire Local Transport Plan 2006 to 2011 (LTP2). The third edition of the local transport plan (LTP3) is being published in March 2011 and includes revised objectives to those contained within LTP2. To ensure that the objectives of the RoWIP and the local transport plan are reflected within each other it is now necessary to revise the RoWIP so that it is in line with LTP3.

Plate 1a



It is acknowledged that not all of the recommendations arising out of the first RoWIP have been completed. Those commitments which are still relevant and necessary to further improve the network have been carried over to this edition of the RoWIP. Our ability to make progress with those commitments, and the new recommendations within this RoWIP will depend upon funding availability. The Government's current priority of reducing the budget deficit will have a key influence on our aspirations.

At present our rights of way network is made up of many different types of path and the status of some of these paths has still to be recorded. The work of investigating and recording the true status of each of these paths is of the utmost importance and will be a long-running exercise.

In summary, rights of way are in an ideal position to provide routes for non motorised transport as:

- A venue for leisure and recreational activities.
- A means of access to local facilities or public transport routes for onwards travel.
- An alternative network to facilitate medium to and longer distance journeys.

Chapter 1 **Setting The Scene**

This chapter outlines background information about rights of way improvement plans and the city of Leicester and its highway network. It also seeks to highlight some of the council's main statutory duties in relation to the recording of rights of way. Finally it explains the relationship between the Leicester City Local Access Forum and Leicester City's Rights of Way Improvement Plan.

1.1 Legal Requirements

- 1.1.1 Leicester City Council (the council), as with every other highway authority specified within the legislation, has a requirement, under section 60 of the Countryside and Rights of Way Act 2000, to publish a Rights of Way Improvement Plan (RoWIP). The council shall then, not more than ten years after first publishing it, review the plan and decide whether to amend it.
- 1.1.2 The Rights of Way Improvement Plan shall include an assessment of:
- i The extent to which the rights of way network meets the present and likely future needs of the public.
 - ii The opportunities provided by local rights of way for exercise and other forms of open-air recreation and the enjoyment of the area.
 - iii The accessibility of local rights of way to blind and partially sighted people and those with mobility difficulties.
- 1.1.3 It should also include a statement of the action the authority intends to take for the management of local rights of way and for securing an improved network, with particular regard to the matters dealt with in the assessment.
- 1.1.4 To assist with the production of Rights of Way Improvement Plans the Department for Environment, Food and Rural Affairs published statutory guidance in November 2002.
- 1.1.5 This RoWIP covers the administrative area of the City of Leicester and in accordance with the legislation applies to its network of footpaths, bridleways and cycle tracks. In addition to the requirements of the legislation, the plan also applies to those cycle tracks which are in, or by the side of, a highway consisting of, or comprising, a made-up carriageway and those paths which are used on a permissive basis.

1.2 Leicester City's Public Rights of Way Improvement Plan 2007 – 2017

- 1.2.1 Leicester's first RoWIP was published in October 2007 and was intended to cover a ten year period up to 2017. The first RoWIP was integrated within the Central Leicestershire Local Transport Plan 2006 to 2011 (LTP2). The third edition of the local transport plan (LTP3) is being published in March 2011 and includes revised objectives to those contained within LTP2. The Leicester Partnership's Sustainable Community Strategy, 'One Leicester', adopted in 2008, sets out a 25 year vision for the city. To ensure that the objectives of the RoWIP, the Local Transport Plan and the

One Leicester priorities are reflected within each other, it is now necessary to revise the RoWIP so that it is in line with LTP3.

1.2.2 The first RoWIP resulted in major improvements being undertaken on a number of rights of way and progress with the council's statutory duties relating to rights of way. Specific improvements included:

- The resurfacing of King William's Bridge, which carries a bridleway running from Castle Hill Country Park across the Rothley Brook towards the village of Anstey.
- The surfacing of a well used missing link which provides a direct link between surfaced paths leading to a large residential area and the Beaumont Shopping Centre.
- Provision of street lighting on a path connecting the Great Central Way with Braunstone Lane East.
- Access improvements on an embankment leading to a crossing point of Hamilton Way.
- An increase of 100% of the total length of paths recorded on the definitive map and statement.
- Exceeding targets set for measurement of service under BVPI 178 and CL 19.

Plate 1b



Plate 1c



King William Bridge crosses Rothley Brook, which flows along a section of the city county boundary, is well used by pedestrians, cyclists and equestrians and connects the city's Castle Hill Country Park with the village of Anstey. **Plate 1a** (taken in October 2006) shows the poor condition of the bridge deck which presented a trip hazard to users and detrimental to the structure of the bridge. **Plate 1c** (taken in October 2010) shows the new surfacing which was applied as a result of our first Rights of Way Improvement Plan.

1.2.3 In August 2008 Natural England published an evaluation of RoWIPs which assessed if they were 'fit for purpose'. Leicester's RoWIP was included within the assessment and report for the East Midlands Region. The assessment concluded that our RoWIP met the requirements and was fit for purpose but was lacking in detail and content. Our assessment of the needs of disabled people was considered excellent.

1.2.4 The first RoWIP was awarded first place in the improving accessibility for all category of Natural England's ROWIP awards, held in March 2009. The award, which was

presented by BBC Coast presenter Nicholas Crane, recognised the role played by our RoWIP in improving accessibility to the network.

Plate 1d



Plate 1e



Our first Rights of Way Improvement Plan identified a clearly defined desire line as shown in **Photo 1d** (taken October 2007). The path connected a network of other surfaced paths leading to a large residential area to retail, leisure and other local facilities at the Beaumont Centre. **Plate 1e** (taken in October 2010) shows the newly surfaced and illuminated link.

1.2.5 It is acknowledged that not all of the recommendations arising out of the first RoWIP have been completed. Those commitments that are still relevant and necessary to further improve the network have been carried over to this edition of the RoWIP.

1.3 The City of Leicester a Brief Description

1.3.1 With a population of over 300,000, Leicester, which covers an area of over 73 square kilometres, is the most populous settlement in the East Midlands and the ninth largest city in the country.

1.3.2 There is no “access land” (as defined in the Countryside and Rights of Way Act 2000) in the city but there are areas of natural environment, together with 800 hectares of parks and open spaces. Additionally the River Soar, which also doubles as the Grand Union Canal Leicester Line, flows from south to north through the city.

1.3.3 The city is located in the centre of the county of Leicestershire. The surrounding county offers access to greater areas of the natural environment. The National Forest, Charnwood Forest and Bradgate Park are all located within easy reach of the north western side of the city. The Soar Valley and Watermead Country Park borders the northern edge of the city. Arable farm land lies largely to the east of the city. Access to the natural environment to the west and south of the city is somewhat limited by the M1 and satellite settlements but the River Soar catchment and Grand Union Canal do offer some opportunity for recreation and access.

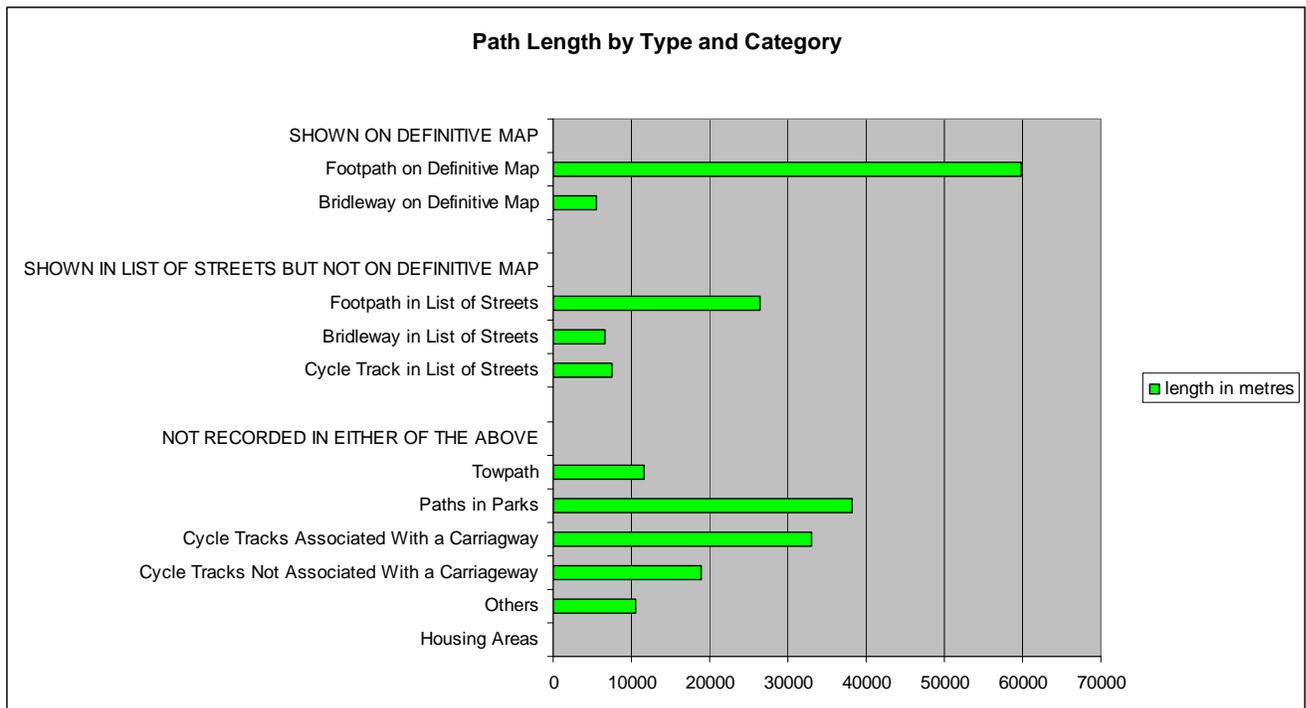
Leicester’s Highway Network

1.3.4 The highway network within the city comprises about 838km of carriageways and 1300km of footways. This is supplemented by a network of footpaths, bridleways,

cycle tracks and other vehicle free paths. A desktop survey was undertaken in November 2010 to estimate the length of this network. The survey included those paths shown on our Definitive Map and those which are currently only recorded in our List of Streets. In addition the survey sought to identify those routes which are not shown in either of these two principal records.

1.3.5 The total network identified was approximately 185km. The survey also identified about 33km of cycle tracks which were associated with a carriageway in lieu of a footway.

1.3.6 The findings of the survey are summarised in the table shown below.



1.4 Useful Definitions

1.4.1 Public rights of way are highways. Legally, they only differ from the roads which you drive along by the types of traffic entitled to use them. There are two types of public path within the city and they are shown below. Public path is a collective term for public rights of way.

- Footpaths are for use by people on foot.
- Bridleways are open to walkers, equestrians and cyclists.

1.4.2 A permissive path is a path which the landowner permits the public to use, with the intention that it should not become a public right of way.

- 1.4.3 Cycle tracks are routes over which the public have a right of way on pedal cycle, with or without a right of way on foot. They can be associated with an adjacent carriageway, usually in lieu of a footway, or be independent from any other route.

The Definitive Map and Statement

- 1.4.4 The council has a duty under the Wildlife and Countryside Act 1981 to keep a definitive map and statement (the definitive map) of public rights of way under constant review. The definitive map is the legal record of public rights of way and records footpaths, bridleways and restricted byways. Inclusion on the definitive map is conclusive evidence of the existence of the right of way. However, the reverse is not true, as paths not shown on the definitive map may also carry public rights. It is the duty of the council to make sure the definitive map reflects reality by modifying it to remove discrepancies between the rights that exist and those that are recorded. The council must make and confirm a definitive map modification order, which must be supported by suitable legal evidence, before a change can be made to the definitive map.
- 1.4.5 The Countryside and Rights of Way Act 2000 introduced a cut off date of 1st January 2026 for many unrecorded public rights of way. The rules relating to this are rather complex and have yet to be agreed but, essentially, any public path which was in existence before 1949 but is not recorded could be extinguished. Consequently there is a need to record any such routes on the definitive map before the 2026 cut off date.

1.5 Sources of Information

- 1.5.1 The assessment undertaken within this RoWIP draws heavily upon the results of a rights of way questionnaire which was undertaken in 2006 as part of the consultation on our first RoWIP. The questionnaire was distributed to all households in the city and it was also available on the council's website. A total of 537 responses were received. On comparing the questionnaire survey sample with the census, our questionnaire sample had a large over-representation of both white and more elderly respondents compared to the population as a whole. However, this was found to be similar to RoWIP survey samples experienced elsewhere within the region.
- 1.5.2 Quotations from the rights of way questionnaire and from the minutes of the Local Access Forum are included to add support to the RoWIP where necessary.

"A wonderful resource, to be maintained & expanded, please, to the limits of the budget"

Respondent to Rights of Way Questionnaire 2006

1.6 The Leicester City Local Access Forum

- 1.6.1 Local Access Forums are statutorily prescribed bodies, introduced by the Countryside and Rights of Way Act 2000. Their main function is to advise their appointing authority regarding the improvement of public access to land for the purposes of open-air recreation and the enjoyment of the area. Dealing with the Local Access Forum will also become more relevant as the council picks up on the Government's localism agenda.

- 1.6.2 As of January 2011 the Leicester City Local Access Forum (Local Access Forum) has held 28 meetings since its inaugural meeting in January 2005. Minutes from the latest meetings and details of forthcoming meeting are available on the council website.
- 1.6.3 The council is required, under the Countryside and Rights of Way Act 2000, to consult with their forum on the preparation of its RoWIP. The production of this RoWIP has been discussed at formal meetings of the Local Access Forum and at an informal Workshop requested by its members. The Workshop was used to help members direct the council on the content and general direction of the RoWIP. It was also used as an opportunity for members to advise on actions to be included within the RoWIP.

"In an attempt to offer better advice as to the possible content of a revised RoWIP the Forum offered to meet with officers at a workshop on this subject. Items for consideration at the workshop could include; proposed physical improvements to the network, fulfilment of statutory obligations, closer Forum involvement, gaps in the network, previous Forum recommendations and quick wins."

Local Access Forum, Minute 8, Leicester's Rights of Way Improvement Plan, Tuesday 3rd August 2010

- 1.6.4 The RoWIP is recognised, by the council and the Local Access Forum, as being one of the most important areas in which they can make significant inputs. The Handbook for LAF Members, published by Natural England in March 2008, echoes this view and encourages forums to undertake a wider role in the implementation of the RoWIP. The production of a forward work programme is considered necessary to give forums a clear direction and purpose. The work programme of the Local Access Forum will be developed to match, as closely as possible, the programme of work to be undertaken within the RoWIP. This should ensure that advice issued by the Local Access Forum is relevant and meaningful. It should also help to monitor and encourage continual progress on the actions identified within the RoWIP.

Plate 1f



Chapter 2 **Contributing to The Wider Agenda**

This chapter demonstrates the role of the rights of way network and the improvements recommended within the Rights of Way Improvement Plan in the wider context of One Leicester and the Local Transport Plan.

2.1 One Leicester

- 2.1.1 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.
- 2.1.2 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
- 2.1.3 To meet these goals One Leicester has developed the following seven key priorities, those in bold being particularly relevant to the implementation of the RoWIP:
- 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.
- 2.1.4 To support the One Leicester vision the RoWIP will actively contribute towards these goals as follows:
- Planning For People Not Cars**
- 2.1.5 The idea of 'people not cars', has been central to the historical creation and development of our network of rights of way. Likewise the legislative framework supporting the network has been developed to protect the rights of non-motorised users. The network is, therefore, ideally equipped to facilitate the development of a city where the use of non-motorized transport is the preferred choice for shorter and mid distance journeys.
- 2.1.6 Implementation of the recommendations within the RoWIP will ensure that the network is legally protected, maintained and developed to cope with the increased use which will be generated when the One Leicester vision is fulfilled.

Reducing Our Carbon Footprint

- 2.1.7 In addition to facilitating carbon neutral travel, the rights of way network is also formed by basic infrastructure. In many instances the infrastructure required to support some of our most well used paths is simply provided by the use of good ground maintenance practices.
- 2.1.8 Owing to the narrow width required for the purpose of pass and repass, rights of way offer an ideal location where the planting of landscaping and trees could be considered.

Creating Thriving, Safe Communities

- 2.1.9 The rights of way network includes many well used paths which are used to access local facilities and public transport for onward journeys. Many of these paths provide the shortest and quickest route and also allow for the use of free of charge transport.
- 2.1.10 The introduction of the recommendations within the RoWIP will improve the safety of path users and address many of the negative images which often accompany areas where criminal activity or anti social behaviour are present. They will also protect the well used paths which serve our local communities and seek to identify new routes providing for better connected communities.

Improving Wellbeing and Health

- 2.1.11 In addition to utilitarian use, the majority of users access the network for the purposes of recreation and physical exercise. The network is ideally placed to provide access to areas of the natural environment, parks and open spaces.
- 2.1.12 The RoWIP will provide further opportunities and promote routes which enable users to access open spaces and be close to nature.

Talking up Leicester

- 2.1.13 Fulfilment of the objectives of the RoWIP will result in a rights of network which is of immense benefit to the people of Leicester and its visitors. The network could then be promoted as an example of good practice amongst other local authorities.
- 2.1.14 The Local Access Forum offers the public an opportunity to become directly involved in matters relating to rights of way, and to help shape the future of our network. The RoWIP seeks to strengthen the role and membership of the Forum so this will further increase the opportunities for public involvement.

2.2 Leicester's Local Transport Plan 2011 to 2026 - 'Planning For People Not Cars'

- 2.2.1 The contribution made by our rights of way towards the high level objectives of Leicester's Local Transport Plan 2011 to 2026 (LTP3) and particularly those relating to accessibility is recognised within the LTP3. The RoWIP and LTP3 have been prepared parallel and consequently share many common objectives.

2.2.2 We have carefully considered our LTP3 objectives, in addition to feedback from our Local Access Forum, and have created our high level policy statement to reflect how the development of our rights of way network is embraced by, and integrated with, our LTP3 process.

Rights of Way Improvement Plan Policy Statement:

'Leicester City Council aims to manage, improve and promote its local rights of way network, within and around the city, to facilitate non-motorised access to services and to provide leisure and recreational opportunities to all residents of and visitors to the city'
Leicester's Local Transport Plan 2011 to 2026 – 'Planning For People Not Cars'

2.2.3 The following seven high level objectives have been developed within LTP3. The objectives will be used to help guide the development of the Statement of Action and the programme of schemes contained within the RoWIP.

- **Reduce Congestion and Improve Journey Times**
 We will develop and maintain our rights of way network to assist in achieving this objective by facilitating proportionally more walking and cycling trips on the rights of way network.
- **Improve Connectivity and Access**
 We will improve access to everyday services, places of work, schools, leisure and shopping by extending the rights of way network to improve links from residential areas to such services.
- **Improve Safety, Security and Health**
 We will help improve people's health and well being and continue to reduce the number of people killed or hurt on the road network by attracting proportionally more trips to be taken on the rights of way network by extending and promoting it.
- **Improve Air Quality and Reduce Noise**
 We will facilitate proportionally more walking and cycling trips on the network to reduce the effects of traffic omissions and noise.
- **Reduce Carbon Emissions**
 We will facilitate proportionally more walking and cycling trips on the network to reduce the effects of carbon omissions as a result of vehicular traffic.
- **Manage to Better Maintain Transport Assets**
 We will continue to improve the condition of our rights of way network and make it easier to use by improving our inspection and maintenance regimes.
- **Quality of Life**
 We will take every possible opportunity to improve, extend and promote our rights of way network through the land use and transport planning processes to provide the highest possible quality leisure facilities for walkers, cyclists, equestrians and disabled users.

Equality Impact Assessment

2.2.5 Equality Impact Assessment (EIA) is a process by which the impact of policies and

services on communities, users and non-users is assessed. The process involves consultation with service users and stakeholders to identify and measure unequal outcomes or unmet needs, thus challenging discrimination and meeting duties under legislation. The results of the consultation can be used to develop equality objectives and targets that can be integrated into the business planning process. The EIA is an important tool as it helps us to understand the needs and concerns of diverse communities to make informed decisions and to increase public involvement and openness in shaping services. Completion of EIAs is a key stage towards the council achieving level 4 of the Equality Standards.

- 2.2.6 The EIA on the first RoWIP was completed in 2007. The assessment made no further recommendation other than to support those included within the in RoWIP. The EIA for LTP3 also covers the RoWIP, hence its recommendations have been absorbed into this plan.

Chapter 3 **Making the Assessment**

In this chapter we have undertaken the assessment of the network as required within section 60 of the Countryside and Rights of Way Act 2000. To assure compliance with the legislation we have also included a summary of our assessment to address the three specific points included within the legislation. The recommendations arising from this chapter are carried forward to the Statement of Action in Chapter 4.

3.1 **The Rights of Way Network**

3.1.1 To commence our assessment we have undertaken a desk based study of our definitive map, list of streets and other highway records which we have available.

The Definitive Map & Statement and The List of Streets

- 3.1.2 The council became responsible for the definitive map & statement (the definitive map) when it acquired unitary status in 1997. The current length recorded on the definitive map is 65.5km. Using our experience and knowledge of the network, it is considered that there are over 33km of additional paths which still need to be recorded on the definitive map and over 60km of paths whose status still needs to be determined.
- 3.1.3 The fact that the definitive map is incomplete does cause problems with uncertainty over the status of routes. It can also lead to routes being the subject of gating or closure, without any legal order and associated public consultation. The first RoWIP identified the production of the definitive map as a key priority for the council. The Local Access Forum has also taken a keen interest in the production of the definitive map and a report outlining progress made with mapping is presented to each of their meetings.
- 3.1.4 As the 2026 cut off date approaches, the council will have to redouble its efforts towards the production of the definitive map, if it is to protect the network for future use and to avoid losing well known routes as a result of this cut off date.
- 3.1.5 The legal cases of Gulliksen v Pembrokeshire County Council and the more recent Ley v Devon County Council have caused the status of paths crossing council housing areas to be questioned. The council now has an obligation to consider the status of many previously unrecorded paths. The total length of the paths within council housing estates is not known, so it is difficult to estimate how much work would be involved in investigating and mapping those paths found to be public rights of way.
- 3.1.6 In addition to changes to the definitive map made by the council, members of the public can also make an application to modify the map. The introduction of the 2026 cut off date and the incomplete nature of our definitive map may lead to a flurry of such applications. The Countryside and Rights of Way Act 2000 placed a duty on the council to produce a register of definitive map modification order applications on its website and in a paper format

3.1.7 The Wildlife and Countryside (Definitive Maps and Statements) Regulations 1993 require the definitive map to be made available in a paper format at a scale of not less than 1 to 25,000. With the creation of new technologies the definitive map can now be provided to all those with the ability to display digital mapping. Access to a digital version of the definitive map would be beneficial to various other groups within the council, including those dealing with local land charge searches, planning applications and highways maintenance. Whilst the definitive map is incomplete, it has previously been difficult to offer access to the mapping without the professional advice offered by officers working with the mapping.

3.1.8 Public rights of way are shown on the CityStreAtZ web based application on the council website. This gives access to a map showing public rights of way. It does not, however, provide access to the statement. More work is required on this mapping application to develop broader functionality, including access to the statement, promoted routes, local walking and riding opportunities and limitations to use owing to surface, gradients and steps, and lawful barriers.

3.1.9 To provide users with a seamless record of rights of way it would be necessary to combine our records with these of the county council. Currently the publically available records for both are silent on those of the neighbouring authority.

Plate 3a



The rights of way information shown on CityStreAtZ requires reviewing to ensure that it contains relevant and current information on the rights of way network.

3.1.10 Even though the definitive map is incomplete, it does contain a number of anomalies, such as paths which are either obstructed or fail to connect highway with highway or any meaningful destination. A number of such anomalies have already been removed from the map via a series of stopping up and diversion orders. The Local Access Forum has considered a number of the mapping anomalies and they have advised the council how it could effect changes to remove them from the map.

3.1.11 Although the definitive map is incomplete, it is still possible to identify missing links within the network. Our focus will be on completing missing links needed to ensure the continuity of quality routes between the city and county cycling networks, particularly where they provide new journey opportunities between residential areas, public transport links and other public facilities. Where appropriate, we will provide individual new links likely to arise in association with workplace travel plans. Potentially the incomplete nature of the definitive map is advantageous as it could allow for paths to be added at a higher status which would take into account the needs of more users.

3.1.12 The council has a duty, under the Highways Act 1980, to keep an up to date List of Streets. The List of Streets contains an alphabetical list of highways - streets, footpaths, bridleways and cycle tracks - that are adopted as maintainable at public expense. It also lists those highways that are unadopted (maintained privately).

"Inspection of the Council's list of streets has revealed a number of paths which cannot be identified."

Local Access Forum, Minute 11 Maintenance of Rights of Way, Wednesday 11th June 2008

3.1.13 Although two distinctly separate records, there is duplication between the definitive map and the List of Streets, as they both record information about the same paths. The definitive map records the existence and status of the path and the List of Streets identifies whether the council is responsible for its maintenance. So that both records can be cross referenced, the definitive map reference number is also shown within the List of Streets.

Links to Leicestershire County

3.1.14 There is a total of 31 rights of way and 59 roads crossing the boundary between the city and the county. The Local Access Forum has previously highlighted the importance of these routes, as they provide cross boundary access for city residents to the wider network of rights of way within the county, and access to facilities within the city for county residents.

"Ensure continuity of paths at the city county boundary"

Respondent to Rights of Way Questionnaire 2006

3.1.15 A major strength of our transport planning work is our partnership with Leicestershire County Council. We are already delivering many areas of work jointly, including management and operation of bus services, park and ride services and traffic management and monitoring. As the network of paths crosses the boundary between the city and the county, it is clear that joint working will have to be undertaken to ensure that cross boundary paths have:

- Uniform legal status.
- Coordinated maintenance regimes.
- Harmonised standards (particularly regarding access controls on rights of way).
- Where appropriate, jointly delivered improvement schemes.

3.2 The Needs of Users and The Paths They Use

3.2.1 The focus of the assessment will now consider the more specific requirements of certain classes of users. As the needs of pedestrians are adequately covered by the requirements of other users, it is not considered necessary to include a section dedicated to their needs.

Disabled People and The Partially Sighted

3.2.2 Leicester has slightly higher proportions of people in the 'fairly good' and 'not good' health categories, compared with the census figures for England & Wales, but there

was less difference for people with limiting long-term illness. Using figures from the 2001 census, there were around 52,500 people (around 18.8% of the population) who stated that they had a limiting long term illness compared to 18.2% nationally. 17.2% of respondents to our rights of way questionnaire stated that they either had a physical or visual disability.

3.2.3 Disabled people require, and should expect, access to all modes of transport. Our work to benefit disabled people must, therefore, be wide-ranging in order to reflect the breadth of access issues. On the basis of recent inspections of our rights of way, many of the paths appeared to be usable by disabled people, if only they could get on to and off them. The most common obstructions were unsuitable gates, gaps and stiles, areas of local overgrowth and unmanageable gradients. It is essential for us to ensure that the removal or replacement of barriers which restrict access for those with limited mobility:

- Does not permit illegal use of the network, e.g. by horse-riders on footpaths, or by motorcycles.
- Does not substantially change the character of the route e.g. providing an artificial surface on open fields in sensitive areas.
- Is appropriate and sympathetic to local land uses e.g. where livestock is being kept.
- Is not unreasonably expensive to implement.

3.2.4 The Equality Act 2010 (formerly the Disability Discrimination Act 1995) makes it unlawful to discriminate against anyone on the grounds of their disability in connection with the provision of goods and services. There is no specific reference within the act or case law referring to its application to the management of rights of way. It does, however, require reasonable provision to be made where a route may not be fully accessible to those with limited mobility, whenever an appropriate opportunity arises.

3.2.5 Often small-scale changes can deliver real benefits in improving access to the rights of way network for disabled groups. It is also worth noting that, as well as wheelchair users, there are a considerable number of other users, including, young children and those using prams or pushchairs, elderly people who are just not particularly active and even people with dogs, who may be hindered by barriers which prevent wheelchair access.

"I would be taken out more often by my wife in my wheelchair if there was easier access for wheelchairs and more information regarding suitable routes".

Respondent to Rights of Way Questionnaire 2006

3.2.6 For people with visual impairments, previous experience has told us that well defined step edges and continuous handrails are important. People want clear signage and way marking in large print and good tonal contrast.

3.2.7 Legislation introduced under the Disability Discrimination Act prompted a study by the council's Parks Services Section to assess the accessibility of their parks and open spaces. The council will work with the Local Access Forum and disability access

groups to ensure that shared and appropriate standards, for access points, gates, surfaces and gradients, will be achieved across the council. The detailed rights of way asset register will include the locations of impediments.

- 3.2.8 There are many physical barriers in the form of stiles, gates or other such restrictions on the network. A survey undertaken on the known network in 2006 found over 650 barriers of some form or another. In comparison just over 500 entrances to paths were found to be barrier free.

Plate 3b



Muddy and wet sections of path such as this on an otherwise dry and level network of paths present an obvious obstruction to disabled and ill prepared users.

Plate 3c



This gate was originally installed to prevent vehicular use. Users were initially expected to negotiate the anti motorcycle trap to the right. Users now have to follow the unmade and frequently wet path to the left of the gate.

- 3.2.9 Even where barriers were installed with good intentions, it is clear that, in many instances, they represent an unlawful obstruction to some users. In particular, stiles represent an obstruction, to some degree, to all users. It is probable that stiles were initially intended to control livestock but this need has now greatly reduced as the grazing of animals is restricted to only a couple of locations within the city. In all instances stiles within the city could be replaced with more user friendly features.

"I agree with the fencing and gating of paths and green spaces to stop the increasing use of mini motos and motorcycles, but these in turn also stop disabled users from accessing them".
Respondent to Rights of Way Questionnaire 2006

- 3.2.10 It is likely that gates and other such restrictions were introduced in an attempt to prevent unlawful motorised use but this has resulted in the installation of many different types of barrier on the network. Some of these have proved to be sympathetic to the access needs of users however others only serve as an unlawful obstruction to those who have a legal right to use the path. Many can be too narrow for double buggies or mobility scooters to pass. After measuring a range of pushchairs, wheelchairs and scooters, gaps of 1.10(±0.05)m between posts should be passable by all legitimate users. Unfortunately, they would also be passable by cyclists, motorcyclists and riders of smaller "quads". While cyclists may be legitimate users of certain routes, motorcyclists and quad riders are generally deemed anti-

social. The Government has acknowledged the contradiction that, in providing access to legitimate users, we permit abuse and has reinforced Local Authorities' and the Police Forces' powers of enforcement and prosecution.

"A key issue for cyclists is the removal of presumably lawful obstructions, gates which require cyclists to dismount are near impossible to get through with a bike or a push chair".

Respondent to Rights of Way Questionnaire 2006

- 3.2.11 Steps form barriers to wheeled users of rights of way but the needs of visually impaired users are often overlooked. If steps are necessary at a particular location, they should include clearly-contrasting edges and nosings to the treads and, ideally, at least one highly-visible, self-coloured handrail extending the full length of each flight with a definite end. Neither feature needs to be unduly expensive, if specified at the design stage.
- 3.2.12 Gradients, especially descents, and unbound surfaces are another common deterrent for wheeled users. Many wheelchair-bound people have a real and legitimate fear of falling forward and out of the chair when descending a slope. Similarly, users of mobility scooters have reported the fear of falling over when they have to negotiate a descending corner because, at some point, the scooter will be leaning sideways. The location of all such obstructions should, wherever possible, be included on published leaflets and information made available to users.
- 3.2.13 Overhanging branches restrict headroom: on bridleways, the British Horse Society recommends that branches should be cut back to provide 3 meters. This permits some growth before pruning is carried out when the headroom has reduced to about 2.5 meters. The Rights of Way Act 1990 amended the Highways Act 1980 to empower highway authorities to require neighbouring landowners to prune their trees appropriately over bridleways.

Cyclists and Cycle Tracks

- 3.2.14 Our East Midlands household travel survey told us that 29% of the 1,045 sample Leicester households had access to a bike. Cycling provides the flexibility of travel from any origin to any destination, at any time, and is a practical solution for journeys of up to about five miles. It is a way of improving accessibility to sites that are not well served by public transport and has obvious health benefits.
- 3.2.15 National census and school travel plan data for Leicester suggests a growing popularity in cycling and a significant suppressed demand, particularly amongst young people. There are already more than 60km of signed cycle routes across the city which the Cyclists' Touring Club's cycle benchmarking exercise confirmed as being of high quality.
- 3.2.16 There is no legal requirement to record cycle tracks on the definitive map. Cycle tracks which form part of the highway and are not associated with a carriageway are recorded in the List of Streets, although this record is incomplete. The List of Streets does not currently record those cycle tracks which are associated with an adjacent

carriageway, neither does it identify which other users are permitted to use them. If the record in the List of Streets is to be more complete, it will require expanding to include all cycle tracks, regardless of whether they are associated with an adjacent carriageway. It will also need to record these users who are permitted to use them.

"I'm about to start cycling to work and would like to know what routes are available".

Respondent to Rights of Way Questionnaire 2006

3.2.17 Cycle tracks which do not form part of the highway would be recorded as permissive paths. The use of some of these routes, on a permissive basis, may not be the most satisfactory way to secure their continued use by the public. Permissive paths lack the legal protection afforded to highways, consequently they can be closed to the public without the need for any legal order or public consultation. Additionally, permissive paths may not be maintained to a suitable level. The council has a legal duty to maintain highways which are maintainable at public expense, whereas a landowner merely has an obligation to maintain a permissive path.

3.2.18 The National Cycle Network (NCN) is co-ordinated by Sustrans and forms a comprehensive network of safe and attractive cycle routes running throughout the country. The network follows a combination of traffic-free paths and quiet streets. The city is bisected by NCN 6, which runs north to south across the city, and NCN 63, which runs east to west. In addition to the NCN, the city is also served by other named cycle routes, such as Belgrave Way and Knighton Way, which provide additional linear routes suitable for cyclists accessing the city. The Green Ringway is an orbital cycle and pedestrian route around Leicester using routes through parks and open spaces, to link schools, hospitals, the National Cycle Network and other named cycle routes within the city. Much of the Green Ringway has already been implemented but its final route is still under review.

Plate 3d



The Great Central Way forms part of NCN6, this section of the route in Aylestone is well used by pedestrians, cyclists and equestrians, and is unrecorded and unadopted.

"The cycle network needs to be properly joined up with new links so that everyone can start to cycle virtually direct from their home rather than feeling they have to risk life and limb before enjoying a more relaxing route or even feeling they need to transport their bike by car to a suitable point. The idea of a circular route(s) is excellent".

Respondent to Rights of Way Questionnaire 2006

Equestrians and Bridleways

3.2.19 Our rights of way questionnaire found that only 2% of users access the network for the purpose of horse riding, although 41% of path users were aware that they have used a bridleway. Equestrian use within the city is primarily limited to areas within Aylestone Meadows and Beaumont Leys. Any enhancement of the equestrian network would, therefore, be most beneficial in these areas of the city or on the routes extending from these areas out into the county.

Plate 3e



Equestrians using a bridleway within the Beaumont Leys where use is increased by the presence of a local riding school.

Plate 3f



Verges like this one on Bennion Road, could be considered for part of wider advertised routes for equestrians.

3.2.20 Enhancements in the network of routes available to equestrians could be easily achieved by the mapping of paths as bridleways where the surface is, or can be readily made, suitable. This would offer instant benefit to equestrians, at minimal cost to the council, and would also have the added benefit of allowing cyclist to use these paths, as bridleways are open to pedestrians, equestrians and cyclists. The identification of wide verges for use by equestrians could also be considered, especially when promoting circular routes within the city or as part of wider routes crossing into the county.

"I would like to see verges kept clear and useable by both horses and pedestrians".

Respondent to Rights of Way Questionnaire 2006

3.2.21 Any improvements for equestrians will have to be balanced against the needs of different users. As has been stated in the 'user hierarchy' in LTP3, pedestrians will have the highest priority, followed by cyclists. Equestrian users will have the lowest priority. This hierarchy is appropriate in an urban environment due to much lower equestrian usage on the network. Even so, minor improvements, such as mounting blocks and removal of overhanging vegetation, could be considered where identified as being necessary to provide route continuity.

3.2.22 Equestrian users within the city have expressed a wish for a number of cycle tracks and routes across parks to be made available for their use. This would in turn create a cross city route for equestrians. Any such route would have to be considered with

regard to needs of other path and parks users. Given the probable amount of usage, there may be some benefit from pursuing this suggestion, if only on a permissive basis.

"Equestrians have also used the other main parks in the city. It would be easy to link the parks together to allow a long distance trail through the city. "

Local Access Forum, Minute 9 Members Question – Equestrian Use in Parks, Thursday 28th May 2009

3.3 Maintenance of Paths

3.3.1 The impact which path maintenance has upon the needs of users is now explored as part of the wider assessment.

Maintenance of Paths Maintainable at Public Expense

3.3.2 Maintenance needs are identified from reports by the public and inspections undertaken by officers in Highway Management. The most common request for maintenance involves the cutting back of vegetation and, as such, can be predicted in line with new seasonal growth in areas where this is known to be a perennial problem. The introduction of an annual programme of vegetation clearance would easily address this problem.

3.3.3 The 22% of paths on the network which do not have a sealed surface, and those which have steps or steep gradients, also give rise to increased requests for maintenance. To address this problem it may be necessary to undertake additional inspections on these paths.

3.3.4 To assist those officers undertaking inspections, it would be helpful if an asset register could be produced to identify the location of signs and waymarkers, paths which are not formed of a sealed surface and the location of steps and steep gradients. The asset register would also help to identify areas where additional signage or improved surfaces would be beneficial.

3.3.5 In addition to inspections undertaken by the council, it may be beneficial to encourage volunteers to report problems encountered on the paths which they regularly use. The use of walking audits, especially those which are undertaken with a view to the needs of people with limited mobility or who are partially sighted, would also be beneficial when considering maintenance or improvements to the network.

3.3.6 A number of large maintenance items were identified within the first edition of the RoWIP. Completion of some of

Plate 3g



Melton Brook runs along a section of the city county boundary. The brook is crossed by a bridleway, which runs from the city towards the village of Barkby Thorpe. The bridleway crosses the brook via a ford. Users also used to be able to cross on a footbridge, seen to the right of ford, which has now fallen into a state of disrepair.

these, most notably work to King William's Bridge, was undertaken during the period covered by the first RoWIP. A number of these items, however, remain outstanding, the most notable being the requirement for a footbridge over Melton Brook. The bridge is required to replace a previous structure which is beyond repair. The bridge is located at a piped ford across the brook which is only passable during periods of dry weather. Our ability to undertake expensive work items will be restricted by the current financial situation. Alternative solutions or remedial measures may therefore, have to be considered for our major work items.

"I find dog mess, broken glass and metal bottle tops a particular problem, especially when I have kids with me".

Respondent to Rights of Way Questionnaire 2006

- 3.3.7 In addition to maintenance, it is important to users that paths are subject to regular cleansing to remove dog mess, litter and graffiti. Closer involvement with Cleansing Services will need to be undertaken to ensure that paths are subject to regular inspections and cleansing. The installation of dog poop scoop bins may be beneficial in some areas, in addition to a programme of information and education for dog owners.

Permissive Paths and Paths Not Maintained at Public Expense

- 3.3.8 There is no statutory duty for the council to record the location of permissive paths. The Countryside and Rights of Way Act 2000 however, placed a duty on the council to produce a register of declarations made under section 31A of the Highways Act 1980. Section 31 outlines the defences a landowner can take to ensure that a permissive path crossing their land never becomes a public right of way.

- 3.3.9 It is not known at present how many permissive paths there are within the city. As the definitive mapping work progresses, a more accurate picture should develop of the extent of the permissive network.

- 3.3.10 There are many well known and well used paths, including sections of the National Cycle Network, which have previously been considered as being permissive paths. Given the time they have been in use, the council may have to now reconsider the status of many of these routes.

- 3.3.11 Maintenance of permissive paths is the responsibility of the owner of the land over which they pass who may not be best suited or equipped to undertake or fund regular

Plate 3h



This path runs through Beaumont Park and connects the Beaumont Centre with the residential area to the south. The status of the path is currently unknown as it is not included anywhere within our highway records.

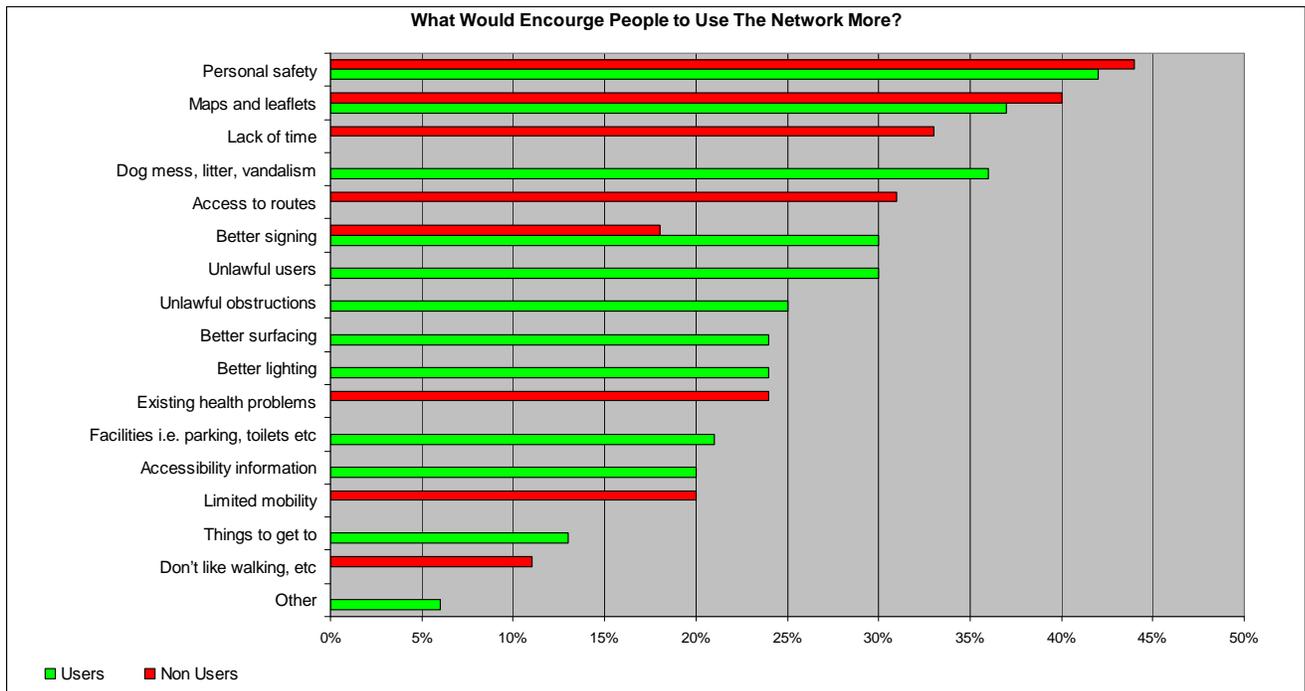
inspections and work. This can mean that they are not subject to any recognised programme of inspections or planned maintenance work, unlike highway maintainable at public expense which is maintained by the council under a statutory duty. The lack of planned inspections and maintenance work, over a prolonged period of time, can result in deterioration to the path surface and its associated features. It can also result in delays in responding to requests from users for maintenance improvements.

"The council fully investigates the status of the Great Central Way to reflect its use by walkers, cyclists and equestrians".
Local Access Forum, Minute 15 Equestrian Use on The Great Central Way, Thursday 10th April 2008

3.3.12 Ideally all permissive paths which are found to be public paths should be adopted as maintainable at public expense. Unfortunately, without the completion of remedial works, the condition of some of these paths may not be to a standard which would be suitable for them to be immediately considered for adoption. The cost of any remedial works prior to adoption would be the responsibility of the landowner. Adoption of substandard paths would place an unnecessary burden on the council’s highway maintenance budget.

3.4 The Barriers Which Prevent Use of The Network

3.4.1 Within our rights of way questionnaire we asked users what would encourage them to use the network more. We also asked non users, although a much smaller sample of 55 respondents, what would encourage them to use the network. The main elements that respondents prioritised first, to encourage people to use the network are shown on the graph below.



- 3.4.2 The reasons given fall within two broad groups; physical barriers, dog mess, litter, vandalism, signing, surfacing, etc. The physical barriers should be addressed by the measures already covered within this assessment. The non physical barriers; personal safety, maps and leaflets, etc, will be considered further in the remainder of this assessment.

Crime, Disorder and Misuse by Motorised Vehicles

- 3.4.3 Not feeling safe is the main reason given by users and non users for not using the network more. This is particularly true for women, elderly people and for children getting home from school in winter. We have already been working with our local community safety partnerships to identify where appropriate street lighting improvements could help reduce such fears and encourage use of the network.

"As an over 55 years old woman, feeling safe is one of the main points for me".

Respondent to Rights of Way Questionnaire 2006

- 3.4.4 Leicestershire Constabulary has developed the concept of Joint Action Groups after successfully trialling 'patch walks' in Beaumont Leys. Patch walks are a practical way of bringing together the Crime and Disorder Partnership, Police, Highway Authority, local councillors, officers and residents to assess ways to improve lighting, visibility on footpaths and to reduce areas of vandalism. The aim is to encourage everyone to work together to reduce crime and the fear of crime, thus removing an additional barrier to walking and cycling trips.
- 3.4.5 In addition to patch walks, the safer routes programme has revitalised the use of walking audits. Their primary purpose is to identify physical barriers (lack of dropped kerbs, guard rails, overgrown shrubbery etc.) in the pedestrian environment, but they also overlap with patch walks in assessing psychological barriers (unkempt areas, overgrown shrubbery, loiterers, lack of lighting etc). The aim of a walking audit is to remove barriers to encourage more walking and cycling trips.

- 3.4.6 There are occasions when the council is asked to install a barrier to address misuse by motorised vehicles. Recent work undertaken in Beaumont Leys has caused the council to concede to the opinion that no barrier is capable of preventing use by motorcycles whilst still maintaining access to all lawful users. At best, all barriers can do is deter motorised users and act as a speed reduction barrier.

- 3.4.7 The use of a methodology promoted by British Waterways, in their document Motorcycles on Towpaths – Guidance on Managing The

Plate 3i



Recent work to address misuse by motorcycles has seen a coordinated effort involving the police. One of the measures introduced was the installation of signs warning offenders.

Problem and Improving Access For All, was applied whilst addressing the problem. The process caused rights of way officers to work closely with Leicestershire Constabulary, representatives on the Joint Action Group within the Safer Leicester Partnership, ward councillors, members of the local community, the Local Access Forum and path users.

- 3.4.8 The result of this joint working was the installation of signs warning offenders that the use of the motor vehicles was unlawful and could result in legal action against them. To maintain impact and freshness the signs were periodically moved to different locations within the area. Barriers, which are acceptable to user needs and beneficial in the policing of the area, were installed where the activity was most intensive and excessive speed was an issue. The effectiveness of the barriers is still being monitored; however early indications are that combined efforts have been successful as reports of unlawful use of motorcycles have decreased.
- 3.4.9 In extreme cases the use of lighting, CCTV and environmental works such as hedge clearance could be considered, however, these measures would usually only be used as a last resort.

Gating Orders

- 3.4.10 To date the council has only made one gating order since the introduction of the powers in 2006. A policy outlining how the council would consider applications for a gating order was produced in 2008. For an order to be made approval has to be obtained from both the Head of Community Safety and the Head of Transport Strategy. Unresolved objections to the order are discussed with the appropriate cabinet leads and the respective ward councillors, who then decide whether to enact the order.
- 3.4.11 In an attempt to mitigate the effect of gating orders on users and the connectivity of the network. The use of time specific orders, are considered preferable to those which permanently restrict the use of the path. The issuing of keys to local residents who may have a legitimate need to use the path has also been considered in an attempt to reduce to loss of access.

Information on Rights of Way and Circular Walks

- 3.4.12 Our questionnaire found that 90% of respondents had used the network in the past twelve months. A total of 88% of users travelled to the network on foot. It also revealed that 60% of users use the network for relaxation, with a further 52% citing health and fitness, as the main reason for using the network. The most popular frequency of use was two or three times a week. These figures would suggest that many users access the network as part of a circular leisure walk centred on their home. The council has, in the past, published a number of leaflets giving details of walks covering various areas of the city. Many of these guides are now no longer in print and none are available on the council website.
- 3.4.13 The Local Access Forum has also suggested that a number of circular walks be published covering different areas of the city. The possibility of cross working with the

county council was also suggested for walks. These walks could develop the suggestion of 'gateways to the countryside' which are offered by the use of rights of way on the urban fringe. Extended walks into the county could follow a linear route incorporating the use of public transport to complete the journey.

"It was suggested that these routes should also include a number which could be undertaken by equestrians and cyclists. The use of the term Circular Leisure Routes should also be avoided as the routes could also follow linear paths with the return journey being made by public transport."

Local Access Forum, Minute 6 Circular Leisure Routes, Thursday 17th January 2008

3.4.14 Our survey found that path users expect to obtain information on the network from the following sources.

- 49% Tourist Information Centre & council buildings.
- 48% Ordnance Survey Maps.
- 42% Word of Mouth.
- 33% Internet
- 32% Newspapers

3.4.15 There is some basic information on public rights of on the council website. The pages are, however, devoid of links to the mapping, information on recommended walks or other sources of information which may be of use to these wishing to use the network. Enquiries will be made with the Ordnance Survey to see whether details of the paths within the city can be added to their publications. Wider use of improved, path specific signage may also help users to identify and use the network. Signs containing destinations and distances or times give users more information on what the path can offer. Such signage also serves as an advertisement to non users.

"My 1:25,000 Ordnance Survey Explorer map has no information for rights of way within the city. Addressing this omission should be a priority".

Respondent to Rights of Way Questionnaire 2006

Mass Participation Events

3.4.16 During 2010 the council were involved in mass participation events with an aim to boosting levels of walking and cycling. In August Leicester's second annual SkyRide was held, the event attracted 12,500 people who followed a traffic free route around the city.

The Sky Ride event will take in the city's most iconic landmarks and sites with traffic-free streets, enabling cyclists to enjoy a day of bike-based entertainment and to explore their city on two wheels with family and friends. The free event aims to encourage thousands of people, of all ages and abilities, to get on their bikes.

Leicester City Council Press Release August 2010

3.4.17 In September 2010 the council participated in Leicestershire Walking Week. A number of walks were held in the city including one within the new Highcross Shopping Centre. The Leicester Marathon was held in October 2010 and attracted 578

participants, with a further 2,059 people entering the half marathon. All of these events used parts of the rights of way network. The RoWIP can help assist with similar events by providing a network which is suitable for use by mass participation events and ensuring that a legacy of information is available long after the event.

Heath and Wellbeing

3.4.18 The public health strategy for the East Midlands, 'Investment for Health' (EMRA 2002), aims to improve the health of East Midland residents by reducing health inequalities year-on-year. In addition, the Director of Public Health in Leicestershire is keen to tackle obesity, the Leicester Lifestyle Survey in 2002 found that only 26% of adults took a minimum of 30 minutes of moderately intense activity on 5 days a week or more. We are contributing to these aims through the RoWIP by supporting healthy lifestyles and increasing physical activity levels through the promotion of cycling and walking routes, thus having a positive impact on physical and mental health.

3.4.19 In addition to facilitating walking journeys between local destinations, our Rights of Way Questionnaire showed that the primary uses of the network was for:

- Relaxation 60.2%
- Health and Fitness 52.5%
- Getting to Local Facility 26%
- Getting to Work 21%
- Dog Walking 16%
- To Visit an Attraction 14%

It is clear from these results that our network has a key role in providing for recreational journeys within the city.

3.4.20 To increase walking participation the council is involved in a number of initiatives. Let's Walk Leicester is funded by Leicester City Health Action Zone, it aims to develop a coordinated programme of walking activity that promotes and improves access to led and independent health walks. Health walks are usually led by a volunteer leader recruited from the local community and last for between 30 and 45 minutes. They are aimed at anyone who currently does very little or no physical activity. The council has also introduced a Walking For Health Scheme which encourages walking within the city parks and includes a regular programme of walking events.

3.4.21 The delivery of the RoWIP objectives will bring considerable benefit to these types of initiatives, as it will provide the basic framework to support the schemes. It will also ensure that the wider network of paths is suitable and able to meet the demands of these who are eager to explore the wider area.

Case Study: Great Central Way

Great Central Way runs from just west of the city centre southwards for approximately 5 kilometres to the city boundary then onwards towards Glen Parva, Whetstone and Blaby. The Great Central Way forms part of the National Cycle Route 6, and is regularly used by over 500 cyclists a day. Its route follows the line of the former Great Central Railway and lies

mid way between the A5460 Narborough Road and the A426 Lutterworth Road – Aylestone Road and is a vehicle free alternative to both of these main arterial routes. There are direct traffic free connections to Aylestone Road and Braunstone Lane East. Narborough Road is easily accessed via quiet residential streets. Cyclists using the route can easily record travel times from the city boundary to the city centre that are little different from rush hour bus timings. Sections of the route are well used by equestrians who enjoy use of the wide verges which are adjacent to the surface of the path.

The status of Great Central Way has never been recorded as it was considered to be a permissive path. The northernmost section of the route, between Evesham Road and Westbridge is however, recorded as being a cycle track maintainable at public expense, the last section being adopted in 2009. The southern section between Evesham Road and the city boundary and the links to Aylestone Road and Braunstone Lane East are still unrecorded and unadopted.

Being unadopted this section of the route is not subject to a prescribed maintenance regime. Consequently the surface is beginning to deteriorate and is hazardous for high speed cycling in some sections.

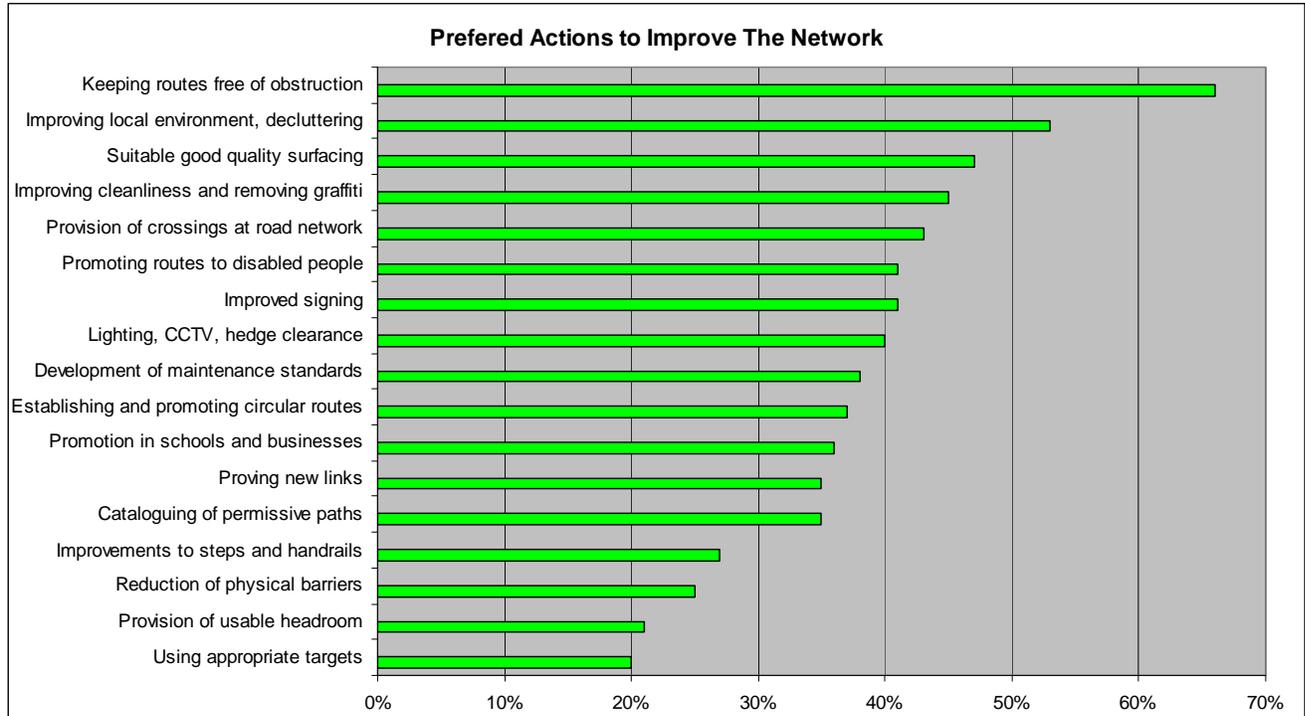
The route used to cross the Bowstring Bridge which was deemed unsafe for use. The section of the route crossing the Bowstring Bridge was the subject of a temporary closure on safety grounds, until its eventual demolition in 2010. The, at the time, unrecorded nature of the route became an issue for the council, when it considered the permanent stopping up of this section of the route, prior to removal of the bridge. To enable the route to be stopped up the council considered the route to be an unadopted cycle track.

To avoid similar problems along the unadopted section of the route it is proposed to introduce the following six point action plan. The action plan will ensure that the public right to use the route is protected, a suitable maintenance regime is introduced on the path to best serve the different uses who enjoy this facility

- The council dedicates the unrecorded sections of the route including the links to Braunstone Lane East and Aylestone Road to a status which reflects their use.
- Minor improvements are made to improve access to the route.
- A comprehensive signing scheme is implemented for the route.
- Consideration is given to the maintenance regimes for the adjacent verges and hedgerows to permit improved access for equestrians.
- The route is inspected to ensure that it is safe for use, to identify any necessary emergency or safety works and to enable the council to make a long term decision as to any necessary repair, adoption and subsequent maintenance.
- That an estimate be produced to determine the cost of bringing the path surface up to a standard which is suitable for adoption.

3.5 Summary of Our Assessment.

3.5.1 To gauge support for a number of the points in our statement of action our questionnaire asked which of the following proposed actions people strongly agreed with, the results are shown in the following graph.



3.5.2 To more accurately address the three areas of assessment included within the legislation we have summarised our assessment as follows:

- **The extent to which the rights of way network meets the present and likely future needs of the public.**

The council has yet to define the full extent of its rights of way network currently only 65km of routes are shown on the definitive map the status of a further 106km still need to be determined. Until this work is substantially completed it is difficult to assess how the network meets present or future needs. It is essential the council proceeds with this work in accordance with its statutory duties. However, as a consequence the network is not stymied by a poorly drafted map and there is opportunity to record unrecorded paths to a higher status to allow for a greater range of users.

There are a number of gaps within the network which need addressing to provide a more comprehensive network. Again some of this could be achieved by mapping to a higher status.

- **The opportunities provided by local rights of way for exercise and other forms of open-air recreation and the enjoyment of the area.**

A total of 90% of the respondents to our questionnaire had used the network in the past 12 months, with 60% of the use being for the purposes of relaxation. The network of paths within the city does provide good coverage across the city and to the wider areas of natural countryside surrounding the city. Work needs to be undertaken to widen the network of recorded bridleways and cycle tracks but this could easily be achieved by recording unrecorded paths to a higher status.

Production and promotion of circular walks, and greater accessibility to the definitive map and maps of other paths, coupled with a robust maintenance regime would help to widen the opportunities for recreation.

- **The accessibility of local rights of way to blind and partially sighted people and those with mobility difficulties.**

The majority of the network - 78% - follows paved surfaces, so accessibility along the network is relatively easy. The various gaps, gates and other barriers which have been installed across the network will need assessing with regard to accessibility. Likewise the information which is provided on the network needs to include references to such features which may impede access. The introduction of a more robust and pre-emptive maintenance regime would also help to improve accessibility.

Chapter 4 Realising The Potential of Our Rights of Way

This chapter contains our Statement of Action as required under section 60 of the Countryside and Rights of Way Act 2000. It also outlines how we intend to realise the recommendations made within our Statement of Action

4.1 The Statement of Action

4.1.1 The Statement of Action is the most important part of the RoWIP as it sets out the list of actions that we intend to take to improve the network and provide greater opportunities for people to use paths.

4.1.2 We have drawn up the following four target areas for improvement within the Statement of Action. Within each area, we have identified a number of individual actions that need to be undertaken to achieve the target. The target areas are listed below, along with a summary of what they are designed to achieve.

Statutory Duties Relating to Recording of Paths and Local Access Forum

- To provide an up to date and extensive Definitive Map & Statement to ensure that known paths are immune from the threat of the 2026 cut off.
- To complement the Definitive Map with a comprehensive record of other paths which are not required to be shown on the Definitive Map and Statement.
- To ensure that the council fulfils its legal requirements regarding the Local Access Forum.

Provide a Better Connected Network Suitable For All Users.

- To provide a network which is free from obvious anomalies, is well connected to the wider highway network and serves as many classes of user as is practically possible.

Provide a Network Which is Easy to Access and Use

- To introduce inspection and defect reporting regimes which will enable our network to be maintained to as high a standard as possible.
- To improve the accessibility of paths for people who are visually impaired or have limited mobility. We will also try to reduce the real and perceived public worries about personal safety on paths.

To Improve the Provision and Availability of Information on The Network

- To ensure that the Definitive Map & Statement is widely available in both paper and digital formats. To bolster this legal record with information on the network of other paths which are not required to be shown on the Definitive Map & Statement.
- To improve the provision of information about the network and access to the countryside.

4.1.3 To help us to achieve our improvements to the network we have prepared our Statement of Action shown in Table 4.1.

4.2 Involvement of Leicester Local Access Forum.

- 4.2.1 It is proposed that the views of the Local Access Forum will be sought for many of the individual actions within the Statement of Action. The council values the views of the Forum and they will be useful to help us determine whether our recommendations are appropriate to the needs of users. Given the depth of collective knowledge within the Forum, they may also be able to identify matters which we have overlooked or suggest alternative methods and approaches which will help towards our targets.
- 4.2.2 The Statement of Action indicates those items upon which it is intended to consult with the Local Access Forum. The forward programme of improvement, which arises out of the Statement of Action, will also be used to develop a forward works programme for the Forum.
- 4.2.3 It is also hoped that the Local Access Forum can be used as a means of measuring, or progress towards, the objectives set within the RoWIP. As the Forum is an independent body, made up of elected members and individuals who have an interest in rights of way matters, they are ideally placed to offer an unbiased appraisal of the progress being made by the council. Under section 94 of the Countryside and Rights of Way Act 2000, the council is required to have regard to any relevant advice given to them by a Forum in carrying out its functions. This should ensure that the Forum can actively help the council to implement its RoWIP.
- 4.2.4 As part of the RoWIP we will consider how we can raise the profile of the Forum. This will involve an appraisal of the exposure currently given to the Forum. We will also seek to add increase the size of the membership of the Forum via a series of recruitment initiatives. This will ensure that the Forum membership remains within the limits set within the legislation and is bolstered by the input and enthusiasm of new members.

4.3 Delivery Incentives

- 4.3.1 There are the following high-level drivers for delivering improvements to the rights of way network:
- Some of the improvements which have been highlighted are a statutory responsibility. The council has no option but to undertake these duties.
 - Many of the improvements can be implemented relatively cheaply and with minimal disruption to users and local residents.
 - The improvements will contribute towards the wider objectives of the LTP3.
 - The improvements will help the council realise its 'One Leicester' vision.
 - A number of the proposals arise from suggestions made by the Local Access Forum and other path users.

4.4 Funding of The Works

- 4.4.1 The RoWIP works programme has been, and will continue to be, developed in parallel with the programmes arising from our LTP, with rights of way improvements being funded predominantly from the Integrated Transport capital programme and as part of new developments. A Draft Works Programme 2011 to 2021 is shown in Table 4.4. This will be refined on an annual basis depending on budget allocations, and also taking into account on-going joint working, advice from the Local Access Forum and identifying opportunities for match funding and contributions.
- 4.4.2 We will also work to identify alternative funding streams for work on the network. This could include seeking funding from other areas of the council, or securing external contributions from developers. The possibility of joint funding with the county council will also be explored with regard to schemes which cross the boundary. Contributions in the form of funding or voluntary working, from other external organisations will also be pursued.
- 4.4.3 The effects on funding, being brought about as a result of the Government's reduction of the budget deficit; will have an affect on how and to what extent the council funds its works. The exact details of how this reduction will affect the rights of way service provided by the council is not yet fully know. It is however, apparent that the use of alternative funding streams and or working practices will be necessary. The work of the Local Access Forum in identifying and lobbying for such funds will be of immense benefit with this aspect of funding.

Procurement

- 4.4.3 The council has in-house contractors delivering civil engineering and grounds maintenance services and a long-term partnership with a commercial public lighting contractor. Work of values up to £150,000 can be let to City Highways, the council's own civil engineering contractor, using our term highway maintenance contract. Most rights of way maintenance and improvements are likely to fall within its scope. Larger construction projects (£150k-£2m) are to be framework-contracted to a limited set of contractors.

Maintenance Works

- 4.4.4 Maintenance needs are identified from reports by the public and inspections by council officers. We have allocated £15,000 per annum in our highway maintenance revenue budget for routine maintenance.
- 4.4.5 The use of voluntary organisations could be considered and developed for some rights of way inspection, maintenance and improvement works.

4.5 Monitoring of Our Progress

- 4.5.1 The initiatives and projects will be managed and monitored through our established programme and project management arrangements, using our quality management system.

Local Access Forum

- 4.5.2 A number of the issues included in our Statement of Action will need further scrutiny and consideration by the Local Access Forum. The minutes of their meetings will, therefore provide a means of checking our progress. It is proposed that a summary of progress with the matters listed in the Statement of Action be considered by the Local Access Forum at their Annual Meeting. This will have to be discussed with, and agreed by, the Local Access Forum. The benefit of this would be that our progress could then be recorded in the Local Access Forum's Annual Report. The annual report has a wide circulation and would be a useful means of exposure for our efforts.

Department for Transport

- 4.5.3 As the RoWIP is integrated with the LTP, progress will be reported to the Department for Transport in accordance with their reporting requirements of local authorities.

Performance Indicators

- 4.5.4 To assist in monitoring the effectiveness of our Statement of Action we have adopted three high level performance indicators and have set targets for these indicators. The indicators are those relevant to the rights of way network and RoWIP taken from the LTP3.

Performance Indicator L LTP X: Percentage of Paths Easy to Use

- 4.5.5 'Easy to use' has been defined as a path that is "signposted or waymarked, free from unlawful obstruction, overhanging vegetation and will have surfaces and lawful barriers in good repair". Our rights of way network is an integral part of the highway network and, as such, has an important role in improving accessibility to everyday facilities as well as the wider county network for leisure use. The indicator is measured annually. We will allocate sufficient staff resources to make rapid progress to 95% as this represents good value for money.

Performance Indicator L LTP X: LTP3 Annualised Index of Cycling Trips

- 4.5.6 During the past five years we have recorded a large increase in the number of people cycling. We have improved our monitoring by installing ten radar-based continuous automatic cycle monitoring sites both on and off road. We have set our target to continue to increase cycling

Performance Indicator L LTP X 21: Percentage of People Doing Over 30 Minutes/Day Physical Exercise by Walking and/or Cycling.

- 4.5.7 We are keen to continue to promote healthy lifestyles both through improving access to healthy food and other initiatives to facilitate an increase in walking and cycling, arising from engineering, education or encouragement measures. Data for this indicator is to be obtained from the Sport England/MORI national (England) survey of participation in sport and recreational physical activity. This will assist in comparisons between Leicester and other areas.

4.6 Summary

- 4.6.1 The RoWIP fits very comfortably with our transport vision and objectives and strengthens our ability to deliver our LTP programme. The plan will be used by council officers, partners, consultants and developers to ensure consistent delivery of the desired improvements to the network. This is a living document that will develop and change over time, in line with our business planning and financial processes. We will be continually reviewing progress even though a new edition of the RoWIP is not formally required for another ten years.

The Statement of Action

Target Area For Improvement	Para.	Recommendation	Dates	Leicester City Council Partners	Statutory Duty?	Monitoring
Statutory Duties Relating to Recording of Paths and Local Access Forum.	3.1.2 to 3.1.5	Produce a programme of mapping showing the order in which paths will be added to the definitive map, including these crossing council housing	2011 - 2026	Local Access Forum	Requirement of the Wildlife and Countryside Act 1981.	Progress measured against programme of mapping and anomaly removal. Minutes of Forum meetings and inspection of definitive map. High performance indicator reported.
	3.1.3	Report progress made with the programme of mapping to each meeting of the Local Access Forum.	2011 - 2026			
	3.1.10	Identify anomalies on the definitive map and propose a programme of changes to effect their removal from the map.	2011 Then per programme.			
	3.1.6	Compile and maintain a register of definitive map modification order applications.	2010		Requirement of the Countryside and Rights of Way Act 2000.	Register present on council website.
	3.1.14 3.1.15	Ensure that paths crossing the boundary between the city and the county are of uniform status	2011 - 2026	Leicestershire County Council, Local Access Forum, Leicestershire Local Access Forum	No	Minutes of Forum meetings.
	3.1.12 3.1.13	Ensure that the List of Street and the Definitive Map form a set of compatible records.	2011 - 2026		Requirement of the Highways Act 1980, Wildlife and Countryside Act 1981 respectively.	Comparison of two documents.
	3.2.16	Record cycle tracks forming part of the highway in the List of Streets. Identify within the List of Streets these routes which are part of the National Cycle Network and other named routes.	2011 - 2026	Sustrans	Requirement of the Highways Act 1980.	Inspection of List of Streets.
	3.3.8 3.3.9	Compile a catalogue of known permissive paths including these cycle tracks which do not form part of the highway.	2011 - 2026		No	Catalogue available upon request.
	3.3.8	Compile a register of declarations made under section 31A of the Highways Act 1980.	2011		Requirement of the Highways Act 1980.	Register present on council website.
	4.2.4	Recruit new members to the Local Access Forum	2011	Local Access Forum	Requirement of the Countryside and Rights of Way Act 2000.	Minutes of Forum meetings.
	4.2.4	Consider how the profile of the Local Access Forum can be raised.	2012			
	4.2.4	Review information available regarding the work of the Local Access	2011			
	Provide a Better Connected Network Suitable For All Users	3.1.11	Identify any missing links within the network particularly linking communities with facilities and compliment with a series of site visits to prove usage by the public.	2011 - 2026	Local Access Forum, Users, Landowners	No
3.2.19		Identify routes, especially these within the Beaumont Leys and Aylestone Meadows areas, which would enhance the historical network of bridleways within the city.	Following mapping of these areas.			
3.2.22		Work with Parks Services and equestrian groups to explore the possibility of allowing equestrian use within a number of the city's parks.	2012	Park User Groups, Equestrian Users, Local Access Forum		
3.2.20		Identify wide verges which could be used by equestrians as part of a wider publicised route.	2012	Equestrian Users, Local Access Forum		
3.1.11		Consider the advantages of recording routes to a higher status to provide additional links for a wider range of users.	2011 - 2026	Sustrans, Local Access Forum, User Groups, Land Owners.		
3.11.2 3.12.1		Consider improved access to the waterside, the natural environment, parks and open spaces, either with additional routes or improvements to existing.	2013	Local Access Forum, Land Owners, British Waterways, Leicestershire County Council		
Provide a Network Which is Easy to Access and Use	3.3.2	Keeping routes free from obstructions.	Ongoing.		Requirement of the Highways Act 1980.	Routes free of obstruction. High performance indicator reported.
	3.3.2	Produce an annual programme of maintenance to deal with the seasonal growth of vegetation at known problem areas.	2012 Then Ongoing.		No.	
	3.4.4 3.4.5	Respond to maintenance requests made on patch walks, walking audits and from users.	Ongoing.		Requirement of the Highways Act 1980.	
	3.3.5	Engage with known path users to encourage them to report defects on the network.	Ongoing.			
	3.2.11 3.2.12 3.3.3 3.3.4	Compile a list of locations of steps, steep gradients and unbound surfaces on the network and consider increased maintenance inspection frequencies where they are present.	2012 Then Ongoing.		No	List of locations available.
	3.3.4	Produce an schedule of signs and waymarkers to develop an annual programme of maintenance and to identify where new signs and waymarkers are required.	2012 Then Ongoing.			Schedule complete. Programme complete and implemented. High performance indicator recorded.
	3.3.12	Arrange a series of inspections of paths not forming part of the highway maintainable at public expense and consider whether they should be adopted as such.	2011			Inspection complete and results available. Works undertaken.
	3.2.9	Identify the location of all stiles within the city and remove or replace, if necessary, with a more user friendly feature.	2011 - 2021			List of locations produced. Stiles removed or replaced.
	3.2.10	Identify all gates, barriers, or other such restriction, on the network and determine whether or not it impedes lawful use. Produce a programme of removal or replacement of these barriers which impede lawful use.	2011 - 2021		Requirement of the Highways Act 1980.	Routes free of obstruction. High performance indicator reported.
	3.2.12	Provision of suitable surfacing relevant to users needs.	2011 - 2021	Land owners.	No	Work undertaken.
	3.9.1	Provision of crossings where routes meet road network.	2011 - 2021	Local Access Forum, User Groups,		
	3.4.7 3.4.8	Consider requests for barriers to address misuse by motorcycles in line with the methodology promoted by British Waterways.	2011 - 2021	Police, User Groups,		
	3.4.9 to 3.4.11	Measures to reduce fear of crime, lighting, CCTV, hedge clearance, gating orders.	2011 - 2021	Local Access Forum, Land Owners		Minutes of Forum meetings. Register of Gating Orders.
	To Improve The Provision and Availability of Information on The Network	3.1.7	Ensure that a copy of the definitive map and statement is available for public inspection at New Walk Centre.	2011		Requirement of the Wildlife and Countryside Act 1981.
3.1.7		Make information on the network available to other colleagues who would find it of benefit.	2012		No	Information available.
3.1.8		Consider how the definitive map and statement can be adequately displayed on the council's website.	2012			Inspection of council website.
3.1.9		Explore with Leicestershire County Council ways of sharing information on our respective networks.	2013	Leicestershire County Council, Local Access Forum, Leicestershire Local Access Forum		Inspection of respective websites.
3.4.14		Undertake a review of the information available for users of the network and consider how improvements can be made.	2012	Local Access Forum		Minutes of Forum meetings.
3.4.11 to 3.4.13		Publish a number of city walking guides catering for various levels of mobility.	2011 - 2021	Local Access Forum, Healthcare Trust, Leicestershire County Council.		Minutes of Forum meetings. Guides available.

Draft Works Programme 2011 to 2021

Target Area For Improvement	Recommendation For Work Arising From Statement of Action	Statutory Function	Resource	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
				Costs	Costs	Costs	Costs	Costs	Costs	Costs	Costs	Costs	Costs
Statutory Duties Relating to Recording of Paths and Local Access Forum	The following items need no further funding other than officer funding. Each of the items is ongoing.												
	Compile and maintain a register of definitive map modification order applications.	YES	Technician Transport Strategy										
	Ensure that the List of Street and the Definitive Map form a set of compatible records.	YES	Technician Transport Strategy										
	Record cycle tracks forming part of the highway in the List of Streets.	YES	Technician Transport Strategy										
	Compile and maintain a register of declarations made under section 31A of the Highways Act 1980.	YES	Technician Transport Strategy										
	Report progress made with the programme of mapping to each meeting of the Local Access Forum.	YES	Technician Transport Strategy										
	Compile a catalogue of known permissive paths including these cycle tracks which do not form part of the highway.		Technician Transport Strategy										
	Ensure that paths crossing the boundary between the city and the county are of uniform width.		Technician Transport Strategy										
	The following items need funding in addition to officer funding.												
	Definitive mapping including production of programme, including paths in council housing	YES	Legal Services	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000
Identify anomalies on the definitive map and propose a programme of changes to effect their removal from the map.	YES	Legal Services	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	
		Physical Works	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	
Facilitation of Local Access Forum	YES	Annual Report Expenses	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	
		Recruitment of New Members	£2,000			£2,000			£2,000			£2,000	
Provide a Better Connected Network Suitable For All Users	The following items need no further funding other than officer funding. Each of the items is ongoing.												
	Work with Parks Services and equestrian groups to explore the possibility of allowing access to the network.		Technician Transport Strategy										
	Consider the advantages of recording routes of higher status to provide additional links for a wider range of users.		Technician Transport Strategy										
	The following items need funding in addition to officer funding.												
	Identify any missing links within the network.		Legal Services			£1,000	£1,000	£1,000	£1,000				
		Physical Works			£10,000	£10,000	£10,000	£10,000					
Provision of Bridge over Melton Brook		Bridges Team (a)	£50,000										
Improved access to the waterside, natural environment, parks and open spaces, either		Physical Works					£10,000	£10,000	£10,000				
Provide a Network Which is Easy to Access and Use	The following items need funding in addition to officer funding.												
	Keeping routes free from obstructions. Respond to requests made on path walks.	YES	Highway Maintenance (b)	£15,000	£15,000	£15,000	£15,000	£15,000	£15,000	£15,000	£15,000	£15,000	£15,000
	Produce an programme of maintenance to deal with the seasonal growth of vegetation at known problem areas. Compile a list of steps, gradients, unbound surfaces, signs and waymarks, stiles, barriers, etc to assist maintenance inspections and to identify access improvements.	YES	Vegetation clearance	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000
		YES	Surfaces, steps, gradients	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000
		YES	New waymarks and signs	£2,500	£2,500	£2,500	£2,500	£2,500	£2,500	£2,500	£2,500	£2,500	£2,500
		YES	Improvements to stiles	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000
		YES	Improvements to barriers	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000	£1,000
	Arrange a series of inspections of paths not forming part of the highway maintainable at public expense and consider whether they should be adopted as such.		Inspection of unadopted paths	£150,000									
	Thurmaston Footpath surfacing and environmental improvements.		Works to adopt paths (c)			TBE	TBE	TBE					
	Consider requests for barriers to address misuse by motorcycles in line with the Measures to reduce fear of crime, lighting, CCTV, hedge clearance, gating orders.		City Highways (d)						£20,000				
		Physical Works	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	
		Physical Works (e)	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	
To Improve The Provision and Availability of Information on The Network	The following items need no further funding other than officer funding. Each of the items is ongoing.												
	Make information on the network available to other colleagues who would find it of benefit.		Technician Transport Strategy										
	Consider how the definitive map and statement can be adequately displayed on the website.		Technician Transport Strategy										
	Explore with Leicestershire County Council ways of sharing information on our respective websites.		Technician Transport Strategy										
	Undertake a review of the information available for users of the network and consider how to improve it.		Technician Transport Strategy										
The following items need funding in addition to officer funding.													
Ensure that a copy of the definitive map and statement is available for public inspection at the City Hall.	YES	Printing	£500	£500	£500	£500	£500	£500	£500	£500	£500	£500	
Publish a number of city walking guides catering for various levels of mobility.		Production and Printing	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	£5,000	
Yearly Total For Each Target Area				2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
Statutory Duties Relating to Recording of Paths and Local Access Forum				£7,000	£5,000	£5,000	£7,000	£5,000	£5,000	£7,000	£5,000	£5,000	£7,000
Provide a Better Connected Network Suitable For All Users				£50,000	£0	£11,000	£11,000	£21,000	£21,000	£10,000	£0	£0	£0
Provide a Network Which is Easy to Access and Use				£184,500	£34,500	£34,500	£34,500	£34,500	£54,500	£34,500	£34,500	£34,500	£34,500
To Improve The Provision and Availability of Information on The Network				£5,500	£5,500	£5,500	£5,500	£5,500	£5,500	£5,500	£5,500	£5,500	£5,500
Annual Total				£247,000	£45,000	£56,000	£58,000	£66,000	£86,000	£57,000	£45,000	£45,000	£47,000

Notes: All funds made available from integrated Transport Capital, Capital Maintenance and Revenue Budgets as appropriate subject to approval
(a) Scheme carried over from previous RoWIP
(b) Highway maintenance revenue budget, for routine maintenance.
(c) Cost to be estimated following inspection.
(d) Scheme carried over from previous RoWIP. Possibly developer funded.
(e) Works would normally be funded by applicant requesting the works.

Leicester's Local Transport Plan
2011-2026

Leicester City's Network Management Plan 2011-2015



**LEICESTER'S LOCAL TRANSPORT PLAN
2011 – 2026**

**LEICESTER CITY'S
NETWORK MANAGEMENT PLAN
2011 - 2015**

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

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Leicester City Council
 Regeneration, Highways & Transport
 New Walk Centre
 Welford Place
 Leicester LE1 6ZG

Contact Name: Ed Kocik
 Tel No.: 0116 2232180
 Email: ed.kocik@leicester.gov.uk
 Fax No: 0116 2294109

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1 Introduction

The Network Management Plan (“NMP”) is an operational plan that is part of Leicester’s Local Transport Plan 2011 – 2026.

This Network Management Plan (“NMP”) sets out how Leicester City Council is addressing the objectives of the Network Management Duty (“NMD”) imposed on all local authorities under the auspices of the Traffic Management Act 2004 (“TMA”).

Whilst the production of this Plan is not a statutory requirement, the Network Management Duty is and the existence of the Plan shows the Authority’s commitment to the Duty and its ultimate objective of reducing traffic congestion within Leicester.

Integrated systems and established communications are of paramount importance in achieving the objectives of the Duty. The processes and systems detailed in this Plan collectively help meet the Duty by enabling efficient and effective network management to take place, thereby minimising traffic congestion.

This NMP sets out the authority’s approach and describes the actions considered and taken to addressing the Duty obligations.

1.1 Consultation

Production of this plan has been an authority-wide approach with input from different service areas whose day-to-day business impacts on traffic management and ultimately the authority’s ability and approach to carrying out its objectives under the Network Management Duty.

2 Traffic Management Act 2004 (TMA)

The Traffic Management Act received Royal Assent on 22nd July 2004.

Prior to the implementation of the TMA local authorities had limited powers under the New Roads and Street Works Act 1991, Highways Act 1980 and the Road Traffic Act 1984 to address the issue of congestion. The main purpose of the TMA is to give local authorities the responsibility and additional powers to deal with traffic congestion and reducing disruption on the road network.

Part 2 of the Act, came into force on 4th January 2005 placing a network management duty on local traffic authorities. The Department for Transport (DfT) published the statutory guidance on the Network Management Duty (NMD) in early 2005. This required the appointment of a Traffic Manager and highlighted many other issues essential to the management of the road network that affect all departments within the council.

2.1 Network Management Duty

Section 16(1) of the TMA states:

“It is the duty of a local traffic authority to manage their road network with a view to achieving, so far as may be reasonably practicable having regard to their other obligations, policies and objectives, the following objectives:

- (a) securing the expeditious movement of traffic on the authorities road network; and**
- (b) facilitating the expeditious movement of traffic on road networks for which another authority is the traffic authority.”**

The term traffic is not restricted to motorised vehicles but includes all categories of road user, including pedestrians and cyclists.

The duty is qualified in terms of practicability and the other responsibilities of the authority, such as road safety, and should compliment other policies and actions. To achieve this balance, the city council has embedded the desired outcomes and appropriate policies and plans under the Network Management Duty within Leicester’s Local Transport Plan 2011 to 2026 in order to achieve a coherent approach.

The action to be taken by an authority in performing the duty, as described in Section 16(2) of the TMA, includes any action which will contribute to securing:

- (a) the more efficient use of the road network; or
- (b) the avoidance, elimination or reduction of congestion or other disruption to the movement of traffic on the network or a road network for which another authority is the traffic authority.

In essence, the duty requires local traffic authorities to do all that is reasonably practicable to manage the network effectively to keep traffic moving. The overall aim of the expeditious movement of traffic implies a network that is working efficiently without unnecessary delay to those travelling on it.

2.2 Key Objectives of Network Management Duty

The key objectives of the duty are:

- Considering the needs of all road users;
- Co-ordinating and planning works and known events;
- Gathering and providing information needs;
- Incident management and contingency planning;
- Dealing with Traffic Growth;
- Working with all stakeholders – internal and external;
- Ensuring parity with others; and
- Providing evidence to demonstrate network management.

Traffic Manager

The TMA requires the appointment of a Traffic Manager to perform the tasks required to fulfil the network management duty. The current Traffic Manager for Leicester City Council was appointed in November 2008 and is the Head of Traffic Management within the Regeneration, Highways and Transportation Division.

It is the Traffic Manager's responsibility to deliver a coordinated, planned, and effective response to the Network Management Duty across the whole organisation and utilities, and to ensure that agreed actions are implemented. The Traffic Manager provides a focal point within Leicester City Council and champions the need to consider the duty in all areas of work.

Secretary of State Intervention

Should it be considered that the authority is, or may be, failing to perform all or some of its Network Management Duty the TMA provides the Secretary of State with the power to intervene and appoint a Traffic Director to perform that Duty. The Traffic Management (Guidance on Intervention Criteria) (England) Order 2007 outlines how the Secretary of State will determine how a local authority is performing its network management duty prior to taking a decision on any intervention measures.

3 Strategies and Policies

Leicester City Council has adopted a number of inter-connected strategies and policies that impact on one another. They are also influential in their impact on the Network Management Plan and vice versa.

3.1 One Leicester

Leicester's new 25 year strategy – One Leicester – contains 7 key priorities which the council, with its partners, will be focussing on over the next 25 years. The strategy was agreed and launched in March 2008. The seven priorities are:

- Investing in our children
- Planning for people not cars
- Creating thriving and safe communities
- Reducing our carbon footprint
- Investing in skills and enterprise
- Improving wellbeing and health
- Talking up Leicester

The following extracts from the One Leicester Strategy are identified as the key areas that are intended to have a direct positive impact not only on traffic congestion but also on pedestrians and cyclists:

3.1.1 Planning for people not cars

We want to make Leicester a city for people and families, rather than a city for cars. Over the next 25 years we will use the planning system and investment to transform Leicester into a city of attractive buildings, leafy walkways, cycleways and pleasant, open spaces.

This will not only change the feel of the city but by getting people out of their cars, will create a friendlier, safer feeling and a healthier city.

We want to make it easy to get from any part of the city to any other part of the city without using a car. Pivotal to achieving this is making sure that, when any plans are considered, pedestrians and cyclists are considered first.

Creating walking and cycling networks

We will develop a network of safe routes for cycling and walking. This network will cover journeys into and around the city centre from all major destinations, between key places within the city and along routes used by schoolchildren to get to school. We will create safe, dedicated cycleways – not just lines painted on the side of roads – and encourage school children to walk or cycle to school. We will also improve cycle training for children and provide more safe places to lock bicycles.

3.1.2 Reducing our carbon footprint

We want Leicester to play its part in tackling global warming by having the lowest 'carbon footprint of any major city in Britain. Global warming is a fundamental issue facing the world and we can take the lead in tackling its effects.

We have a world-class expertise in the technology of renewable energy and energy efficiency in the city. By building on our track record, not only can we make a major

contribution, but also position Leicester as a progressive city that is looking to the future.

Leicester's Approach to Reducing Emissions – progress so far

Leicester city council has had a long-standing commitment to tackling climate change, with a Climate Change Strategy first published in October 2003 and a long term aspirational target to reduce city-wide carbon dioxide emissions to 50% of the 1990 level by 2025/26 established corporately in 2006/07. We had a Local Area Agreement target to reduce per capita CO2 emissions in the city area, from 6.9 to 6.1 tonnes by 2010/11 as measured through National Indicator NI186.

The council has been working on the basis that the city-wide target will require broadly equivalent pro rata emissions cuts from each of the main emissions sources: domestic, commerce/industry and transport. On this basis, and taking account of the city's 2007 emissions levels compared to its 1990 baseline, an average reduction rate of 3.5% (over 12,000 tonnes) per annum would be required for transport. This is about three times the rate inferred from the Government's 2020 target. This city-wide target is mirrored by an equivalent target to reduce the council's own emissions by 50% of the 2008/09 level by 2025/6 and the authority has recently signed up to the 1010 campaign, committing to an 8.95% reduction of its CO2 emissions by July 2011.

Improving Travel Planning

National research indicates that commuter car driving can be reduced by 10-30% by implementing workplace travel plans and school travel plans can reduce traffic by 8-15%. We have up to now dedicated only limited resources to facilitate travel plans. It is a very cost effective way to reduce vehicular traffic. The best way to move forward against our objectives and targets will be to direct dedicated staff resources towards travel plan development at businesses within the Central Transport Zone (CTZ) and to all city schools. Travel plans will also be required for all new commercial development as part of the planning process. The traffic reduction will help us to reduce nitrogen dioxide levels.

We will expand the work we are currently doing to improve journey planning and car sharing to support all large and medium sized organisations in the city. This programme of work will be linked to targets for reduced car use, impacting on our congestion reduction under the Network Management Duty.

3.2 Leicester's Local Transport Plan 2011-2026 (LTP3)

The LTP3 is the council's key document detailing various strategies that will deliver the council's longer-term transport strategy.

Our proposed vision for Transport in Leicester 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.'

Successful delivery of our local transport plan will enable us to take a really big step forward towards realising this ambition. It will also enable us to make more rapid progress in delivering attractive alternatives to car travel and to cater for some of the highest levels of housing growth in the country to 2026 and beyond whilst:

- Keeping congestion under control and improving accessibility for all, but particularly for deprived groups, to support a new prosperity with economic growth and new jobs
- Encouraging more people walking, cycling and using public transport to reduce carbon emissions
- Providing a transport system that facilitates for a safer and healthier way of life

Locally this translates into many more residents walking and/or cycling the shorter journeys in and around the city and using the bus for longer journeys, particularly into Leicester city centre, instead of using the car.'

Our proposed local transport goals and objectives are listed below:

Goal: Economic Growth Supported – Leicester is more prosperous

- **Objective:** To Reduce Congestion and Improve Journey Times

Goal: Carbon Emissions Reduced – Leicester' carbon footprint is reduced

- **Objective:** To Reduce Carbon Emissions

Goal: Equality of Opportunity Promoted – Leicester's people are more confident

- **Objective:** To Improve Connectivity and Access

Goal: Better Safety, Security and Health – Leicester's people are more healthy, safe and secure

- **Objective:** To Improve Safety, Security and Health
- **Objective:** To Improve Air Quality and Reduce Noise

Goal: Quality of Life and a Healthy Natural Environment are improved - Leicester is a more attractive place

- **Objective:** To Improve Quality of Life
- **Objective:** Manage to Better Maintain Transport Assets

Goal: Population Growth is supported – Leicester's Population is increased in a sustainable manner

- **Objective:** To Reduce Congestion and Improve Journey Times

3.3 Our Congestion Strategy – Reduce Congestion and Improve Journey Times

We have endeavoured to produce a strategy that is realistic with regard to the resources that we are likely to have available and flexible enough to adapt to changing circumstances. Thus, our approach to the delivery of this objective is split into short-term and medium to longer-term. We have concluded that a strategy

based on buses will give the best value for money outcomes for Leicester and the suburbs (Central Leicestershire). We have successfully delivered bus improvements to key corridors into the city and worked hard on park and ride in partnership with the county council. As a consequence bus patronage is high. However we have not invested in bus improvements in the city centre itself and there is now a substantial city centre deficit in terms of both quality and quantity for the bus service.

Short Term

Our immediate focus will be in delivering a package of city centre bus improvements in order for us to realise the key transport outcomes for Leicester. Encouraging walking and cycling will also be part of the strategy.

We want to maintain the current direction and increase the momentum by doing more of the same better, with help from the softer measures. This will allow us to further increase bus user satisfaction and bus patronage. Buses allow for full flexibility within a concentric area such as Central Leicestershire. This currently provides the best value for money and buses are able to share the available road space with other modes in a reasonable and equitable way to get the most out of the available space. This helps us in tackling congestion, carbon emissions and air quality without adversely affecting car travel in a value for money way. We acknowledge that many journeys will still be made by car either because there is no reasonable alternative or a car is the preferred mode of travel. We will increase the efficiency of the network by improved coordination of traffic signals and junction improvements that will help all modes.

Thus, our approach to the delivery of this objective, at least in the **short term**, is principally focused on making the very best use of what we already have, including improving the city centre part of the bus service. Managing and maintaining our transport system, roads, bridges, footways and cycleways to the best standards that we can afford. This will be supported by our efforts to influence peoples' travel choices through better marketing and promotion, travel planning and provision of appropriate improvements to walking, cycling and public transport generally.

Medium to Long Term

Having noted the strong business cases that have evolved for trams in other UK cities, we will be examining the case for trams in Leicester. Trams have the ability to provide high user satisfaction and persuade car users from their cars whilst having no emissions at point of use and carrying large passenger volumes. We believe that the stronger business cases will emerge where bus patronage is currently high on key corridors into the city. Buses will still play a key part in a newly emerging transport system that includes trams along trunk routes with buses as feeders.

In the **medium to longer term** will need to investigate the feasibility of delivering more pro-active and radical ways to reduce the demand for car travel.

We will intervene by facilitating a reduction in car use by delivering quality improvements to bus travel, to walking and cycling, whilst managing car parking supply. We have had a lot of success with bus travel with improvements in the suburbs and along the radial routes leading to increased bus patronage into the city

centre. However we have not yet progressed improvements within the city centre itself which is the main gateway into Leicester. We will focus on quality improvements to the bus termini, bus infrastructure and bus routing within the city centre to both make good the current deficit in quantity and quality and allow for future growth. Bus use is by far the dominant non car transport mode and the mode that has the potential to make the really big impact. Although the potential numbers are much smaller, walking and cycling still have a helpful contribution to make to encouraging less car use and also help people to a healthier life. Walking and cycling schemes will be implemented as well as bus schemes. Commercial travel planning, school travel planning and personalized travel planning will continue to support these schemes and so support carbon reduction. Proposals for a 'Smarter Choices – Low Carbon Company' will be taken forward, with all options considered including a trust route. Such a company would be totally focused on reducing car mode share and thus carbon by increasing bus patronage, walking and cycling and would preferably operate throughout the Leicester urban area.

Summary

The immediate emphasis in the short to medium term will be on delivering a package of measures that are together best able to make a real difference to reducing car mode share and increasing bus use. A key component of this package will be bus improvements within the city centre underpinned by a programme of softer measures.

3.4 Public Rights of Way Improvement Plan (ROWIP)

The Public Rights of Way Improvement Plan is a statutory requirement under Sections 60 and 61 of the Countryside Improvement Act 2000.

The Improvement Plan identifies how the rights of way network meets the needs of users, for travel, exercise, recreation and highlights measures required to address shortfalls, particularly around accessibility of the network.

Leicester's Rights of Way Improvement Plan

The council's first RoWIP was awarded first place in the improving accessibility for all category of Natural England's ROWIP awards, held in March 2009. It recognised the role played by our RoWIP in improving accessibility to the network.

In our second RoWIP we have also identified that a number of well used paths within the city, in particular sections of the cycle track network are unadopted. This is leading to issues with the condition of these routes as they are not subjected to the levels of inspection or maintenance which is enjoyed by those highways maintainable at public expense.

We will seek better ways to report and respond to maintenance issues identified on the network. This may be achieved by increased inspections on various routes, the production of a schedule of features and engaging with known path users who will be encouraged to report matters requiring attention.

The improvements will encourage increased usage of the public rights of way resulting in a reduction in the use of cars.

3.5 Signing Strategy

Direction signs conveying clear and unambiguous information to road users are a useful tool in the management of the highway network. Signs that are quickly and easily understood will direct traffic quickly, easily and smoothly through the traffic network.

National surveys have indicated up to 16% of traffic is lost at any one time. We are also aware that some through-traffic tends to pass through the city centre rather than using the outer ring road. We will improve signing to reduce lost traffic and ensure that traffic uses the most appropriate route. From the research we have undertaken, total vehicle mileage could be reduced by 1.5 % over the principal road network with improved and comprehensive signing. The Freight Quality Partnership (FQP) has focused on the need for improved freight signing. This helps with reducing congestion with less lost traffic and fewer large vehicles obstructing the road whilst asking for directions. It also helps with improving air quality as LGVs emit proportionally larger amounts of nitrogen dioxide than cars so any impact of improved LGV signing will particularly benefit nitrogen dioxide levels.

In LTP3 signing is recognized as an important strand of a number of our strategies:

- General route signing (congestion)
- Freight signing (accessibility)
- Walking and cycling (congestion, safety, but mainly accessibility)

Improvements to general traffic signing will be primarily implemented through our asset management strategy. Where appropriate, the new signs will include adding in bridleway and footway information determined through the Rights of Way Improvement Plan (RoWIP). We will continue to develop the freight-signing programme.

Leicester City Council's signing strategy represents the principles involved in the design and implementation of direction signing schemes in the City of Leicester within the regulations contained in the Traffic Signs Regulations and General Directions.

The council acknowledges the importance of the signing strategy in the context of network management and is seen as a key component in the management of the network hierarchy

3.6 Transport Asset Management Plan (TAMP)

The maintenance of our transport infrastructure is crucial to the council meeting its strategic goals. The council's Transport Asset Management Plan (TAMP) sets out the council's strategy for the way it will manage the maintenance of its transport assets. This is against a background of deteriorating assets, increasing costs, a wide ranging reduction in funding from central government and a cap on increases in Council Tax. At the same time as the population grows and the climate is changing, there is ever increasing pressure on our transport assets.

The TAMP explains how the transport assets in Leicester will be managed by:

- integrating the recording and maintenance of a comprehensive inventory of the assets,
- carrying out regular inspection and assessment of the condition of the assets,
- designing, planning and programming of the maintenance works balancing the council's duty of care to the travelling public, with the budget available in one continuous process.

All the inputs and outputs to this process will be monitored on a regular basis to ensure performance is optimised.

The maintenance strategy acknowledges the different standards of maintenance; safety, serviceability and sustainability.

The Transport Asset Management Plan (TAMP) is sub-divided into the following:

Transport Asset Management at Leicester

Gives an overview of Leicester's assets and explains our approach to asset management planning at Leicester City Council.

Levels of Service

Defines the levels of service that are proposed, sets out how services are delivered and arrangements for monitoring performance.

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.

Lifecycle Management Plans

Explains how the specific asset grouping is managed and actions to improve the service provided. This includes:

- Carriageways and Footways
- Highway Structures
- Car Parks, Bus Station & Bike Park
- Street Lighting
- Traffic Signals & associated equipment
- Trees & Landscaping
- Winter Service
- Street Furniture

Drainage Asset Management Plan (DAMP)

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 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).

Financial Management

The council makes asset management investments using finances from a variety of sources. Different assets attract finances from different sources.

The Asset Inventory will be developed in accordance with the County Surveys 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*'.

Forward Works Programme

The works programmes that form the forward works programme are:

- Local Transport Plan Integrated Transport Capital Programme
- Local Transport Plan Capital Maintenance Programme
- Highways Maintenance Revenue Programme
- City Council Capital Programme
- Developer funded schemes
- Major Scheme

In addition to the city council's works programmes there are developers' highway related works constructed to facilitate their developments. These works are 'adopted' by the city council, as Highway Authority, and then become highway maintainable at public expense.

TAMP is a strategic document which in many respects directly impacts on this Network Management Plan and is an integral part of the Council's future strategy to fulfil its Network Management Duty. Actions from the plan will directly impact on the transport network. Failure to meet programmes could potentially result in failure to deliver the Network Management Duty.

The TAMP Action Plan sets out our actions for the future in order to meet the aims and objectives of TAMP. This Action Plan also acts as a tool for monitoring progress.

3.7 Roads Hierarchy

Leicester's highway network is classified as follows:

- Primary and Principal Routes (A roads) - length 91.25 km
- Classified Non-Principal (B and C roads) - length 60.5 km
- Unclassified Roads - length 686.9km
- Footways 1a, 1, 2, 3 and 4 - length 1300 km (1a, 1 and 2 length 285km)
- Public Rights of Way - recorded length 65km
- Cycle Routes - length not known

In order to identify and address the needs of all road users and to maximise the benefits of the existing transport system, we developed in LTP2 a Road User Hierarchy (User Classification) and Road Hierarchies. These hierarchies are now established and they have proved most useful. In view of this we will continue to use these same hierarchies in LTP3. 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.

User Hierarchy

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

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

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

Road Hierarchy

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

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 as detailed above 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.

On Local Distributor Roads there is a need to accommodate motorised traffic but these roads will not be signed for through traffic and freight traffic will be 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.

Footway, cycle route and public rights of way hierarchies have also been defined in order, to assist with investment, surfacing choice, safety inspections and maintenance priorities. We have predetermined footway safety inspection intervention levels to help reduce casualties from trips and to ensure Value For Money (VFM). The hierarchies are as follows:

Footways

- 1.a Prestige Walking Zones
- 1.b Primary Walking Routes
2. Secondary Walking Routes
3. Link Footways
4. Local Access Footways

Cyclist Routes

1. Cycle route forming part of the carriageway
2. Cycle route not forming part of the carriageway
3. Cycle trails and leisure routes

Public Rights of Way

1. Longer Distance Footpath Routes
2. Strategic Footpath Routes
3. Leisure Footpath Routes
4. Bridleways
5. Other Access Routes

The categorisation of all the links of each network is currently progressing and maps are being produced clearly displaying the category of each link.

We identify the needs of all road users through comprehensive consultation strategies. Equality and safety design audits are carried out as part of any scheme design process. We have commenced a programme of equality impact assessments for all elements of service delivery. We carry out regular consultation events with the public, stakeholders and partners to identify need.

Winter Service Hierarchy

In order to address the needs of users during cold weather, we regularly review our winter service plan. The winter service hierarchy has been developed and is shown briefly as follows. It is kept under review and the highways to be treated are shown on the council's web site, in libraries and a print version is available.

Carriageways

1. The primary gritting route receives precautionary gritting and consists of main roads, major commuter routes 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 unless requested by the Police. 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.

The winter service plan has been developed in advance of the winter season to assist in determining priorities in such conditions.

Footways, Pedestrian Areas and Cycleways

Snow clearance work is carried out in order of priority using available resources:

1. City centre shopping areas
2. Outlying or non city centre shopping areas
3. Locations notified by the police on footways or pedestrian areas (with the relevant Incident Number)
4. Areas near schools, hospitals, old person's dwellings, and other areas of high pedestrian risk.

4 Leicester City Council's current Network Management Operations

Leicester City Council understands that a co-ordinated approach to management of the current operations is crucial to the successful management of the network both now and in the future. The following is a synopsis of the council's operations with details of how these will address future growth within the city.

4.1 Whole Authority Approach

The network management duty "requires consideration of anything that affects the co-ordination or regulation of the flow of traffic, not just the activities of the highways department and third parties. As such, authorities should look to ensure that the whole organisation is aware of the duty and the implications for them" (Duty Guidance, p.10).

To meet this obligation, the city council has taken a strategic approach to its network management duty. This includes:

- Restructuring the Regeneration, Highways and Transport Division to ensure that all network management functions fall under the responsibility of the Traffic Manager;
- Gaining approval and endorsement of this Plan from the Cabinet Lead for Regeneration, Highways & Transport and at Director level within the organisation to ensure authority-wide commitment is maintained;
- Ensuring that all departments and sections of the council which may have a possible impact on the flow of traffic for example, refuse collection, have been made aware of the need to consider the implications of their actions against the authority's strategy for meeting the duty. This has been achieved through a series of workshops, presentations, meetings and reports;
- Identifying, developing and establishing a process to keep under review the effectiveness of the arrangements put in place.
- The Protocol for Major Road Works was agreed between the council, utilities and other partners and signed by the leader of the council in 2002. The Protocol outlines Leicester City Council's policy on proactive communication of issues relating to major roadworks. It also sets out standards for coordination of roadworks and establishes a moratorium on roadworks during the Christmas period from December to early January. A copy of the "Protocol for Major Road Works" is attached at Appendix 1.

4.2 Traffic Sensitive Streets

Under NRSWA a street authority may designate certain streets or parts of streets as "Traffic Sensitive" if they meet the criteria set out in the Code of Practice for the Coordination of Streetworks or by agreement with utilities with apparatus in the street concerned. The designation highlights when works are likely to be particularly

disruptive and unless there is no practicable alternative works promoters are required not to occupy the highway at traffic sensitive times to minimise disruption to road users.

The latest list of Traffic Sensitive Streets in Leicester was reviewed, agreed with the utilities and published in February 2008. At present the total length of Traffic Sensitive Streets in Leicester is over 170km.

4.3 Christmas Moratorium

Traffic Sensitive Streets are also subject to a voluntary Christmas Moratorium which was agreed as part of the “Protocol for Major Road Works” in 2002. The moratorium extends from December to early January every year and applies to all promoters’ works which affecting the highway.

4.4 Working with Partners and Stakeholders

Partnership arrangements are already in place to ensure effective stakeholder engagement to assist in the delivery of the duty obligations and to ensure that as an authority we are aware of the needs of the different road users and consequently manage the road space for everyone.

Partnership working is vital to the successful delivery of the network management duty and the city council will continue to explore ways to further improve partnership arrangements where the need arises, for example, working closer with the police to minimise the impact on traffic caused by unplanned incidents and sharing information with partners to improve the quality of communication.

The key partners and stakeholders are set out in Table 1 below:

Table 1: List of key partners and stakeholders

Stakeholder/Partner	Details of arrangements
Businesses and Utilities via “Protocol for Major Roadworks”	Agreement endorsed by the Leader of the Council and Cabinet Lead for Regeneration & Transport with businesses and utilities includes provision of better information, partnership working and the introduction of the Christmas Moratorium on roadworks in December and early January every year
Leicestershire County Council	The Local Transport Plan and Congestion Delivery Plan have been produced jointly by the city and county councils to address the transport issues facing the Central Leicestershire. City and county co-ordination meetings are jointly attended to ensure cross-boundary cooperation. Meet twelve times per year. The county council is also a full partner in both the Area Traffic Control and the Traffic & Travel website.

Highways Agency	<p>The Highways Agency and the city council are committed to a partnership working through the Detailed Local Operating Agreement [DLOA] which describes procedures, protocols and communication methods that will be used by both partners in exchanging and acting upon operational information.</p> <p>The Highways Agency is also a full partner in the Traffic & Travel website and the traffic signals within the Trunk Road network in the city and county are managed and maintained within the TCC partnership.</p>
Leicestershire Police	<p>The police support the council in planning & managing events affecting the highway and are also a key partner in the management of incidents on the network. The police have close links with Area Traffic Control</p>
Leicestershire Fire Service	<p>The Fire Service supports the council in participating in the Events Advisory Group and multi-agency planning meeting for events affecting the highway</p>
East Midlands Ambulance Service [EMAS]	<p>EMAS supports the council in participating in the Events Advisory Group and multi-agency planning meeting for events affecting the highway</p>
Quality Bus Partnership (QBP)	<p>The remit of the partnership is to co-ordinate local authority infrastructure investment with bus operator service development and jointly promoting increased bus use through voluntary agreement. Quarterly progress reports highlight issues relating to buses and measures are put in place to help address those issues.</p>
Freight Quality Partnership (FQP)	<p>Re-launched in May 2009 the FQP seeks to Initiatives arising from the FQP include a freight signing strategy, a freight map, an industrial estate survey and a freight website. These are all intended to reduce 'lost' LGV mileage and hence contribute to tackling congestion as traffic flows will be effectively 'reduced'</p>
Leicester and Leicestershire Motorcycle Forum (LLMF)	<p>Some initiatives which arose directly from our work with the LLMF include: completion of a comprehensive motorcycle survey, an anti-diesel spillage campaign, production of information cards to allow motorcyclists to inform us of potential hazards and the implementation of improved motorcycle parking facilities.</p>

Cycle-City-Workshop	A monthly meeting of advocate groups, bike projects clubs and cycle shops. Key projects are co-ordinated via the Cycle-City-Workshop. The projects promote and encourage people to cycle more resulting in a reduction in the number of cars on the network.
Leicester City Local Access Forum	<p>The Leicester City Local Access Forum is a statutory body set up by the city council under the Countryside and Rights of Way Act 2000.</p> <p>The forum is an independent advisory body that advises the council on the improvement of access to local amenities and land within the city for the purpose of open-air recreation and enjoyment, in ways which address social, economic, environmental interests and personal health and security issues.</p> <p>The forum is a voluntary body with eleven members including two elected city councillors. The members represent various classes of users and other interests including general transportation, mobility issues and industrial heritage.</p>
East Midlands Highways Authorities and Utilities Committee (EMAUC)	The purpose of EMHAUC is to provide a forum for the highway authorities and utilities operating in the East Midlands region to discuss and agree upon matters in relation to street works activities. The group meets on a quarterly basis with separate quarterly meetings also held for both the Highway Authority and utility representatives
East Midlands Traffic Managers Forum	A forum for local authority traffic managers to meet and share experiences and discuss emerging common network management themes. Meets three times per year.
Electronic Local Government Information Network (ELGIN) User Group	Elgin was developed by East Midlands Authorities to provide information across authority borders to the public and to promote cross-border coordination. It is now used by many Highway Authorities across England

4.5 Co-ordination and Direction of Works

4.5.1 How we co-ordinate works

The city council recognise the important role played by the efficient co-ordination of streetworks and other activities, like events and road works carried out by the council, in minimising disruption and inconvenience to road users. To ensure that efficient co-ordination takes place the council actively participates and promotes a number of co-ordination forums as detailed in Table 2 below:

Table 2: Co-ordination forums

Co-ordination forum	Details of arrangements
East Midlands Authorities and Utilities Committee (EMHAUC)	The principal issues addressed by the forum include policy determination within national HAUC guidelines, monitoring the effectiveness of local co-ordination arrangements and providing policy guidance on a local basis. Where necessary it also facilitates local dispute resolution procedures. The group meets on a quarterly basis.
Leicester City NRSWA Coordination Meetings	Meetings take place with utility companies, developers and staff managing council works to co-ordinate of across the city and deal with cross-border issues with the county. Meetings are on a quarterly basis
Leicestershire County NRSWA Coordination Meetings	Separate meetings for the North and South Divisions of the county. City presence promotes partnership and coordination on cross-border issues. Each division meets on a quarterly basis
Events Advisory Group	Forum for planning and co-ordinating special events, involving event organisers, the Police, Fire Service, EMAS, public transport operators and network management officers. The group meets on a monthly basis – organisers need to hold multi-agency meetings for events. For large annual events such as Diwali, Caribbean Carnival and Vaisaikhi de-briefing meetings also take place after the event as part of a lessons learnt approach.
Monthly Traffic Management Meetings	The meeting is attended by developers. Police, Fire Service, EMAS, public transport operators and network management officers including cycling and walking reps. to examine in detail the traffic management, coordination and TTRO arrangements resulting from the NRSWA Coordination and Events Advisory meetings. Local businesses are also included when appropriate

Special Traffic Management Meetings	Ad-hoc meetings - as above to manage large projects i.e. City Centre Re-development or for multiple schemes that require complex coordination
Highcross Traffic Management Meetings	Regular meetings starting October 2008 to plan and react to traffic management implications caused by the increase in traffic before Christmas. Planning includes car parking, bus services and Park and Ride arrangements. Meets every two weeks with a de-brief each January.

4.5.2 Co-ordination forums

The co-ordination of medium-term and annual programmes for all work promoters within Leicester and Leicestershire is undertaken through a central EMHAUC database which is available at www.emhauc.org.uk. It enables those planning schemes to establish what other works are planned at the location. Where conflicts exist, including cross boundary conflicts between the city and county, the quarterly co-ordination processes resolve them. This also includes the co-ordination between local authority works and those planned by the Highways Agency.

Short to medium term co-ordination takes place through the serving of notices and forward planning information by work promoters which is processed and managed through the council's street works register, which uses GIS to enable proposals and current activities to be viewed against a map background, which helps conflicts and problems to be identified, allowing appropriate action to be taken.

Information about current works on the register is also available to the public and other interested bodies such as statutory undertakers through the Electronic Local Government Information Network (Elgin) which can be viewed at www.leicester.elgin.gov.uk and via the Traffic & Travel website at www.leicester.gov.uk

The council welcomes the new mandatory requirement that street works notices include National Grid References (NGRs) which has improved the accuracy of information. To increase the benefit of this change, we will introduce a requirement that NGRs are also given on other relevant documents, such as applications for skips and scaffolding on the highway.

Additional co-ordination takes place at the Monthly Traffic Management meetings or on a scheme by scheme basis with individual utilities, developers and the council's own work promoters, particularly where the works could result in significant levels of congestion, to identify traffic impacts in the context of other works and planned events, so that opportunities for joint working can be considered. The council considers all aspects of the proposed works and other influences that may affect traffic in order to mitigate its impact, including:

- The road network capacity;
- The impact, if any, of the works on an adjoining traffic authority;

- The scope for collaborative working arrangements, including trench and duct sharing, between undertakers and the council's work promoters;
- The optimum timing of the works from all aspects, depending on the different type of road;
- The effect on traffic (including public transport operators, pedestrians, cyclists and the mobility impaired); in particular the need for temporary traffic restrictions or prohibitions;
- Requiring that all temporary traffic control, especially temporary traffic signals, be only used where and when necessary, and where used are either vehicle-actuated or, at appropriate times, operated manually;
- Identifying alternative routes on which planned works are prohibited until the other road is clear (known as "road pairing");
- Requiring the use of appropriate traffic management techniques and arrangements, particularly at difficult road junctions and pinch points;
- The working arrangements required in protected and traffic sensitive streets, and streets with special engineering difficulties;
- The effect of skip and scaffold licenses;
- Any known special events and other licenses or consents issued in respect of affected streets under the New Roads and Street Works Act 1991 or Highways Act 1980;
- Developments for which planning permission has been granted on streets affected by the works.

4.5.3 Parity

Leicester City Council has implemented the requirements of the Code of Practice for the Co-ordination of Street Works and Works for Road Purposes and Related Matters (Third Edition) which came into force on 1st April 2008, and have put in place new processes to ensure that the Council's own works promoters comply with the requirements of the new code of practice. This requires all works by the council to be Noticed through the EToN system on the same basis as that of the utilities. This also includes proposals to monitor the performance of our own work promoters through the use of Performance Management Measures (PMMs) (See also 6.2 Key Parity Measures). The aim is to compare the performance of all work promoters carrying out works on the highway, including the city council, which will allow the authority to recognise those work promoters, both internal and external, that are not improving, and to work with them to identify the causes and agree improvement actions. This demonstrates the Council's efforts to ensure parity as required under the Duty.

4.5.4 Permit Scheme to control working in the highway – Part 3 TMA 2004

During the last two years Leicester City Council, Nottingham City Council and Derby City Council have been exploring the options for the development of a 'common' permit scheme. The three cities will be including the proposal to introduce permit schemes within their Local Transport Plans as well as Network Management Plans. We have developed an action plan following the publication of recent guidance and the introduction of schemes in London, Kent and Northamptonshire. We are now working on the details of a proposed scheme for implementation in 2012.

A Permit Scheme enables a local authority to have more control over works in the highway by requiring utilities to apply for permits to before they start work in the highway. At present a utility is required to provide a “Notice” of their intention to work under New Roads and Streetworks Act which then requires a reaction from an authority to require conditions. A permit enables an authority to lay down conditions – such as and when works may take place - to minimise disruption to the public. Permits will also enable the duration of works to be challenged and controlled more effectively especially in works on our strategic network. Work promoters may be fined if they fail to comply with permit conditions.

The authority will be able to charge for permits but will need to demonstrate in its application to the DfT that the scheme will deliver net benefits to road users and wider society. The DfT will also require a comprehensive statement of costs and benefits with the application which will be required to show that the permit fees raised do not exceed the costs of implementing the scheme – collaborative working will help to achieve this.

4.6 Dealing with planned events

4.6.1 Events Advisory Group

Leicester hosts numerous festivals and events, some organised by Leicester City Council and others by private organisations, during the course of the year and inevitably these have the potential to cause disruption to the highway network. The issues arising as a result of these events/leisure activities, whether major or minor, cannot be ignored and need to be managed in order to minimise disruption on the highway.

The Events Advisory Group consisting of city and county officials was set up to do just that. The group meets on a monthly basis to ensure a consistent, focused and, most importantly, co-ordinated approach is taken to the management of pedestrians and traffic on the highway to help minimise congestion on the network.

In addition, multi-agency meetings are set up for major events such as the Caribbean Carnival and Diwali. These meetings are conducted throughout the year to ensure road closures, TTROs, direction signs, etc. are dealt with and planned in advance of the event.

4.6.2 Abnormal loads

The routes proposed by the hauliers as detailed in their abnormal load notifications are examined by the Abnormal Loads Officer to ensure that the bridges on the proposed routes are suitable in terms of the width, height and weight of the load. Normally, the route proposed by the haulier is acceptable, however, where proposed routes are deemed not acceptable due to the possibility of damage to bridges, an alternative route is agreed with the haulier. If the abnormal load exceeds 80,000kgs, or 3.0m in width, 18.65m in length and an alternative route is required, the Abnormal Loads Officer will contact the police, who have the sole authority to issue a re-route to the haulier. By using this approach the possibility of congestion or disruption to road users caused by the abnormal loads is reduced. We also work with the police, where appropriate, to establish routes for different types and sizes of abnormal loads. All notifications are checked against current

street works to establish whether any temporary restrictions caused by road works (or events) may impede the movement of the abnormal load, so reducing further the possibility of disruption being caused to road users.

4.7 Contingency / emergency planning

Unplanned events and occurrences on or near the public highway can have major implications on the management of the highway network. By definition these events cannot be anticipated and therefore an effective response specific to each individual situation is needed to ensure the impact of any major disruptions is minimised. Detailed below are some of the more generic systems and processes already in place to deal with such situations.

4.7.1 The causes of incidents

There are many factors that can cause incidents that can have an adverse effect on the flow of traffic on the public highway, some of which are listed below:

- Road traffic collisions
- Traffic signal failure
- Vehicle breakdowns
- Adverse weather conditions
- Fallen objects / debris causing an obstruction e.g., trees, oil spillages
- Major security alerts e.g., risk of terrorist attack, bomb alert
- Emergency utility works, e.g., burst water mains, gas leak
- Building fires adjacent to key routes in particular

4.7.2 Major incidents and emergencies

These are primarily dealt with by the police and other emergency services. Leicester City Council obviously has an element of involvement in the activities required to deal effectively with any given situation. Leicester City Council's Major Emergency Plan contains an alerting list for such an event. Dependant on the nature of the incident/emergency the matter can be escalated up through the hierarchy of responsibility as necessary.

A member of the Traffic Systems Section is always at hand to manage and co-ordinate traffic in these circumstances. The intelligent transport systems (identified below at 4.8) are utilised in order to minimise disruption on the highway during such major incidents / emergencies. Radio broadcasts are used to communicate these issues to the public as and when the need arises.

4.7.3 Out of hours arrangements

Leicester City Council's security is available 24 hours a day for the reporting of any incidents, which are then escalated accordingly.

4.7.4 The role of the Traffic Control Centre

The Traffic Control Centre is staffed during the hours of 7am to 6.30pm, Monday to Saturday. Arrangements are also in place for staff to work during Sundays and Bank Holidays in order to monitor particular events such as football / rugby matches. Using 33 screens, focussed on key locations and routes, operators are

able to quickly identify incidents on the highway network and the appropriate operations can be quickly put into place to minimise the impact on traffic flow and congestion. Established communication channels (internal and external) enable a quick and efficient response to any such incidents.

4.7.5 Adverse weather conditions

Adverse weather conditions (high winds, flooding, snow and ice) can have a major detrimental impact on the flow of traffic on the highway network with the potential to cause road traffic collisions and difficulties manoeuvring vehicles due to icy/wet road conditions as well as debris on the roads. Weather conditions are monitored and appropriate activities and operations are instigated (gritting etc.) to ensure minimal impact on the road network. As mentioned previously, radio broadcasts will inform the public of such incidents should the need arise.

4.7.6 Cross boundary incidents

Cross boundary incidents are again dealt with through the use of CCTV equipment enabling quick identification of incidents and communication via established communication networks with bordering authorities.

4.8 Intelligent Transport Systems

The Transport Systems Section is responsible for ensuring intelligent transport systems are in place, maintained, developed, and utilised to their full extent in order to management traffic flow on the highway network.

4.8.1 Split Cycle Offset Optimisation Technique (SCOOT)

The SCOOT system is a traffic management and control system which enables network managers to obtain the best capacity out of the road network when physical works such as road widening or major junction improvements would otherwise prove too costly or environmentally unacceptable. SCOOT succeeds in those areas where there is a reasonable density of signals by allowing traffic flow to be controlled. The benefits are not as great in those areas that contain only isolated signal installations.

The SCOOT network in Central Leicestershire is now relatively mature and there is minimum scope for further significant gain in network capacity. Nevertheless there is a constant requirement to monitor, review and revalidate existing SCOOT locations to ensure the operational benefits are being sustained i.e. continuing to allow the free flow of traffic as necessary.

SCOOT "fully responsive" urban traffic control system requires no pre-calculation of fixed time plans because the model contains logic which analyses the information from vehicle detectors and decides how best to co-ordinate the signal timings. SCOOT adjusts the signal timings in frequent, small increments to match the latest traffic situation. Data from vehicle detectors are analysed by the urban traffic control computer which contains programs that calculate and implement those timings that are predicted to minimise congestion and delay on the network.

4.8.2 Urban Traffic Control (UTC)

The Urban Traffic Control system manages the following:

- Traffic signals
- Car park monitoring
- CCTV
- Fault management system
- Traffic Data Analysis Software (TDAS)

Traffic Signals

Leicester City Council manages the day-to-day operations and maintenance of all the traffic signals in Leicestershire and Rutland.

The role of the group is to help determine traffic management at roadworks, particularly in the city but also to support the traffic management used in adjacent authorities, specifically by monitoring the operation of traffic signals and other systems, to minimise congestion. This enables a consistent approach to management of traffic across the boundaries of Leicester City, Leicestershire and Rutland.

It not only allows the sharing of information, but also provides a consistent, countywide approach to traffic management and the road network / infrastructure, ensuring a free flow of traffic throughout the county

To manage and minimise congestion, the UTC system is pre-programmed to deal with different anticipated traffic levels as follows:

- Weekdays – to manage increased traffic volumes during peak periods
- Football and/or rugby days
- Weekends – Saturday more traffic in city dependant on events etc.
- Weekends – Sunday – less traffic in city, possibly more in the county. These are dependant on events in the city, county and Rutland

Car park monitoring

This system has developed over the years and now includes the ability to provide information regarding the numbers of car parking spaces available at any one of the city car parks. Previously the only information available was “car park full” or “spaces available”. This resulted in traffic congestion at the entrance of car parks that could and did have a knock on effect on surrounding roads. The ability to inform customers of the number of spaces available has reduced congestion by redirecting them to other car parks with capacity to take more vehicles.

CCTV

The CCTV system allows the monitoring of traffic throughout the city and to identify traffic hotspots during the course of the day that can then be dealt with and managed appropriately.

Fault Management

The Prefect Fault Management system is a cost effective method of tracking maintenance of traffic signal equipment, running costs and the reliability of on-street equipment. The system can accept fault reports generated automatically by the Urban Traffic Control (UTC) or Remote Management System (RMS) computers.

The database holds details of all street equipment on a site-by-site basis, with each site having a unique number with its location and street name for identity.

Maintenance contractors are given a Personal Digital Assistant (PDA) where they receive faults and enter clearances in real time. This allows faults to be dealt with quickly and thus improve repair times and fault PMMs. The impact on traffic management is significant as issues can be dealt with in an effective and efficient manner and the traffic returned to free flowing as soon as possible.

Routine maintenance activities and periodic inspections can be planned and alert contractors to ensure they are carried out. Notification of completion of maintenance and inspections can then be input directly into the system.

Traffic Data Analysis Software (TDAS)

The traffic data is collected and stored into TDAS which extracts data from SCOOT and the UTC database. The database collects data from other intelligent systems and presents the user with required reports.

TDAS provides a detailed analysis of traffic data automatically collated from the Urban Traffic Control computer and the car park guidance system. The system collects traffic count, journey time, SCOOT and car park data for validation and analysis and provides comprehensive reports for traffic data, trends and statistics.

4.8.3 Real Time Information for buses – StarTrak

StarTrak is a real time bus information system that uses satellite tracking to determine bus locations, which is then translated into displays at over 200 bus stops in the city and the county. The system was piloted in Leicester and Leicestershire in 2000. It links in with the Urban Traffic Management and Control System (UTMC) based in Leicester thus enabling priority at traffic signals to be given for buses that are running late.

StarTrak is now, however, reaching the end of its useful life with parts and hardware/software upgrades now difficult to obtain or unobtainable. There is a need for a replacement real time bus information system but the funding will be very challenging in the near future.

Automatic Vehicle Location (AVL)

The use of Automatic Vehicle Location (AVL) allows buses to be given priority at signalised junctions. Bus priority systems enable bus companies to keep to their timetables, improving punctuality, with potential to increase passenger numbers due to the improved reliability of buses. This in turn has the potential to reduce the number of private vehicles on the network, thereby helping to keep the network flowing freely.

4.9 Traffic Information Services

The provision of timely and accurate information to the public is critical to the management of the road network and forms an integral part of network

management. This allows the road user to make informed decisions about the time, mode and route of their journeys.

This information is conveyed not only to the public but to other organisations / utilities etc. in a number of different ways, as detailed below.

4.9.1 Radio Broadcasts

The impact of the information conveyed to the public can have a positive impact on managing congestion by advising travellers to avoid traffic hotspots. The reason for these could be due to sheer volume of traffic, road traffic collisions, roadworks, utilities works or other events.

Scheduled BBC radio traffic information bulletins are broadcast Monday to Saturday as follows:

Weekdays: 7.00am to 9.00am, every 20 mins
9.00am to 4.00pm, every 30 mins
4.00pm to 6.30pm, every 20 mins

Saturdays: 9.00am to 12.30pm, every 30 mins

In the event of a major unplanned event causing traffic problems, additional broadcasts can be included.

A Traffic Information Service Database provides details of start and end dates/times of approximately 3,500 roadworks, parades, accidents, etc. per year. In order to ensure the information held on the database is managed in such a way so as to ensure it is up-to-date and correct at the time of broadcast, a team of dedicated Traffic Information Assistants will:

- Liaise with relevant organisations at the beginning of each day to confirm the information held on the database is still appropriate and current.
- Send to all relevant organisations a forward plan for the following week in order that they are made aware of any disruptions and can therefore manage their operations/services accordingly. This information is also updated on a daily basis.
- Forward planning information is also communicated during these broadcasts. Essentially, the broadcast provides information regarding upcoming schemes that are likely to have an impact on people's mode of transport and journey times. The information compliments details provided to other organisations such as bus companies in order that re-direction of services can be communicated well in advance of changes taking place.
- Send the forward plan every Friday to the city council press office for release to the local newspaper, the Leicester Mercury.
- Provide additional travel information during adverse weather conditions such as severe rains, snow, ice etc.

The information held on the database links directly into the Leicester City Council website thereby ensuring the information supplied to the public etc. on the webpage

is accurate and up-to-date. The database also feeds directly into the Help2Travel website which provides travel information across the region.

These details are shared with organisations such as the bus companies, the national press and Trafficlink. Bus companies can then anticipate potential hold-ups in traffic and attempt to reduce the effect of this on their services potentially leading to a positive impact on the wider network. Provision of information to Trafficlink also has a similar impact. Trafficlink provides live traffic and travel news 24 hours a day, 7 days a week, 365 days a year around the country and locally outside of the Traffic Information Services' working hours.

4.9.2 Electronic Local Government Information Network (Elgin)

The Elgin map based web site shows the roadworks carried out in the city and the surrounding county, in a seamless way, enabling roadworks information to be seen across boundaries. Elgin is automatically updated on a real time basis via each authority's NRSWA Streetworks Register. It is available through the Leicester City Council web site and is customised to show Leicester and surrounding County area. Elgin addresses the eGov target and the NRSWA Code of Practice requirement for the public to be able to inspect the Streetworks Register, free of charge, at all reasonable times. It also meets the Network Management Duty requirement about providing information on roadworks to facilitate in dealing with cross boundary issues.

4.9.3 Leicester Mercury

As detailed in 5.9.1, the council's press office is provided with details of all roadworks in Leicester every Friday for release to the local newspaper, the Leicester Mercury, enabling those without internet facilities to access the information.

4.9.4 City Council Website

Provides details of future works to ensure travellers are able to make informed decisions about the route they take in order to avoid congestion as a result of the roadworks. Although diversion signs are provided, real-time information is provided on the City Council's website via a link to the Traffic Information Services Database. Various useful traffic and travel links (e.g., AA Roadwatch, highways.gov.uk, transportdirect.info) are also provided on the city council's website. The council's website does not integrate with Elgin at present, however, this has been highlighted as an area for improvement in the future.

4.9.5 Leicestertravelinfo

We have developed a website (Leicestertravelinfo) to provide a live traffic and travel information service. It features planned and current incidents and roadworks, car park occupancy, rail and air departures and jam cam images. In addition, there is live departure information for all bus stops within Leicester, Leicestershire and Rutland. This fully functional site was launched in October 2007.

4.10 Parking Restrictions

Parking restrictions can have a direct impact on minimising congestion and delay on the road network. The reduction and management of obstructions and dangerous

parking etc. all contribute to clearer roads and the resultant free flow of traffic. It can be argued therefore that parking restriction is an essential tool in the management of the road network and the fulfilment of the provisions of the Traffic Management Act and the Network Management Duty.

4.10.1 Parking Policy

Parking policy is an integral part of a local authority's transport strategy and policies aimed at tackling congestion and ensuring that the transport network operates as smoothly as possible by minimising both dangerous and obstructive parking. Effective management of all on-street and off-street parking either directly or indirectly is essential to achieving this goal.

City Centre Car Parking Strategy: Supplementary Planning Document

A City Centre Car Parking Strategy (SPD) is being produced by the city council. It is expected to be adopted March 2011. This SPD is being produced to provide an evidence base about the current level of city centre car parking provision. An adopted City Centre Car Parking Strategy will allow us to proactively manage the supply, matching future supply with likely demand.

It will provide a clear strategy for public car parking provision, taking account of both existing and future demand within the city centre. It will be reviewed within 5 years, immediately after the first review of the Core Strategy. It aims to:-

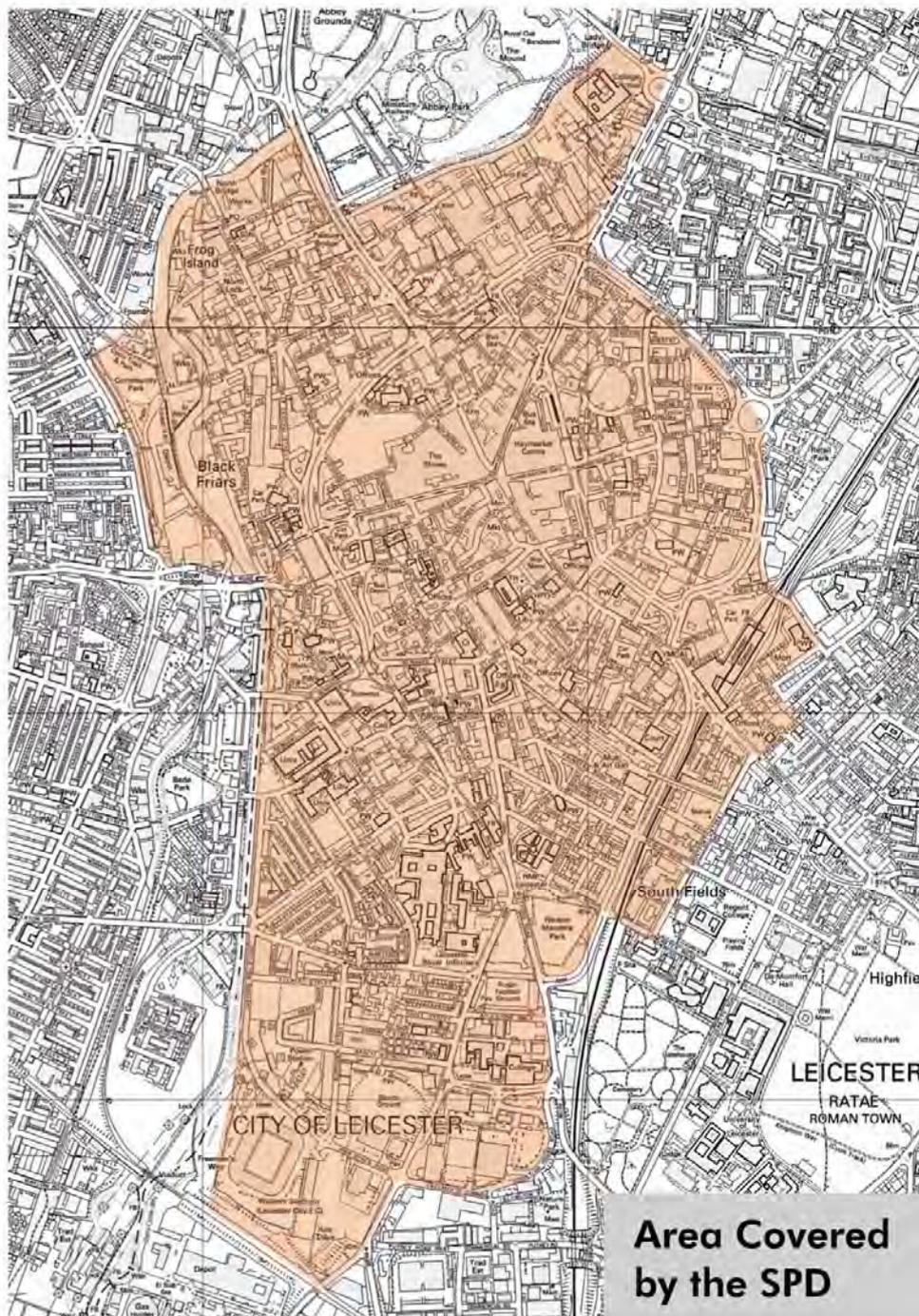
- Describe what the current patterns of parking are in the City Centre;
- Provide a basis for taking decisions on future car parking, based on current and future demand;
- Encourage economic regeneration by balancing the needs of visitors, shoppers, residents and businesses with the development of sustainable transport, CO2 and nitrogen dioxide reduction objectives and air quality improvements;
- Ensure quality parking provision that is well designed, located and managed;
- Provide a basis for decision making on the progressive removal of temporary and unsightly or outdated parking provision, to improve the city-scape;
- Be integrated with the wider city centre strategies for planning, transport, CO2 reduction and city centre management.
- It will form part of the future broader City Wide Parking Strategy that will be prepared in line with National Planning Guidance and Core Strategy Policy CS15. This will review both residential and non residential parking standards.

The SPD will be used to:-

- To achieve an appropriate level of car parking that will support the economic viability of the city centre for work, shopping and leisure, without undermining sustainable modes of transport.
- To take decisions on proposals for freestanding parking provision (i.e. not associated with new development). Applications for parking that are associated with new development will continue to be considered on their individual merit in line with current planning policy.
- This SPD has focused primarily on the parking supply for commuters taking into account park and ride services. On-street parking has been excluded.

- It will be used in pre-application discussions and as a material consideration when determining planning applications.
- It provides a new evidence base about the current level of parking supply and demand.
- It provides a criteria based approach for considering enforcement action against unauthorised car parking.

The boundary of the SPD area has been based on the Central Transport Zone (CTZ) from the Local Transport Plan and slightly expanded to include the major car parking destinations that are close by, within and adjacent to the city centre. See **Map 1** below.



Leicester's LTP recognises that the city centre and surrounding area is one of the main attractions for employment, leisure and shopping. The LTP is a sustainable transport strategy which recognises that an appropriate supply of public parking spaces is essential to support a city. The LTP both supports and influences Leicester's Core Strategy and the SPD.

Before considering any additional parking that is not related to new development, in the first instance, justification should be given in light of the Local Transport Plan. This sees Leicester as Britain's First Environment city that will be a great place to live but also somewhere that does not place a burden on the planet in future years.

The LTP aims to deliver attractive alternatives to car travel and to cater for some high levels of housing growth whilst managing congestion and improving journey times and accessibility for all, but particularly for deprived groups to support a new prosperity. It seeks to encourage more people to walk, cycle and use public transport (particularly the bus to or from the city centre), to reduce carbon emissions and provide a transport system that facilitates a safer and healthier way of life.

Planning Context

The City Centre Car Parking Strategy Supplementary Planning Document (SPD) forms part of Leicester's Local Development Framework (LDF) and will be supplementary to Leicester's Core Strategy.

Based on the evidence in this SPD, there is now a need to review the adopted Car Parking standards as contained within the 'saved policies' of the city of Leicester Local Plan. The SPD expands on Core Strategy Policy CS 15 Managing Demand For Car Use.

4.10.2 Enforcement

Until January 2007 the duty to enforce parking violations was solely that of the police. This responsibility was handed over to the authority in January 2007. The police still have reserved powers to enforce parking contraventions such as vehicles causing an obstruction on the highway.

Following a consultation review of local authority parking enforcement by the Department for Transport changes in parking enforcement were brought about from the 31st March 2008 by implementing provisions contained within Part 6 of the Traffic Management Act 2004. Under this act Decriminalised Parking Enforcement became known as Civil Parking Enforcement (CPE) and covered civil enforcement of parking contraventions. Moving traffic offences are also expected to be enforced in the future by the Council once the necessary powers are provided. These include failing to comply with a traffic order that is conveyed by a traffic sign including one way streets, no entry, prohibited turns, yellow box junctions and pedestrian zones etc. In recognition of the wider role of parking attendants they are now known as Civil Enforcement Officers or (CEOs).

Effective enforcement should ensure expeditious movement of traffic as required under the TMA Network Management Duty as well as improving road safety, the local environment, quality and accessibility of public transport.

4.10.3 Penalty Notices

The primary purpose of penalty charges is to encourage compliance with the parking regulations. From 1st March 2008 local authorities have the authority to implement a two-tier charging regime. Leicester City Council has opted for a charge of £70 for a serious contravention (e.g., parking in a disabled bay without displaying a valid blue badge) and £50 for a less serious contravention (e.g., overstaying in a limited waiting bay). Both are subject to a 50% reduction should the amount be paid early. This is to maximise the effect of parking enforcement and to act as a deterrent to encourage motorists to abide by the parking restrictions and to park correctly.

4.10.4 Residents' parking

Leicester City Council operates residents' parking schemes in five areas close to the city centre with further schemes being planned. The five areas were previously heavily used by commuter drivers to park during the working day and during the evenings and weekends when sporting fixtures were taking place. The main emphasis of the schemes is to provide adequate levels of local parking for residents and businesses whilst improving living conditions. This is achieved by stopping the streets becoming commuter car parks with the associated pollution and road safety dangers. Residents parking schemes deter commuting by car by removing free all day parking facilities from the central part of the city. Potentially these schemes also support CO2 reduction by reducing commuting and encouraging people to consider alternative options, such as Park and Ride.

4.10.5 Pay & Display parking

In addition to residents' parking schemes large areas of the central part of the city are covered by pay & display restrictions. In the city centre the maximum stay is either two or three hours with a variable charge designed to encourage only short stay parking thereby preventing commuter parking on street. In other areas close to the city centre all day parking is permitted but for a charge of just over £3 per day. The introduction of charges deters the unnecessary use of private cars for commuting as bus fares are generally cheaper than the car parking charge, potentially reducing CO2. A further benefit of the pay & display schemes is that the revenue raised is available to finance further improvements to the alternative more sustainable forms of transport such as buses, walking and cycling.

5 Influencing choice of travel and tackling congestion

Road Transport in Leicester accounts for an estimated 22% of total greenhouse gas emissions in the city, 80% of peak travel involves drivers with no passengers. Leicester residents travel by car for 18% for all journeys under one mile, and 61% of all journeys between 1 to 2 miles. It takes on average 47 minutes to go from one side of the city to the other in rush hour.

Due to the compact nature of Leicester the provision of additional roadspace is an unrealistic measure in tackling congestion. Therefore alternative solutions are required to ensure the current road network is utilised to its full capacity whilst at the same time tackling congestion.

The following measures provide choice to the travelling public whilst at the same time reducing the number of vehicles on the network and helping minimise congestion.

Journey Planning

Our research has led us to conclude that smarter choices have a significant contribution to managing congestion in Leicester but we do need to ensure we have quality alternatives to car travel that we can successfully promote. Our success will be limited without significant public transport improvements in the city centre.

5.1 Quality Bus Partnership (QBP)

The Central Leicestershire QBP was established in 1999. The members of the main steering group are Leicester city and Leicestershire county councils, First Bus, Arriva and Trent Barton. The QBP performs a valuable catalytic function which enables the working groups to actually take individual projects and activities forward. The main steering group meets quarterly and discusses strategic issues which are relevant to local authorities and public transport operators nationally and locally. It is supported by several working groups, including the Bus Operations Group, the StarTrak (real-time) Group and the Bus Information Strategy Group. In addition to these multi-party meetings, the councils meet the two main operators (First and Arriva) quarterly in bi-lateral meetings at which commercially sensitive issues can be discussed.

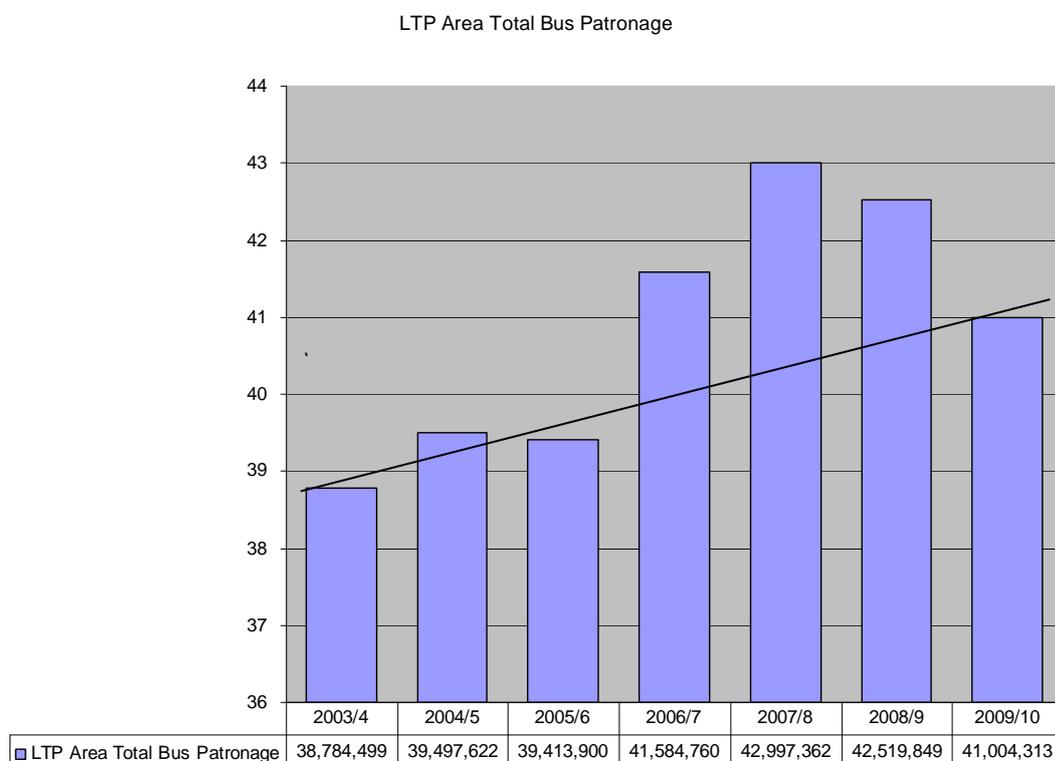
The QBP has been instrumental in supporting and helping to deliver the following:

- A core commercial network which the bus companies will endeavour to keep fundamentally stable for at least five years.
- A network of complementary subsidised services.
- Joint delivery of passenger information to high standards, recognising the need both for a commercial identity for the participating bus companies and for comprehensiveness.
- Involved in the original set up and roll out of the real-time information and bus priority system across the whole network.
- Improved bus facilities in Leicester city centre, with capital investment co-ordinated by Leicester city council.

- Improved bus shelters and bus stop infrastructure at over 800 stops suitable for low-floor buses throughout the area.
- Agreement on a longer-term vision for the development of the network as passenger numbers grow.
- Comprehensive monitoring of patronage.
- Involved in the Smart Ticketing Project, funded by a Department for Transport (DfT) grant, to deliver comprehensive network ticketing.

As a result, passenger numbers in Leicester are growing, and, in the most recent satisfaction survey carried out for the Audit Commission satisfaction with bus services in Leicester was in the top quartile nationally and satisfaction with bus service information was also increasing.

Figure 1: Predicted bus patronage increases through quality bus corridors



The outputs from the QBP have led to a noticeable increase in satisfaction with public transport. The Congestion Strategy includes measures to improve bus journey times. The Authorities' Transport Directors hold strategic level meetings with Bus Company Area/Regional Directors to ensure long-term goals are shared. It should be noted that a review of the operation and constitution of the QBP is due to be undertaken in 2011.

5.2 Quality Bus Corridors

We have over the last 12 years successfully worked hard to provide quality bus corridors from the suburbs located on the edge of the city and in the county area into the city centre. As a result we have increased bus patronage by 6% between 2003/04 and 2009/10.

5.3 Public Transport Improvements

We have identified a need for public transport improvements in the city centre and our immediate emphasis is to develop a package of public transport measures that will reduce city centre congestion, improve quality of bus infrastructure and public realm and improve access to the city centre whilst demonstrating value for money. The scheme will include improvements in services, information systems, bus re-routing and passenger facilities. We will provide effective public transport infrastructure for the years ahead and in an affordable manner as an appealing and feasible alternative for car users and so attract car users from their cars.

5.4 Leicester city centre – New Bus Termini & Routing

We believe the best and most efficient way to deliver the benefits and outcomes that are required is through a comprehensive package of improvements delivered as one coordinated programme. Leicester city council thus has ambitious plans to improve public transport for Leicester and the surrounding area. A comprehensive package of measures would be introduced as part of transforming Leicester into Britain's sustainable city, providing economic growth and environmental wellbeing. The New Bus Termini & Routing (NBTR) scheme is a key priority within One Leicester Planning for people not cars, which has a focus of facilitating growth in trips to jobs in the city centre by public transport. The scheme was previously categorised as `high scoring` in the East Midland funding allocation (RFA2), with Leicester being a major economic centre for jobs and wealth creation within the region. We will be working closely with the emerging LEP to ensure that the scheme is adopted as a first priority particularly in any bids and for funding. This scheme is crucial to underpin sustainable economic growth throughout the city in a low carbon environment and help facilitate new jobs whilst protecting existing jobs.

Investigations have shown that the scheme is needed due to:

- No surplus traffic capacity available on radial and orbital routes into and around the city during peak periods
- Significant congestion on city centre streets
- No suitable kerb space left on city centre streets for additional bus services
- Poor bus facilities have a negative effect on key streets and spaces

The optimised overall scheme would most likely comprise various parts or phases including:

- **New bus station and interchange hubs**
- **On-street bus stand improvements**
- **Routing improvements**
- **Statutory Quality Bus Partnership**
- **Bus Lane and Bus Gate camera enforcement**

The NBTR scheme puts right a deficit in city centre bus infrastructure and offers a low carbon sustainable transport solution that also provides for growth in travel – due to new homes, economic growth and new jobs.

The bus scheme has the potential to deliver the following economic benefits:

- Accommodate transport needs for a 20% growth by 2026 of new housing in Leicester and Leicestershire.
- Removes transport capacity constraints in the city centre that compromise our ability to deliver an effective system to meet public transport needs and grow the local economy.

In Leicester and Leicestershire there has, until recently due to the recession, been a sustained increase in bus patronage. We have introduced additional quality bus corridors, new park & ride facilities at Enderby, with a further park & ride site underway at Birstall. We are also proposing high quality bus facilities, as part of a smarter choices strategy, to persuade car users to use public transport and to cater for the big increases in bus trips that are forecast.

5.5 Park and Ride

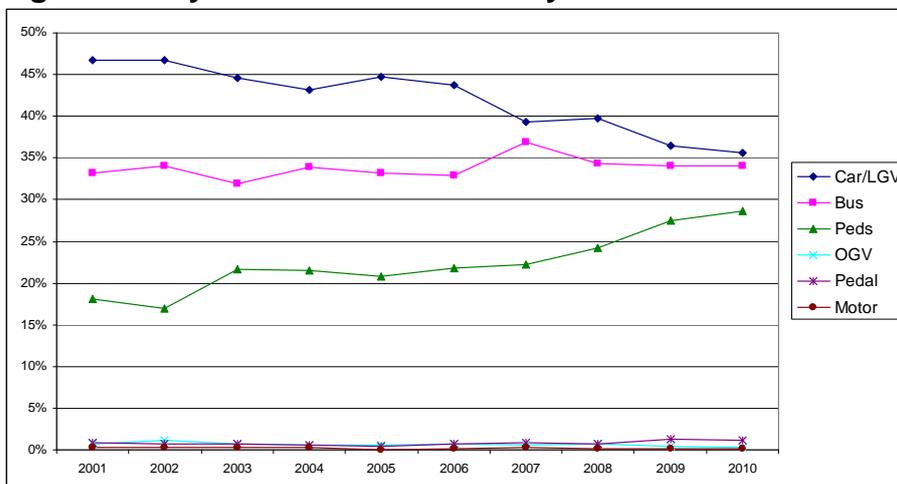
We have two permanent park and ride sites at Meynell’s Gorse and at Enderby located close to the M1 junction 21/Fosse Park area, with a further site under construction at Birstall. There is also Saturday-only site at County Hall. The original permanent site at Meynell’s Gorse has been very successful with the buses carrying up to around 1,750 passengers a day and diverting 200 cars each peak hour. The primary purpose of the park and ride schemes is to encourage car drivers from their cars onto high quality buses for work, for shopping and for leisure.

5.6 Cycling and Walking

Walking is a healthy and important method of getting around, as well as being an element of most other journeys e.g. walking to/from bus stops or car parks. Cycling provides the flexibility of providing transport from any origin to any destination, at any time, and is a practical solution for journeys of up to about five miles. It is a way of improving accessibility to sites that are not well served by public transport and has obvious health benefits.

Figure 2 below shows how the modal share of people walking into the city centre across the inner ring road cordon has increased from 21.8% in 2006 to 28.7% in 2010 (this is an increase of 5,596 people from 29,811 to 35,407), while car trips have fallen from 43.7% to 35.7%.

Figure 2: City Centre Modal Share by Classification 2001 - 2010



At an average walking speed the clock tower in the city centre can be reached within half an hour from places as diverse as the National Space Centre in the North, the Walkers Football Stadium in the South and Spinney Hill Park to the East.

Pedestrian and Cyclists Crossing Facilities

Main roads can act as barriers reducing peoples travel horizons. We receive many requests from the public to install new crossing facilities to enable safe access, to health centres for example, and these are relatively low cost, say £30,000. Providing safe, easy to use crossing points is therefore important in increasing the accessibility of facilities, either to a bus stop for an onward journey or to a final destination itself. Provision of pedestrian and cyclists crossing facilities are relatively inexpensive to provide, particularly as part of a larger highway improvement scheme and hence we will continue this option as part of our Accessibility Strategy.

We will prioritise the continuation of improving cycling and walking access over the ring roads and the completion of the green ringway orbital cycle route. We will also look for improved links between the universities, University Hospitals Leicester (UHL) and existing and proposed transport interchanges.

Advanced Stop Lines

Continue to work to provide on carriageway facilities for example ‘advanced stop lines’ at junctions. Full width lanes should be the first preference; however virtually cycle lanes could be considered where there is insufficient width.¹

Cycle Parking

Cycle hubs which include parking and cycle hire should be provided in these locations along with other frequently used sites e.g. Highcross, universities and UHL Trust.

Opportunities to provide cycle parking should be taken throughout all areas of the city, particularly where local facilities are provided e.g. doctor’s surgeries.

Cycle parking has been provided at major events in Leicester for a number of years. Not only does it provide a service, and means that cycling can be publicised as a way of travelling to the event, but it also forms a monitoring tool.

Cycle Hire Schemes

The London Barclay Bike Hire Scheme could become the first public transport system to make a profit. TfL aim to expand the scheme. However, setting up the bike hire scheme is set to cost £140m over six years. TfL expect it will cover its operating costs within two to three years and will then be able to contribute to its implementation costs.² Paris Velib bike hire is also expanding and making a profit.

Leicester’s Smartcard for use on public transport could have the capacity to be used as cashless payment for Cycle Hire Schemes. Consultation with various groups both cyclists and non-cyclists have put the provision of bike hire as

¹ Advanced stop line research study, Atkins, May 2005

² Guardian.co.uk

desirable. Therefore, the Cycle Hire Scheme is a long term option for Leicester's LTP3.

The cost of providing a bike hire scheme will be unaffordable for the first years of LTP3. However, during this time we will be investigating the strength of the business case.

Community bike maintenance and recycling enterprises

Community bike enterprises such as Bikes4all aim to get people of all ages cycling.

The project recycles bikes donated by the public and corporate sponsors and offers training, activities and services which have a positive impact on the whole community. Leicestershire Constabulary has been working with the city council to provide stolen bikes which are unclaimed.

The idea began in September 2003 to prevent bikes going to landfill when they could be refurbished and donated or sold to families in deprived areas.

The bikes are used during bikeability training to provide bikes for children who don't already own a bike in order that they can still benefit from the training.

This is a community project working with volunteers and provides an invaluable service for little cost.

Providing better cycle service information

An area where Leicester has under performed throughout LTP2 has been in the provision of mapping and signing of cycle routes. Feedback from many cycling stakeholders and in particular from the pilot Personalised Travel Planning Team has been that the lack of mapping and signs are preventing the uptake of cycling.

A new printed map should be available in January 2011 via bike shops, city council outlets and Ride Leicester events. Bespoke point to point Leicester Public Transport and Cycling (and other modes) maps and routes are currently available at the Transport Direct website.

5.7 Leicestershare.com

Developed by Leicester City Council in conjunction with Leicestershire County Council, Leicestershare.com is a free car - sharing scheme that puts different people in and around Leicestershire in contact with each other to car share. The scheme was launched in May 2007 for an initial period of 5 years at which time consideration will be given to renewing / extending the scheme.

Leicestershare.com has been set up by Leicester City Council and Leicestershire County Council to:

- To provide you with alternative modes of transport in and around Leicester.
- To help tackle congestion and improve air quality.
- Gives people the chance to meet new people and to encourage building new social networks.

The initiative helps members not only to save money but makes journey times quicker and more reliable by reducing the number of motor vehicles on the road which in turn helps to reduce congestion.

Leicestershare.com is supported by our local partners - Leicester City Football Club, De Montfort University and University Hospitals of Leicester and many others.

5.8 Travel Plans

Many businesses and organisations in the city are adopting Travel Plans to tackle road congestion, improve air quality and reduce their carbon footprints. A Travel Plan is a package of measures tailored to each organisation aimed at promoting smarter, sustainable travel (using public transport, walking, cycling, car sharing, working from home/flexi-working) to reduce the reliance of single occupancy car users. Currently the city council has 109 Travel Plans which include Highcross, University Hospitals Leicester NHS Trust, Curve, De Montfort University, Leicester Tigers and many more.

The city council also undertakes School Travel Plans with primary and secondary schools in the city. Currently just over 90% of schools have a Travel Plan with a view to 100% participation by the end of 2010.

6 Monitoring and Evaluation

Monitoring the effectiveness of the arrangements put in place by the city council to manage the network is an important aspect required to fulfil the obligations of the Duty. With the ultimate aim of improving network performance we have identified a number of indicators that demonstrate this and are relevant to our network. The indicators used are from the LTP process.

6.1 Congestion Monitoring and Associated Targets

Targets to reduce congestion and improve journey times are contained within the LTP3. The 10 indicators relating specifically to congestion and 4 other relevant indicators are as follows (Full details are contained within Chapter 4 and Chapter 8 of the LTP3):

Table 3 List of Leicester Local Transport Plan Indicators and Targets			
Reference	Description	Target 2014/15	Page
Economic Growth Supported – Leicester is more prosperous			
<i>To Reduce Congestion and Improve Journey Times</i>			
L LTP 1	Congestion on locally managed A roads	3.6 min per mile	
L LTP 2	Public transport patronage	43 million	
L LTP 3	Number of people on out of work benefits	Monitoring Only	
L LTP 4	Rate of people moving from out of work benefits into employment	Monitoring Only	
L LTP 5	Net additional homes provided	1,519	
L LTP 6	Satisfaction with public transport information	70%	
L LTP 7	Satisfaction with local bus services	77%	
L LTP 8	Mode of travel to school (reduction of car share to) a) Primary b) Secondary	a) 25.0% b) 20.8%	
L LTP 9a L LTP 9b	Bus punctuality (non-frequent services) Bus punctuality (frequent services)	a) 71.5% b) 1.04 minutes	
L LTP 10	One Leicester car journey to work share	49%	
L LTP 11	INDICATOR REFERENCE NOT USED		

Carbon Emissions Reduced – Leicester’ carbon footprint is reduced			
<i>To Reduce Carbon Emissions</i>			
L LTP 16	Number of Travel Plans adopted by businesses in the CTZ	70	
L LTP 17	Percentage of all state schools covered by Travel Plans	100%	
L LTP 18	Number of Area Wide Travel Plans introduced	4	
L LTP 19	Percentage of freight/goods destinations properly direction signed	100%	

6.2 Key Parity Measures KPMs (Performance Management Measures PMMs)

The Duty Guidance states “Parity is an important principle in exercising the duty. Authorities must lead by example, applying the same standards and approaches to their own activities as to those of others” (2004, p.12). In order to monitor this requirement the city council is proposing to introduce a series of performance

indicators known as “Key Parity Measures” to compare the performance of all work promoters, including those of the city council, which will allow the authority to recognise those promoters that are not improving, and to work with them to identify the cause and agree mitigating actions. By introducing these measures it will help to demonstrate parity and also promote a culture of continuous improvement for all work promoters working in the highway.

The Key Parity Measures, which will to be adapted and developed in line with any future national or regional guidance, will be introduced from April 2010 onwards and will be published, through NRSWA Coordination meetings and any other forum agreed nationally or regionally, through EMHAUC. Work promoters including those carrying out works on behalf of the Council that are not improving will be identified, and we will work together to identify the cause and agree mitigating actions.

The KPMs listed in Table 7 below are identified as having the most impact on network management: The most significant KPM measure will be number of FPNs sent to utilities and comparing that with the council’s roadwork performance.

Table 4 Key Parity Measures

Priority	Parity Measure	Objective
1	FPNs – number that could be issued	Identify failure to provide accurate information on Notices
2	Duration of works	Checking total occupancy of network – significant reason for delays
3	Number of cancelled works	Identify poor planning and programming of works
4	Extension of durations	Identify poor planning of works - extensions required to complete works –
5	Early Starts	Identify poor planning and programming of works waiving Notice period
6	Forward Planning of Works	Identify poor planning and programming of works

Review Process

Monitoring of these targets is done through 6 monthly Quality Management Review meetings.

7 Key Challenges faced by Leicester City Council

Regeneration of the city centre, the extension of the Shires Shopping Centre (now Highcross Shopping Centre) and the construction of a 2,000 space car park present their own traffic management challenges. Some of these challenges are current and require immediate redress whilst others will require long-term planning to identify possible remedies and solutions to tackle the issues.

7.1 Current Challenges

A number of key hotspots have been identified, in particular, the use of a dedicated route for buses and taxis (Causeway Lane) by cars and also traffic build-up due to vehicles queuing to gain access to the new John Lewis (Highcross) car park.

Short-term measures to deal with traffic build up in Causeway Lane include the use of traffic marshals (particularly in the run-up to Christmas) and the use of number plate recognition cameras. Longer-term measures are being sought and will form part of the challenges facing the council in the future (see Future Challenges below).

As indicated at Table 2 page 18 regular Highcross traffic management meetings are held to tackle traffic issues arising as a consequence of traffic coming in and out of the two dedicated Highcross car parks. One of the short term measures include re-direction of traffic to alternative car parks in the city.

A long-term, more permanent solution for dealing with both these issues and others have yet to be identified. Discussions with key stakeholders will endeavour to seek solutions to these traffic hotspots. It is expected these will then be incorporated in LTP3, dependent on financial constraints.

7.2 Future Challenges

In addition to the anticipated future growth in demand on the highway network due to regeneration in Leicester, a number of traffic congestion “hotspots” have been identified as shown below. Regular review and monitoring of congestion hotspots enables the authority to identify new congestion hotspots and to monitor progress of actions taken to address those issues.

Further analysis carried out during 2010 highlighted reoccurring traffic congestion hotspots and enabled prioritisation decisions to be made based on 3 years worth of data (2008-2010). This helps to ensure that short-term influences (such as road works etc) do not adversely influence the data.

Table 5 – Morning Peak Traffic Delays 2008

Order	Route	Direction	Direction 2	Junction	Average delay per junction (mm:ss)	Decimal delay	Worst delay = 1
13	16	WB	CLOCK	A6 Harborough Rd / B582 New St	01:54	1.90	1
6	20	SB	ANTI	Narborough Rd / Braunstone Lane East	01:31	1.52	2
8	02	NB	IN	Middleton St / Aylestone Rd	01:29	1.48	3
7	02	NB	IN	Soar Valley Way / Lutterworth Rd	01:18	1.30	4
8	20	SB	ANTI	Aylestone Rd	01:16	1.27	5
3	13A	SB	IN	Humberstone Lane	01:15	1.24	6
22	12	SB	CLOCK	Welford Road / Chapel Lane	01:14	1.24	7
4	11	EB	OUT	Granville Rd / London Road	01:02	1.04	8
6	03	NB	IN	Glenhills Way	01:01	1.02	9
5	01	SB	OUT	Upperton Rd	01:01	1.01	10

Table 6 – Morning Peak Traffic Delays 2009

Order	Route	Direction	Direction 2	Junction	Average delay per junction (mm:ss)	Decimal delay	Worst delay = 1
19	11	WB	IN	Waterloo Way / Regent Rd	01:37	1.62	1
6	20	SB	ANTI	Narborough Rd / Braunstone Lane East	01:20	1.34	2
7	02	NB	IN	Soar Valley Way / Lutterworth Rd	01:16	1.27	3
23	12	SB	CLOCK	Saffron Lane / Knighton Lane East	01:16	1.26	4
13	16	WB	CLOCK	A6 Harborough Rd / B582 New St	01:12	1.20	5
16	19	AC	ANTI	Waterloo Way / Regent Rd	01:12	1.19	6
10	05A	SB	CLOCK	Welford Rd / Victoria Park Rd	01:11	1.18	7
22	12	SB	CLOCK	Welford Rd / Chapel Lane	01:10	1.17	8
6	12	NB	ANTI	London Rd / Stoughton Rd	01:07	1.12	9
10	04	SB	OUT	Palmerston Way / Welford Rd	01:05	1.09	10

Table 7 – Morning Peak Traffic Delays 2010

Order	Route	Direction	Direction 2	Junction	Average delay per junction (mm:ss)	Decimal delay	Worst delay = 1
7	02	NB	IN	Soar Valley Way/ Lutt. Road	01:20	1.33	1
22	12	SB	CLOCK	Welford Rd/Chapel Ln	01:20	1.33	2
18	13	CW	CLOCK	Abbey Lane	01:17	1.29	3
6	20	SB	ANTI	Narborough Rd / Braunstone Lane East	01:17	1.28	4
6	20	NB	CLOCK	Aylestone Rd/Middleton St	01:12	1.20	5
14	13	CW	CLOCK	Groby Rd	01:11	1.18	6
9	09	SB	IN	Abbey Gate/Woodgate	01:10	1.17	7
10	03	SB	OUT	Blaby Road/Saffron Rd	01:10	1.16	8
5	20	NB	CLOCK	Glenhills Way	01:09	1.15	9
10	05A	SB	CLOCK	Welford Rd/Victoria Park Road	01:04	1.07	10

Table 8 – Evening Peak Traffic Delays 2008

Order	Route	Direction	Direction 2	Junction	Average delay per junction (mm:ss)	Decimal delay	Worst delay = 1
6	20	SB	ANTI	Narborough Rd / Braunstone Lane East	01:45	1.75	1
18	12	SB	CLOCK	London Rd / Stoughton Rd	01:41	1.69	2
10	09	SB	IN	Sanvey Gate	01:36	1.60	3
12	20	NB	CLOCK	A47 Hinckley Rd / Braunstone Lane	01:34	1.57	4
18	13	CW	CLOCK	Abbey Lane	01:29	1.48	5
13	16	WB	CLOCK	Harborough Rd / A6	01:27	1.45	6
11	09	SB	IN	Highcross St / Vaughan Way	01:26	1.43	7
4	11	EB	OUT	Granville Rd / London Rd	01:15	1.26	8
16	19	AC	ANTI	Regent Rd	01:11	1.19	9
7	03	SB	OUT	Glenhills Way	01:10	1.17	10

Table 9 – Evening Peak Traffic Delays 2009

Order	Route	Direction	Direction 2	Junction	Average delay per junction (mm:ss)	Decimal delay	Worst delay = 1
13	16	WB	CLOCK	A6 Harborough Road / B582 New St	01:35	1.58	1
18	12	SB	CLOCK	London Rd / Stoughton Rd	01:33	1.55	2
16	16	WB	CLOCK	Brabazon Rd / B582 Wigston Rd	01:26	1.44	3
6	20	SB	ANTI	Narborough Rd / Braunstone Lane East	01:25	1.42	4
12	20	NB	CLOCK	A47 Hinckley Rd / Braunstone Lane	01:23	1.38	5
22	12	NB	ANTI	Melton Rd / Marfitt St	01:23	1.38	6
11	09	SB	IN	Highcross St / Vaughan Way	01:21	1.35	7
6	20	NB	CLOCK	Aylestone Rd / Wigston Lane	01:21	1.34	8
7	02A	EB	ANTI	B582 Moat St / A5199 Welford Rd	01:18	1.30	9
10	05A	SB	CLOCK	Welford Rd / Victoria Park Rd	01:17	1.29	10

Table 10 – Evening Peak Traffic Delays 2010

Order	Route	Direction	Direction 2	Junction	Average delay per junction (mm:ss)	Decimal delay	Worst delay = 1
22	12	NB	ANTI	Melton Road / Marfitt St	01:32	1.53	1
18	13	CW	CLOCK	Abbey Lane	01:31	1.51	2
6	20	NB	CLOCK	Aylestone Rd / Wigston Lane	01:31	1.51	3
8	05A	SB	CLOCK	Mayfield Rd/London Rd	01:24	1.40	4
5	09	NB	OUT	Sanvey Gate	01:23	1.39	5
11	09	SB	IN	Highcross Street/Vaughn Way	01:21	1.35	6
7	02	NB	IN	Soar Valley Way/ Lutt. Road	01:16	1.27	7
12	20	NB	CLOCK	A47 Hinckley Rd / Braunstone Lane	01:14	1.23	8
2	01	SB	OUT	St Augustine /Narborough Rd	01:13	1.22	9
5	01	SB	OUT	Upperton Road	01:13	1.21	10

Note that the highest average delay per junction figure (i.e. the worst delay figure) has declined every year in both time periods from 2008 onwards. The above tables show that:

- Soar Valley Way/Lutterworth Road junction has appeared in all three years in the AM peak and risen from 4th worst in 2008 to 3rd worst in 2009 to worst in 2010. It also appears in the 2010 evening peak.
- Welford Road/ Chapel Lane junction, which was the 2nd most delayed junction in the AM peak in 2010, was aggravated by roadworks that year.
- The Narborough Road / Braunstone Lane East junction appears in five of the six tables.
- The Abbey Lane junction with Abbey Park Road and Blackbird Road appears in the top ten for the first time in 2010, in both time periods.

Discussions with key stakeholders, including Leicestershire County Council, will endeavour to seek solutions to these traffic hotspots. It is anticipated that these will then be incorporated in LTP3, dependent on financial constraints.

The council will continue to implement solutions through the urban congestion management schemes and initiatives, including working with developers through the planning system, to reduce congestion at these hotspots.

In addition to the above, the council will continue to seek to keep traffic congestion to a minimum at key times in the year, in particular, leading up to the Christmas shopping period which realises a substantial increase in traffic (see Current Challenges above).

8 The Future

Leicester City Council is committed to ensuring a sustainable reduction in traffic congestion and the improvement in journey times in Leicester now and in the future by:

- Ensuring continued and proactive traffic management as detailed in this Plan.
- Regularly reviewing systems and processes with a view to making improvements that will provide consistent and up-to-date traffic management in Leicester.
- Making sure the objectives of LTP3 are carried out by delivering the work to time and to high standards.
- Ensuring LTP3 and beyond helps deliver an effective and efficient road network system that takes account of the requirements of the TMA, the NMD and any future amendments / new legislation that may come into force.
- Striving for continued improvements in all aspects of traffic management.
- Continually working with partners and stakeholders to ensure Leicester's highway network is free flowing and enabling to the public and not seen as a barrier / necessary evil to either work or recreational activities.
- Working with developers etc. to ensure future developments take into consideration legislative requirements for traffic management.
- Reducing the rate of increase in congestion against an ever increasing demand for travel on the network arising from and facilitating city centre regeneration and housing growth.
- Ensuring that carbon reduction measures are an integrated part of LTP 3.

Glossary of Terms

CCTV	Close Circuit Television
CEOs	Civil Enforcement Officers
CPE	Civil Parking Enforcement
DfT	Department for Transport
ELGIN	Electronic Local Government Information Network
EMAS	East Midlands Ambulance Service
EMHAUC	East Midlands Highway Authorities and Utilities Committee
HAUC	Highway Authorities and Utilities Committee
FQP	Freight Quality Partnership
KPIs	Key Performance Indicators
LLMF	Leicester and Leicestershire Motorcycle Forum
LTP1	Local Transport Plan 2001-2006
LTP2	Local Transport Plan 2006-2011
LTP3	Local Transport Plan 2011-20??
NMD	Network Management Duty
NMP	Network Management Plan
PMM	Performance Management Measures
NRSWA	New Roads and Street Works Act 1991
PDA	Personal Digital Assistant
QBP	Quality Bus Partnership
RMS	Remote Management System
ROWIP	Rights of Way Improvement Plan
SCOOT	Split Cycle Offset Optimisation Technique
TDAS	Traffic Data Analysis Software
TMA	Traffic Management Act 2004
TSRGD	Traffic Signs Regulations and General Directions.
UTC	Urban Traffic Control
UTMC	Urban Traffic Management and Control

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Traffic Management, The (Guidance on Intervention Criteria) (England) Order 2007

www.elgin.gov.uk

www.emhauc.org.uk

www.leicester.gov.uk/

www.leicestershare.com

www.scoot-utc.com

www.trafficlink.com

Appendix 1

Protocol for Major Road Works

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

Leicester's Local Transport Plan
2011-2026

Leicester City's Air Quality Action Plan 2011-2016



LEICESTER'S LOCAL TRANSPORT PLAN
2011 TO 2026

**LEICESTER CITY'S AIR QUALITY
ACTION PLAN 2011 TO 2016**

Leicester City Council
A Block New Walk centre
Leicester LE1 6ZG

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Leicester City Council
 Regeneration Highways
 & Transportation
 Welford Place
 Leicester LE1 6ZG

Contact Names: Garry Scott & Evan Davies
 Tel No: 0116 252 6526
 Email: Garry.Scott@leicester.gov.uk
Evan.Davies@leicester.gov.uk

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LTP3 AIR QUALITY ACTION PLAN

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1. THE BACKGROUND

1.1 Legislation and Guidance

Leicester City Council has a duty under Part IV of the Environment Act 1995 (Section 85) and Guidance issued there under (Section 88) to publish and keep up to date an Air Quality Action Plan.

This Annex is issued in compliance with that duty.

The major source of relevant pollution in Leicester is nitrogen dioxide from motor vehicles. Where this is the case, statutory Guidance under the Act recommends that this Air Quality Action Plan should be integrated into the current Local Transport Plan. [DEFRA Policy Guidance Notes LAQM. PG(03) and LAQM PGA(05) (Addendum)].

Leicester City's Air Quality Management Area is a single, extensive area based around the City centre and the major road network (Fig. 1.5). It reflects a network wide problem, requiring network wide responses.

Not only is the key air quality issue in Leicester one which could only be ultimately resolved by transport-related initiatives, but also air quality is extensively referred to by the Department for Transport in its Guidance on Local Transport Planning : It therefore makes sense to integrate the two Plans.

It is recognised that the existing Air Quality Action Plan (Annex 11 of the Central Leicestershire Local Transport Plan 2006-11) is insufficiently robust to achieve the statutory Air Quality Objectives: Evidence of progress is given in this document. In addition, the development of the third Local Transport Plan, beyond 2011, provides the opportunity to revisit the action plan.

This Annex is therefore to be read in conjunction with the main Leicester Local Transport Plan 2011-2026 (LTP3). (Chapter 7 of the LTP3 deals specifically with air quality). It has two principal aims:

To avoid encumbering the main narrative of the Local Transport Plan with background detail about Local Air Quality Management.

To collate in one place all material relevant to Leicester City Council's specific duty under the Environment Act to produce its own Air Quality Action Plan, so that it can be referred to in a transparent way.

1.2 Why is Air Quality Important?

1.2.1 Mortality

Evidence to the Parliamentary Environment Audit Committee in 2010 indicates that poor air quality –

Reduces the life span of everyone in the UK by an average of 7 – 8 months;

Causes up to 50,000 premature deaths each year in the UK. (In Leicester, this equates to at least 750 premature deaths).

[House of Commons Environmental Audit Committee – Air Quality, Report of the Fifth Session 2009 - 10].

This compares with about 3,000 fatalities every year on the roads and about 11,000 deaths per year caused by passive smoking.

Studies show that the most deprived groups tend to live in areas of poorest air quality. This is compounded by the fact that people in this category are also affected by a range of stress factors.

1.2.2 Social Deprivation

The following is taken from Air Pollution in the UK, 2005 (DEFRA, August 2006). 'Deprivation', for the purposes of this study, is a combined index, by percentage of the population, of unmet needs in terms of income, employment, education and housing.

Analysis shows that the 30% of the population of England which is most deprived is urban and suffers the worst air quality, with respect to nitrogen dioxide and particulates (but not ozone). This effect is more pronounced if we consider the most deprived decile (10%) of the population. Conversely, the majority of the population living in the areas subject to the top 10% of levels of those pollutants is accounted for by the most deprived communities. In England, over 70% of the population living in the most PM₁₀ polluted areas is characterised by being in the 4 most deprived deciles of the population (40%). There is a similar relationship for nitrogen dioxide.

National projections indicate that there is a worsening trend over the decade in the relationship between deprivation and exposure to bad air quality. Although more research is needed, there is also some evidence that deprived populations living in areas of poor air quality are more susceptible than the population as a whole to the harmful effects of air quality due to its combined impact with other social stressors. Analysis of the UK population demonstrates that the young are statistically more likely to live both in areas of social deprivation and of poor air quality.

Although the resident population of Leicester's Air Quality Management Area is estimated to be about 3% of the City's population (9,000 people), the affected people typically live in inner city areas and/or areas in close proximity to major roads, which correspond to areas of elevated social deprivation. Therefore, any improvement in air quality in these areas will have a disproportional benefit for the actual people most seriously affected.

Disadvantaged people tend to contribute least to atmospheric emissions and also tend to be the group least able to take action to address them.

A very good example of this problem is the St. Matthews estate, where flats and maisonettes are situated within a few metres of the inner ring road and much of the estate falls within the Air Quality Management Area. (Fig. 1.5)

Taking the mortality figures for the UK pro-rata, we can make the crude calculation that poor air quality would lead to about 250 premature deaths per annum in Leicester. However, because of the demographic factors referred to, this is almost certainly an underestimate, and the proportion of the UK mortality attributable to deprived / polluted areas within the City will be larger.

1.2.3 EU Deadlines

The UK's failure to meet EU air quality Objectives by the appropriate deadline could result in the Government being taken to the European Court and subjected to massive ongoing financial penalties. The Government is currently attempting to secure an extension to the time limit for meeting the limit values for nitrogen dioxide in urban areas.

1.3 Council Strategies Relevant to Air Quality.

Strategy	Actions and Targets	
	Specific Action	Headline Target
Corporate Plan 2003-2006	Make continual, measureable progress in environmental performance and reduce environmental impact	Meet EMAS targets for environmental improvement
	Improve access to public transport and promote alternative transport leading to reduced car use; develop safer routes to schools schemes; and implement traffic calming initiatives	Reduce car use to the city centre by 4% in peak periods by 2006
	Provide effective regulatory services for environmental health	Develop and implement Air Quality Action Plan by June 2004
Leicester's Community Plan/Strategy	Reduce car travel to the city centre and encourage and develop more journeys by cycling, walking and public transport	
	Ensure national air quality standards are met and increase awareness and understanding of air quality issues	
Leicester's Neighbourhood Renewal Strategy	Promote and deliver sustainable use of energy and resources	
	Reduce car travel to the city centre and encourage and develop more journeys by cycling, walking and public transport	
	Ensure national Air Quality standards are met and increase awareness and understanding of air quality issues	
	Increase awareness and understanding of air quality issues through the formal education system and amongst the wider community	

Strategy	Actions and Targets
Leicester's Environmental Strategy (Leicester Environment Partnership)	Minimising pollution: reduce and eliminate harmful emissions from vehicles and monitor air quality to identify pollutant levels and sources and make this information public
	Achieve sustainable transport: achieve the statutory air quality objectives; reduce the need to travel; reduce vehicle emissions; promote modal shift; reduce the distance over which goods and services are delivered

1.4 The National Air Quality Objectives

Statutory Objectives and Limit Values for various pollutants are laid down by Regulation, as detailed in the following table.

Table 1.5: Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.

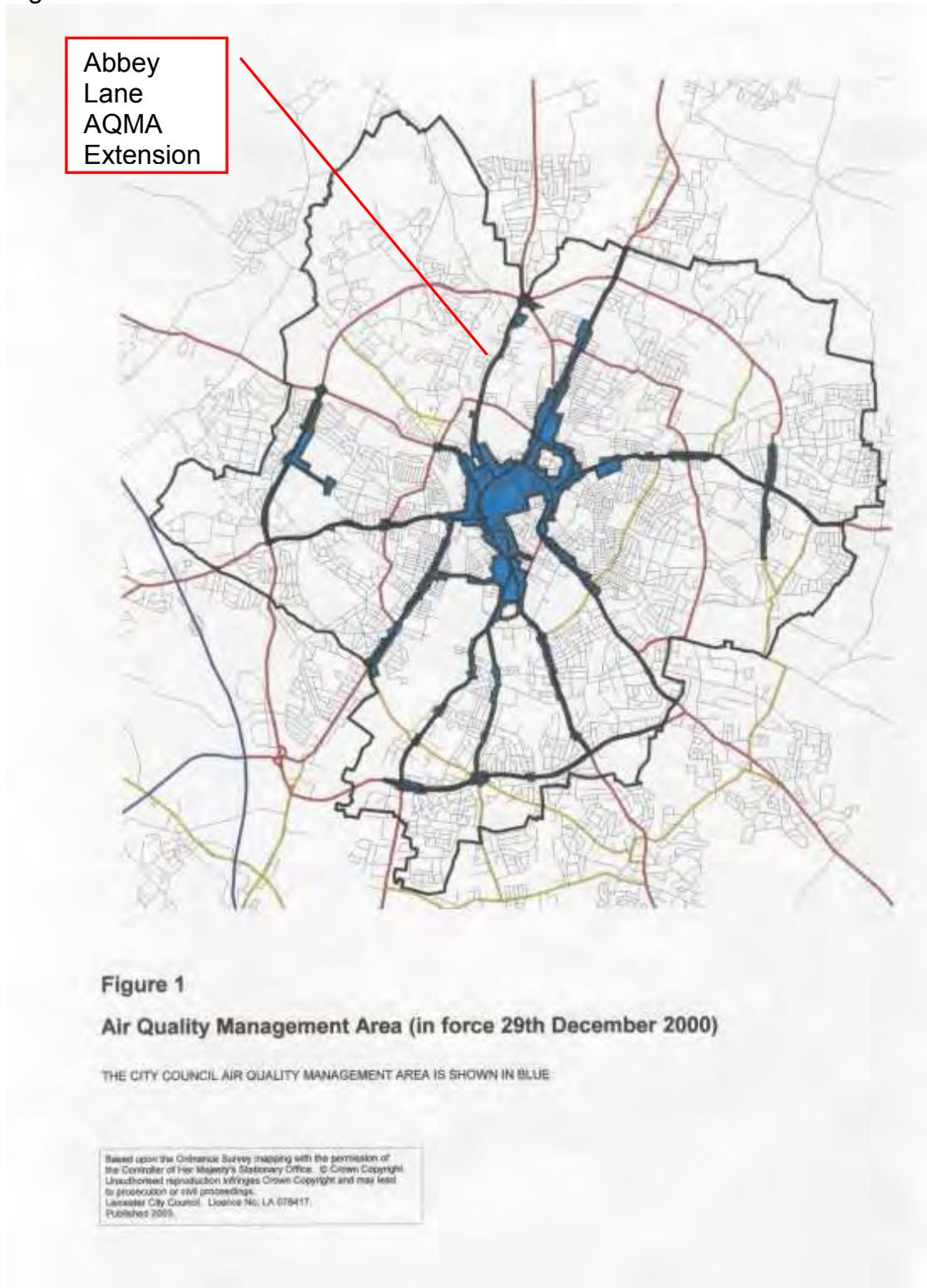
Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m ³	Running mean annual	31.12.2003
	5.00 µg/m ³	Running mean annual	31.12.2010
1,3-Butadiene	2.25 µg/m ³	Running mean annual	31.12.2003
Carbon monoxide	10.0 mg/m ³	Running mean 8-hour	31.12.2003
Lead	0.5 µg/m ³	Annual mean	31.12.2004
	0.25 µg/m ³	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m ³ , not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m ³	Annual mean	31.12.2005
Particles (PM ₁₀) (gravimetric)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m ³	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

In practice, the key air quality issue is exceedance of the annual mean criterion for nitrogen dioxide caused by emissions from motor vehicles. This is discussed in detail in Section 3 of this document.

1.5 Progress with Air Quality in Leicester

- The Local Air Quality Management process can be summarised as follows:
- Environment Act 1995
- Government establishes National Air Quality Strategy
- Government sets statutory health-based air quality Objectives
- Local Authority Reviews and Assesses Air Quality against Objectives (2000)
- Projected failure to meet Objectives established
- Local Authority designates Air Quality Management Area (2000)
- Local Authority carries out further (“Section 84”) Review and Assessment in AQMA (2003)
- Source apportionment of exceedance and amount of reduction required established
- Local authority develops Air Quality Action Plan (2004)
- Air Quality Action Plan is integrated with Local Transport Plan (2005)
- Leicester fails to meet statutory Objective for Nitrogen dioxide (2005)
- Central Leicestershire Local Transport Plan 2006-11 (2006)
- Implementation and Progress Reporting
- Air Quality Management Area extended in Abbey Lane corridor (2008)
- Leicester highly unlikely to meet EU limit value for nitrogen dioxide (2010)
- Replacement Air Quality Action Plan developed in integration with the Leicester Local Transport Plan 2011

Fig 1.5



2. AIR QUALITY ACTION PLANNING

2.1 The Low Emission Strategies Approach

2.1.1 Generic Strategy

Monitoring and modelling so far demonstrates that no measures, which are currently committed or at an advanced stage of development, will come close to achieving the Objective for Nitrogen dioxide (or achieve a sufficient reduction in carbon emissions)

It is therefore clear that to meet the Objective –

- No single measure will do the job; a broad package of interventions is needed;
- Progress will be a long haul, in incremental steps; and
- To achieve the full reduction required, the modelling to date suggests that radical, long-term measures may ultimately be required
- Considering generic strategies for reducing traffic emissions, all measures fall into three broad categories, by reducing:
 - Vehicle-miles within the Local Transport Plan area;
 - Emissions per vehicle-mile; and/or
 - Traffic flows past critical points (where relevant human exposure occurs).

In drawing up Leicester City Council's Air Quality Action Plan, all available options were considered and evaluated.

2.1.2 Policy Integration

There is a key triad of environmental imperatives:-

Air Quality – Emissions which are harmful to health at a local level, especially near to sources such as busy roads. The key air quality issue in Leicester is nitrogen dioxide: About 90% of the measured nitrogen dioxide in Leicester is derived from motor vehicles. Of this, about 60% is from heavy vehicles.

Climate Change – Greenhouse gas emissions which cause large-scale and potentially catastrophic climatic effects. The most important greenhouse gas is carbon dioxide. Over 20% of emissions are from motor vehicles and this sector is growing.

Sustainability – Making sure that our mode of life does not impair that of future generations, in a context of huge population growth and economic growth, impacting on finite resources.

These overlap but are not identical in their demands. As has now been clearly realised by Government (see Section 3.2), interventions can be identified which tackle both climate change (LTP3 chapter 8) and air quality (LTP3 chapter 7). Implementing these will give policy a greater coherence, direction and force. This approach will also present a few simple aims to the public, avoiding a confusing plethora of strategies and initiatives. This will enhance the likelihood of stakeholder understanding and acceptance.

Conversely, policy conflicts are possible, and even likely, unless there is detailed and rigorous assessment of policy options for all their consequences and their costs/benefits, before adoption.

Importantly, this approach will avoid wasteful activities and optimise the use of increasingly scarce resources.

Finally, opportunity costs of failing to act on various issues can be aggregated making the case for action more powerful.

It should be noted that Leicester City Council is signed up to the Low Emissions Strategies Development Programme, which is endorsed and funded by DEFRA, with the stated aim of, ‘...Using the Planning System to reduce transport emissions’.

Current Government Guidance strongly promotes the concept of pursuing the co-benefits of combating poor air Quality and climate emissions. The following section summarises the key recommendations of these documents.

It is worth noting that the 4M research programme, led jointly by Loughborough and Newcastle Universities, intends over the next 4 years to calculate the carbon footprint of Leicester by:

- Measuring the carbon released by traffic, the burning of fossil fuels in homes and places of work and the rate at which green plants and trees capture carbon and store it in the soil;
- Modelling the effects on the carbon budget from: road layouts, traffic volumes and traffic speeds, the way we use energy in our homes and places of work, and the way we look after green spaces;
- Mapping the sources and sinks of carbon for the whole city and comparing this with the social and economic well-being of its 270,000 inhabitants;
- Management studies which will investigate how to shrink the city's carbon footprint through: changing the road network and/or the provision of better public transport; alterations to the maintenance of green spaces and the treatment of waste; the use of renewable and low energy systems to provide power and light; and the operation of Individual Carbon Trading (ICT) schemes.

Clearly, in the longer term there is scope to utilise this knowledge base to evaluate or verify potential Action Plan interventions, particularly at the strategic level.

The more detailed analysis of selected interventions for the work reported in the TRL Report (see Section 2.8) includes an assessment of CO₂ emissions.

2.1.3 The UK Policy Context

a) Guidance on Local Transport Plans (Department for Transport, July 2009)

This is the basic guidance which sets the pattern for the forthcoming replacement Local Transport Plan, now under development. One of the stated key goals is to 'Contribute to Better Safety, Security and Health', including the aim to

“Reduce social and economic costs of transport to public health, including air quality impacts in line with the UK’s European obligations,”

On air quality, the Guidance goes on to say:

“Local authorities are responsible for monitoring local air quality and implementing action plans to improve air quality where this is necessary. The majority of air quality action plans concern road transport emissions. Good co-operation between transport planning, air quality and spatial planning departments, as well as with partner organisations, is essential to ensure a strategic approach to improve quality of life for those living near to busy roads and junctions. Integrating Air Quality Action Plans with LTP’s is strongly encouraged...”

It is important the LTP’s are effectively co-ordinated with air quality, climate change and public health priorities – measures to achieve these goals are often complementary. Reducing the need to travel and encouraging sustainable transport can reduce local emissions, whilst improving public health and activity levels.”

“The Department will continue to take an interest in the overall quality of an authority’s LTP, and of its delivery, and may take these factors into account where this is relevant to its decisions, for example in relation to bids for challenge funding or major projects.”

b) The Future of Urban Transport (Prime Minister’s Policy Unit, 2008)

The DfT Study analyses the costed aspects of urban transport, including air quality under the following headings:

- Excess delays
- Accidents

- Poor Air Quality
- Physical inactivity
- Greenhouse gas emissions
- Noise and amenity

It is estimated that the aggregated measurable costs in the UK of transport in urban areas with populations in excess of 10,000, from congestion, accidents, poor air quality and physical inactivity/obesity are each roughly of the same order of magnitude i.e. around £10 billion per annum. In a time of economic stringency, there are therefore very large opportunity costs attached to failure to take effective action.'

c) Air Pollution – Action in a Changing Climate (DEFRA, 2010)

This Guidance document states that air pollution causes annual health costs of around £15 billion in the UK, comparable to the cost of obesity (£10 billion), and that many activities, particularly relating to transport and energy generation, contribute both to local air pollutions and wider global climate change. Specifically, the report makes the following comments:-

“Taking action to reduce the effects of climate change provides an excellent opportunity to deliver further benefits to both air pollution and greenhouse gas (GHG) emissions. Both arise from broadly the same sources and will therefore benefit from many of the same measures; so the combined benefits are substantially greater, when we compare them with the costs, rather than if we look at each group of benefits in isolation.”

“Now is the right time to consider how we can achieve these additional benefits, particularly from improving public health, through a closer integration of air quality and climate change policies. In the much shorter term we face challenges in meeting our current air quality targets, especially in relation to nitrogen dioxide (NO₂)...”

“Government proposals to achieve air quality / climate change co-benefits will be realised through actions such as promoting ultra-low carbon vehicles, renewable sources of energy which do not involve combustion, energy saving efficiency measures and reducing agricultural demand for nitrogen.”

”At the same time, we need to avoid, as far as possible, policies which tackle climate change but damage air quality, and vice versa...”

“...evaluation of a measure to increase the uptake of low emission vehicles showed that when viewed from an air quality perspective the benefits were marginal, with a cost of £61 million and benefits of around £72 million on an annual basis. However, the measure was also estimated to realise climate change benefits valued at £91 million, thus bringing the total annual benefits to around £163 million for the same cost of £61 million.”

In the best case scenario, “Climate change action brings additional benefits through air quality improvements...and a high level of ambition is set for NO₂ emissions reduction”... In the worst –case scenario, action on climate change brings further costs through the deterioration of air quality: ”...Conventional biodiesel or bioethanol is the fuel of choice for road transport; our homes and businesses get their heat and power from localised combined heat and power plants, fuelled by gas or biomass; coal-fired electricity generation provides the UK base load, with post-combustion CCS fitted; biomass is widely used in homes as a heating fuel of choice in small boilers;...”

d) Low Emissions Strategies: Using the Planning System to Reduce Transport Emissions – Good Practice Guidance (DEFRA, January 2010).

The document fleshes out the Low Emissions Strategies (LES) approach (see Section 4.4). It addresses the need for policy co-ordination in the following terms:

“Climate change is the greatest long-term challenge facing the world today. There is strong and indisputable evidence that climate change is happening and that man-made emissions are its main cause. If left unchecked, climate change will have profound impacts on our societies and way of life. Action is needed now.

Air pollution still harms health and the environment: it is currently estimated to reduce the life expectancy of every person in the UK by an average of 7-8 months, with estimated equivalent health costs of up to £20 billion each year. There are significant benefits to be gained from further improvements.

Air pollution and climate change both arise from the emission to atmosphere of the products of combustion. They are intrinsically linked. National policy advises local authorities to ‘bear in mind the synergies between air quality and climate change, and the added benefits to the local, regional and global environment of having an integrated approach to tackling both climate change and air quality goals.’

Joined up policies are particularly important for the transport sector, which is by far the most common cause for the declaration of air quality management areas and is the only sector where carbon dioxide emissions continue to increase.”

e) An invitation to shape the Nature of England (DEFRA, July 2010)

This discussion document sets air quality and climate change emissions in the context of national policy objectives: ‘The rate of decline of some air pollutants is now leveling off and improvements are increasingly costly to achieve. However, air pollution still reduces life expectancy by an average of six months, with social costs estimated at £8 to £17 billion per year.... Working towards compliance with EU air quality limits for particulate matter (PM₁₀) and

nitrogen dioxide (NO₂) in our urban areas is the short-term priority for the UK and other EU Member States. In the short term, the most pressing compliance challenge relates to NO₂ levels in large urban areas ... (including London)'

2.1.4 National and Local Policy Goals

The options contained in the AQAP have been appraised as to the extent to which they move towards of national and local strategic goals -

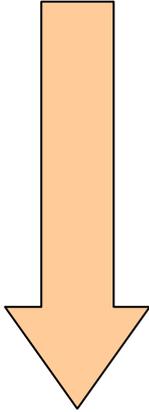
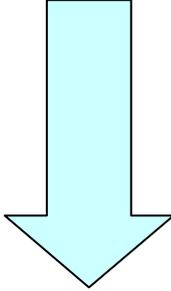
a) National: Guidance on Local Transport Plans (Department for Transport, July 2009)

This sets out five key goals:

- Economic Growth
- Reducing Carbon Emissions
- Equality of Opportunity
- Safety, Security and Health
- Quality of Life and Healthy Natural Environment.

The DfT Guidance on transport planning advocates the application of the 'Eddington Approach', in order to develop and implement policy in a systematic way. This is set out schematically in Table 2.1.4/1:

Table 2.1.4 /1

Major Element	Eddington Approach	Detailed components	Time Scale
STRATEGY	Goals	<p>Integrated corporate governance ~ Climate Change Strategy ~ Air Quality Action Plan ~ LDF ~ Social Policy</p> <p>Refine long-term 'One Leicester' vision in transport terms</p> <p>Establish evidence base</p> <p>Set long-term goals and targets</p> <p>A look ahead to where the implementation plan will lead at the end of the 'One Leicester' process.</p>	<p>Long-term perspective (? 25 years)</p> <p>Informs Implementation</p> 
	Challenges	<p>Identify obstacles to long-term progress and how they are to be addressed.</p> <p>Identify policy conflicts.</p> <p>Quantify hidden ('opportunity') costs – Social Economic</p>	
IMPLEMENTATION	Evaluate Options	Identify how options lead in direction of long-term goals.	<p>Detailed short-term planning (? 3 year increments)</p> <p>Delivers Strategy</p> 
	Select Options	Cost-benefit analysis.	
	Set Priorities	Establish outline process and scheduling of actions.	
	Delivery	Detailed – Design Costing Scheduling	
	Monitoring of progress and impacts	<p>Set baseline</p> <p>Establish detailed impacts of Preferred Package measures</p> <p>Set targets and profiles</p> <p>Monitor progress towards targets</p> <p>Feedback loop into next phase of planning</p>	
		Review how implementation plan is delivering Strategic vision	Long-term future (25 years)

Unlike the wider Local Transport Plan delivery of this Air Quality Action Plan, while being time-based, is not required by the DEFRA guidance to operate within any specific time limits: It is therefore a useful vehicle for looking further ahead at possible scenarios.

It can also be said that it is legitimate to establish feasibility studies, or the investigation of barriers to more radical measures, as 'actions' within this Air Quality Action Plan.

b) Local: Leicester City Council's 'One Leicester' Priority Policy Areas

This is the key, overarching strategic policy framework for the Council and sets the following seven Priority Areas:

- 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
- Investing in our Children

This envisages a 25-year time horizon which is a realistic one for developing and implementing the radical measure required to attain satisfactory levels of NO_x (and, indeed, carbon dioxide) emissions from transport.

The key task is to collate and reconcile these long-term goals with the more immediate options identified in the wider LTP.

References to Air Quality are scattered throughout the DfT guidance and the local strategic policy 'shopping lists', explicitly or implicitly. Table 2.1.4/2 indicates how air quality fits into wider national and local transport priorities: The Five Key Goals set out in the DfT Transport Planning Guidance are cross-tabulated with the 'One Leicester' Goals. In addition, for comparison and completeness, the analogous 'Leicestershire Together' goals of Leicestershire County Council set are located in the column and row headings for comparison (green italics).

DfT sub-headings to their 5 key Goals are entered in normal type in the appropriate column row intersections. Areas where air quality inputs are significant are highlighted in the table in yellow, with comments in bold blue type.

Table 2.1.4/2

<p>DfT 5 Goals</p> <p>One Leicester ↓ →</p>	<p>Economic Growth [Leics: A prosperous, innovative and dynamic economy]</p>	<p>Carbon Emissions [Leics: A more effective response to Climate Change]</p>	<p>Safety, Security and Health [Leics: A healthier Leicestershire] [Leics. Cross-cutting theme: Air Quality in AQMA's]</p>	<p>Quality of Life / Healthy Nat. Env. [Leics: A safe, attractive place to live and work]</p>	<p>Equality of Opportunity [Leics: Better life choices for vulnerable people and communities]</p>
<p>Planning for people not cars</p>	<p>Potential conflict Environmental cost approach?</p>	<p>Car-free environments, reduced congestion and modal shift benefit both AQ and CC emissions</p>			<p>Improved public transport for disadvantaged groups.</p>
<p>Reducing our carbon footprint [Leics: A more effective response to Climate Change]</p>	<p>Potential conflict Environmental cost approach? Reduced congestion improves AQ and CC emissions</p>	<p>Deliver quantified reductions in CC emissions to meet UK/EU targets. These measures also benefit AQ - 'win-win' solutions.</p>			
<p>Thriving, Safe Communities [Leics: Stronger more cohesive communities] [Leics: A safe, attractive place to live and work]</p>	<ul style="list-style-type: none"> - Reliable transport; - Access to labour markets; - Access to increased sustainable housing supply; - Proof against shocks. - Reduce gap in growth rates compared to other regions 		<ul style="list-style-type: none"> - Reduce road accident casualties. - Reduced crime, fear of crime, antisocial behaviour and terrorism threat. 		<p>Poor AQ affects deprived areas disproportionately - Social inclusion through improved access. - Reduce gap in growth rates compared to other regions.</p>
<p>Improved Wellbeing and Health [Leics: A healthier Leicestershire] [Leics. Cross-cutting theme: Air Quality in AQMA's]</p>			<p>NB-Air Quality is a public health issue. Reduced social and economic impacts of AQ in line with EC obligations. Promote more physically active travel.</p>	<p>Air Quality is a Quality of Life Issue. -Transport related noise. (Environmental Noise Directive). NB-Noise synergises with AQ – similar areas are affected. -Impact on natural environment. - Better journey experiences and interfaces. - Improved access for quality of life.</p>	
<p>Investing in Skills and Enterprise [Leics: A prosperous, innovative and dynamic economy]</p>	<ul style="list-style-type: none"> - Better Regulation; - VFM 				<p>Access to skills and opportunities.</p>
<p>Talking up Leicester City Council</p>					
<p>Investing in our Children</p>	<p>Access to education</p>				<p>Developing skills for life.</p>

2.2 Assessment Methodology

2.2.1 Available Sources for Identifying and Appraising Policy Options Specific to Air Quality

In identifying and appraising policy options for inclusion in this AQAP, it has been possible to draw upon a wide range of material and assessment methods, for example:-

a) The existing Air Quality Action Plan (Annex 11 of the Central Leicestershire Local Transport Plan, 2006-11) (Section 2.3)

b) Work done by Leicester City Council under its Climate Change Strategies in assessing Low Emission automotive options.

c) City Council Land Use policies and initiatives (Section 2.5). This includes the Leicester Low Emissions Strategies Project: Leicester City Council is a partner in this national initiative and is developing –

A toolkit for assessing planning applications in relation to their associated transport emissions.

A parking SPD for Leicester, with particular reference to the New Business Quarter Project.

d) Work done in controlling emissions from static sources and assessing their significance in relation to transport emissions (Section 2.6).

e) Work done in response to the EC Noise Directive to assess and map transport noise and assess policy synergies with emissions management (Section 2.7).

f) The Transport Research Laboratory Study, *Revised Air Quality Action Plan Interventions*: This AQGS-funded study was undertaken for Leicester in response to the realisation that current Air Quality Action Planning was inadequate to make sufficient difference to emissions and investigated radical options aimed at substantial improvement (Section 2.8).

2.2.2 The Leicester Transport Options Assessment Report and Methodology

Centrally to developing the main Local Transport Plan (LTP-3), the Transport Strategy Team at Leicester City Council has produced an *Options Assessment Report*, which –

a) Sets out the underlying Goals and Objectives established by the Transport Plan Review Process, in the context of DfT transport planning Guidance and Leicester City Council's strategic policy objectives:-

The Goals are based upon the five key goals enunciated in the DfT Transport Planning Guidance and are closely linked to the Priorities stated in the 'One Leicester' strategy.

The Objectives realise the Goals in terms of specific transport themes which then are used to structure the chapters of main Local Transport Plan document.

The local transport goals and objectives are summarised as follows, together with comments on how they relate to Air Quality:

DfT Goals	Objectives (LTP Chapter Themes)	Air Quality Implications
Economic growth supported	To reduce congestion and improve journey times	Reduced congestion will tend to reduce emissions. Economic growth can conflict with this objective.
Carbon emissions reduced	To reduce carbon emissions	There is a strong synergy between reducing carbon and air quality emissions – integrated Low Emission Strategies approach.
Equality of opportunity promoted	To improve connectivity and access	Pollution adversely affects disadvantaged groups the most and they are the least able to do anything about it.
Better safety, security and health	To Improve safety, security and health	Air quality is a health issue.
	To improve air quality and reduce noise	Traffic derived air pollution and noise often affect the same areas.
Improved quality of life and a healthy natural environment	Improved quality of life	Air quality is a quality-of-life issue.
	Better maintained transport assets	
Population growth supported in a sustainable manner	To reduce congestion and improve journey times	Improved air quality is implicit in reduced congestion and improved sustainability: Per capita emissions are reduced.

b) Employs the Distillate KonSULT Project (Knowledgebase in Sustainable Urban Land Use and Transport), a collaborative national initiative to provide information on policy options available to urban transport planners.

c) Identifies a classified list of available policy instruments.

d) Sets out parameters for assessing the performance of policy options in relation to changes in demand, supply and cost in the transport system.

The Assessment methodology then-

a) Applies criteria for sifting the available policy options for feasibility. This includes specific criteria for discarding options. The defined criteria can be summarised as:

Affordability – Cost and availability of funding

Alignment with Leicester's Strategic Transport Objectives

Alignment with the current (Central Leicestershire) longer term transport strategy.

Value for money

Political acceptability

Whether deliverable within, or beyond, the next four years.

Each sifting criterion is assigned a defined red, amber and green rating which is used to classify the feasibility / likelihood of realisation of each available policy option.

b) Establishes a prioritisation score against each of the available policy options for each of the established Objectives and themes of the LTP. The scoring was done on a five point scale ranging from -3 (likely to have a very significant adverse impact), through 0 (likely to have a broadly neutral impact, to +3 (likely to have a very significant positive impact).

2.2.3 Procedure for Evaluating Air Quality Options in Relation to the Main Transport Options Assessment Framework.

The options identified, discussed and appraised in the air quality-specific sources listed in Section 2.2.1 are mapped on to the general Transport Plan Options Assessment methodology explained in Section 2.2.2 (Section 2.9)

This cross-referencing is used to establish a ranked and prioritised set of policy options to carry forward in the Air Quality Action Plan (Section 2.10).

It is recognised that some options will be unsuitable for inclusion in the immediate LTP Delivery Programme because of financial, political and other constraints. Nonetheless the immediate programme should be informed by, and be aligned with, a longer-term strategic vision. This is implicit in the statutory Guidance on both Transport Planning in general and Air Quality

Action Planning in particular. Moreover, it is required by both the Government's and Leicester City Council's strategic aims (Section 2.1.4). The consolidated list of interventions (Section 2.10) is therefore divided into –

- a) Options practicable in the context of the short-term delivery programme; and
- b) Longer-term strategic options.

In the context of (b), it is considered legitimate to include a programme of 'actions' for inclusion within the short-term time frame, which are aimed at studying feasibility, funding and barriers to progress of more radical options in greater depth, with a view to developing specific proposals for their delivery.

2.4 The Existing AQAP (Annex 11 of the CLLTP 2006-11)

2.4.1 Carrying it forward in 2010

One important starting point for this Air Quality Action Plan is the previous one, integrated with the Central Leicestershire Local Transport Plan 2006-11, as Annex 11. In this section, consideration will be given to –

The principles adopted most of which remain valid;
Progress with the measures proposed;
Changes which affect selection of options;
Strategies and interventions which need to be carried forward, with or without modification.

2.4.2 Progress and Significant Changes

It is apparent from the monitoring data set out in Section 3.5 of this Annex that little progress has been made toward achieving the annual mean air quality limit values for nitrogen dioxide; indeed, in some roadside locations the situation has deteriorated somewhat.

Leicester's *Updating and Screening Assessment of Air Quality 2006* indicated that a Detailed Assessment of nitrogen dioxide was required for the Abbey Lane Corridor. This was duly completed and submitted to DEFRA in May 2007 (*Leicester City Council – Detailed Assessment of Air Quality: Abbey Lane, April 2007*). The Report recommended the extension of the Leicester AQMA 2000 Order to encompass a larger part of the main Abbey Lane corridor. The methodology and conclusions of this report were accepted by DEFRA upon appraisal.

It is estimated that the resident population of the Leicester Air Quality Management Area 2000 is about 9,000, or 3% of the City's population. The *Leicester City Council Air Quality Management Area Order 2000 (Variation) Order 2008* duly came into effect on 25th April 2008: This adds the 102 residential properties along the west (northbound) frontage of Abbey Lane,

between its junctions with Byford Road and Langley Avenue, to the existing AQMA. (Figs. xxxx).

It was also a conclusion of that Detailed Assessment that the Leicester Air Quality Management Area 2000 as a whole needed to be re-modelled and its boundaries reviewed. This had clear implications for the Air Quality Action Plan, which was insufficiently robust to make satisfactory progress towards meeting the statutory nitrogen dioxide Objective. It was also apparent that radical measures would be required over a long time-scale to achieve this.

In the 2005 AQAP, various measures were considered and explicitly rejected since the political, financial and legal conditions were simply not in place to implement them. The short-term prospects in these respects are, at time of writing, no better and possibly in some regards worse. Specific barriers to progress included:

- Lack of identifiable or available funding;
- High / disproportionate cost;
- Lack of appropriate statutory powers;
- Lack of public / political acceptability at that time;
- Doubtful efficacy or necessity;
- Adverse economic effects.

Conversely, the current DfT Guidance on Transport Planning is couched in terms of a 'strategic' component in addition to the more immediate 'delivery' component. Also, it should be noted that, while the Air Quality Action plan is required to be time-based, no specific time limits are specified. In addition, Leicester City Council's overarching 'One Leicester' strategy sets a time-scale of 25 years, which is perhaps a realistic one for bringing about the change necessary to meet air quality (and carbon) targets. Therefore, although some interventions clearly remain beyond to reach of practicable short-term transport planning, their merits are considered in this document.

For these reasons, an evidence-based modelling study was commissioned from the Transport Research Laboratory in 2008, which researched a package of hypothetical measures to substantially meet the air quality Objective. This is considered in Section 2.8 of this document.

Since 2005, the profile of climate change policy has steadily risen in the UK and within the Authority, together with an emphasis on policy integration with Local Air Quality Management:-

Practically, actions can be identified which might benefit both climate and air quality; this 'win-win' approach is now explicitly endorsed by Government.

In terms of the policy framework, several items covered by the AQAP now also fall within the purview of the City Council's Climate Change Strategy, explicitly or implicitly.

However, some policy areas raise challenges in reconciling air quality improvement with other agendas, e. g. vehicle fuel policy and regeneration.

The new Local Development Framework is at an advanced stage, to replace the current City of Leicester Local Plan. Leicester is a participant in the Low Emission Strategies Peer Group Project, which arose out of Round 8 of the Beacon Status Scheme, under the theme 'Delivering Better Air Quality'. This offers the prospect of optimising use of the planning system to reduce transport emissions. An emerging package will be incorporated in the LDF documentation.

2.4.3 Methodology of the 2006 AQAP

The initial exercise was developed, largely using the principles put forward in the guidance published by the National Society for Clean Air and Environmental Protection¹. Specifically, the following steps were taken:

- Identification of suitable options – this was undertaken through a workshop with key officers of Leicester City Council and Leicestershire County Council in June 2004.
- A public consultation exercise – via questionnaire and leaflet to all residents in Leicester based upon the findings of the Review and Assessment of air quality, carried out under Section 84 of the Environment Act 1995, in 2003 (see section 2.6 for results).
- Evaluation of the options – with regard to air quality impact, cost, feasibility and timescales. This was undertaken by the project team (Leicester City Council in partnership with the AQMRC, University of the West of England, Bristol) in consultation with transport and land-use planners within Leicester City Council.
- Prioritisation of the options – this was undertaken by the same project team as above. The vast majority of the options put forward at the workshop were initially considered feasible; however, a number were screened out upon further analysis. (See Section 2.2.2).

A number of participants from different sections of the Council attended a full day's workshop in June 2004. The attendees were split into groups covering options on five key themes:

- Emissions management
- Information and education

- Managing the road network
- Promotion and provision of alternatives
- Land-use planning

The initial exercise was for groups to come up with as many actions as possible under their own group's heading. They were, as a starting point, given some actions put forward in the document 'Transport in Central Leicestershire March 2004' written as part of the DfT's *Engaging with Local Authorities* project. Following work on their own group's options, each group was given the opportunity to add to each of the other four groups' work.

A rationalised list of the options was then progressed to the next stage of the assessment. The identified options were considered qualitatively against four specific criteria. The criteria were as follows:

- air quality impact as a result of the option being implemented (i.e. air quality improvement afforded);
- cost of measure;
- feasibility or practicability of option (including the wider non-air quality impacts);
- time scale of specific option

¹ Guidance on Air Quality Action Plans can be found at: http://www.nasca.org.uk/pages/topics_and_issues/local_air_quality_management.cfm

(a) Air Quality Impact

With respect to local air quality impacts, an evaluation was made as to whether the impact is low, medium or high. The following definitions have been used as far as possible when evaluating the air quality impact of options. However, in the time available for this draft of the Action Plan, dispersion modelling was not possible. Therefore the evaluation was inevitably based on the opinion of the authors of the report, and on those consulted.

Low: *imperceptible* (a step in the right direction). Improvements cannot be detected within the uncertainties of monitoring and modelling.

Medium: *perceptible* (a demonstrable improvement in air quality). An improvement of up to $2\mu\text{g}/\text{m}^3$ could be shown by a modelling scenario. Improvement is not likely to be shown by monitoring due to confounding factors of the weather.

High: *significant*. Improvement of more than $2\text{ ug}/\text{m}^3$ can be clearly demonstrated by modelling or monitoring (A significant improvement is likely to be delivered by a package of options rather than by a single intervention).

(b) Cost

In line with then current government guidance, with respect to the cost of implementing an option, a full, formal evaluation of the costs and benefits was not undertaken, and instead a judgement was made as to whether options present low, medium or high cost levels. Low cost is taken to be <£500K, medium cost is £500K - £3 million and high cost is over £3 million. This integrates with the air quality section in the document 'Transport in Central Leicestershire' written as part of the DfT's *Engaging with Local Authorities* project.

(c) Feasibility

Feasibility is difficult to quantify, the factors which have been considered as part of this evaluation are:

- Alignment / synergies with other Leicester City Council strategic initiatives.
- Wider non-air quality impacts (social, environmental or economic).
- Stakeholder acceptance / "political" feasibility.
- Availability of enabling legislation.
- Source of funding available or possible.

Some elements of feasibility, such as being complementary to existing LCC policies, whether legal powers are available etc. have been included in the descriptions of the options. Wider (non-air quality) impacts include an option's ability to affect other environmental criteria (noise, visual amenity and climate change gas emissions) and non-environmental parameters (social and economic issues). Qualitative, rather than quantitative descriptors have been provided, following an evaluation of each option in relation to the said non-air quality impacts.

The feasibility section of the evaluation also considers whether other options need to be considered along with the option in question (or conversely some options may not require implementation). The outcomes of the workshop, which included a brief evaluation of the options, also informed the process of evaluation.

(d) Timescale

Finally, consideration was given to the time scale of options. An evaluation as to whether an option can feasibly be implemented, and therefore begin to deliver air quality improvements, in the short, medium or long-term will be made. This has implication for an individual option's ability to assist with the delivery of the national air quality objectives. In terms of timescales, Short-term relates to those measures that can be implemented now, or which are

actually ongoing. Medium-term relates to those which can be set in place within the lifetime of the LTP 2006-11. These measures are listed as interventions to be taken forward under the Local Transport Plan proper. Long-term options are those which are 6+ years (i.e. those which may, following feasibility studies etc., drive the formulation of LTP3, beyond 2011).

The consolidated, summary of transport options taken forward into the 2006 LTP represented a package of realistic, medium range measures, giving best value for money outcomes for Central Leicestershire. These were mainly centred upon improving bus services and managing demand for travel by car and are set out in Section 2.4.4, below because the Air Quality Action Plan is incorporated in the LTP, the identified range of “non-transport authority” measures was also included for completeness.

In the next Section, the possible options for intervention are detailed and assessed for their suitability for implementation, in the context of the Central Leicestershire Local Transport Plan 2006-11. The material was grouped in the themes, and evaluated according to the criteria, set out in above. The scoring according to the evaluation criteria used are summarised in a table relating to each theme. The time-scales of the various options were organised in accordance with the following Table:

Table 2.4.3/1: Time Scales in the 2006 AQAP

TIME FRAME	TIMESCALE / COST	STATUS
Short Term	Low cost / short-term 2006 - 11	Small effect on air quality “A step in the right direction” Ongoing or suitable for immediate implementation.
Medium Term	Medium cost / medium-term 2006 - 2011	Measurable effect on air quality Will only achieve ‘progress’ towards objective Can be included within next round of LTP (2006 – 2011) Air quality impact to be modelled or estimated and targets set in the LTP 200611.

Long Term	High cost / long-term 2011 onwards...?	Measures achieving total effect required on air quality: Radical and long-term Not practicable within scope of LTP 200611. Feasibility studies can be initiated in short / medium term as actions within Air Quality Action Planning (2005 or subsequent rounds): • Definition/Scoping of measures • Testing for stakeholder acceptability • Identification of funding source City Centre Access Strategy (CCAS)
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A matrix explaining the summary ratings under each criterion, in the theme tables is given below. The measures then selected as being appropriate for inclusion in the 2006 Local Transport Plan according to the stated criteria are summarised in Section, with cross-references to the main Local Transport Plan.

Table 2.4.3/2: Assessment Matrix Used in 2006 AQAP

HEADING	KEY TO DESCRIPTION / RATING
1. Measure	Brief description of interventions discussed in Section 2.3.
2. LTP reference	Paragraph reference in main Local Transport Plan 2006-11 document.
3. Programme	L = Local Transport Plan 2006-11. E = Environmental Health or Environment Unit programme.
4. Air Quality Impact	See Section 2.2 1 = LOW (a step in the right direction but difficult to quantify / measure.) 2 = MEDIUM (capable of being modelled but year-on-year measurement difficult due to weather variations, etc.) 3 = HIGH (Improvement > 2 microgrammes per cubic metre (annual mean NO ₂) clearly demonstrable by modelling.)
5. Adverse wider impacts	√ = Not significant enough to contraindicate implementation. X = Significant enough to contraindicate implementation. Relevant factors: (S) = Social (Ec) = Economic (Env) = Non-air quality environmental impacts.
6. Feasibility barriers	√ = Not significant enough to contraindicate implementation X = Significant enough to contraindicate implementation Relevant factors: L = Legal – lack of available statutory powers etc. F = Funding – non-availability of suitable source of funding P = Political – not politically acceptable at the present time. Q = Questionable efficacy or necessity in the context of Leicester.
7. Cost	See Section 2.2 3 = LOW (< £500 k.) 2 = MEDIUM (£500 k. - £3 m.) 1 = HIGH (> £3 m.) (NB: 'Low' has high rating and vice versa, to permit cost-benefit estimation). Other relevant factors: Benefits relating to other Shared Priorities etc. within the LTP which are sufficient to justify all, or a significant part, of the cost of the intervention: C = Congestion S = Road safety A = Accessibility H = Health SI = Social inclusion Significant benefits in these areas may result in an enhanced cost-benefit ranking (9), indicated by (+)
8. Cost-benefit rating	The product of (4) (air quality impact) and (7) (cost), above. (1= poor; 9 = good).
9. Cost-benefit ranking	Adjusted for other factors, synthesising (6) (feasibility), (7) (non-air quality benefits and (8) (cost benefit rating), together with an element of professional judgement. 0 = Zero: Costs completely disproportionate to any air quality benefits. 1 = Poor: Low priority. 2 = Medium: Consider implementation after higher ranked options. 3 = Good: Continuation or immediate implementation indicated.
10. Time-base	The time frame assigned for implementation of the measure. (See Table 2.2.3/1) O = Ongoing, with continuation / enhancement in LTP 2006-11 L = Within LTP 2006-11 (see appropriate section). X = Possible implementation beyond lifetime of LTP 2006-11, e.g. under City Centre Access Strategy. N = Never: Implementation unlikely at any time, due to overriding considerations of non-feasibility, disproportionate costs to benefits etc.
11. Indicator	The reference of any intermediate indicator used to assess progress along set trajectories to air quality targets. (See Section 3.7).

Table 2.4.3/3: Emissions Management - Options

MEASURE	LTP ref.	Programme	AQ impact	Adverse wider impacts	Feasibility Barriers	Cost	COBA rating	COBA ranking	Time base
Roadside emissions testing (statutory and voluntary)	Non-LTP	E	1	√ (S)	-	3	3	3	O
Campaigns to eliminate old / poorly maintained vehicles	22.4	L	2	√ (S)	-	2	4	2	L ?
Low Emission Zones	22.14	NIL	2	X (Ec)	X (Ec)	1	2	0	X
Control of vehicle size in City centre – Freight Hubs	22.6	L	2	√ (Ec)	√ (Ec)	1	2	2	X
Diverting through / heavy traffic from the Inner Ring Road	22.6	L	3	-	-	2	6	3	X
Minimum emission standards for buses	22.6	L	3	√ (Ec)	√ (Ec)	2	6	3	O
City Council vehicle fleet policy (new procurement and retrofit)	Non-LTP	E	3	-	√ (Ec)	2	6	3	O
Partnerships / advice for other fleet operators	9.9 22.4	L	1	-	-	3	3	3	O
Promotion of alternative fuels	Non-LTP	L	1	-	-	3	3	2	O

Table 2.4.3/4: Information and Education - Options

MEASURE	LTP ref.	Programme	AQ impact	Adverse wider impacts	Feasibility Barriers	Cost	COBA rating	COBA ranking	Time base
Campaigns to influence driver behaviour	20 22 5	L, E	1	-	-	3 (S, H)	3+	3	O, L
Real time air quality information (VMS)		L	1	-	-	3	3	3	L ?
Education on air quality and health / sustainability	Non-LTP	E	1 (-2)	-	-	3 (SI)	3 – 6+	3	O, L
Website	Non-LTP	E	1	-	-	3	3	3	O
Promoting car free days	14.48	E	1	-	-	3	3	2	L
School curriculum and campaigns	6.5	E	1 (-2)	-	-	3 (H, SI)	3 – 6+	3	O, L

Table 2.4.3/5: Managing the Highway Network - Options

MEASURE	LTP ref.	Programme	AQ impact	Adverse wider impacts	Feasibility Barriers	Cost	COBA rating	COBA ranking	Time base
Parking restrictions / costs	14.37 14.45	L	2	√ (Ec)	-	-ve: Income (C, A)	6 +	3	O
Reallocation of road space	14.21 ff. 14.38 22.3	L	2	-	√ (P)	1 (C, A)	2+++	3	L
Enforcing speed limits / access restrictions	20.9 20.32 – 34 20.35	L	2	-	Policing	2 (S)	4+	3	L
Traffic calming and diverting rat runs	20.10	L	1 (-ve?)	-	-	2 (S)	3+	3	L
City centre and other 20 mph zones	20.9	L	2	-	-	3 (S)	6	3	L
Signing and route guidance (VMS)	14.28 14.43 18.57	L	1	-	-	2 (A)	1++	2++	L
Management of congestion from road works and events	14.49 ff.	L	2	-	-	2 (C)	4+	2	L
Junction improvements	14.41	L	2	-	-	1 (C, S, A)	2+++	2	L
Signalling improvements	14.26 14.39	L	1	-	-	2 (C, S)	2+	2	L

Table 2.4.3/6: Promotion and Provision of Alternatives - Options

MEASURE	LTP ref.	Programme	AQ impact	Adverse wider impacts	Feasibility Barriers	Cost	COBA rating	COBA ranking	Time base
Park and ride schemes	14.30 22.3	L	3	-	-	1 (C, A)	3+	3	L
Public transport information	14.27 18.12	L	2	-	-	2 (A, SI)	4+	3	O
Improved buses	14.17 18.7, 18.56	L	1 - 2	-	-	1 - 2 (A, SI)	1-4	3	O
Subsidised bus fares	18.6	L	2 - 3	-	√ (F)	1 (A, SI)	2 - 3	2	L ?
Improved bus facilities and circulation	14.29 18.9	L	2	-	-	1 (A, SI)	2	3	L
Commissioning additional bus services	18.1 - 6 18.50	L	1 - 2	-	√ (F)	1 (A, SI)	1 - 2	2	L ?
Off bus ticketing	14.36	L	1 - 2	-	-	3 (C)	3 - 6	3	O
Quality bus contracts	14.13	-	1 - 2	-	X (F)	1	1	0	X ?
Electric / guided buses and trams	14.7	-	1 - 2	X (Ec)	X (F, Q)	1	1	0	X / N ?
Travel Planning	14.44 18.51	L, E	1 - 2	-	-	3 (C)	3 - 6+	3	L
Council home working and flexible hours	14.44	E	1 - 2	-	-	3	3 - 6+	3	O
Safer routes to school	14.44	L	2	-	-	3 (A, H, SI)	6+	3	O
Cycling – promotion and facilitation	14.47 18.37 ff.	L	1	-	-	2 (A, H)	2+++	3	O
Walking – promotion and facilitation	14.47 18.44 ff.	L	1 - 2	-	-	2 (A, H)	2 - 4++	3	O

Table 2.4.3/7: Beyond 2011 - Options

Measure	LTP ref.	Programme	AQ impact	Adverse wider impacts	Feasibility Barriers*	Cost	COBA rating	COBA ranking	Time base
Potential Projects									
Trams and Electric / guided buses	14.7	NIL	1 - 2	X (Ec)	X (F, Q)	1	1	0	X / N ?
Road pricing (local initiative) (NB: Government is introducing a national scheme for lorries by 2008)	14.8 – 10 22.16	NIL	3	X (S, Ec)	X (L, F, P, Q)	1 (C)	3+	0	N
Workplace parking levy	14.11 22.13	NIL	2 - 3	X (S, Ec)	X (L, F, P, Q)	2 (C)	4 – 6+	1	X
Quality bus contracts	14.13 22.17	NIL	1 - 2	-	X (F)	1	1	0	X ?
Studies									
Leicester City Centre Access Strategy studies**	26.2	Traffic	3	? (S, Ec)	√ (L, F, P, Q)	3 (C, A)	9	3	L
Transport Innovation Fund bid	26.2	Traffic	3	?	√ (P, Q)	3 (Govt. funded?)	9	3	L

2.4.4 Options and Strategies Carried Forward to CLLTP 2006-11

Table 2.4.4/1: Programme Proposed: Local Transport Plan 2006-11
(Major schemes in bold type)

Measure	LTP-3 Assessment Reference Number	Programme Status	Remarks
Emissions Management			
Eliminating polluting vehicles	30	Not yet assigned.	Dependent on outcome of Government study
Freight hubs etc.	34	Ongoing LTP Air Quality	Voluntary co-operation by operators.
Diverting through traffic from the Inner Ring Road	12	No substantial progress	Improved signing.
Minimum emissions standards for buses	27	Ongoing – Euro Standards	Quality Bus Partnership.
Partnerships with other fleet operators	34	LTP Air Quality	Freight Quality Partnership
Information and Education			
Real time air quality / route information (VMS)	12	LTP Congestion Strategy	
Managing the Highway Network			
Reallocation of road space	15	LTP Congestion Strategy	Associated with general improvement in facilities: "Quality Bus Corridors"
Signing and route guidance (VMS)	12	LTP Congestion Strategy	Already provided for car parks. Network information to be added
Management of congestion from works / events	19	LTP Congestion Strategy	Traffic Management Act 2004
Junction improvements	28, 33	LTP Congestion Strategy	See Section 2.6 for details of schemes
Signalling improvements	20	LTP Congestion Strategy	Optimise existing SCOOT system. Includes SVD for buses
Parking restrictions / costs	21	LTP Congestion Strategy	More effective enforcement via Decriminalised Parking Enforcement
Enforcing speed limits / access restrictions	24	LTP Safety Strategy	Review of speed limits DfT guidance awaited
Traffic calming / diverting rat runs	24	LTP Safety Strategy	18 residential distributor roads and 15 areas on current priority list
City centre and other 20 mph zones	24	LTP Congestion Strategy	Review of speed limits DfT guidance awaited

C'td

Measure	LTP-3 Assessment Reference Number	Programme Status	Remarks
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Promotion and Provision of Alternatives			
Park and ride schemes	18	LTP Congestion Strategy: Towards end of period	Development of one further site in lifetime of LTP 2006-11?
Travel planning	1	Late LTP LTP Congestion Strategy	Council corporate scheme under development in 2005. Planning process will require for all commercial development. 100% of schools to be covered by 2011. Will contribute 5% reduction in peak commuter travel by 2011
Public transport information	26	Ongoing. LTP Congestion Strategy	StarTrak and StarText
Improved buses	27	Ongoing LTP Congestion Strategy	Quality Bus Partnership. Continued investment.
Subsidised bus fares	27	Ongoing. LTP Accessibility Strategy	Concessionary fares; 'Travel Aid' Scheme
Improved bus facilities and circulation	25	LTP Congestion Strategy	Quality Bus Partnership. Bus shelters
Commissioning additional bus services	27	Not yet assigned - LTP Accessibility Strategy	Dependent on new funding streams, e.g. from DPE
Off bus ticketing / zonal fares	16	Not yet assigned - LTP LTP-2 Congestion Strategy	Via Quality Bus Partnership. Programme driven by roll-out of Quality Bus Corridors.
Safer routes to school	1	Ongoing. LTP Safer Roads Strategy	Safety, health and social inclusion benefits.
Cycling – promotion	2	Ongoing. LTP Congestion / Accessibility Strategies	Healthy and flexible mode of transport. Campaign of marketing and promotion in LTP-2. Extension of current 60 mile signed cycle route network. Current low numbers cycling mean that a substantial increase will only have a small effect on congestion.
Walking – promotion	2	Ongoing. LTP Congestion / Accessibility Strategies	Health / Social Inclusion benefits Campaign of marketing and promotion in LTP-2. Walking often an element in longer journeys: Improvement in walking routes/facilities programmed.

Table 2.4.4/2: Proposed Programme: “Non-LTP” Measures

Measure	LTP-3 Assessment Reference Number	Programme Status	Remarks
Emissions Management			
Roadside emissions management / control	30	No progress due to non-availability of resources.	Not self-funding and has to be met from existing resources / policing issues:-Statutory / voluntary emissions testing. Survey of efficacy of voluntary arrangement with Bus Operators to shut off engines when stationary – enforcement programme, if justified.
Council vehicle fleet policy	30	Council EMAS programme (Under periodic review by Environment Unit).	Progress will occur naturally with introduction of Euro IV vehicles. Progress with radical options / retrofit of existing vehicles unlikely within LTP 2006 timescale but serious cost implications.
Promotion of alternative fuels	30	Council EMAS programme (Under periodic review by Environment Unit).	City Council can influence by example. 5% biodiesel blend in use in Council vehicles. Pilots with battery vehicles, hybrids and alternative internal combustion fuels undertaken or in progress.
Information and Education			
Campaigns to influence driver behaviour	2	No progress due to non-availability of resources.	Target driving style, speed, short / unnecessary journeys. Emphasise economic benefits to driver.
Education on air quality and health / sustainability	2	No progress due to non-availability of resources.	Implications for air quality and health: • AQMA • Road users. Sustainability and Climate Change Issues.
Websites	2	Air quality info. website upgraded in 2010 (Pollution Control).	Periodic update of explanatory / educational text focussed on issues.
Promoting car free days	2	Periodic campaigns	
School campaigns	1	No recent progress due to non-availability of resources.	
Promotion and Provision of Alternatives			
Council home working and flexible hours	2	Some progress but needs to be extended, especially in light of accommodation issues.	Extended flexible hours in some Divisions. Provision of IT equipment for use at home with access to central servers via CITRIX software.

2.4 Vehicle Technology Options

Work is under way in Leicester City Council to evaluate and deploy alternative vehicle technologies. (It should be noted that various hybrids of available technologies also offer considerable advantages). Probably, the three most promising are tabulated below:-

Table 2.4 Vehicle Technology Options

Technology	Advantages	Disadvantages	Current Status in Leicester
Battery Electric	<p>No emissions at point of use.</p> <p>Technology rapidly improving.</p> <p>Suitable for short range uses in polluted urban areas, i.e. Leicester.</p>	<p>Short range.</p> <p>Requires charging points.</p> <p>Carbon emissions from generation depend on extent to which renewable sources of energy are used.</p> <p>Even using renewables, there are large transmission losses from generating station to charging point.</p> <p>Terraced housing creates charging problems.</p>	<p>Limited demonstration work undertaken.</p> <p>Suitable for council vehicles in car / light van applications.</p> <p>Bid for 'Plugged in Places' (PiP) in hand: Provision of charging points.</p> <p>Promotion of delivery vehicles in City Centre.</p>
Hydrogen Fuel Cell	<p>Zero harmful emissions at point of use.</p> <p>Technology rapidly developing.</p>	<p>Needs specialised refuelling facilities.</p> <p>Needs supply of hydrogen.</p> <p>Hydrogen prone to leak – careful design needed.</p>	<p>Letter of understanding signed by Leicester City Council to pilot 30 cars in 2012.</p> <p>Suitable for council vehicles in car / light van applications.</p>
Biomethane	<p>Highly carbon-negative.</p>	<p>Engine technology very similar to other internal</p>	<p>Government funding available but long-term</p>

	<p>NOx and Particulate (Air Quality) emissions better than for diesel.</p> <p>Can be manufactured from waste by anaerobic digestion. Simultaneously solves difficult and costly waste disposal issues.</p> <p>Leicester City Council could theoretically manufacture from own waste arisings.</p> <p>Mature technology, used in many countries and increasingly in the UK.</p> <p>Manufacturing technology readily available.</p> <p>Can be sourced relatively locally.</p> <p>Vehicles now available from leading manufacturers on an OEM basis.</p> <p>Gas can be injected into and drawn from the gas grid.</p>	<p>combustion engines.</p> <p>UK fiscal and regulatory framework needs to catch up.</p> <p>City Council locked into a waste disposal contract which involves other processing methods.</p> <p>Proposal to build a large waste incinerator in the County.</p>	<p>future of this clearly uncertain at present. Also funding doesn't cover full costs, leaving match funding to be found by Leicester City Council.</p> <p>Refuelling infrastructure available locally.</p> <p>Suitable for light council vehicles in car / light van applications and in medium / heavy applications</p>
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2.5 Land Use Planning and Regeneration Options

2.5.1 Potential Synergies and Conflicts with LAQM

Land-use planning frameworks extend over a much longer time-scale than that laid down in the current air quality objectives for nitrogen dioxide. The built environment turns over by approximately one percent each year. Although this may sound insignificant, planning is responsible for gradually re-shaping the City of Leicester, so can have profound implications for managing local air quality in the longer-term.

As with any unitary authority, land-use planning in Leicester operates at a number of different levels, from strategic policies set out in the LDF Core Strategy, through SPD's amplifying these, down to the day-to-day application of those policies in Development Control process. All have the potential to impact upon local air quality over various temporal scales.

The local planning process is a local decision-making process requiring the consideration of often mutually incompatible environmental and socio-economic factors, taking into account the overall vision of what Leicester is going to be in years to come. In this sense, the interface between Planning and Local Air Quality Management (LAQM) needs to be positively managed at the corporate level.

The Local Development Framework ensure that all significant developments are assessed for transport impact and appropriate conditions or legal agreements applied in order to secure appropriate provision. In particular, planning policies are in place to restrict parking provision for new development.

There will be many situations in which air quality considerations will parallel those relating to noise.

Proposals for residential development in close proximity to major roads need to be assessed in terms of the noise exposure categories laid down in Planning Policy Guidance PPG 24, *Planning and Noise*. In an analogous way, noise considerations may reinforce air quality indications for:

Refusal
Redesign/rearrangement, or
Introduction of engineering protection measures.

The EC Directive, "...*Relating to the Assessment and Management of Environmental Noise*" [COM (2000) 468] has been introduced into UK legislation with the requirement for urban agglomerations with more than 250,000 inhabitants to carry out noise mapping.

The noise maps have been published and, in a parallel with Air Quality Management Areas, may form the basis for local, remedial action plans.

Again, it is likely that this process will be complementary to Local Air Quality Management, inasmuch as similar kinds of developments will be affected in many cases, especially close to major roads. Also, similar protective measures may apply.

A number of potential conflicts between land-use planning and LAQM can be identified. Some examples are outlined below.

While it has been severely damped down by the current economic recession, the ongoing regeneration of the City centre has led to a burgeoning of new-build and converted residential accommodation. This is taking place in one of the areas encompassed within the Air Quality Management Area (AQMA) and so has the potential to expose residents to nitrogen dioxide exceedences. Care will therefore need to be taken with some proposals in terms of the positioning and arrangement of buildings and their internal design.

While the short-term effect is to increase exposure, in the longer term benefits may be derived from reduced need to travel into the City centre.

Proposals for City centre development and the revitalisation of economic activity, for example the Highcross shopping centre, opened in 2008 and New Business Quarter Office Core Redevelopment scheme, include extensive car parking facilities, and may attract a significant number of additional journeys. In other policy areas, the strategic aim is to reduce (rather than increase) the number of car journeys made into Leicester, with the aim of, *inter alia*, reducing levels of pollution.

In order to meet increasing renewable energy obligations under the City Council's planning policies, developers may opt for plant which burns woody biomass fuels, with potential implications for increased air quality emissions, particularly particulates. These have the potential to aggravate situations where vehicle emissions are already elevated, particularly in the City centre.

As the city evolves over time, there will inevitably be conflicts and trade-offs between different requirements and priorities. The environment must be safeguarded and enhanced but not at the expense of economic or social vitality, an issue of particular significance in the City centre.

The key point is that these conflicts are addressed openly. The inclusion of, perhaps temporary, trade-offs against air quality in the Air Quality Action Plan is acceptable, provided these are first considered in a coherent way and at an appropriate level. In this way, they become an integral part of the AQAP, provided that they are identified, addressed and justified.

Possible, hierarchical decision processes in relation to proposed development which might adversely affect, and which might be adversely affected by, poor air quality are as follows:-

Table 2.5.1/1

Factors Relevant to Developments likely to have an Adverse Effect on Air Quality:

The strategic, economic and social benefits of the proposal.

The location of the proposal in relation to housing and other sensitive development.

The potential of the proposal to generate emissions from fixed plant.

The potential of the proposal to generate or redistribute traffic within the Air Quality Management Area or elsewhere.

The traffic, pollution or other environmental information which it is appropriate to request from the developer.

The possibilities of linking the development to transport modal shift or improvements in public transport.

The possibility of securing relevant improvements through the negotiation of Section 106 agreements, and their future equivalents.

Table 2.5.1/2

Factors Relevant to Developments likely to be Adversely Affected by Air Quality:

In recommending approval or refusal:-

The economic and social benefits of the development in relation to the City Council's strategic planning objectives.

The availability of alternative locations for the proposal and/or the existence of preferred uses for the site of interest.

The extent to which the operation of the Air Quality Action Plan will effect a significant improvement in air quality within the area of interest and over what timescale.

The existence of other contraindications to the development, such as an adverse noise exposure category under PPG 24.

Within this framework, if development is not excluded, careful attention should be paid to design. The following matters should be considered in descending order of preference/scale. These matters are relevant both in giving advance guidance to prospective developers and in seeking the modification of unacceptable applications.

On a large scale, guidance on, for example, PDA's should be framed so that sensitive uses are positioned in the most non-polluted zones of the area.

Consideration might be given to the co-ordination of a large scheme with measures designed to achieve local improvement in air quality, e.g. traffic re-routing, traffic calming, pedestrianisation.

On the scale of individual mixed developments, the arrangement of buildings/uses within the site should similarly be considered.

The establishment of a buffer zone should be considered, to separate areas of relevant exposure from the highway. This might only need to be a few metres wide and could be used to enhance amenity through the use of landscaping, or simply through more open layout. In very polluted areas, consideration may need to be given to treating even retail, leisure, industrial or office facilities in this way.

Consideration should be given to the orientation and internal layout of buildings: Habitable rooms might be placed away from the elevation fronting onto a major road. Similarly placement of such accommodation on the ground floor might be avoided, in favour of, e.g., retailing or residents' garaging.

Engineering solutions such as double-glazed, non-opening windows and mechanical ventilation may be feasible: However, these should only be considered as a last resort, where the scheme is desirable in the overall policy context but other measures are impracticable, and the only other option would be refusal.

2.5.2 Local Development Framework - Planning Policies and SPD's relevant to Air Quality

Local Development Framework policy is provided by the Core Strategy, saved policies of the City of Leicester Local Plan and Supplementary Planning Documents.

Core Strategy

Leicester's Local Development Framework (LDF) Core Strategy sets out the vision, objectives and spatial strategy for the City to 2026. It identifies a need for 25,600 new homes between 2006 and 2026. The Core Strategy was adopted by the Council in November 2010.

The LTP has been prepared in parallel with the Core Strategy and they have influenced each other to ensure that sustainable transport infrastructure is delivered to support new housing. Growth Fund monies have supported transport modelling to ensure that the most sustainable locations are chosen for new developments and appropriate transport interventions identified. Masterplanning of new developments will ensure that sustainable transport infrastructure is provided from the start.

The Core Strategy seeks to ensure that development reduces the scale and impact of future climate change and promotes the prudent use of resources and reduced energy use. It recognises the importance of treating air quality and climate change in an integrated way.

The following Core Strategy (CS) policies are relevant to local transport planning, in the context of Local Air Quality Management:

CS POLICY 1. LOCATION OF DEVELOPMENT sets the spatial strategy for development. In respect of transport it states that residential, employment and City Centre growth will be supported by investment in an efficient and integrated public transport network and alternatives to using the car. This will focus on movement within the City, travel to work routes and links to London and other important centres, to include:

Quality public transport corridors;

Park and ride;

Rail links;

Walking and cycling networks to provide links to key facilities; and

Investigating the feasibility of a tram network.

CS POLICY 2. ADDRESSING CLIMATE CHANGE AND FLOOD RISK seeks to ensure developments mitigate and adapt to climate change and reduce greenhouse gas emissions. It states: "Development should ensure a shift to the use of sustainable low emission transport to minimise the impact of vehicle emissions on air quality, particularly in Air Quality Management Areas. Development will be located where it is accessible by sustainable transport to support the use of public transport, walking and cycling as an alternative to the

car. Higher density development will be located in areas with easy access to local facilities to reduce the need to travel.”

CS Policy 2 also seeks to ensure that best practice energy efficiency and sustainable construction methods are used, along with Combined Heat and Power, where feasible, to reduce greenhouse gas emissions.

Paragraph 4.3.16 of the supporting text to the policy states ‘Progressive carbon reduction targets will be applied with the aim of achieving local and national targets for zero carbon emissions. In policy terms, there is a large overlap both in causes and potential solutions between air quality and climate change, enabling ‘win-win’ solutions to be identified.’

CS POLICY 3. DESIGNING QUALITY PLACES sets design objectives for new development. The section on Connections, Movement and Inclusive Access includes the following requirements:

Improve access, connectivity and permeability within and through the development site and the wider area, whilst recognising and catering for the need for security and privacy in new development;

Encourage walking and cycling by designing layouts that prioritise safe, well connected pedestrian and cycle routes and restrict traffic speed, and

Meet the highest standards of accessibility and inclusion, based on inclusive design principles, and the need to create ‘lifetime neighbourhoods’.

CS POLICY 5. ASHTON GREEN sets out the sustainable development principles for this area. It states that good connectivity with surrounding areas, Beaumont Leys Centre and the City Centre will be important to provide access to shopping, leisure and employment opportunities. Walking, cycling and public transport links in particular will need to be high quality. Highway and transportation infrastructure required to ensure that Ashton Green is sustainable will emerge from the transport assessment which is currently being prepared to accompany the planning application.

CS POLICY 12. CITY CENTRE makes the City Centre the focus of public transport initiatives through:

New City Centre bus termini and routing strategy;

Improving bus interchange facilities;

Contributing towards City Centre Park and Ride bus stop facilities;

Continuing our partnership work with the rail industry to improve interchange at the railway station, particularly with infrastructure, information and through ticketing for bus to rail interchange; and

Reducing the separation of the railway station from the City Centre.

CS POLICY 14. THE TRANSPORT NETWORK requires development to be easily accessible to all future users, including those with limited mobility, both from within the City and the wider sub region. It should be accessible by alternative means of travel to the car, promoting sustainable modes of transport such as public transport, cycling and walking and be located to minimise the need to travel.

The Council will work with partners to develop and maintain a Transport Network that will maximise accessibility, manage congestion and air quality, and accommodate the impacts of new development. The policy then sets out the transport infrastructure required to achieve this network.

CS POLICY 15. MANAGING DEMAND FOR CAR USE sets out a range of transport policy measures that will meet the key aim of reducing Leicester's contribution to climate change and provide opportunities to manage congestion on the City roads.

Saved Local Plan policies

The City of Leicester Local Plan was adopted in 2006. Under the provisions of the 2004 Planning and Compulsory Purchase Act 2004 certain local plan policies are saved within the LDF. The following Local Plan policies are relevant to local transport planning, in the context of Local Air Quality Management:

PS10. RESIDENTIAL AMENITY lists the factors to taken into account when considering the amenity of existing or proposed residents. They include the impact of noise, light, vibrations, small and air pollution (individually or cumulatively) cause by the development and its use.

PS11. PROTECTION FROM POLLUTION establishes the principles for considering the effects of pollution as follows:

“Proposals which have the potential to pollute air, ground or water by reason of noise, dust, vibration, smell, light, heat, radiation or toxic discharge will not be permitted unless the health and amenity of users, neighbours and the wider environment can be assured.

Proposals that occur within or which would significantly affect Air Quality Management Areas (shown on Map 03) will be scrutinised closely. In such areas, the aims and requirements of any Air Quality Action Plans will be taken into consideration and proposals only allowed where they do not affect the fulfilment of the Plan.

Proposals that are sensitive to pollution will not be permitted close to existing polluting uses, unless by so doing developers can demonstrate that adequate measures have been taken to prevent or minimise the impact of pollution.

Proposals associated with alternative fuels and technology (such as refuelling and recharging infrastructure) will be supported.”

BE16. RENEWABLE ENERGY **requires all major developments to provide an assessment of how they will contribute towards the regional targets for renewable energy. Planning permission will only be granted for major developments that realise their potential for meeting their energy requirements from renewable sources.**

Supplementary Planning Documents

a) Climate Change SPD

The Climate Change SPD supplements Core Strategy Policy 2 and contains information and guidance on sustainable development. It was adopted in January 2011.

It states that developers should be mindful of the large percentage of carbon emissions that result from transport and suggests they should plan to minimise the need for occupants to use their own transport and increase the facilities for low carbon transport such as electric vehicles.

b) Energy Efficiency and Renewable Energy SPD

The Energy Efficiency and Renewable Energy SPD was adopted in 2005 and updated in 2008. It provides guidance on the implementation of Policy BE16. It identifies access and movement measures that contribute to energy efficient cities and measures such as travel plans that can influence energy efficient behaviour.

2.5.3 LESDP NBQ project

Description of Project

Under the UK Low Emission Strategies initiative, DEFRA funding has been made available to develop planning policies which will reduce air quality and climate emissions from the transport sector. The following is an outline of the project:

Leicester City Council took part in Phase 1 of the Low Emission Strategies Programme as a Peer Group Member. The LES Programme assisted Leicester in organising a key officer low emission strategies workshop and also presented to the wider Leicestershire Sustainability Forum on low emission fuels and technologies.

The following project plan provides detail as to the project, as outlined by Leicester, and also information relating to proposed options for the Low Emission Strategies Programme to undertake the work in question.

An area of Leicester City Centre has been earmarked for urban regeneration as a New Business Quarter (NBQ). Leicester CC would like the LES programme to develop a strategy/toolkit for implementing and promoting LES within the scheme development.

In discussing quantitative approaches it was recognised that the resource available would not allow for a robust appraisal of a complex city centre development, however, mindful of the LES Toolkit development timelines, the possibility to undertake some rudimentary analysis with the Toolkit may be possible at a later stage when the Toolkit is available. This analysis, if conducted, would be additional to the project as outlined.

Proposed Project Methodology and Outputs, including Options for Quantitative Analysis. The following methodology was devised to undertake the Leicester City Council project. Key project outputs are stated:

Toolkit for Assessment of Transport Impacts of Developments
LES Guidance
City Centre Parking Strategy SPD

2.5.4 Summary of Options [> 2.10]

- a) Application of LDF Policies
- b) Application of relevant SPD's
- c) Application of Emissions Toolkit

2.6 Pollution from Static Sources

It has been demonstrated in successive Air Quality Reviews and Assessments that emission of Nitrogen dioxide from fixed installations comprises a relatively insignificant proportion of the emissions inventory and does not, of itself cause predicted failures to comply with the relevant air quality Objectives. The key issue in that respect is nitrogen dioxide from traffic, concentrating in close proximity to the point of emission or formation, i.e. the major road network.

There are no major sources of nitrogen dioxide within Leicester, to which regulatory emission limits are applied under the Environmental Permitting Regulations regime. Combustion plant tends to be subject to regulatory activity when problems occur, e.g. a dark smoke or other emission giving rise to complaint. Activity relating to combustion emissions is more associated with energy efficiency. This is mainly aimed at emissions of carbon dioxide, although reductions in fuel consumption and improved plant efficiency will have a beneficial effect on the background nitrogen dioxide levels.

However, nitrogen dioxide resulting from stationary combustion sources is a significant component of the emissions inventory used for predictive dispersion modelling. Therefore, whilst not significant in delivering substantial reductions in nitrogen oxides, a rigorous energy policy will lead to lower overall nitrogen oxide and resulting nitrogen dioxide concentrations locally.

Leicester City's Energy Strategy (Leicester City Council, 1994) sets a target for 20% of the city's energy supply to come from renewable energy sources by 2020. Leicester is developing a city-wide approach to Energy Services through an Energy Service Company (ESCO). With this approach, the Council could generate electricity in the city utilising biomass fuel oil and natural gas to provide sustainable electricity at point of use for homes, businesses and public buildings. This has the potential to make the Council 85% efficient (compared to between 30-45% with national generation). Generating electricity this way can increase pollution locally (by, for example, producing NO₂ at relatively low levels and by increasing emissions from delivery lorries). Mitigation is unlikely to be achieved without designing in the solution (such as clean-burn technologies and flue gas emissions filters)

during the specification of the plant. It is therefore important that such policies do not conflict with the key objectives of the AQAP, which are to reduce emissions within the city.

Refer to DH / CHP project.

2.7 Noise

Noise is addressed separately in this Local Transport Plan. However, since both noise and poor air quality affect the frontages of heavily trafficked roads, similar areas tend to be affected. (Compare Fig 1.4 in this Annex (AQMA) with Fig XX in chapter 7 (DEFRA Noise Action Planning Map (Environmental Noise (England) Regulations 2006).

Traffic management measures which may benefit both noise and air quality include:-

The re-routing of traffic away from sensitive receptors;

Restrictions on the type of traffic (e.g. heavy vehicles) that can use certain roads at certain times of day;

The design and building of new roads to provide an alternative route away from noise sensitive premises.

Imposing speed restrictions directly or as a consequence of congestion management schemes.

Measures through the operation of the national, regional and local transport and land use planning system:-

For large scale projects, an Environmental Impact Assessment is required by law, which normally includes a noise impact assessment. Mitigation of adverse noise impact through planning conditions or obligations, such as optimising route alignment and the use of road barriers, either through landscaping or purpose built walls or fences, included in the design.

2.8 Investigation of Radical Options- The TRL Report

The consultants Transport Research Laboratory (TRL) were commissioned to carry out a study to examine the question, 'What measures could be put in place to meet, or go a long way towards meeting, the statutory Air Quality Objectives?'. The study report was finalised in December 2009 (Revised Air Quality Action Plan Interventions, Savage A., Turpin K., and Price J., TRL CPR 585).

TRL carried out the following steps to produce a package of interventions that could potentially be incorporated into a revised AQAP for Leicester Council. These steps are based on Defra's recommendations in its Policy Guidance

(PG(03) and PG(09)) for elements to be included in a local authority AQAP (Defra, 2003 and 2009):

- Identification and quantification of source contributions to predicted objective exceedances.
- A review of recent local documents, policies and best practices.
- An initial assessment of potential interventions, and prioritisation of interventions for use in Leicester
- Consultation of interventions (a stakeholders workshop involving key disciplines was held and options evaluated and ranked).
- Detailed assessment and quantification of preferred interventions.
- Identification of a package of interventions for potential inclusion in a draft revised Air Quality Action Plan.

This approach represents a systematic, quantitative and evidence-based attempt to identify and evaluate the type and scale of interventions needed to address the shortfall in compliance with the Air Quality Objectives. Equally significantly, it examined and explicitly rejected a wide range of options before proposing an integrated package of measures.

Conversely, it was by no means apparent that the political, legal and financial conditions were in place to render the proposals in the study feasible; the situation is now, if anything, subject to greater constraints than when the study was reported. It cannot therefore be represented as a serious short-term manifesto for the current Local Transport Plan.

However the current DfT Guidance on Local Transport Planning sets out two distinct components –

Strategy;

Delivery.

While the former should clearly inform the detailed schemes and funding arrangements for the latter, it also sets the direction of travel for policy in the longer term.

2.8.1 Purpose of Report

This report considers how the Council could consider more radical interventions over a longer timescale, to take forward into LTP-3. The starting point of the study was a review of the existing Air Quality Action Plan (CLLTP 2006-11, Annex 11). The following is taken from the Introduction:-

“Leicester City Council’s current Air Quality Action Plan (AQAP) was produced in 2004 and is integrated into the second Central Leicestershire Local Transport Plan (LTP2) 2006-2011 (Leicester City Council, 2006). The

AQAP includes interventions funded through the LTP and non-infrastructure interventions outside of the LTP funding framework. Leicester City Council considers that its current AQAP is out of date and is insufficiently robust to allow significant progress towards the UK Air Quality Strategy (AQS) objectives, even with full implementation of the packages proposed in the current plan.

This report sets out the findings of a study carried out by TRL to examine a range of potential interventions that could be included in a revised AQAP. TRL has considered all existing interventions in current policies that are still relevant to take forward as well as some that have not been previously considered. These interventions have been consulted on with Leicester City Council and the impacts of those given the highest priority have been quantitatively assessed to provide evidence on the effectiveness of the interventions in terms of improving air quality. This report provides recommendations for a package of complementary interventions, with guidance on timescales and any barriers or constraints which need to be resolved.

It is considered essential that interventions to include in a revised AQAP are fully quantified and should be coordinated with other strategies and policies that are under active development. The AQAP feeds into a range of relevant documents produced by the Council, including the next round of Local Transport Planning (LTP3), the developing Climate Change Strategy, the Local Development Framework (LDF) and corporate One Leicester strategy. Recommendations for how to integrate the proposed interventions with future policies are provided in this report.”

The Council has considered a number of interventions in the long term (beyond 2011) which have so far not been rejected. These include introducing a freight hub, Low Emission Zone (LEZ) and diverting traffic from the Inner Ring Road (IRR). The Central Leicestershire Local Transport Plan (LTP) (Leicestershire County Council and Leicester City Council, 2006) outlines a number of potential conflicts between land-use planning and LAQM, such as the ongoing regeneration of the city centre which has led to an increase in new-build and converted residential accommodation; proposals for city centre development (including the extension of the Shires shopping centre) and the City Centre Access Strategy, which is intended to consider the impacts of regeneration. However, as mentioned previously it is likely that for the LTP3, these more radical interventions and interventions will need to be considered to move towards meeting the NO₂ AQS objective.

2.8.2 Experience from other Cities

Introduction

This Section summarises the findings of relevant guidance and Air Quality Action Plans that have been produced by other UK cities to identify examples of best practice and potential interventions that could be transferred to Leicester.

The Environment Act 1995 requires Local Authorities to undertake Local Air Quality Management (LAQM) duties. Local Authorities must have regard to guidance issued by the Secretary of State when carrying out these duties (Defra, 2009). The most recent policy guidance (PG(09)) was released in February 2009 (Defra, 2009). This provides an overview of the process of preparing an Action Plan, including quantification of sources, consideration and evaluation of interventions and consultation. Defra has also produced practice guidance in conjunction with PG(09) for Local Authorities to use as information tools if they are considering establishing one of the schemes covered by the guidance. Practice guidance has been produced on, for example, economic principles for the assessment of local interventions to improve air quality, Low Emission Zones (LEZs), and interventions to encourage the uptake of low emission vehicles and retro-fitted abatement equipment on vehicles (Defra, 2009b, c, d). Other generalised documents, including the National Society of Clean Air (NSCA) guidance (NSCA, 2001) on Action Plans were consulted to provide examples of interventions and methods of evaluation. This guidance document also provides advice on how to monitor the effectiveness of interventions once they are implemented through a series of indicators.

Local and more relevant guidance to Leicester, including examples of best practice on integrating air quality within Local Transport Plans (LTP), have been reviewed. LTPs in Greater Manchester and Tyne and Wear, as well as the Central Leicestershire LTP, are considered as examples of good practice, particularly in the way they incorporate the mandatory indicator LTP8¹. Recent progress towards this indicator and the intermediate outcomes in Leicester is given in the annual LTP progress report (Leicestershire County Council and Leicester City Council, 2008).

Examples of Interventions from other UK cities

AQAPs vary in size and scope according to the size of the city and extent of the air quality problem. To help identify appropriate interventions for inclusion in a revised action plan for Leicester, TRL has reviewed examples of AQAPs that are recognised as providing best practice and AQAPs that have been implemented in cities that are of a similar nature and size to Leicester. A summary outlining the examples of some of the interventions used in these cities is given below. This review also considered how the Local Authorities had linked their AQAPs to wider policies such as LTPs.

Belfast

Belfast City Council's AQAP is integrated into the Belfast Metropolitan Transport Plan (BMTP) 2015 which covers the council areas of Belfast, Carrickfergus, Castlereagh, Lisburn, Newtownabbey and North Down (Belfast City Council, 2009). Belfast City Council has undertaken qualitative

assessment of a range of interventions including: cycling and walking and bus initiatives; emissions reduction techniques; changes to transport policy; introduction of parking policies; highways management strategies; and education. Interventions which were considered to have a comparatively high impact on air quality (scored 7 or more out of 10) include a quality walking and cycle network linking public transport nodes and attractions; implementing Quality Bus Corridors (QBC); bus priority interventions on the M1 and M2 roads; development of park and ride schemes including rail-based schemes; ITS interventions (integrated ticketing, travel information, Variable Message Signs (VMS), UTMC); highway capacity enhancements (road widening of motorways and dual carriageways); non strategic interventions, such as new roads; traffic calming and management interventions on local roads; operation of state of the art traffic control systems (e.g. VMS, CCTV traffic flow monitoring or telematics to manage accidents); parking policy to maximise short-term parking, control on-street parking, better enforcement and reduced spaces; imposition of maximum parking standards for developments (opportunities for car sharing, permit based parking); and supporting and promoting travel plans (Belfast City Council, 2006).

Bristol

Bristol City Council's AQAP has been integrated into the Joint LTP for the Greater Bristol Area (Bristol City Council, 2009). Interventions considered to have the greatest potential impact on air quality (*i.e.* those that scored of 7 or more out of scale of 1-10) in Bristol include: improvement of bus services to reduce dependence on private cars; stronger enforcement of motorway speed limits; reduced motorway speed limits around the AQMAs; de-trunking the M32 to produce opportunities for emissions reductions through speed management and more efficient use of road space; provision of advice and incentives for cleaning up large vehicles (including fitting exhaust after-treatments); introduction of a low emission zone regulating entry to an area based on environmental criteria and road user charging (with charges levied to encourage cleaner vehicles) (Bristol City Council, 2004).

Nottingham

Nottingham City Council has integrated its AQAP within the LTP (Nottingham City Council, 2008). The only intervention considered by Nottingham City Council and Nottinghamshire County Council to have a high impact on air quality is to make the A60 a strategic two-way traffic route, which would allow the central core area to expand. Other interventions which would have medium effect on air quality include: a two-way bus priority route (supporting improved public transport accessibility and reliability); trams; network extensions; upgrading the A52 ring road; a new river crossing; ring road highway and parking improvements; and a high frequency ring road orbital bus service (Nottingham City Council and Nottinghamshire County Council, 2006).

Oxford

Oxford City Council's AQAP has been integrated into the LTP for 2006-2011 (Oxford City Council, 2008). Oxford City Council's AQAP has assessed a range of interventions through ongoing monitoring of criteria such as total road transport emissions, vehicle mileage, traffic flows and vehicle passenger movements within the AQMA. Interventions which are expected to have a comparatively high impact on air quality (in terms of percentage NO_x reduction) include: retrofitting all buses and coaches; use of cleaner fuels by the Council's own fleet; and introduction of a Low Emission Zone (LEZ) (for buses, LGVs and HGVs, or for all vehicles). Smaller reductions in NO_x emissions are predicted from ensuring all buses and HGVs meet Euro 3 emission standard within 2 years; cross operator ticketing (as part of the Bus Quality Partnership) and bus gate enforcement in the central area (Oxford City Council, 2006).

Sheffield

The entire urban area in Sheffield is an AQMA for NO₂. Interventions in Sheffield City Council's AQAP were included on the basis that they will contribute to improving air quality across the city and to the future regeneration of Sheffield. Interventions are categorised in a series of packages including: improvement of public transport; traffic infrastructure development; traffic control; cleaner vehicles; actions to reduce emissions from industry; and eco-efficiency and planning. Examples of specific interventions which are predicted to result in a reduction of NO_x emissions of between 1 and 10% include the introduction of a Quality Bus Corridor and major expansion of park and ride provision (Sheffield City Council, 2006). A 5% reduction (approximately) in NO_x emissions is expected to result from imposition of minimum emission standards for vehicles routinely accessing sensitive areas (e.g. taxis and buses using the city centre); and a reduction in NO_x between 1 and 5% is expected from the introduction of VMS to smooth traffic flows on the M1 and on surrounding link roads, and from development of a joint Action Plan between the Council and HGV operators requiring access to Tinsley and Brinsworth. A greater than 10% reduction in NO_x emissions could result from a reduction of the speed limit on the M1 (Sheffield City Council, 2006).

Applicability to Leicester

Leicester's air quality problem is essentially network-wide in its causes (Leicestershire County Council and Leicester City Council, 2006) and therefore needs solutions that target the whole of the city centre as well as radial roads. These areas have different characteristics and issues, so there will be no single intervention to result in a significant improvement in air quality across the city.

Although characteristics of other UK cities will be different to Leicester, and thus the air quality issues will vary, there are likely to be some interventions that could be transferable to Leicester. Therefore, it is useful to know what has been successful in other cities and the reasons for this success. Evidence collected from these cities on the potential emissions benefits of certain interventions (e.g. the potential impacts of speed limits and VMS interventions

to smooth traffic flow in Sheffield) could help in assessing the effectiveness of such interventions in Leicester.

In Leicester there will be certain interventions that are perhaps more applicable to the Outer Ring Road and areas outside the centre, where for example, there may be space to build a Park and Ride facility or widen the road space to incorporate bus lanes or high occupancy vehicle lanes. Within the city centre AQMA, interventions that discourage people from driving would be more suitable, including residential controlled parking, better facilities for cycling, pedestrian-only zones and active barriers to physically prevent vehicles from entering areas, perhaps at certain times of the day. Cordon interventions, such as a low emission zone (LEZ) could operate in specified zones of the city, such as within the Outer Ring Road or just the central area.

There may be certain schemes that have been successfully implemented in other cities but may not be effective in Leicester. For example, there will be many differences to the way other cities operate their public transport systems. Nottingham, for example, has one major bus operator which makes co-ordination of timetabling and ticketing easier than it would in Leicester, which has several competing bus operators.

Wider Impacts of Interventions

Greenhouse gases

When considering interventions for inclusion in an AQAP it is practical to also consider the likely impact these may have on energy consumption in the form of carbon dioxide (CO₂) emissions. On 21st January 2008, Leicester City Council's Cabinet resolved: "The Corporate Director is to investigate and implement integration of Local Air Quality Management into the Council's Climate Change Programme to ensure that synergies and initiatives are properly managed and exploited".

Developing a local air quality strategy or including air quality management as part of a transport strategy will help Leicester to deliver services in an integrated manner. A strategy can provide over-arching principles, agreed at a high-level, that ensure co-benefits and risks are considered when implementing different policies. For example, a strategy could acknowledge co-benefits of tackling PM₁₀, NO₂ and other greenhouse gases together and acknowledge any trade-offs between air quality management, planning and transport policy. This provides a consensus on which to base the development of individual plans, such as AQAPs, ensuring that interventions are 'proofed' to avoid unintended impacts of policies in one area upon another.

It is worth noting that the 4M research programme, led jointly by Loughborough and Newcastle Universities, intends over the next 4 years to calculate the carbon footprint of Leicester by:

- Measuring the carbon released by traffic, the burning of fossil fuels in homes and places of work and the rate at which green plants and trees capture carbon and store it in the soil;
- Modelling the effects on the carbon budget from: road layouts, traffic volumes and traffic speeds, the way we use energy in our homes and places of work, and the way we look after green spaces;
- Mapping the sources and sinks of carbon for the whole city and comparing this with the social and economic well-being of its 270,000 inhabitants;
- Management studies which will investigate how to shrink the city's carbon footprint through: changing the road network and/or the provision of better public transport; alterations to the maintenance of green spaces and the treatment of waste; the use of renewable and low energy systems to provide power and light; and the operation of Individual Carbon Trading (ICT) schemes.

Clearly, in the longer term there is scope to utilise this knowledge base to evaluate or verify potential Action Plan interventions, particularly at the strategic level. The more detailed analysis of selected interventions for the work reported here will include an assessment of CO₂ emissions.

Noise pollution

Although not part of an AQAP, the implementation of interventions that improve air quality could also reduce noise pollution. Statutory Noise Mapping and associated Noise Action Plans (NAPs) are expected to come into effect sometime this decade. Many of the areas currently affected by poor air quality are also affected by noise, as road traffic is the main source. Leicester City Council should therefore consider the noise impact as part of any package of interventions included in the AQAP.

Further consideration of interventions in Leicester

Taking into account the experience from other cities and best practice, a package of interventions were considered further for their potential to be implemented in Leicester.

As well as these broader measures, there are some potential measures that will be specific to Leicester (or Leicestershire). For example, the East Midlands Regional Assembly and East Midlands Development Agency (EMRA/EMDA) recently submitted a bid to the Minister for the East Midlands, as a regional funding priority of potential measures. Many of these could have potential air quality benefits. The minister is due to respond later this year. These measures include:

A new city centre bus terminal and routing scheme, within the Inner Ring Road, with an estimated cost of £67m, to commence in 2014 if approved.

A further Park and Ride site at Glenfield, to start in 2012, subject to approval. Site identified near County Hall with a minimum of 500 spaces but 1,000 being sought. This scheme will include bus lanes on relevant corridors.

A bus station at the top of the High Street to serve the proposed Park and Ride site at Enderby. Possible additional 'mini-bus terminal' near to the railway station.

2.8.3 Methodology

Based on the evidence collected from the literature review and taking into account Leicester's existing policies, interventions successfully implemented in other cities and other examples of best practice, TRL collated a list of 23 potential interventions that were consulted on at a workshop with Council representatives from relevant teams including Environmental Pollution Control, Transport Planning and practitioners involved in the Environmental Management and Audit Scheme (EMAS). During the workshop, each intervention was discussed and assessed according to its suitability for implementation in Leicester as well as likely impact on air quality (emissions and concentrations), climate change (CO₂), cost, feasibility and timescale for implementation.

This section provides a description of each of these interventions including a summary of the evidence of their effectiveness collected from other UK cities, where available, or from research literature. The likely relevance or feasibility of introducing each measure in Leicester is also outlined.

The ranking system that was used to assess all these measures during the stakeholder workshop is shown in

Table 2.8.3. Each intervention was awarded a score of low, medium, or high for each category. An overall score was awarded using the following method: low cost, high impact = A; high cost, high impact = B; low cost, low impact = C; high cost, low impact = D.

Table 2.8.3: Intervention evaluation categories.

Emissions	Air (AQ)	Quality	Noise	CO ₂	Cost	Social	2011-2016
Potential to reduce emissions from road traffic	Potential to reduce pollutant concentrations	to	Potential to reduce ambient noise levels	Potential to reduce emissions from road traffic	Relative cost of the average cost to implement interventions)	Benefit to population (positive, all negligible, negative)	Potential for implementation during the LTP3 period

The highest scoring interventions include resident controlled parking zones (CPZs) (Score A), HGV only lanes (Score A), road cleansing (Score A/B) and driver training (Score A/B). Interventions which scored 'B' (high cost, high impact) include active barriers, freight hubs, low emission zones and tunnels. The following were ranked as 'C' (low cost, low impact): red routes, flexible working, work place parking levy, titanium oxide and trialling innovative technologies (CNG vehicles, electric vehicles, bio fuels and hybrid vehicles).

Leicester City Council considers it important to implement transport and traffic-related interventions which benefit both air quality and climate change whilst avoiding policy clashesⁱⁱ. Examples of interventions which can be characterised as 'win-win' include: adopting travel plans to address issues of staff commuting to work and business mileage; local Non-Governmental Organisations (NGOs) developing their own action plans; local and government fleet renewal; and engaging schools to self-assess carbon emissionsⁱⁱ.

A ranked summary of interventions was developed for further evaluation, and the air quality and carbon impacts of these was modelled using the CERC ADMS-Urban dispersion model. Full details of the modelling methods are given in Section 2.8.6.

A ranked summary of interventions discussed in the workshop is given in Table 2.8.5/2. An indication is given of those interventions requiring an input from a traffic model to evaluate the change in emissions. 'Possible' notation suggests that traffic may choose to re-route as a consequence of the intervention.

.8.4 Interventions Considered

Description and Evidence Gathering

Based on the evidence collected from the literature review and taking into account Leicester's existing policies, interventions successfully implemented in other cities and other examples of best practice, TRL collated a list of 23 potential interventions that were consulted on at a workshop with Council representatives from relevant teams including Environmental Pollution Control, Transport Planning and practitioners involved in the Environmental Management and Audit Scheme (EMAS). During the workshop, each intervention was discussed and assessed according to its suitability for implementation in Leicester as well as likely impact on air quality (emissions and concentrations), climate change (CO₂), cost, feasibility and timescale for implementation.

This section provides a description of each of these interventions including a summary of the evidence of their effectiveness collected from other UK cities, where available, or from research literature. The likely relevance or feasibility of introducing each measure in Leicester is also outlined.

a) Residential controlled parking zones (CPZs)

In terms of categorising interventions, CPZs are considered to be an example of a Low Emission Vehicle (LEV) scheme. LEV schemes are frequently focussed on city and town centres where land-use is dense, traffic is heavy, population exposure is high and where AQMAs have been declared, such as Leicester. There is the highest value in such areas from restricting, discouraging or deterring the use of more polluting vehicles owing to the high population density and therefore high potential health benefits. Defra has produced guidance on implementing LEV schemes (Defra, 2009c) by means of the following examples, some of which are discussed further in this Chapter:

London Low Emission Zone schemes

Quality Bus Partnership Agreements

Voluntary schemes with economic incentives such as Car Clubs

Discounted car parking charges

Controlled parking zones (CPZs) are areas where all on-street parking is subject to restrictions and enforcement during specified hours. Designated parking bays are typically shown by white road markings and areas where parking is not allowed are marked with yellow lines. Leicester City Council has decriminalised parking offences and currently has some CPZs operating in the city centre, which are enforced by designated Council officers. However, the Council does not control all on-street parking and a much more effective method of enforcement would be needed to extend the CPZs to other areas of the city.

The benefits of an effectively enforced CPZ include:

creating more parking spaces for residents, making it easier for local people to park in the street near their home;

discouraging people from outside the area from parking in the streets within the zone;

reducing traffic and congestion on streets within the CPZ due to a reduction in vehicles searching for parking spaces;

improving access for emergency vehicles;

Keeping traffic moving freely (Torbay Council, 2007).

In Camden, controlled parking was deemed by a focus group to have improved traffic flow, in line with the aims of the Council's Parking Solutions, which were implemented to reduce and control traffic (London Borough of Camden, 2001).

Resident CPZs can be considered as a stepping stone towards other interventions, such as encouraging alternatives to private car use and increasing modal shift, assisting with the uptake of workplace and school travel plans, or as a complementary intervention to congestion charging, for

example (Islington Council, no date). Furthermore, CPZs that are effectively enforced could be taken one step further in terms of issuing permits relating to vehicle emissions. At the moment most of the schemes currently being operated are geared to reducing CO₂ emissions based on vehicle excise duty bandings, but in the future parking controls may be connected with the Euro Emission Standard of the vehicle.

b) No- car lanes (NCLs)

As the name of the intervention suggests, 'no-car lanes' involve the allocation of road space to vehicle types other than the car. For example, lanes dedicated for use by heavy duty goods vehicles (HDVs), which can lead to reduced congestion and increased safety by limiting the interaction between cars and HDVs. Use of the lanes can be restricted to fully laden goods vehicles, allowing more reliable journey times for efficient goods movement. 'No-car lanes' can be subject to a charge, whereby HDV fleet operators pay a fee in order to benefit from the more reliable journey time. A potentially negative impact of 'no-car lanes' concerns safety issues that can arise with access ramps to the designated lanes. For example, these sometimes require passenger cars to cross HDV lanes or vice versa.

Belfast City Council (Transport Policy, 2001) piloted HDV only lanes on its highway network. Examples of 'no-car lanes' also exist at Newcastle, Exeter and Maidstone. A study by Newcastle University found a 'no-car lane' to be the best form of priority lane in terms of environmental impact (measured by fuel consumption, particulate matter, hydrocarbons, CO₂, and NO₂) (Newcastle University, 2007). The first 'no-car lane' on the London Strategic Road Network was introduced on the Nine Elms Lane red route in Battersea in place of a traditional bus lane (the low number of buses using the road did not justify a traditional bus lane).

In the City of Norwich there is a proposal to use Newmarket Road inbound bus lane and the bus/loading only route through Castle Meadow/Red Lion Street used by vehicles making deliveries on behalf of the Norwich freight consolidation centre (*i.e.* a 12 month experimental TRO) (Norwich Highways Agency Joint Committee, 2008). A code of conduct and on-the-job training required to ensure consolidation centre drivers are aware of specific situations that could arise through use of the bus lane. Concerns were raised that other HGVs may use the bus lane and that there would not be adequate enforcement. The consolidation centre vehicles will have side liveries to identify them and liveries on the back of the vehicles. Allowing other HDVs to use the bus lane is not the aim and if successful, the situation would remain the same as during the trial, with consolidation centre vehicles the only freight vehicles that are allowed to use the bus lane.

c) Road cleansing

Road cleansing options include the following techniques:

Road surface cleaning (various wet and dry techniques);

Vehicle wheel washing;
Dust suppressants (e.g. Calcium chloride, calcium magnesium acetate).

Evidence indicates that road sweeping, even with modern vacuum-assisted sweepers, is not a particularly effective means of reducing PM₁₀ concentrations. The effects of wet cleaning tend to be localised and short-lived. However, it can be a relatively low cost method of reducing particulates and contribute to a reduction in localised exceedences, for example during summer months.

Several London boroughs have implemented a Code of Practice for Construction Sites, which can be a useful means of controlling dust emissions, especially on local roads close to the site. For example, Lambeth has a code of practice related to demolition, site clearance and preparation, construction, and maintenance and repair (London Borough of Lambeth, 2009).

Air quality issues in Leicester are mainly concerned with NO₂, with particulate emissions not of major concern. As such, this intervention may not be of particular relevance for implementation as part of a revised AQAP for Leicester. However, in some cases, it may be appropriate to use planning conditions to control aspects of a development, provided these are not covered by the pollution permit and that a land use planning consideration can be clearly distinguished. For example, planning conditions could be used in respect of specifying transport modes, the hours of operation where these may have an impact on neighbouring land use, landscaping, plant and buildings, the timescale of the operations and impacts such as noise, vibrations, odour, air pollutants and dust from certain phases of the development such as demolition and construction (ODPM, 2004). Clearly, there is scope for Leicester City planners to give higher priority to reducing PM emissions caused by development in local communities.

d) Driver training

The concept of eco-driving can be defined as a way of driving that reduces fuel consumption, greenhouse gas emissions, air and noise pollution, and accident rates. Drivers trained in eco-driving techniques can reduce fuel consumption by up to 20% (Driverskills Ltd). For example, fleet driver training has been shown to result in improved safety and more fuel efficient driving techniques. A TRL 'cohort' study (Reed and Parkes, 2005) into the effects of truck driver training produced the following results:

Improvements in simulator performance

11% improvement in fuel economy

22% reduction in RPM under acceleration

50% increase in torque under acceleration

Transfer of training to real world (collation of data in the week before and week after each training session)

Mean overall improvement in fuel efficiency of 15.7%

Confidence interval suggests that 95% of drivers would improve by at least 6%

Leicester City Council already has driver awareness campaigns as part of their corporate travel plan and the concept of eco-driving is something that could be effectively incorporated into these campaigns.

Camden Council is planning to introduce 'smarter driver' training to raise awareness about fuel efficient driving to its fleet staff, with the aim of reducing fuel consumption and reducing emissions. The training will use an innovative monitor which displays changes in fuel consumption and exhaust emissions as the training vehicle is driven. (London Borough of Camden, 2008).

e) Environmental zones (active control using barriers)

Rising bollards can be effective when used to enforce Traffic Regulation Orders that are time-related or restrict access of particular vehicle types (DfT, 1997). Other applications include controlling the entry of small numbers of vehicles into otherwise pedestrianised areas and ensuring that bus gates are not used by other road users (DfT, 1997). Area bans, however, tend to divert rather than restrain traffic and the overall city-wide effect on emissions is likely to be small unless the restricted area is extensive (DfT, 1996). There is a policy overlap here, related to 'environmental zones'. Leicester City Council could consider active barriers in certain areas of the city centre, for example to prevent large HGVs accessing the centre during peak travel times or as a mechanism for charging vehicles to enter the city centre. It is plausible to consider active barriers operating on roads connecting the city centre to the Inner Ring Road. Consideration must be given to any enforcement methods which may be needed for such a scheme. Active barriers in place on Horsefair Street and Market Street in Leicester city centre currently allow access to buses, taxis and some delivery vehicles.

Cheapside in Preston is a busy pedestrian area that is also used as a road for vehicles serving the market, shops and Town Hall complex. Most of the traffic using Cheapside is cutting through from the city centre to Ringway (this is not permitted at certain times). Through effectively preventing this 'cutting through', traffic would be allowed to disperse using other more suitable roads. Installing bollards which would only be raised during times when general traffic is currently banned is a way of implementing this measure. Those who need access through the bollards at all times (such as service vehicles and blue badge holders) could be issued with a pass to control the bollard and allow access (Transport for Lancashire, 2008). Initially, installing gates with variable times of operation would allow for further consultation over an experimental period (CIVITAS, 2007).

f) Freight hubs/consolidation centres

Out of town freight depots can be used when delivery times in urban areas are restricted according to noise regulations and hours of business. Access to the freight depot can be made available on a 24 hour basis with goods held until appropriate delivery times or transferred to more suitable delivery vehicles (e.g. electric or CNG powered vehicles). Leicester City Council already has a freight quality partnership and has considered the feasibility of siting a freight hub as

part of their LTP3 plans. The issue here is finding a suitable site with sufficient land to facilitate a freight hub. Sunningdale Industrial Park is a possible site, with reasonable access to and from the outer ring road and M1 and to the city centre via Hinckley Road.

Experience from Bristol (Bristol City Council, 2006) has found benefits of introducing a freight hub (or Urban Consolidation Centre (UCC)). This acts as a central delivery hub on the periphery of the city where deliveries are streamlined and it has achieved a reduction of 70% in vehicle trips to the city centre from the 50 retailers using the facility (FQP Resource Sheet, no date).

g) Environmental zones (passive control using cameras)

Defra recently released a good practice guide on the implementation of environmental zones (Defra, 2009b). The guidance provides information on selecting methods for implementing this intervention, practical issues that have arisen in implementing previous examples of this intervention and advice on appraising potential costs and air quality benefits of the intervention in cost-effectiveness and cost-benefit analyses. It also provides detail on existing or planned examples of these schemes. In addition, Defra published further best practice guidance on encouraging the uptake of retro-fitted abatement equipment on vehicles (Defra, 2009d). Clearly, this will need to be considered in terms of environmental zones.

Although environmental zones have been considered for several UK cities, including Edinburgh and Manchester, the only scheme to be implemented to date in the UK is the London Low Emission Zone (LEZ) which commenced on 4 February 2008. The current scheme involves the tightening of the Emissions Standard to Euro IV for particulate matter, in January 2012. The London LEZ operates 24 hours a day, 7 days a week, including weekends and public holidays and on all public roads, including certain motorways within the Greater London boundary (except the M25). The following motorways are also included: M1 south of London Gateway Services; M4 east of Junction 3; and M4 spur to Heathrow (TfL, 2008).

London's LEZ is enforced using fixed and mobile cameras which read a vehicle's registration number plate as it enters or drives within the zone. This is then checked against a database of registered vehicles which comply with the LEZ Emission Standards, are exempt from the charge, or are registered for a 100% discount. If the vehicle does not comply with the LEZ Emission Standards or qualify for an exemption or discount, the driver will be required to pay the daily charge.

In London, the following impacts resulting from the LEZ have been predicted (TfL, 2008):

2% reduction in total road traffic PM₁₀ emissions by end 2008 and 6% in 2012;
NO_x reduction of 4% by end 2010 and 10% by 2012;

Small benefit for CO₂ as there has been little overall impact on traffic flows. Any benefits from newer vehicles may be offset from fitting abatement equipment (increases fuel consumption).

Other cities that are currently considering introducing an environmental zone include Oxford and Glasgow. Information on potential costs and impacts would help Leicester in the decision making process on whether to consider an Environmental Zone. For example, Oxford has undertaken a feasibility study for the introduction of an LEZ for certain streets within the AQMA (Oxford City Council, 2006). The proposed scheme targets a reduction in NO_x emissions and involves the phased introduction of standards for buses and coaches initially, followed by HGVs and then cars at a later date if necessary (Oxford City Council, 2006). Analysis of the potential impact of this scheme found that an LEZ phased in for buses and HGVs could result in a 58% reduction in NO_x emissions in streets on the bus priority route, where the greatest reduction is required (Oxford City Council, 2006).

Glasgow City Council has released its 2008 AQAP draft proposals for consultation. One of the proposed interventions involves undertaking a feasibility study with a view to introducing LEZs in Glasgow. A study comparing the potential effects of an introduction of an LEZ with a 10% and 50% reduction in the number of HGVs on roads in Glasgow found that an LEZ would be the more effective option in terms of bringing about a reduction in NO₂ (Glasgow City Council, 2008).

h) Restricted parking and waiting zones (RPWZs)

Roads or entire routes can have stopping and parking restrictions in place which can be identified by coloured lines (e.g. purple or red *etc*) and delivery bays. Road signs indicate the times when parking or stopping is allowed. In the West Midlands, RPWZs are in place on the A34 in Sandwell; the Black Country route in Birmingham, Walsall and Solihull; Black Country New Road in Sandwell and Walsall; and on the A38 Tyburn Road in Birmingham (other RPWZs also exist in the region). The Solihull pilot scheme won a National Transport Award and surveys on the route have shown that congestion is reduced, journey times are more reliable and that local businesses benefit from improved deliveries and better access to the national road network (Faber Maunsell, 2008).

Walsall Council (Walsall Council, 2009) reports that the benefits of RPWZs may include:

- Improved safety for pedestrians, cyclists and general traffic
- Journey time reductions
- Improved journey time reliability
- Lower and standardised kerb heights at crossings to benefit the mobility impaired
- Environmental benefits such as reduced traffic noise and fumes
- Providing a more pleasant environment for pedestrians and cyclists
- Positive effect on frontage businesses as it is easier for people to park legally

RPWZs could potentially be designated to the major A roads in Leicester, such as those roads into the city centre and Outer Ring Road. For a red route to be an effective means of preventing vehicles from stopping and thus causing traffic congestion, they need to be effectively enforced through camera systems or enforcement officers.

i) Flexible working (hours/location)

Flexible working describes any working pattern adapted to suit an individual's needs with regards to working time, working location and working pattern (e.g. teleworking). Allowing staff to work remotely can result in multiple benefits for businesses in addition to reduced environmental impact.

According to Cairnes *et al* (2004), a British Telecom case study revealed the following key issues. The case study suggests that teleworking is likely to continue to grow steadily within BT. In other organisations, it was suggested that teleworking would be likely to grow more rapidly in areas where congestion charging or a workplace parking levy were brought in. It was also suggested that legislation to encourage flexible working would increase levels of teleworking, and that a higher public profile for teleworking could also encourage take-up. Some commentators have further highlighted that companies perceive teleworking to mean 'working from home five days a week' and that a greater awareness of the potential for part-time teleworking might help to increase participation.

When considering the impact of teleworking on the number of work trips, it is also important to remember that a small number of employees who telework all or most of the time, will have a larger effect than a greater number who only telework occasionally, and therefore scaling up the effects will be more sensitive to the size of the former group.

Workplace travel plans can be effective in tackling the challenge of providing a transport system that can support the movement of people and goods whilst ensuring that impacts on the local and global environment are within acceptable bounds (DfT, 2008a). A well designed travel plan can eliminate 15% of commuter car use for a single company and produce financial benefits and productivity improvements, saving businesses and staff money and time (DfT, 2008a). Leicester City Council already operates a flexible working system for their staff as part of their Corporate Travel Plan. The Council is looking at ways to extend this policy, for example, allowing staff to work remotely at another convenient location (such as within other companies) that are closer to home.

j) Workplace parking levy (WPL)

A workplace parking levy (WPL) is a charge that is made to employers for parking spaces provided for their staff or certain types of business visitors. It aims to encourage employers to persuade their staff to look at alternative ways to travel to and from work, such as using the bus, tram, park and ride or by

walking or cycling. All local authorities have the power to introduce WPL schemes under the Transport Act 2008 (OPSI, 2008). National regulations are currently in the consultation phase and these are needed before any authority can implement a WPL (the regulations are required to address the imposition of penalty charges and the adjudication of disputes) (DfT, 2008a). Given the politically sensitive nature of WPLs, they are often considered to be prime examples of interventions whereby economic concerns are considered above environmental concerns.

Nottingham is currently considering the implementation of a WPL as 70% of peak traffic in the city is estimated to be comprised of commuters (Nottingham City Council, 2009). The Chamber of Commerce has claimed that WPLs, if introduced by every Local Authority in England, will cost the national economy £3.4 billion per year. In response to this claim, Nottingham City Council stated that traffic congestion costs the national economy over £10 billion per year and in the East Midlands, the cost is £935 million per year (Nottingham City Council, 2009). A study by PricewaterhouseCoopers (2007) determined that without the WPL, vehicle flows into Nottingham City Centre are forecast to grow by 8.5% over the period 2006-2021. With the implementation of the WPL, this growth will be restrained to 6.5% (PricewaterhouseCoopers, 2007).

Leicester City Council previously considered a WPL as a measure within their existing AQAP, to apply to selected locations within the city centre. However, this proposal was rejected for political reasons as well as economic issues. It is considered possible that the introduction of a WPL would deter businesses from locating in Leicesterⁱⁱⁱ. However, it is worth taking note of case studies where a WPL has been successful to determine whether it should be re-investigated.

It is possible to realise the benefits of WPLs indirectly via the implementation of environmental zones. For example, if a zone were to be introduced in Leicester city centre, vehicles entering the zone would be controlled via strict emissions and CO₂ entry criteria. Hence, those vehicles currently subject to WPLs would be allowed to enter the zone and park providing that they meet the entry criteria, in which case, the overall effect on the environment would be positive. Penalty charging may also be used.

k) Titanium dioxide products

NO_x-reducing paint or road surfaces contain titanium dioxide (TiO₂), which is a strong photo-catalyst that breaks down NO_x into nitrates in the presence of sunlight and water vapour. When TiO₂ is exposed to UV light in the presence of water vapour, hydroxyl radicals (OH) and a superoxide ion (O₂⁻¹) are formed. These are highly reactive chemical species and hydroxyl radicals are very strong oxidisers which will attack all kinds of organic materials including those that make up living cells (Environmental Health Perspectives, 2001). Japan's Mitsubishi Materials Corporation has developed a paving stone ('Noxer') that uses the catalytic properties of TiO₂ to remove NO_x from the air, breaking it down into more environmentally benign substances that can then be washed away by rainwater (Environmental Health, 2001). When the surface of 'Noxer' is irradiated, oxygen is created, resulting in oxidation of NO^{iv} to form nitric acid

ions, which can be washed away or neutralised by the alkaline composition of the concrete (Environmental Health, 2001). Results of tests undertaken by Mitsubishi showed an 80% NO_x removal rate based on an intensity of UV light of 1-12 watts per square metre (Wm⁻²) (the UV intensity of direct sunlight in summer is 20-30 Wm⁻² compared to 1 Wm⁻² on a cloudy winter day) (Environmental Health, 2001).

There are currently a few examples of small-scale trials of TiO₂ products in the UK and Europe, but to date, there has been little quantifiable evidence on their effectiveness *in situ* to reduce NO_x and NO₂. Practically, it is likely that a very large surface area would need to be covered with this product to have any noticeable improvement. This product also does not tackle the source of pollution, so is not seen as a long-term solution.

A recent trial undertaken in Congleton found a reduction in NO₂ concentrations from 55-68 µgm⁻³ to 43 µgm⁻³ resulting from the application of NO_x reducing coatings to residential properties, pavements and street furniture along West Road (Air Quality Bulletin, 2009). TiO₂ impregnated pavement has been tested in Camden, in the Holborn area during 2005-2006. 12 months of monitoring showed that annual mean NO₂ had reduced by 12% during day and night; however, it was not clear if this reduction was due to the paving or another factor such as a reduction in traffic or a change in weather conditions (London Borough of Camden, no date). Camden is also currently undertaking a trial in Holborn to investigate the efficiency of NO_x-reducing paint by painting a wall in an enclosed area. To measure the difference in air quality, one year's worth of roadside monitoring commenced in August 2008 and this is to be compared with one year of data from after the NO_x-reducing paint is applied. A previous study by the City of London (undertaken in 2006 using a similar method to that used by the London Borough of Camden, but for a shorter time period and with air quality concentrations recorded at 5 metres away from the painted wall) found no identifiable effect of the paint.

In Italy and Japan, much interest is being given to the use of photo-catalytic materials in urban environments to help keep the surface of buildings and the inside of road tunnels clean. The materials include paint, cement and mortar, which all contain TiO₂. For example, in 2002, 7,000 square metres of road surface in Milan, Italy were covered with a photo-catalytic cement-like material; residents in the area reported that it was noticeably easier to breathe and NO_x gases at street level were found to have been reduced by up to 60% (Hogan, 2004).

As far as can be ascertained, there are only a few locations in Leicester which could potentially benefit from TiO₂ coatings, these include the underpass sections of Braunstone Way. The road exhibits relatively high traffic flows through predominantly residential areas.

The product may also be suitable for busy roadside locations in AQMA hotspot areas to reduce local exposure, such as Uppingham Road, St Matthews Way, Narborough Road and Melton Road. Alternatively it could have the potential for use as a means to reduce overall NO_x background concentrations in the city.

The costs of these types of products are however substantial and during the current period of austerity due to the government's priority of reducing the budget deficit, are unlikely to be affordable in the near future. For the London Borough of Camden trials, they obtained funding from TfL through the Local Implementation Plan, although the product was supplied free of charge from the manufacturer. Neither of these would be likely in Leicester.

l) Trialling innovative vehicle technologies

(See also Section 2.4)

Before any Local Authority starts to investigate emissions-reducing technologies, it should consider whether it is more productive to reduce the vehicle weight per passenger and do shorter trips on foot or with bicycle rather than trialling new technologies. This way, the energy consumption may be such that it is easier to meet demand using renewable sources and the transport means also will be more affordable, something which might be an issue in the current economic situation.

Leicester City Council has worked with the Energy Saving Trust to conduct an audit of its vehicle fleet and has a procurement policy to purchase the lowest polluting vehicles or retro-fit existing vehicles to reduce emissions. The Council's EMAS group is responsible for reviewing targets and technologies to reduce fleet emissions and mileage. The Council currently participates in the National Low Emission Strategies project and is looking for solutions that are tailored to the Council's need but that do not involve considerable capital and ongoing costs.

The information below provides evidence of where alternative vehicle technologies have been successfully used by other Councils and evidence on their emissions benefits. Some of this information is taken from a study commissioned by the London Borough of Camden on life cycle emissions of alternative vehicle fuels (London Borough of Camden, 2006). This information may help Leicester City Council consider the different options to make decisions on which technologies may be suitable for their own fleet.

i) Compressed Natural Gas (CNG) vehicles and refuelling facility

Natural gas vehicles normally use spark-ignited engines with three-way catalysts. These provide low levels of regulated pollutants (PM, CO, NO_x and non-methane hydrocarbons). The same is, however, the case for other spark-ignition fuels (petrol and LPG) and with the exception of NO_x and PM for diesel engines. Compared to the majority of diesel engines, natural gas still maintains an air pollution advantage even beyond the significant reduction in emissions required to meet Euro 4 passenger cars and Euro V for heavy duty vehicles (EC, 2003). In the longer term, the limit values for NO_x and PM from diesel passenger cars, light commercial vehicles and heavy duty vehicles will be further tightened. In these conditions, it is likely that it will make little, if any,

difference from an air quality point of view between 2009 and 2013, whether new ICE-based vehicles will be fuelled by gasoline, diesel, LPG or natural gas. Since the introduction of low-emission diesel vehicles and large-scale introduction of CNG vehicles will need about the same phasing-in time, there is no reason to expect significant long-term differences with regard to the impact on air quality between these technologies (EEA, 2007).

There remains, however, concern over the health impact of diesel emissions particularly in cities where more people are affected. In general, the bigger the city, the more severe is the impact. Therefore, big cities and/or cities with elevated levels of PM and NO_x pollution have good reason to consider measures to promote high-mileage vehicles (taxis, buses, certain types of distribution vehicles) operated on natural gas, biogas or other low emission technology. Such a change has already been undertaken in some cities in the EU. The fact that methane is the predominant hydrocarbon component in the exhaust gas and that methane is only slowly decomposed in the catalytic converter means that the quantity of noble metal (platinum) in the catalytic converter must be increased to approximately 6 times the normal quantity if methane emission has to be reduced to the level required by the current total hydrocarbon limit value. Since the elimination of methane offers only a marginal, if any, benefit for air quality, it would be advisable to develop a separate non-methane emission standard adapted to the actual impact on air quality as well as on the greenhouse effect (EC, 2003). Clearly, there is a strong argument to support the development of locally sourced bio-methane (perhaps via local authority intervention) on the grounds of reducing life cycle emissions 'well to tank' bringing a direct environmental and economic benefit to local communities. For example:

Leicester is currently facing a crisis with the disposal of putrescible waste (*i.e.* with no more landfill sites and the obvious political issues with incineration *etc.*). Controlled anaerobic processes would facilitate the disposal of organic waste with the benefit of producing useful bio-methane.

The fuel produced will be 'carbon negative', especially if manufactured locally. In terms of the air quality impact, methane would have NO_x and PM benefits over and above those from pursuing a (bio) diesel policy.

There is a seamless profile in terms of a fuel infrastructure from existing to optimal technologies. Methane gas can be readily piloted in existing internal combustion vehicles, refuelling from a 'tap'. Bio-methane could be developed from waste via the involvement of a local consortium. Leicester could produce fuel from its own reclamation functions.

A local process could emerge to re-form the bio-methane into hydrogen, as part of the 'hydrogen economy'

Camden Council is currently working with Veolia Environmental Services Ltd (a contractor of Camden Council) and Gasrec (the UK's first commercial producer of liquid bio-methane fuel) to trial bio-methane as a clean transport fuel. This fuel is produced from landfill gas. The vehicle used in Camden Council's trial is

an Iveco Daily light commercial vehicle. The trial will involve comparison of the operation of this vehicle with existing vehicles running on CNG. The aim is to demonstrate that bio-methane is a commercially competitive and environmentally sound fuel that can be directly substituted for natural gas.

There is a school of thought considering bio-methane to be the most sustainable biofuel in terms of impact on resource depletion (compared to alternatives such as bio-diesel and bio-ethanol). Research commissioned by Camden Council investigating the life cycle environmental impacts of different transport bio-fuels found that bio-methane had the lowest overall environmental impacts (based on air quality and greenhouse gas emissions).

Benefits include:

Reduced particulate matter (80%) and nitrogen oxide emissions (50%) compared to conventional diesel;

CO₂ savings of up to 85% when considering the fuel life cycle;

Clearly, the capture of methane from landfill sites and conversion to bio-methane can help mitigate climate change as methane is a potent greenhouse gas;

The use of organic waste for bio-methane production means that waste may be redirected to specially prepared landfill or anaerobic digesters rather than conventional landfill sites, facilities of which are expensive to maintain and are fast depleting.

ii) Electric vehicles

Electric vehicles can be battery-electric, hybrid-electric or fuel cell-electric. Petrol hybrid-electric vehicles have recently exceeded battery-electric vehicles in annual sales in the UK (London Borough of Camden, 2006). The benefits of hybrid vehicles are discussed in Section 0.

Battery-electric vehicles utilise an on-board rechargeable battery to store electrical energy: the battery is recharged by connecting it to an electricity supply (London Borough of Camden). The technology utilises 'regenerative braking', whereby the battery is topped up when the brakes are applied (London Borough of Camden, 2006). A study into vehicle fleet electrification in Alabama found that replacing 10% of the fleet with electric vehicles would produce reductions of 1.79%, 4.37% and 1.44% in CO₂, NO_x and SO₂ emissions respectively from the light duty vehicle fleet (Lindly and Haskew, 2002). Indeed, CO₂ emissions per kilometre (km) are much lower for electric vehicles than for petrol or diesel powered cars, in the range of 20-50 g/km (Mayor of London, 2007). There are, however, some emissions penalties associated with electric vehicles, such as the use of non-renewable electricity for recharging (London Borough of Camden, 2006).

Life-cycle emissions from battery-electric vehicles (per km) are significantly reduced for CO and hydrocarbons; but significantly increased for particulates, NO_x and SO₂ due to emissions from power stations used to produce the energy source (if non-renewable energy sources are used to generate electricity) (London Borough of Camden, 2006).

Ownership costs for electric cars will be higher than petrol or diesel equivalents, primarily due to their higher purchase price and cost of batteries, which are typically leased. There may also be associated capital costs to install charging facilities. Reduced ownership costs include exemption from road tax^v and in London, drivers of electric vehicles in London are currently exempt from the London congestion charge and have access to free or discounted parking spaces. To date, there are 73 electric vehicle recharging points in London and plans are in place by the London Mayor to implement electric car hire schemes (Newride, 2009). The overall life cycle costs of such vehicles will obviously vary according to their use and the lifetime of the vehicle.

On the positive side, we have secured electric charging points, through the planning process, in our prestigious Highcross shopping centre development. Building on this, Leicester is part of a successful Midlands bid, (including Nottingham and Derby), for funds from the second round of the Government's "Plugged in Places" initiative, for financing infrastructure to support use of electric vehicles. The Plugged in Places project presents us with an ideal opportunity to provide charging facilities for electric vehicles at a range of strategic locations across Leicester. The initiative dovetails with the Government's 'Plug-In-Car Grant' of up to £5,000 per car for the new wave of electric vehicles to be launched in 2011. Together, these initiatives will enable motorists to switch to electric vehicles.

iii) Pure plant oil

Pure plant oil is produced by crushing and filtering oil-based crops to produce neat oil which can be used in some diesel engines. Pure plant oil is not widely used in the UK because vehicle manufacturers will not typically provide a warranty due to the modifications which would be required for a vehicle powered by pure plant oil. The degree of reduction in life cycle CO₂ emissions from vehicles using pure plant oil depends upon the manufacturing process, but is considered to produce fewer emissions than other forms of biodiesel (Energy Saving Trust, 2009). Arguments against promotion of fuel made from pure plant oil include the deforestation that occurs to create fuel feedstock (such arguments are still valid). It has been suggested that implementation of a sliding scale of taxation to encourage the use of fuel feedstock with good environmental credentials will counter this potential negative impact.

iv) Bio-ethanol/diesel

The term biofuel in this case refers to ethanol or diesel made from processing plant material or animal oils. Crops used to produce biofuels include corn, sugarcane and rapeseed. Bioethanol is usually mixed with petrol and biodiesel is either used on its own or in a mixture. Biodiesels include straight vegetable oils (SVOs), modified waste vegetable oils (WVOs) and oils produced by the esterification of energy crops such as oil seed rape, sunflower oil, palm oil and soybeans (London Borough of Camden, 2006).

No evidence could be found supporting the air quality benefits of using biofuels. Equally, no evidence was found suggesting bio-fuels have a

detrimental effect on air quality. The Royal Society (2008) report on bio-fuels, however, concluded that biofuels have a potentially useful role in tackling the issues of climate change (e.g. CO₂ emissions) and energy supply. However, important opportunities to reduce greenhouse gas emissions from biofuels, and to ensure wider environmental and social benefits, may be missed with existing policy frameworks and targets. Unless bio-fuel development is supported by appropriate policies and economic instruments, there is a risk that society may become locked into inefficient bio-fuel supply chains that potentially create harmful environmental and social impacts. New technologies need to be accelerated that can help address these issues, aided by policies that provide direct incentives to invest in the most efficient biofuels.

The actual extent of total life cycle greenhouse gas emissions from biodiesel and bioethanol is strongly dependent on the crop grown and the fuel processing employed (London Borough of Camden, 2006).

Ownership and running costs of bio-ethanol/diesel vehicles will be the same as petrol or diesel equivalents where a low percentage blend is used. However if high percentage or pure blends are used, there may be additional costs to replace certain vehicle parts (e.g. rubber components) and to maintain the vehicle^{vi}.

v) Hybrid vehicles

Hybrid-electric vehicles (HEVs) are part battery-electric and part conventional vehicles which use a temporary energy storage device (usually a battery or capacitor) to enable the main engine to be operated at close to its maximum efficiency. Most hybrid vehicles operate in electric/zero-emission mode at low speed, making them ideal for urban driving. The efficiency of the technology leads to lower emissions of CO₂ than from ordinary petrol or diesel vehicles and all hybrid cars are Euro 4 compliant (London Borough of Camden, 2006).

In London, all new TfL-operated buses entering service after 2012 will be hybrid powered. Tests carried out at the Millbrook Proving Ground (TfL, no date) found that when compared with conventional diesel buses, hybrids deliver considerable environmental benefits, including:

- 89% reduction in NO_x
- 83% reduction in CO
- 40% reduction in fuel use
- 38% reduction in CO₂
- 30% reduction in perceived sound levels (noise reduced from 78 to 74 decibels)

Hybrid cars do cost more to purchase than a typical petrol or diesel model but will generally be cheaper than a pure electric vehicle. For a typical family car that costs £14,000 new, you might expect to pay £1,000-£2,000 more^{vii}. However, many running costs of hybrids will be lower, as indicated below:

Reduced Vehicle Excise Duty

- Cheaper to run than conventional petrol or diesel vehicles; £10 will allow you to travel 165 miles in a petrol hybrid car
- Quieter than diesel or petrol vehicles
- Enhanced capital allowance rate of 100% in the first year
- Lower Personal Benefit in Kind (BIK) tax liability

In order to encourage take up of private hybrid vehicles, Westminster City Council has introduced a range of incentives (Westminster City Council, 2009). Hybrid vehicles receive:

Discounted resident parking in Westminster.

Hybrid vehicles that are classified as Band 4 on the PowerShift register are entitled to apply for the 'hybrid' Westminster Ecomark, a vehicle badge that is awarded to vehicles that are fuelled by gas or electricity. It identifies the vehicle as one that contributes to the reduction of air pollution in London and the owner can receive updates on what is happening in the field of electric and gas vehicles as well as occasional free gifts and invitations to events.

No congestion charge (subject to registration fee and conditions).

This section has briefly described issues involving innovative vehicle technologies. For Leicester City Council, it is feasible to pilot these technologies within council operations. The difficulty is communicating messages to the public as to their relative merits or otherwise. One way to manage this is to share knowledge through policy development in the form of intervention strategies. One might consider, for example, the role of the Council to promote vehicle technologies by developing access controls in the city centre. Consultation on entry criteria would certainly raise awareness and debate.

m) Free bus passes (smart card)

The Local Transport Act (LTA) 2008 includes provisions designed to enable more effective partnership working between local transport authorities and bus operators, aiming to promote accessibility, reduce congestion and support the Government's environmental objectives (DfT, 2009). Since April 2008, everyone who is resident in England and who is over 60 years of age or 'eligible disabled' has been entitled to a free annual bus pass valid for off-peak travel on local buses. In London, everyone under the age of 16 is eligible to travel free of charge on buses and trams (this includes residents and non-residents) and 16-17 year olds (and some 18 year olds) in full-time education or on a work-based learning scheme who live within a London borough can travel for free on buses and trams across the entire London bus network, including sections outside Greater London. Other cities, such as Nottingham, which have a single bus operator, have systems in place for smart cards, so could relatively easily operate a free or discounted bus pass system. This would be more difficult in Leicester which has several major bus operators, but the recent LTA 2008 and Quality Bus Partnerships may allow this type of

measure to be realised in the future. This is something that would be investigated if this measure was taken further for detailed evaluation.

Case study: Denmark

'FynBus' public transport company in Odense Denmark is piloting a Security Management System (SMS) bus ticketing service. Ticketing messages are sent to mobile phones which are then shown to the drivers when boarding buses. They are cheaper than paying with cash, making the transaction process more attractive and simple. Clearly, another benefit is that this reduces the amount of cash held on buses and allows parents to manage the travel of their children more effectively (Civitas, 2008).

n) High occupancy vehicle (HOV) lanes

High occupancy vehicle (HOV) or carpool lanes, either created by using the hard-shoulder, widening roads, or utilising spare capacity in existing bus lanes, are an example of road space management that is intended to encourage drivers to share cars. They can also be used where the introduction of new bus lanes cannot be justified on bus frequency grounds. The basic principle is that only vehicles carrying two or more people, buses and two wheeled vehicles are permitted to use the lanes during hours of operation (HGVs may or may not be allowed access) (DfT, 2006). Only three non-motorway schemes of this type are in operation in the UK: in Leeds, South Gloucestershire (northern outskirts of Bristol) and North Somerset (A370 Long Ashton Bypass) (DfT, 2006). The city of Leeds HOV lane on Stanningley Road has resulted in a reduced journey time for cars using the lane of 3.5 minutes (the lane is 1.5 km long) (HOV Lane Info Sheet Issue 6a, 2002). This sort of intervention may be appropriate for roads in and out of the city centre in Leicester, but it would require the roads to be widened, otherwise it is likely to cause increased congestion if the road space for other vehicles is reduced.

o) City car clubs

City car clubs provide an alternative to personal car ownership. Cars are owned and maintained by a club, which pays for all tax, insurance, servicing, cleaning and fuel. Members pay a joining fee and then pay for each journey at an hourly rate. Cars are returned to a reserved parking bay for the next member to use.

The Environmental Change Institute has reported that on joining a car club, former car owners increase their use of non-car transport modes by 40% (Ledbury, 2004). In general, UK studies show that each car club typically replaces at least six private cars and hence can lead to emission reductions^{viii}.

One disadvantage of hourly charge rates is that it becomes prohibitively expensive to use the car for more than a few hours. Although by design to optimise the fleet, for daily use, it is often cheaper to rent vehicles from a hire company.

p) Car sharing

Car sharing allows several people to share private transport and is usually organised through networks for people that are regularly driving to the same place (e.g. work), or are travelling to a mutual destination. Car sharing allows people to benefit from the convenience of the car, whilst meeting new people and reducing congestion, pollution and the cost of travel. Leicester already actively support and promote car sharing schemes, particularly to reduce the numbers of people driving to the Council to work. The Council operate the Leicestershare.com website which is run in partnership with businesses within the city. This scheme has funding up to 2012 and in May 2008, there were more than 2,000 registrations and of these, more than 150 active car share partnerships existed. Clearly this would reduce vehicle kilometres travelled so would have air quality benefits, but much better evidence and statistics would be required to quantify this effect.

The Department for Transport (DfT) reports that a successful car sharing scheme can reduce commuter traffic by nearly a quarter (DfT, 2004). However, there is no clear evidence as to how this reduction translates to emission savings. Car sharing is analogous to car clubs where some research has been undertaken (Kollamthodi, 2005). In this research the total reduction in emissions due to an increase in the number of car clubs has been estimated based on the assumption that each person that joins a car club reduces their annual vehicle mileage by 4,500 miles per year, and that an average of 20 people use each car club car. Reductions in NO_x, PM₁₀, and CO₂ emissions are therefore due to a reduction in the total number of vehicle kilometres travelled each year.

The emissions savings attributable to the ASM business/home car sharing scheme has been assessed for Venice (Civitas, 2008). As well as individuals sharing journeys within cars, individuals were also encouraged to share cars to undertake their journeys. The car sharing scheme involved allowing individuals access to alternative vehicles. In general, it was found that emission reductions for CNG powered vehicles are in the order of 20-30% for CO₂ and CO and between 40-90% for HC and NO_x. The assessment also took into account the reduction in pollutant emissions that can be ascribed to the use of car sharing vehicles in substitution of private or company cars that are not compliant to Euro 4 Emission Standard and how the habits of the ASM car sharing service users have changed in terms of car use. Previous studies (Ryden *et al*, 2005, City of Bremen, 2004) have shown that car sharing tends to postpone the purchase of a car (typically a second car) or lead to people driving less by using more public transport or walking. This translates to a reduction in the overall average mileage per person and in a similar car sharing initiative this was estimated to be around 50% (Shaheen *et al*, 2003). This figure can be significantly increased when the car sharing scheme is adopted as a complete substitution of family or company cars.

Per member emission reductions expected from using a combination of conventional and CNG vehicles with reduced mileage equates to around 113 t/year (CO₂), 259 kg/year (CO), 29 kg/year (NO_x) and 27 kg/year (HC). The

lowest possible estimate assumes all were Euro 4 car owners. ASM car sharing scheme is rapidly increasing its number of customers (citizens and companies) thus reaching a wider share of the Venice council population. The car sharing scheme is more appealing to the public as more cars and more collection and return points are made available. Other wider benefits include the lower number of cars circulating, reductions in traffic congestion and increased numbers of available parking places.

Case study: Promotion

Information necessary to promote car sharing has been reported in 'Smarter Choices: Changing the way we travel' (Dft, 2004). The following is drawn from CarShare Devon:

- 40 temporary road signs on regular commuting routes;
- Provocative radio adverts;
- 116 bus back adverts;
- Advertisements on the back of car park tickets;
- 5,000 leaflets sent out with NHS Trust wage slips;
- Leaflets sent to all staff at Plymouth University;
- Contact with over 500 employers with more than 50 staff;
- Publicity on all outgoing council franked mail;
- Displays at the Devon County Show and in large libraries;
- A message from the Chief Executive of Devon County Council on the bottom of all 24,000 staff wage slips.

q) Trams

Trams are reliable, fast and can carry many passengers; they are also electrically powered, producing almost no on-street pollution (Edinburgh Trams, no date). Edinburgh plans to have a tram network in place by 2011: phase 1 is currently being built (Edinburgh Trams, no date). Nottingham has an existing tram network (opened in March 2004) and a second phase of development is currently proposed, with construction due to start from 2010 onwards. Twenty million trips are expected to be made by passengers on the tram network in Nottingham when the second phase is complete, of which 30% are expected to be ex-car users, and in the first two years of its operation, 8.4 and 9.7 million passengers (respectively) used NET Line One (Nottingham's first tram system) (University of Nottingham, no date). The system is fully integrated with rail, car, Park and Ride and bus services.

An option to introduce trams or electric guided buses has previously been considered by Leicester, but hasn't as yet been taken forward due to reasons such as high infrastructure costs and the limited road space to construct a new tram system. This sort of measure obviously has a long implementation timescale and it would be worth taking note of the evidence from existing

schemes on the impacts that trams have had on reducing residential car usage. Re-investigating the feasibility of a tram or personal rapid transport system is being considered by Leicester for the LTP3 (Leicestershire County Council and Leicester City Council, 2008). It should also be noted that feasibility studies of major transport infrastructure schemes are expensive.

r) Quality bus partnerships agreements/Bus quality contracts (emissions controls for buses)

A Quality Bus Partnership Agreement (QBPA) is a voluntary agreement between one or more Local Authorities, which may or may not be local transport authorities, a bus operator and (optionally) third parties. It can range from a simple document detailing heads of agreement to a legally binding comprehensive and detailed document (Defra, 2009). In terms of regulating emissions from buses, QBPA's can be used to encourage the uptake of retrofit technology. The Local Authority can do much to facilitate the uptake by providing adequate facilities for bus services. The success of such approaches will necessarily rest on the efforts to engage with the vehicle operators in a detailed and consistent manner (Defra, 2009).

The UK Government is introducing changes to the Department for Transport's Bus Service Operators Grant (BSOG) to incentivise the use of low carbon buses and buses with smartcard and global positioning systems (DfT, 2008a). Other interventions which are being introduced and taken forward for further discussion with stakeholders include a distance based subsidy for use of low carbon buses; a review by 2011 with the intent of using a fuel efficiency cap or differential rates of BSOG in the future to further incentivise a switch to lower emission vehicles; replacement of BSOG for operators in the TfL network by payment of an equivalent sum passed directly to TfL; and funding of a SAFED (Safe and Fuel Efficient Driving) demonstration project to encourage fuel efficient driving in the bus and coach sector (DfT, 2008a).

The powers of the Local Transport Acts 2000 and 2008 enable local authorities to bring forward schemes in which they can determine which local bus services should be provided in their area, and to which standards, and can let contracts with bus operators giving them exclusive rights to provide services to the Authority's specification. The Authority may determine the routes, timetables, fares and ticketing arrangements for the bus services, and any other matters relating to their standards including the emissions standards of the vehicles used. The Local Authority, not the traffic commissioner, carries out enforcement and operation of quality contracts (Defra 2009d). This may be an ideal opportunity for Local Authorities, including Leicester, to overhaul existing bus contracts to take full advantage of the new powers to realise the full extent of environmental benefits. In making a sound case, Local Authorities will need to provide clear evidence including any benefits affecting other shared priority areas.

s) Lightweight canopies

A lightweight canopy is potentially relatively simple to construct and would have the same effect as a tunnel to cover a section of road with a light-weight plastic or glass canopy. Air pollution release is restricted to portals and vents and the canopies have the ability to entrain pollutants to areas where they can be scrubbed or treated to reduce concentrations. This will therefore reduce exposure to drivers and passengers in vehicles travelling within the canopy. However, the effectiveness of canopies at reducing road surface deposition and roadside PM concentrations remains unclear. A project by IPL (Air Quality Innovation Programme)^{ix} is currently investigating the combination of a light-weight canopy with effective treatment of the polluted air, e.g. by using glass fibre mats to absorb particulates.

t) Southern relief road

Relief roads aim to redirect traffic from town or city centres by providing an alternative route for vehicles travelling through an urban area. For example, a new 1.5 km dual carriageway was opened in Sheffield in 2007 (between the Wicker and Penistone Road) which aims to:

Remove unnecessary through traffic from the City Centre by providing a dedicated route around it;

Improve access to the City Centre and adjacent areas for all those who need it, however they choose to travel;

Re-integrate Victoria Quays, the Law Courts, Exchange Riverside and the Wicker areas with the City Centre; Aid regeneration of the City Centre and areas immediately adjacent to the IRR;

Improve the City Centre environment.

A potential Southern relief road in Leicester would run between the A6 and M1 in South Central Leicestershire. Plans for this road are currently on hold as it is considered that other schemes are likely to be more cost-effective and can be implemented in the medium-term. However, these plans may be re-visited if the Pennbury Eco-town is built.

u) Carbon scrubbers / precipitators / vegetation barriers

There is limited research on the specification and application of emission control devices situated within public buildings such as railway stations and car parks. The devices tend to be very energy intensive and typically fitted as a retrofit device to an existing ventilation system to reduce levels of particulates. In an ambient urban context these devices have limited uses over and above natural agents such as roadside vegetation barriers and are more applicable to controlling emissions from tunnel portals which affect public exposure. With reference to vegetation barriers, LCC has pledged to plant 10,000 new trees in the city's parks, school grounds and streets by 2011.

v) School buses

Provision of school buses could reduce the number of 'school-run' trips undertaken by private motor vehicles. The Yellow School Bus Commission (YSBC) (chaired by David Blunkett) believes that dedicated school buses

should be introduced across Britain to all primary and many secondary schools (YSBC, 2008). The Commission believes that the services would remove 180 million car journeys from Britain's roads each year, reducing congestion and cutting emissions (YSBC, 2008).

w) Planning - Section 106 agreements

Ways in which to better use planning systems were not specifically considered in the LCC/TRL consultation workshop but this is a means by which to gain funding for air quality improvements. As well as the contributions made by developers for air quality mitigation as part of their scheme development plan, Section 106 agreements have also been successfully used to extract money for air quality monitoring and impact assessments. For example, the London Borough of Greenwich (LBG) has experience of using planning agreements under Section 106 of the Town and Country Planning Act 1990. They have secured several agreements where the community has benefited. It includes the provision of affordable housing, the use of local labour and environmental impact mitigation measures.

The use of Section 106 agreements in relation to air quality is clearly stated in Planning Policy Statement 23 (PPS23) Annex 1 Pollution Control, Air and Water Quality Planning Obligation (ODPM, 2004): "Where it is not appropriate to use planning conditions to address the impact of a proposed development, it may be appropriate to enter into a planning obligation under Section 106 of the Town and Country Planning Act 1990". Agreements can include the purchase, installation, operation and maintenance of air quality monitoring equipment or provision of other assistance or support to enable authorities to implement any necessary monitoring or other actions in pursuit of an Air Quality Action Plan (PPS23, Annex 1). PPS23 has been actively implemented by Greenwich since the first LEZ controls on the Greenwich Peninsular development. It also forms part of Section 106 legal agreements, signed on 23 February 2004.

In 2006, LBG received a major application to develop the Woolwich Town Centre. The plans for this mixed use scheme included 960 residential units, community and or office blocks, retail store, retail, food and drink units, 1,172 car parking spaces and cycle parking. Successful negotiations between planners, air quality officers, the legal department and developers of the scheme ensured that the Section 106 agreement secured improvements in air quality within the designated AQMA. These included the following interventions:

- Provision of a car club;
- Controls on parking permits with 500 residential spaces with an annual charge of nil to £300 depending on Vehicle Excise Duty rating of the car;
- 10 electric vehicle charging points within the residential car park;
- 50% of delivery vehicles and 50% home delivery vehicles to meet Euro 5 rating by store opening and to be using bio-fuel (100% within 5 years). (Clearly, the use of biofuels in transferring such an intervention to Leicester would require careful consideration);

- £160,000 per annum for 10 years towards the Council's environment monitoring;
- 10 per cent renewable energy commitment;
- Building Research Establishment Environmental Assessment Method (BREEAM) 'excellent' rating for new builds;
- A combined heat and power plant (CHP);
- An auditing process on the implementation of these measures at five and ten years after store opening.

x) Tunnels

Underground or covered infrastructure provides an opportunity to improve air quality in the surrounding area and reduce noise pollution (Huijben, 2008). A tunnel or covering over a road can lower the pollutant concentration within the vicinity of the road by approximately 15-20% in densely populated cities with high background concentrations and by up to 20-25% when background concentrations are lower (Huijben, 2008). In the Netherlands, there were approximately 18 tunnels in use in 2008 and 15-20 at the planning or building stage (Huijben, 2008).

Polluted air is released from tunnels through an exit portal, where the concentrations of NO₂ and PM₁₀ can be extremely high (Huijben, 2008). The problem is not usually significant however, because it is unlikely that there are sensitive receptors within the vicinity of the exit portal: this must be an important consideration at the planning and design stages.

This measure constitutes a 'last resort' long-term intervention for Leicester City Council and is not considered applicable to the revised AQAP, mainly due to the financial cost of implementing such a measure.

y) Road pricing

Road pricing can be employed to generate revenue for financing road infrastructure (e.g. toll roads), or for demand management purposes (e.g. congestion charging in city centres). The Durham City congestion charge was the first to be introduced in the UK in 2002. It was introduced in order to reduce the amount of traffic using Saddler Street (the only public access road to Durham Cathedral and Durham Castle) (Durham County Council, 2008). In 2003, a congestion charge was introduced in Central London. Studies found a 12% reduction in NO_x and PM₁₀ emissions in the congestion charge zone between 2002 and 2003 and CO₂ emissions have reduced by 19.5% between 2002 and 2003 (Beavers and Carslaw, 2005).

Road pricing is not without controversy, particularly in light of its recent rejection in Manchester. Road pricing was part of a £1.5bn package of interventions including construction of tram lines and improved buses and trains. The public considered the intervention purely on the basis of individual cost, with a high estimate of £1,200 a year being reported (Carter, 2008). Recently, Boris Johnson, the Mayor of London, abolished the western extension of the London congestion charging zone. This may well have

influenced the decision of voters in Manchester and equally have an effect on the decision making processes in other cities considering this intervention, including Cambridge, Bristol and Leeds.

The Manchester road pricing scheme would have been introduced in 2013, by which time 80% of the public transport improvements would have been completed. There would also have been discounts for the low-paid and exemptions for parts of the city that had to wait longer for improvements. Motorists would have been charged to cross two charging cordons during the morning and evening peak periods: the outer cordon roughly following the orbital M60 and the inner cordon surrounding the city centre. Opposition to the scheme suggested that other road taxes would need to be reduced significantly if road pricing by consent were to be realised.

Leicester previously rejected incorporating road pricing in its existing AQAP due to the political and economic circumstances at the time. The Council had concerns about the ability of road pricing to address congestion problems of the scale that exist in Leicester and decided that the costs to the city centre would seriously outweigh any benefits.

The UK government has carried out considerable research on introducing national road pricing schemes, but although the DfT is funding Transport Innovation Fund (TIF) studies within cities, there are currently no plans to take forward road pricing nationally. Other options are being considered to reduce congestion on major Highways Agency controlled roads, including introducing high-occupancy vehicle lanes on motorways and allowing cars to use the hard shoulder during busy times (hard-shoulder running).

2.8.5 Ranking of Scenarios for Detailed Assessment

Table 2.8.5/1

Intervention	Comment	Emissions	AQ	Noise	Carbon	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
Resident CPZs	Currently only 10% of city. Needs better enforcement. Need this before looking at emission based charges.	M	M	M	M	M	Positive	Inner city	H	A
HGV only lanes	Would need better freight management strategy first so long-term solution.	H	H	H	L	L	Positive	Arterial target areas	M	A
Road cleansing	May only be a summer solution but low cost as already have vehicles.	M/H (for PM)	M	L	L	L	Positive	Target areas	H	A/B
Driver training	Council already progressing this (including use of telematics to monitor its effects)	M	M	M	M	L	Positive	City wide	H	A/B
Active barriers	This would overcome enforcement issues	H	H	H	H	H	Negligible Positive	Within IRR	H	B

Intervention	Comment	Emissions	AQ	Noise	Carbon	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
	related to LEZs and would tie in with workplace parking levies. In the first phase there would be need to link up with local car parks. Second phase allow free access to car parks for LEVs. Strategy would need to be business friendly. Would tie in with traffic management and traffic calming interventions.									
Freight hubs	The main issue here is finding a location for such an operation within the City boundary. There has been a study on 'Urban Freight	M/H	M/H	M (in urban areas)	M	H	Positive	No sites available within the City boundary. Blaby perhaps	L	B

Intervention	Comment	Emissions	AQ	Noise	Carbon	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
	Consolidation Centres which will require reviewing									
Low emissions zones	LCC thought that camera enforcement might be prohibitively expensive however there was positive support for active barriers on major routes combined with traffic management to prevent non compliant vehicles finding alternative routes. LEZs need to be combined with other interventions to be successful.	H	H	L	M	H	Positive depending on the location of the cordon.	City boundary	L	B
Tunnels	A definite non-starter owing to the lack of space and severance issues occurring at portals. Issue was	H (ambient emissions can be controlled)	M/H	H	L	H	Positive	Variance locations	H	B

Intervention	Comment	Emissions	AQ	Noise	Carbon	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
	also raised concerning in-vehicle exposure.									
Red routes	Need residential CPZs first Could not apply to many streets.	L	L	L	L	L	Negligible	Specific areas (e.g. Royal Infirmary)	M	C
Flexible working (hours /location)	Currently trialling in council but could expand to partnerships with other businesses/offices	L	L	L	L	L	Positive	City Wide	H	C
Work place parking levy	Difficult to manage on its own but can be easily managed in combination with active barriers within the IRR.	L	L	L	L	L	Negligible	City wide	H	C
Titanium oxide	No evidence to suggest that this intervention would have any significant impact	L	L	L	L	L/M	L	N/A	L	C
Trialling	CNG vehicles and	L	L	L	M/H	L	Negligible	City wide	H	C

Intervention	Comment	Emissions	AQ	Noise	Carbon	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
innovative technologies (selected for discussion by the group)	refuelling facility(most promising and could be resourced from landfill sites)									
	EVs (LCC very keen to promote for niche applications)	L	L	L	L/M	L	Negligible	City wide	H	C
	Pure plant oil (Jatropha curcas)	L	L	L	L	L	Negligible	City wide	L	C
	Bio fuels (concerns over life cycle CO2 emissions)	L	L	L	L/M	L	Negligible	City wide	L	C
	Hybrids (Optimistic depending on drive configuration but not top of the agenda in terms of promoting new technologies. Some reservations on life cycle issues).	L	L	L	L	L	Negligible	City wide	H	C
	H2 (Might be considered but requires a strategy)	L/M	L	L	M	H	Positive	Selected areas	L	D

Intervention	Comment	Emissions	AQ	Noise	Carb on	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
Free bus passes (smart card)	Smart card would need to work between bus companies of which 5 operate in Leicester.	M	L	L	L	H	Positive	City Wide	H	D
HOV only lanes	Non-starter as limited road width to introduce new lane/already have bus lanes More appropriate for routes in and out of city rather than IRR. Difficult to police.	M Could create congestion on other lanes	L	L	L	H	Negative	Arterial routes	L	D
City Car Club	Different routes -S106 developer pays for pool- limited opportunity -People set up own pool -Council staff use vehicles in own time. -City wide on street clubs – would need	L/M May make car more attractive so questions over shift in modes	L	L	L	H	Positive	Specific areas	H	D

Intervention	Comment	Emissions	AQ	Noise	Carbon	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
	residential CPZs in areas with parking pressures first.									
Road Pricing	Probably a non starter owing to the experiences of Manchester and Derby. Differential charging. Centrally financed and fiscally neutral (i.e. fuel duty, road tax)	L	L	L	L/M	H	Negligible	Inner ring road/multi-purpose cordon	L	D
Trams	The only scheme being considered is for Pennbury eco town. It makes sense to concentrate funding for a major public transport scheme where there is a concentration of potential users. There is no evidence however those	L	L	M	L/M	H	Negligible	Pennbury to the City Centre	L	D

Intervention	Comment	Emissions	AQ	Noise	Carbon	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
	residents will use the services, plus there would appear to be severe issues regarding space to provide a track. The Nottingham experience of social disruption doesn't bode well for the Leicester scheme.									
Quality bus contracts	Rationale provided on p.48 Annex 11 as to why QBC were not adopted for LPT2. More might be achieved in terms of delivering a more sustainable bus service if LCC become a Public Transport Executive.	L	L	L	L	H	Negligible	City wide	L	D
Emissions controls for	P+R buses for the three new sites will	L/M	L/M	L	L/M	H	Positive	Radials	L	D

Intervention	Comment	Emissions	AQ	Noise	Carbon	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
buses	have E4 minimum standards.									
Lightweight canopies	A very expensive sticking plaster. Graffiti magnets. Couldn't be used in conservation areas.	L	M	M	L	H	Negligible	City wide	L	D
Southern relief road	There would appear to be mixed evidence as to what exactly the relief road would actually relieve. The consensus points to fact that should Pennbury be developed, its occupiers may call for the road to be developed to allow better access to the M1. This rather defeats the object of an Eco development. The purpose of the	L	L	L	L	H	Positive	South Leicester	L	D

Intervention	Comment	Emissions	AQ	Noise	Carbon	Cost	Social	Where might the intervention apply	2011 - 2016	Overall score
	relief road is to divert traffic away from the City centre. However geographically, the suggested route would not appear to offer that much in the way of relief.									
Carbon scrubbers/precipitators.	The main concern here was cost and the planning protocols. Basically a non-starter.	L	L	L	L	M/H	L	Rail stations, car parks.	L	D
School Buses	Not viable due to the spread of schools in the City. One or two schools already have their own buses.	L	L	L – But could have increased potential if new quiet buses were to operate wholesale within residential areas.	L	H - unless part-funded	Positive and negative (reduced congestion around schools, safer routes to school).	Individual areas	L	D

Table 2.8.5/2. Summary of ranked interventions.

Rank	Scored intervention (ranked from highest to lowest)	Scenario evaluation would require the use of a traffic model (Y/N)
1	Resident CPZs	N
2	No car lanes	Possible
3	Road cleansing	N
4	Driver training	N
5	Environmental zone (active control using barriers)	Possible
6	Freight hubs/consolidation centres	Y
7	Environmental zone (passive control using cameras)	N
8	Tunnels	N
9	Restricted parking and waiting zones (RPWZs)	N
10	Flexible working (hours /location)	N
11	Work place parking levy	N
12	Titanium oxide	N
13	Trialling innovative technologies (selected for discussion by the group)	N
14	Free bus passes (smart card)	N
15	HOV only lanes	N
16	City car club	N
17	Road pricing	Y
18	Trams	N
19	Quality bus partnerships agreements/Bus quality contracts (emissions controls for buses)	N
20	Emissions controls for buses	N
21	Lightweight canopies	N
22	Southern relief road	Y
23	Carbon scrubbers/precipitators/vegetation barriers.	N
24	School buses	N

The following describes four potential scenarios selected to reflect the range in the scoring:

- Low cost high impact (A) No car lanes
- High cost, high impact (B) Environmental zones/Active barriers
- Low cost, low impact (C) Electric Vehicles (LCC are very keen to promote for niche applications).
- High cost, low impact (D) Free bus passes (smart card)

2.8.6 Selection and Modelling of Options

Having explored the potential scenarios, LCC decided that the most effective form of evaluation, in terms of explaining the outcomes of conceptual scenarios, would be to consider interventions within a framework strategy called 'One Leicester Co₂nnect'. In essence, this strategy is designed to pull together wider air quality and climate change issues across the city without concentrating on a number of perhaps more piecemeal interventions, which although laudable, do not go beyond the vision required for a revised AQAP. The One Leicester Co₂nnect Strategy 1 considers a freight consolidation centre located in the vicinity of Sunningdale Industrial Park to the west of the City and a freight expressway (no car lane) on the Hinckley Road connected to the city centre environment zone using active barrier controls

The rationale supporting the strategy is for interventions that are more sustainable in terms of adapting to meet the required air quality standards and CO₂ emissions targets. Clearly, it would be beneficial if there were to be reductions in the number of trips undertaken both commercially and privately and if all trips were undertaken using low emission vehicles. Since there is little evidence of change occurring in the short to medium term, interventions are now required which will in effect force a change in behaviour across all sectors. The concept of the strategy is to operate a freight consolidation centre on the edge of the city mainly for those deliveries being made to the city centre. Specialised vehicles (perhaps pure electric or CNG powered) will shuttle to and from the city centre using a dedicated expressway between specific time periods. These vehicles will have free access to the environmental zone. All other vehicles wishing for free access to the zone will also need to meet specific emissions standards. All other vehicles will be charged for entry unless the users are resident within the zone.

Implicit within the strategy are several shared policy areas such as human exposure reduction to NO_x and PM pollutants, alternative vehicle technologies for freight deliveries and other modes, road safety aspects, noise issues, parking levies, traffic congestion and public awareness of environmental issues.

Atmospheric dispersion modelling was undertaken for the base year 2008 and future year 2013 using the Gaussian-based ADMS-Roads (Extra) software suite (version 2.3), developed by Cambridge Environmental Research Consultants (CERC)^x. This future year was assumed as it is within the time horizon of the Council's LTP3 and the schemes were also considered appropriate to be implemented within 3-4 years. Full details of the methodology adopted are set out in Section 3.12

2.8.7 Results and Air Quality Impacts of Options

Some general observations and results from the modelling have been drawn out and are discussed below.

2008 baseline: All roads

- St Mathews Way monitoring site is showing an exceedance of the NO₂ annual mean (47.2 µgm⁻³). This predicted concentration is slightly lower than the 2008 annual mean from the air quality monitoring analyser of 52 µgm⁻³.
- Some of the receptors are showing high NO₂ concentrations because they are positioned for reference purposes in the centre of roads (e.g. LCC16, LCC20) or within gyratory systems (e.g. LCC 19)
- The highest modelled NO₂ annual mean result was 62 µgm⁻³ at receptor LCC3, just north of Burleys Flyover.
- The NO₂ annual mean concentration at New Walk monitoring site (Leicester Centre) was 38.5 µgm⁻³ (see **Error! Reference source not found.**).

2013 baseline: All roads

- The majority of receptors now meet the annual mean AQS objective for NO₂

2013 scenario with 2008 traffic base: Effects of the fleet only.

- Similarly to the 2013 baseline, exceedances of the NO₂ annual mean are still likely at 5 receptors although only two, LCC15 (Hinckley Road) and LCC35 (Charles Street) may be relevant receptors.
- The predicted NO₂ annual mean concentration at the St Mathews Way monitoring site was 35.4 µgm⁻³, which is below the objective
- No change in annual mean NO₂ was predicted at the New Walk monitoring site from 2008.

2013 base with forecast traffic: Effects of the fleet and traffic activity

- Only three exceedances of the NO₂ annual mean were recorded of which one, LCC35 may be relevant.

2013 with EZ and forecast traffic: Effects of the fleet, traffic and entry criteria.

- No changes in concentrations were found at the majority of receptors located outside of the EZ, except for some small reductions in annual mean NO₂ at receptors on the boundary of the zone or located just outside.
- Within the EZ, the percentage reduction in annual mean NO₂ at receptors owing to vehicles complying to the entry criteria ranged from between 0.2% to 12.3%. The maximum reduction was seen at receptor LC35 (Charles Street), where concentrations were predicted to meet the objective, compared to the 2013 baseline. Generally, the impact owing to the proposed entry criteria was negligible although there are a range of criterion that might be considered.

2013 with EZ and forecast traffic reduced by 15%: Effects of the fleet, reduction traffic and entry criteria.

- As expected this scenario resulted in the lowest NO₂ annual means at receptors within the EZ. The range of the reduction at receptors being between 0.02% and 15.7%.

2013 expressway with forecast flows: Effects attributable to the expressway only.

- No exceedances of the NO₂ annual mean were recorded for receptors LCC1 to LCC19 (on the expressway). NO₂ annual mean reduced at receptors by between 2.3% and 16.3% of the expressway over and above 2013 forecast traffic flows.

Overall, it would appear that the NO₂ annual mean concentrations at most receptors in the 2013 base situation with 2013 traffic flows either meet or are very close to meeting the objective. However these results are purely indicative at selected receptors and would be subject to greater scrutiny if a more detailed assessment was required. The council is therefore still advised to take actions to reduce emissions and consider these types of scenarios in their action plan.

With respect to PM₁₀, no exceedances or near exceedances were estimated to occur in year 2008 and future year 2013.

Aggregated baseline and scenario CO₂ emissions are shown in Table.2.8.7/1 Baseline (Hinckley and City Centre roads) emissions are slightly higher in year 2013. Traffic activity in 2008 was assumed for 2013. This increase possibly reflects the higher fuel consumption of heavy vehicles that meet the more stringent emissions standards by 2013. The forecast increase in traffic flow in 2013 results in the subsequent increase in fuel consumed and hence increases CO₂ emissions. The EZ entry criterion slightly negates the increase in CO₂ emissions as a result of forecast traffic growth and further emission reductions accrue from the proposed reduction in traffic entering the zone. Comparing emissions from the expressway only (i.e. without the EZ) with year 2013 (i.e. with forecast traffic growth) clearly shows that this strategy alone has caused a reduction in overall CO₂ emissions.

Table2.8.7/1 Aggregated CO₂ emissions

Link based CO ₂ emissions (tonnes/year)					
		2013 with forecast traffic	2013 EZ with forecast traffic	2013 EZ with 15% traffic reduction	2013 Expressway
2008	2013	62,810	62,776	60,544	61,370

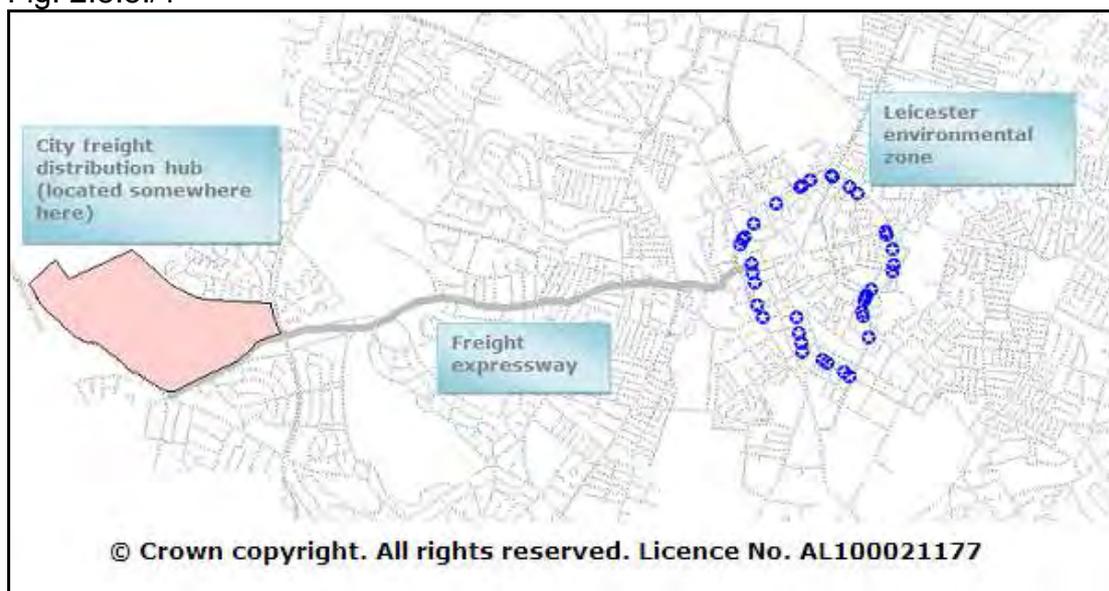
Both the modelling of the EZ and the expressway scenarios have recorded reductions in the NO₂ annual mean over and above that of the do-nothing baseline in 2013. Both measures were based on assumptions concerning vehicle emissions criteria which can be strengthened if required. The criteria for the EZ for example, considered only heavy vehicles and could quite easily include passenger cars. Also, for the expressway, it was assumed that mainly diesel fuelled vehicles would operate along the route. However, should

electric or CNG be considered then (particularly for electric) locally sourced emissions would be reduced more so to those reported here.

2.8.8 Options Forwarded for Final Assessment as AQAP Policy Options [2.10] (*The 'Leicester Connect' Package*)

The two main scenarios are depicted in Fig. 2.8.8/1

Fig. 2.8.8/1



Scenario 1: Hinckley Road (A47 West) Freight Expressway

The One Leicester Co₂nnect Strategy 1 considers a freight consolidation centre located in the vicinity of Sunningdale Industrial Park to the west of the City and a freight expressway (*i.e.* a no car lane) on the Hinckley Road connected to the city centre environmental zone. The effect of this strategy on emissions and air quality concentrations was modelled and this section describes this scenario in more detail.

The theory behind the Hinckley Road freight expressway is to provide a means for goods vehicles to operate on a priority basis into the city centre (*i.e.* unimpeded by other modes). In practice this would involve lane segregation of the existing available road space, inevitably leading to increases in journey times. A consequence of this measure may well lead to traffic being displaced along alternative routes. However, evidence of displacement would typically require the running of traffic models. For this assessment the potential impact to the wider road network is not considered but recommended to be taken forward.

The expressway is assumed to operate in the inbound direction only as it is more important for retailers that goods are provided at prescribed times, which means that the return journey is not as critical. It was originally intended to include the IRR as part of the expressway but after further consideration of

the emissions modelling it was concluded that more information about the traffic activity on adjoining radials would be required to investigate this scenario. Again, it would be recommended to consider these implications if taken forward. The modelled scenario therefore considers the emission impacts on the Hinckley Road only and once on the IRR freight access to the city centre is via High Street or freight vehicles can choose to rejoin the IRR entering the city centre at an alternative location.

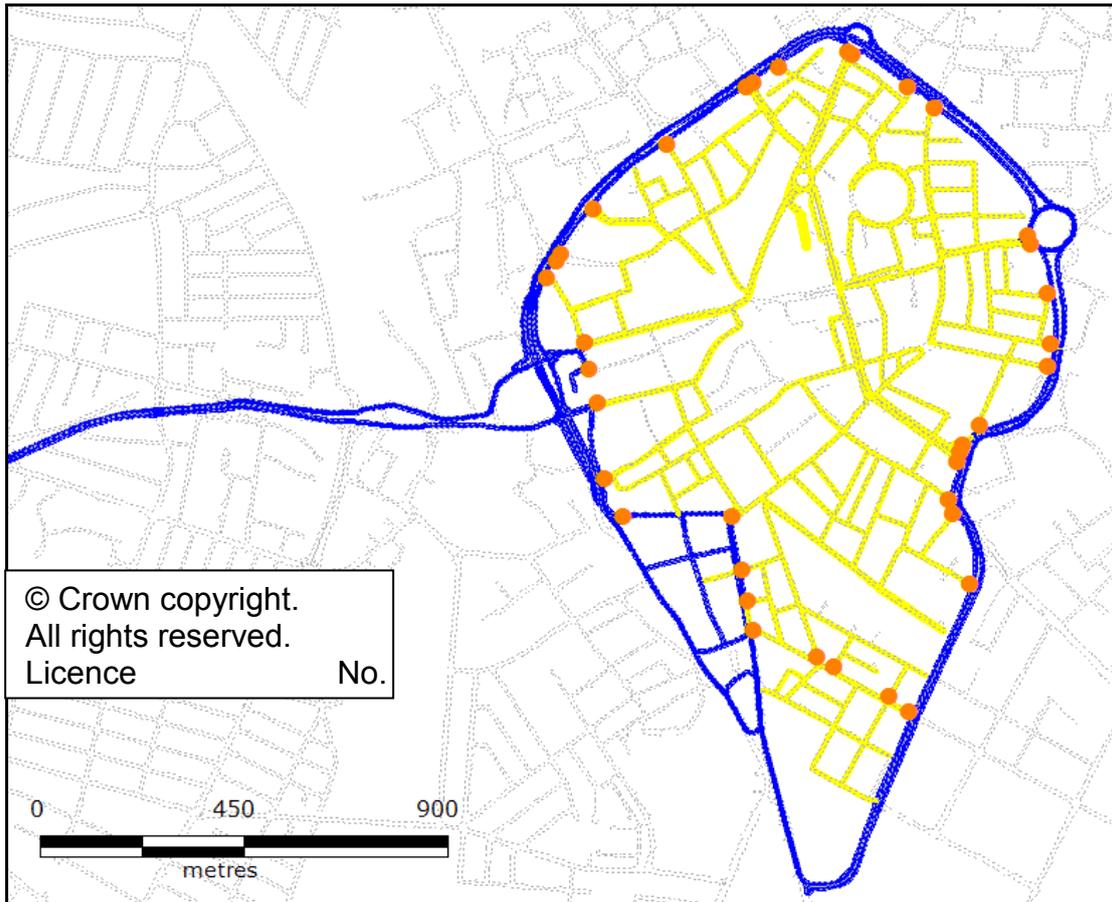
Scenario 2: Leicester City Centre Environmental Zone

The strategy for a city centre environmental zone (EZ) was developed into a scenario to include roads within the IRR. The concept initially involves controlling goods vehicles entering the zone at various locations (control points) either by using physical barriers or cameras that can record number plates. Both need enforcement mechanisms, however the former would rely on non-removable transponders which when fitted to vehicles would control the barrier and access to the zone. This information would give details of vehicle Euro emissions standards to allow or prevent access or access could be linked to CO₂ emissions.

Message boards prior to approaching barriers could inform drivers as to the status of their vehicle with reference to the access criteria (*i.e.* allowing the option to avoid accessing the zone). Clearly, drivers would need to be made aware as soon as possible perhaps via message boards on all radials. There would also need to be a mechanism to allow temporary access for non local vehicles and dispensation for non compliant vehicles that happen to reside within the zone. Camera enforcement would involve issuing fines to non-compliant vehicles via number plate recognition system similar to the system operated for the London Low Emission Zone. Similar to access controls, dispensation rules would need to be developed for businesses operating from within the zone.

In total, 223 roads were assumed to be included within the zone shown in Fig.2.8.8/2, all being accessed via control points.

Fig 2.8.8/2 Possible Leicester City Centre Environmental Zone



Key. Modelled Road Links: EZ – Yellow; Non-EZ – Blue. Access control points - Orange

Options Considered but not Modelled in the TRL Study

Certain options considered but not finally selected in the TRL Study (Section 2.3.4) had been given reasonably good rankings in other methodologies employed in this Annex and were therefore considered further. For the sake of completeness, these have been placed in the final ranking table (Section 2.9).

2.9 Options Considered in Sections 2.3 to 2.8 Collated Against Main LTP-3 Framework

Table 2.9 Leicester's Transport Policy Instruments – Priority-Scored and Tabulated against Interventions to Improve Air Quality / Climate Emissions

Policy Instrument	Policy No.	Relevant Objective (Strategy / LTP Chapter Theme)	Priority Score	LTP-2 2006 (Section 2.3)	AQAP (Section 2.4)	Vehicle Technology (Section 2.4)	Land Use Planning / Static Sources (S. 2.5, 2.6)	TRL Study – Radical Options (Section 2.8)
Working with Partners Company Travel Plans School Travel Plans Cycling Health Education Bus Rail Taxi Business Environment	24	Congestion Low Carbon Accessibility Safety, Security and Health Air Quality	13	Travel planning Safer routes to school School campaigns		Promote use of low emission vehicles with partners. Provision of fuelling facilities.		
Campaigns To Promote Walking and Cycling Road Safety Education Campaigns Flexible Working Hours, Home Working Teleconferences, Teleworking Salary Sacrifice	26	Congestion Low Carbon Air Quality Safety, Security and Health	13	Cycling promotion Walking promotion Campaigns to influence driver behaviour Education on air		Promote low emission vehicles		

Branding				quality and health / sustainability Websites Promoting car-free days Council home working and flexible hours			
Training Pedestrian Training Independent Travel Valuing People Greener Safer Driver Training Safer Driving with Age (SAGE) Cycle Training Cycle Mechanic Projects	30	Safety, Security and Health Low Carbon Air Quality	10				Driver Training Highly ranked
Public Transport Routing Bus rapid Transit Guided Bus Trolley Buses Trams Light Rail	10	Congestion Low Carbon Accessibility	9		Low emission modes of transport	Co-ordinate with development schemes	Trams ranked
Charging (pricing) Road user	18	Congestion Low Carbon	9		Incentivise low emission		Workplace parking levy

Workplace Parking Levy		Air Quality			vehicles		highly ranked Road pricing ranked
Cycles Cycle Routes & Lanes Advance Stop lines Cycle Parking Cycle Hire Schemes	32	Accessibility Safety, Security and Health	8		Promote electric cycles Provide charging points	Promote cycle use and facilities in development	
Public Transport Focused Development Encouraging public transport use through Land Use Planning Development Densities and Mix Development Pattern	1	Congestion Accessibility Low Carbon Air Quality	10		Promote low emission public transport vehicles	Promote and develop public transport in connection with development	
Bus Stations and Interchanges New Improved	3	Congestion Accessibility Low Carbon	9		Promote low emission public transport vehicles	Co-ordinate with major development projects, e.g. Cultural Quarter, New Business Quarter	
Rail New and Upgraded Rail Lines New Rail Stations	12	Congestion Accessibility	8		Electrification and low emission trains	Co-ordinate with major development projects, e.g.	

New Rail Services on Existing Lines						Cultural Quarter, New Business Quarter	
Land Use Measures Developer Contributions Value Capture Taxes Planning	23	Congestion Accessibility Air Quality	9		Application of relevant LDF Policies / SPD's (Climate, Parking etc.) Parking SPD based on LESDP principles – low emission vehicles Application of LESDP Emissions Toolkit for assessment of transport emissions from development EV Charging points	Application of relevant LDF Policies / SPD's (Climate, Parking etc.) Parking SPD based on LESDP principles Application of LESDP Emissions Toolkit for assessment of transport emissions from development S.106 agreements to reduce transport emissions	

						Control emissions from static sources (e.g. biomass boilers) which will aggravate transport pollution	
Journey Planning Personalised (PJP) Individualised Marketing Trip Planning	25	Congestion Air Quality Low Carbon	9				
Variable Message Signs Real-time Driver Information Systems Route Guidance Parking Guidance & Information Systems	28	Congestion Accessibility	9	Diverting through traffic from inner ring road Real-time air quality / route information (VMS) Signing and route guidance (VMS)			City centre Environmental Zone is principal recommendation with quantified AQ benefits
Pedestrian Facilities Pelican Toucan Refuge Drop Kerbs	29	Accessibility Safety, Security and Health	8			Co-ordinate with development schemes	

Routes Link Footpaths Rowip Community Lighting	Safety						
Maintenance Roads Footway Cycle Routes Other TAMP	35	Safety, Security and Health Maintain Assets (TAMP)	9				Road cleansing highly ranked
Bus Corridors Quality Bus Corridors Bus Priority junctions Bus Lanes	2	Congestion Accessibility	7	Reallocation of road space. Quality bus corridors	Associated with low emission vehicles – permissive use		No car lanes highly ranked
Ticketing Off Bus Smart Card Interoperability Network	5	Congestion Accessibility	7	Off-bus ticketing / zonal fares			Free bus passes (smart card) ranked
Bus Fares Decrease Structure Concessionary	6	Congestion Accessibility	7				
Park & Ride New Improved	9	Congestion Accessibility	7	Park and ride schemes	Electric Vehicle charging facilities at Park and Ride sites	City centre access strategy	

Traffic Management Conventional Co-ordination of Streetworks Network Management	15	Congestion Maintain Assets	7	Management of congestion from works/events			City centre Environmental Zone is principal recommendatio n with quantified AQ benefits
Traffic Lights Urban Traffic Control (UTC) Systems Intelligent transport systems Information Technology Systems (ITS)	16	Congestion Low Carbon	8	Signalling improvements			City centre Environmental Zone is principal recommendatio n with quantified AQ benefits

Parking Standards Control of Car Parking Provision Control of Taxi Parking Provision On Street Charges Residents' Parking Schemes Parking Controls Physical Restrictions Regulatory Restrictions	17a	Congestion	7	Parking restrictions / costs	Provision of electric vehicle charging points	Application of relevant LDF Policies / SPD's (Climate, Parking etc.) Parking SPD based on LESDP principles – low emission vehicles	Resident CPZ's highly ranked Restricted parking and waiting zones (RPWZ's) highly ranked
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Street Lights Community Safety	21	Safety, Security and health Low Carbon	7				
Maps General Cycle Walking Freight	31	Congestion Accessibility Low Carbon	8				
Accident Remedial Measures Traffic Calming Local Safety Schemes Speed and Red Light Running Cameras Vehicle Activated Signs	34	Safety, Security and health Congestion Quality of Life	8	Enforcing speed limits / access restrictions Traffic calming / diverting rat runs City centre and other 20 mph zones			
Bus Stops Additional Improved Level Access Bus Stops New Bus Shelters CCTV in Bus Shelters	4	Accessibility	6	Improved bus facilities and circulation			
Bus Information Static Real time passenger information	7	Congestion Accessibility Low Carbon	7	Public transport information			

Buses/services QBP Contracted/Supported Relocation/Operational Times Lower Emission	8a	Congestion Low Carbon	7	Minimum emission standards for buses	Low emission buses: Biomethane Hybrid etc.	Co-ordinate with development schemes	Quality bus partnership agreements / Bus quality contracts aimed at low emission buses ranked
	8b	Low Carbon Air Quality	7	Improved buses Subsidised bus fares Commissioning additional bus services			Emission controls for buses ranked
Roads Junction Improvements High Occupancy Vehicle (HOV) lanes Red Routes	14	Congestion	7	Junction improvements			City centre Environmental Zone is principal recommendatio n with quantified AQ benefits HOV lanes ranked
Car Schemes Car Clubs Car Share incl Ride Sharing Company Pool Cars	19	Congestion Accessibility	6		Promote low emission vehicles for car clubs etc.	Application of LESDP Emissions Toolkit for assessment of transport emissions from	City car club ranked

						development	
<p>Low Emission Vehicles, Infrastructure & Initiatives Promotion</p> <p>Electric Car Charging Points Schemes/Zones</p> <p>Buses</p> <p>Taxis</p> <p>Low Carbon Signals</p> <p>Convert Street Lights to Low Carbon</p> <p>Other Low Emission Infrastructure such as low noise road surfacing, trees, etc.</p>	20	Low Carbon Air Quality	7	<p>Eliminating polluting vehicles</p> <p>Roadside emissions testing</p> <p>Council fleet policy</p> <p>Promotion of alternative fuels</p>	<p>Biomethane vehicles – manufacture of fuel from putrescible waste</p> <p>Hydrogen fuel cell vehicles – run pilot batch.</p> <p>Battery electric vehicles</p>	<p>Application of relevant LDF Policies / SPD's (Climate, Parking etc.)</p> <p>Parking SPD based on LESDP principles</p> <p>Application of LESDP Emissions Toolkit for assessment of transport emissions from development</p> <p>S.106 agreements to reduce transport emissions</p>	<p>City centre Environmental Zone is principal recommendation with quantified AQ benefits</p> <p>Use of low emission vehicles is highly ranked on assessment</p>

						EV Charging points	
Buses/Services Low Floor	8c	Accessibility	5		Low emission vehicles		
Dial a Ride Service Levels	11	Accessibility Quality of Life	5		Low emission vehicles		
Major Road Improvements (over £2m) New Roads Junction Improvements	13	Congestion Accessibility	6	Junction improvements			
Freight FQP Home Deliveries Lorry Routes and Bans Lorry parks Transshipment Facilities Rail Water	22	Congestion Low Carbon Air Quality	7	Freight hubs Partnerships with other fleet operators	Provide charging points for battery electric goods vehicles.		City boundary freight consolidation centre plus freight-only expressway into City centre (A47 west corridor) is principal recommendation with quantified AQ benefits
Conventional Signs and Markings Directional signs Freight signs Walking Cycling	27	Congestion Safety, Security and Health	5				

Markings							
Motorcycles Routes & Lanes Parking	33	Accessibility	5		Low emission types. Charging points		
Parking New Off Street	17b	Accessibility	-4		Provide charging points for battery electric vehicles.	Enforce charging points for electric vehicles.	

2.10 What We Are Going To Do

The actions that will be taken forward are primarily contained in Leicester's Local Transport Plan (LTP). In addition to five key operational plans including this air quality action plan, the LTP consists of two key parts. Part A contains the Transport Strategy setting out our transport policies and individual strategies that comprise our overall transport strategy over the period 2011 - 2026. Part B is Leicester's First Implementation Plan for the period 2011 to 2015. The main purpose of the implementation plan is to act as a detailed business plan for implementing the interventions that will deliver the transport policies and strategies in part A. It has to balance up the various interventions with the likely funding streams and required outcomes and deliverability. Inevitably during a period of tight financial restraint, it has to prioritise which interventions to fund. 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. Reduced funding is a key issue and so every opportunity will be taken to secure additional funding through bidding such as for the Local Sustainable Transport Fund for example. We will regularly review progress and consider the need for updates of the implementation plan every twelve months.

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.

The focus of the overall LTP3 programme will be on sustainable transport that will help grow the economy, protect and create jobs, whilst helping to improve air quality and reduce carbon emissions, encouraging active and safe travel and improving accessibility, with well maintained assets. Our immediate focus for the first implementation plan period will be to commence the delivery of a package of city centre bus improvements in order for us to realise the key transport outcomes for Leicester. Encouraging walking and cycling are also part of the strategy. The harder measures will be underpinned by softer measures taken forward by a smarter choices company or similar, should a strong business case emerge. The softer measures will include campaigns to promote more economical driving styles. We will install electric charging points for vehicles using our successful bid for funds from the Government's "Plugged in Places" initiative, for financing infrastructure to support use of electric vehicles. The Plugged in Places project presents us with an ideal opportunity to provide charging facilities for electric vehicles at a range of strategic locations across Leicester. We will also ensure electric charging points are installed at relevant major new developments through the planning process.

We have considered the possibility of introducing more radical measures such as road pricing or a workplace parking levy, bearing in mind the current economic situation and budget deficit. We currently have an open mind on

road pricing and will be keeping the case for road pricing generally under review for the longer term. As regards a workplace parking levy, we will keep a watching brief on the development of the only scheme in the UK in Nottingham and keep the business case under review.

Summary

The “transport” strategy for Improving Air Quality in Leicester is focused on reducing air pollution caused by traffic by encouraging and facilitating more people to travel by public transport, walking and cycling. This will be achieved mainly through delivering the congestion strategy (LTP Chapter 4), the road safety and active travel (LTP Chapter 6) and the carbon reduction strategy (LTP Chapter 8). Leicester’s Air Quality Action Plan has been prepared on the basis of the need to be realistic and achievable in the context of the government’s current priority of reducing the budget deficit. This means that progress will not be as fast as we would like due to limited funding opportunities.

3. AIR QUALITY TARGETS

3.1 The Key Air Quality Issues

3.1.1 Nitrogen dioxide

Nitrogen dioxide is a toxic gas which aggravates respiratory and cardiovascular conditions in relatively high ambient concentrations. (Nitrogen dioxide, Expert Panel on Air Quality Standards, 1996). It has both acute, short-term effects at high concentrations and more insidious long-term effects at lower concentrations. For this reason, the UK statutory Objective includes both an hourly and an annual criterion.

Nitrogen dioxide is also involved in the atmospheric cycle of the formation and breakdown of ozone, another irritant pollutant.

All combustion processes generate some oxides of nitrogen from atmospheric nitrogen and oxygen but the internal combustion engine is particularly prone to this series of reactions due to the high temperatures and pressures involved.

Nitrogen dioxide (NO₂) is emitted directly from internal combustion engines ('primary NO₂') but also indirectly as nitric oxide (NO), which then oxidises to nitrogen dioxide. The combined emission is referred to as 'NOx'.

The Objectives for nitrogen dioxide are laid down in the Air Quality Regulations (England) (Wales) 2000 (as amended in 2002). The criteria are only relevant where exposure appropriate to the time-base of the Objectives occurs:

Table 3.1.1: Air Quality Objectives for Nitrogen dioxide

Indicator	Concentration	Relevant exposure	Date
Annual mean	40 µg.m ⁻³	Long term: Housing, other residential accommodation, schools, hospitals.	31-12-2005
1-hour mean, with not more than 18 exceedances per year.	200 µg.m ⁻³	Short term: Shops, pubs and restaurants, leisure facilities.	

There is also an EC Limit Value, using the same criteria, which the UK must meet by 2010.

The Review and Assessment process to date had demonstrated that nitrogen dioxide is the only pollutant currently of significance in terms of existing

statutory standards. This is reflected in the area covered by the Leicester AQMA, which comprises the City centre as a whole, plus 'ribbons' extending along the main radial and peripheral roads. [Fig. 1]

It is estimated that the resident population of the Leicester Air Quality Management Area 2000 is about 9,000, or 3% of the City's population. The extension of the AQMA in the Abbey Lane corridor adds approximately 100 households to this total.

The vast majority of this pollutant in Leicester (90%) originates from motor exhaust emissions. Modelling shows that statutory annual mean Objectives for nitrogen dioxide will not be met in Leicester even in 2010 and it is this finding which forms the basis of Leicester's Air Quality Management Area (designated in 2000 and extended in 2008).

Modelling performed for target setting for the purposes in the Central Leicestershire Transport Plan 2006-11 showed that implementation would not meet the annual mean Objective criterion in all locations in 2010, at the end of the life of the Plan. These sites are all locations where there is actual residential exposure.

3.1.2 Ozone

Ozone is a secondary pollutant formed by a complex cycle of reactions involving the effects of sunlight on oxides of nitrogen and volatile organic compounds. The major source of these in Leicester is traffic emissions. Ozone has short-term and long-term health effects, including reduced lung function, and aggravated asthma and bronchitis. Of all pollutants, ozone has the smallest margin between typically observed ambient concentrations and those at which adverse health effects are experienced.

Almost every summer in Leicester, there are 'ozone incidents' lasting for several days. During spells of hot, still, sunny weather, ozone builds up to the level where Government standards are exceeded.

Asthma is a complex, multi-factorial condition which appears to involve dust, house-mites, pollen, allergic response and stress, as well as pollution. However, there is a measurable increase in acute, respiratory hospital admissions in Leicester following ozone incidents. (An Investigation into Hospital Admissions and Ozone Levels in Leicester, C. A. Mallon, 1995).

Paradoxically, there is no statutory duty on Leicester City Council to take measures to reduce ozone levels through the Air Quality Action Plan. This is because the government has determined that ozone is a transboundary problem, most appropriately addressed through international, governmental action.

Also, formation of nitrogen dioxide actually scavenges ozone out of the atmosphere in heavily trafficked urban areas, although it re-forms as part of the

ozone chemical cycle downwind of the urban area. In turn, Leicester receives ozone from urban areas upwind, such as the West Midlands, which tends to increase our levels of nitrogen dioxide because increased levels of ozone permit conversion of more of the locally emitted NO into harmful NO₂.

Summer ozone is increasing and this is clearly implicated in failure to achieve the air quality Objective for NO₂. Reduction in the emission of precursors of ozone, i.e. NO_x and volatile organics, is also of benefit in its own right.

3.1.3 Particulates (PM₁₀)

These are particles 10 millionths of a metre or less in diameter. They have no fixed chemical composition and are derived from a large range of natural and man-made sources. A large proportion of local, man-made particulate is derived from traffic, in particular but not exclusively from the diesel engine.

Particulates cause inflammation of the airways that may exacerbate existing lung disease and increase allergic sensitivity. It is now thought that a very fine fraction of particulates (much smaller than PM₁₀) may be responsible for most of the harmful health effects observed.

Since 1995, there has been no evidence sufficient to justify declaring an Air Quality Management Area on the basis of exceedance of the statutory Objectives for particulates. However, since 2005, there has been evidence of deterioration at certain monitoring sites (Vaughan Way, Glenhills Boulevard) to the extent of the Objectives being approached or exceeded. This is currently being kept under observation to determine whether there is a significant annual trend.

The reasons for this are considered to be similar to those for the lack of progress in reducing nitrogen dioxide levels, i.e. increasing traffic volumes and congestion, coupled with increasing numbers of diesel light and heavy vehicles.

In 2006, the Pollution Control Team collaborated with the Division of Child Health at Leicester University (Leicester Teaching Hospitals) in a cohort study to investigate the incidence of respiratory symptoms in a cohort of 4,400 children in Leicester and Leicestershire, aged between 1 and 5 years in 1998. Periodic checks on the existence of symptoms were made by questionnaire and the correlation with levels of locally generated PM₁₀ particulate was investigated, using the AIRVIRO dispersion model to determine levels of exposure at each child's residential address. (It is hoped to repeat and expand this study). The data was adjusted for a non-spatial index of socioeconomic status.

In 1990, it was found that 11% of 1 – 5 year olds had diagnosed asthma, 16% had wheezed and 13% had reported attacks in the last 12 months. At the start point of the study in 1998, the prevalence of asthma and wheeze had doubled. The study found a strong association between exposure to locally generated

PM₁₀ levels (at residential addresses near main roads) and the incidence of wheeze and cough, which was independent of social confounding factors. There was also found to be clear evidence for a dose-response relationship, i.e. the higher the level of exposure, the more prevalent were the symptoms. (Locally generated particulate pollution and respiratory symptoms in young children, Pierse, Rushton, Harris, Kuehni, Silvermann and Grigg, BMJ Thorax Journal, 2006)

It should also be noted that there is a strong correlation between primary particulate and nitrogen dioxide concentrations close to busy roads, because of the common source of each of these pollutants. Although the study modelled primary particulates, for the sake of simplicity, it is therefore likely that the elevated levels of nitrogen dioxide present were contributing to these health effects.

3.1.4 Other Pollutants

None of the other pollutants prescribed for the purposes of Part IV of the Environment Act 1995 constitute a significant issue in Leicester. Following application of the prescribed methods for the 2009 statutory Updating and Screening Assessment, it was determined that it is not necessary to proceed to a further Detailed Assessment (as specified in the Statutory Guidance) for the following pollutants:

PM₁₀ particulates
Benzene
1,3-Butadiene
Carbon monoxide
Lead
Sulphur dioxide

3.2 The Leicester AQ Monitoring Network

3.2.1 Description of Monitoring Sites

Details of monitoring sites are set out in Table 3.2.1 and Fig. 3.2.1.

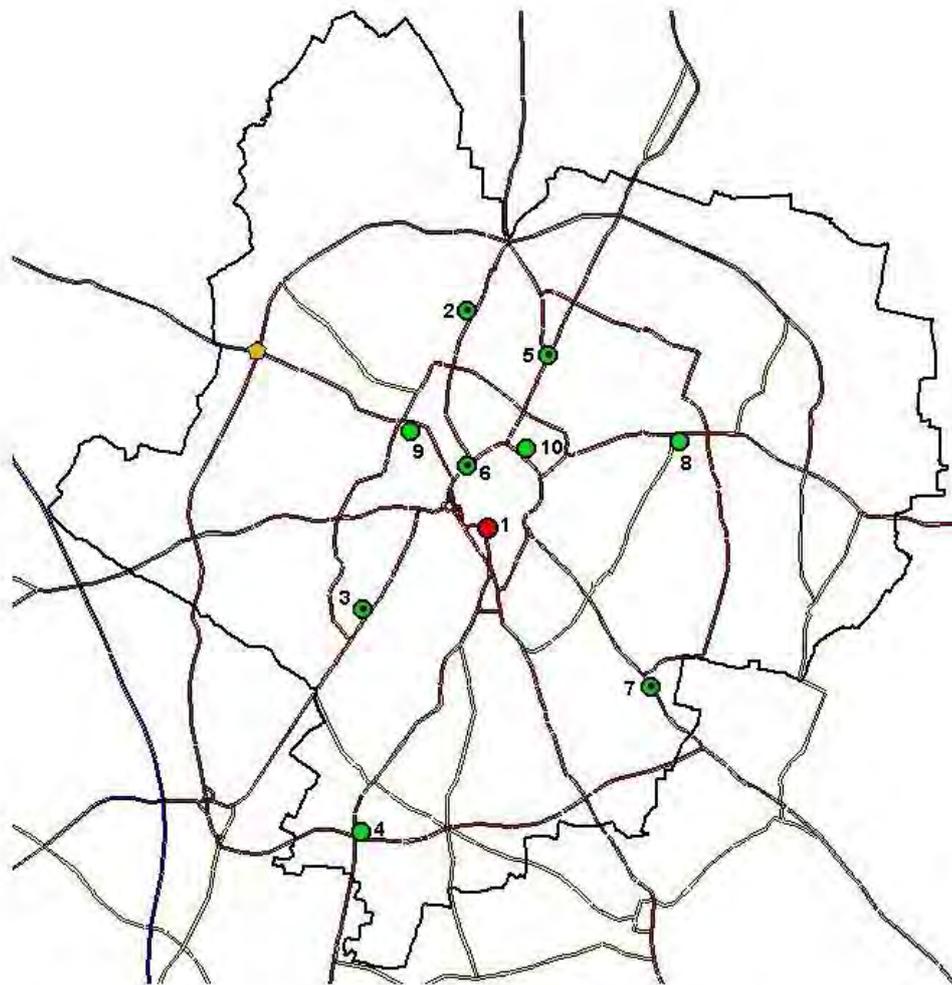
Table 3.2.1 Nitrogen dioxide - Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQM A?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
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AURN	Urban Background	X 45876 3 Y 30406 5	NO NO ₂ CO ₂ O ₃ SO ₂	Y	N/A		
Abbey Lane	Roadside	X 45857 4 Y 30688 5	NO ₂ PM ₁₀	Y	0	7m	Y
Glenhills Way	Roadside	X 45708 3 Y 30015 6	NO ₂ PM ₁₀	Y	Y (11m)	3m	N
Imperial Avenue	Roadside	X 45724 5 Y 30304 0	NO ₂ PM ₁₀	Y	0	7.5m	Y
London Road	Roadside	X 46084 3 Y 30205 9	NO ₂ PM ₁₀	Y	N/A		N
Melton Road	Roadside	X 45952 8 Y 30631 6	NO ₂ PM ₁₀	Y	0	3m	Y
St Matthews Way	Roadside	X 45922 1 Y 30503 6	NO ₂	Y	Y (7m)	2m	N.
Uppingha	Roadside	X	NO ₂	Y	10m	2m	N

m Road		46118 8 Y 30530 6					
Vaughan Way	Roadside	X 45850 7 Y 30490 4	NO ₂ PM ₁₀	Y	N/A		N

Fig. 3.2.1



Automatic Air Quality Monitoring Network

- 1 ● AURN MONITORING STATION (NO_x, SO₂, CO, O₃, PM₁₀)
- 2 ● ABBEY LANE PM₁₀ PARTICULATES & NO_x
- 3 ● IMPERIAL AVENUE PM₁₀ PARTICULATES & NO_x
- 4 ● GLENHILLS WAY PM₁₀ PARTICULATES & NO_x
- 5 ● MELTON ROAD PM₁₀ PARTICULATES & NO_x
- 6 ● VAUGHAN WAY PM₁₀ PARTICULATES & NO_x
- 7 ● LONDON ROAD PM₁₀ PARTICULATES & NO_x
- 8 ● UPPINGHAM ROAD NO_x
- 9 ● BASSETT STREET NO_x
- 10 ● ST MATTHEWS WAY NO_x
- METEOROLOGICAL STATION

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3.2.2 Data Quality Control

The data set out in this section is validated data from our network of automatic monitoring stations, which are maintained and calibrated to the same standard

as the AURN network. Nitrogen dioxide is monitored using chemiluminescent instruments.

3.3 Air Quality in Leicester – Nitrogen dioxide monitoring data

Table 3.3 summarises the full set of of annual mean nitrogen dioxide data from the Leicester monitoring network.

Table 3.3 Ratified Annual Mean NO₂ Monitoring Data for Leicester Automatic Sites
(Exceedances in red type)

Site	Year	Annual Mean (µg/m ³)	99.8 th Percentile	Data Capture (%)
Imperial Avenue	1998 (Sep - Dec)	54	441	81
	1999	75		89
	2000	40		86
	2001	42		95
	2002	40		92
	2003	54		94
	2004	33		96
	2005	36	101	99
	2006	35		99
	2007	36		99
	2008	34		99
Melton Road	1998 (Nov - Dec)	63		93
	1999	63	504	72
	2000	57		91
	2001	61		94
	2002	69		95
	2003	63		92
	2004	50	114	88
	2005	52		99
	2006	50		99
	2007	53		99
	2008	53		100
2009	56		97	
St. Matthews Way	2001 (May - Dec)	61	264	60
	2002	63		95
	2003	65		95
	2004	60		96
	2005	52		98
	2006	58	141	87

	2007	56		99
	2008	51		91
	2009	56		97
Uppingham Road	2001 (May - Dec)	38	176	58
	2002	38		95
	2003	40		95
	2004	40		90
	2005	35	110	99
	2006	35		99
	2007	37		94
	2008	36		99
	2009	34		99
Glenhills Way	1999 (May - Dec)	69	288	78
	2000	63		92
	2001	63		95
	2002	61		79
	2003	71		92
	2004	67		94
	2005	57	174	97
	2006	68		100
	2007	66		99
	2008	67		99
	2009	75		99
Abbey Lane	1998 (Nov - Dec)	55		98
	1999	48		95
	2000	44		90
	2001	50		93
	2002	52		95
	2003	55		94
	2004	47		96
	2005	46		98
	2006	44		97
	2007	45		99
	2008	44		99
	2009	54		99
Vaughan Way	2005 (Aug - Dec)	49	146	41
	2006	53		99
	2007	56		99
	2008	57		99
	2009	57		99
London Road	2006 (Feb - Dec)	29	108	84

	2007	34		92
	2008	32		97
	2009	32		98

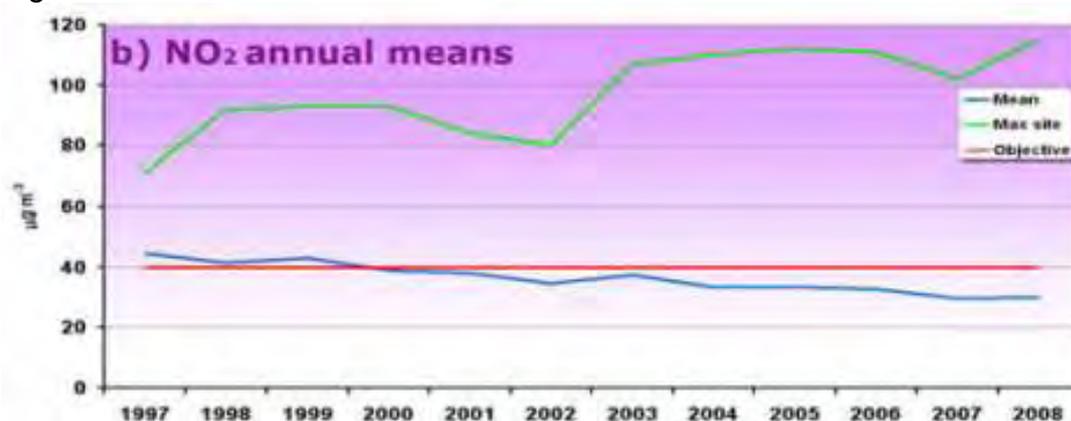
3.4 National and Local Trends – Nitrogen dioxide

3.4.1 National Trends

Concentrations of NO₂ should have clearly declined between 1995 and 2008, as a result of reductions in emissions of NO_x. These reductions have principally been in relation to emissions from road traffic, resulting from the Euro standards for new vehicles, and emissions from industry and power stations. Further reductions in UK-wide concentrations have been predicted as emissions decline further towards 2020.

UK monitoring network average NO₂ concentrations (Figure 3.4.1) have been steadily declining over the last two decades and have been below the objective value since 2000; this trend looks set to continue. However, by contrast the highest concentrations of NO₂ measured by the network appear to have been increasing over time at several of the busiest roadside monitoring sites. While this increase may have levelled off since 2003, concentrations at the most polluted sites remain well above the objective level. NO₂ limit exceedences are often seen close to roads, and recent trends in roadside measurements have shown that NO₂ is stable or increasing despite NO_x emissions decreasing.

Fig 3.4.1



This increase in the relative proportion of NO₂ in overall NO_x is making it harder to meet UK air quality Objectives and EU Limit values. Indeed, the UK has failed to meet 2010 European Legislative deadline for nitrogen dioxide and now faces legal proceedings.

Research has indicated that this is largely attributable to the increased proportion of primary NO₂ in the exhaust of diesel vehicles, associated with the

increasing penetration of light diesel vehicles into the national fleet. Euro standards regulate NO_x emissions, not NO₂ and some technology choices by vehicle manufacturers appear to be actually increasing the NO₂ : NO_x ratio especially in diesels, while overall NO_x (and CO₂) emissions are falling in newer vehicles. Less NO_x is being emitted but more of it is being emitted as NO₂. Hence, increasingly stringent vehicle emissions standards are not being reflected in a fall in NO₂ levels at busy roadsides and, indeed may even be exacerbating the problem.

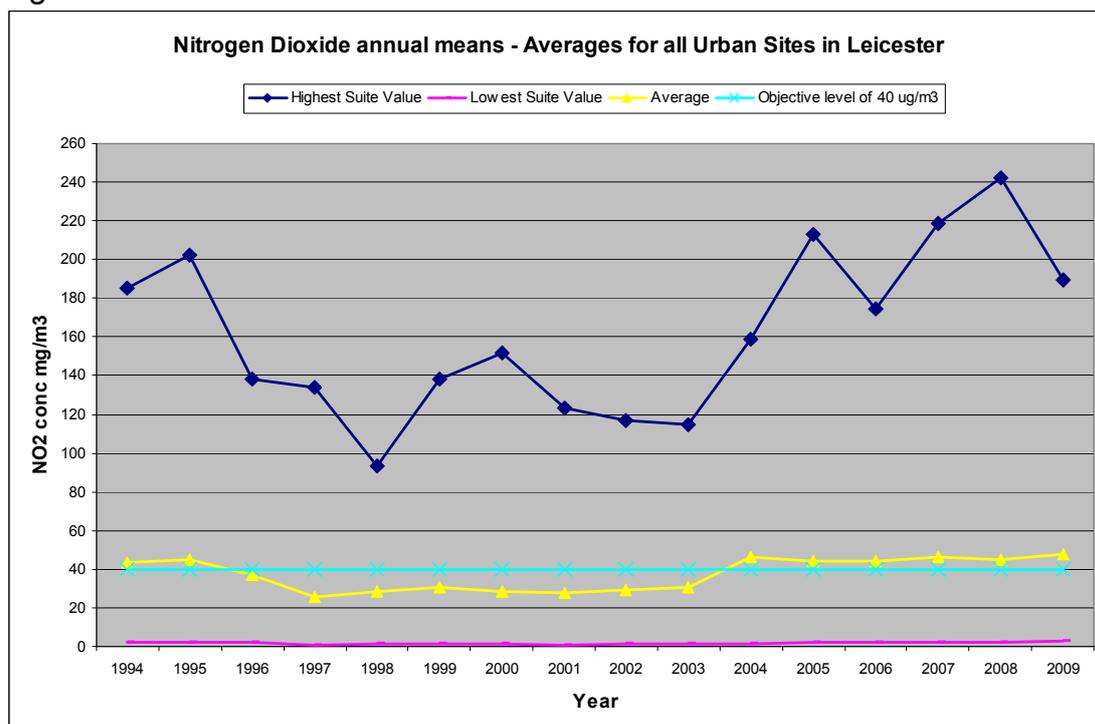
(UK Air Pollution, 2008 (DEFRA)).

3.4.2 Local Trends

The above comments about national trends are borne out by local monitoring data: It can be seen from Table XXX above that there is little evidence of a robust downward trend in the monitoring data. In fact, the situation appears to have deteriorated at certain locations. It was necessary to extend Leicester's AQMA (declared in 2000) in April 2008 to include an additional 102 houses on the northbound (western) frontage of Abbey Lane (see monitoring site at x 458574 / y 306885).

Fig. 3.4.2 shows the corresponding averages for all the Leicester urban nitrogen dioxide monitoring sites. A very similar pattern of significant increases in average maximum values at roadside sites can be seen. However, in the case of the Leicester data there is no observable decline even in the overall average mean values which have, if anything increased slightly.

Fig. 3.4.2



3.5 Progress Towards Previous Targets – Nitrogen dioxide

Given the above it is not surprising that there has been little progress towards achieving the air quality targets set for the Central Leicestershire Local Transport Plan 2006-11: Table 3.5/1 sets out measured values at receptor points compared to values predicted for 2010, when the impact of the Preferred Package of interventions for the Central Leicestershire Local Transport Plan 2006-11 were modelled, in 2006. It can be seen that the predicted reductions have not been realised and, in some cases, there is actually a deterioration compared to the 2003 – 05 averaged annual mean baseline.

Table 3.5/1 Nitrogen dioxide: Modelled* values for 2010 at Receptor Points corresponding to automatic monitoring stations, compared with -

- Smoothed measured baseline for 2003-05
- Modelled values for 2010 (LTP target - simulated implementation of LTP preferred package 2006 2011)
- Smoothed measured values for 2007-09
- Measured annual mean values for 2009

The sites in bold type are Key Receptor Points, for which formal targets have been set for the Local Transport Plan 2006-11

Receptor Point	OS grid ref.	Type of site	LTP BASELINE (Average, measured annual mean NO ₂ 2003-5 (µg.m ⁻³))	LTP TARGET (Modelled Annual mean value for 2010)	Average, measured annual mean NO ₂ 2007-9 (µg.m ⁻³))	Measured annual mean values, 2009
Glenhills Way	457083-300156	Roadside	65	55	69	75
Abbey Lane	458574-306885	Roadside	49	42	48	54
Melton Road	459528-306316	Roadside	55	47	54	56
St. Matthews Way	459221-305036	Roadside	59	48	54	56

AUN (New Walk Centre)	458763-304065	Background	35	N/a		
Bassett Street	457788-305444	Roadside	39	43 ¹		
Imperial Avenue	457245-303040	Roadside	41	< 40		
Uppingham Road	461188-305306	Roadside	38	< 40		
Vaughan Way (East Bond Street)	458507-304904	Roadside	50 ³	N/a		
London Road	460843-302059	Roadside	40 ³	< 40		

* Results obtained using AIRVIRO dispersion model

Considerable year-on-year fluctuations in annual means are observed at our monitoring sites, which makes it difficult to determine trends over small numbers of years. In Table 3.5/2 an attempt has been made to smooth the data by calculating 3-year rolling averages of the annual mean values for nitrogen dioxide at our receptor sites. Even taking this descriptor, there has by no means been a discernable fall over the last decade, in some cases the reverse.

Table 3.5/2 Three-yearly Rolling Averages – Annual Mean Nitrogen Dioxide at Key Receptors

Annual Means	Melton Road	St. Matthews Way	Glenhills Way	Abbey Lane
1999	63			48
2000	57		63	44
2001	61		63	50
2002	69	63	61	52
2003	63	65	71	55
2004	50	60	67	47
2005	52	52	57	46
2006	50	58	68	44
2007	53	56	66	45
2008	53	51	67	44
2009	56	56	75	54
Three-year Rolling Averages				
1999-2001	60			47
2000-2002	62		62	49
2001-2003	64		65	52
2002-2004	61	63	66	51
2003-2005	55	59	65	49
2004-2006	51	57	64	46
2005-2007	52	55	64	45
2006-2008	52	55	67	44
2007-2009	54	54	69	48

3.6 Developments with Potential to Influence Air Quality

Where the characteristics and impacts of the following are known with any certainty, they have been taken into account in the dispersion modelling undertaken in connection with this Air Quality Action Plan. (See Section 3 for details).

3.6.1 District Heating / Combined Heat and Power Project

Leicester City Council has now signed a contract for a major project which will link existing district heating schemes and other major heat users in the City,

using combined heat and power technology in order to effect a stepwise reduction in carbon emissions from building energy supply.

This will involve upgrading and linking the existing housing estate district heating schemes and various major buildings, including the Council offices.

While, at time of writing, the full details remain to be worked out, the proposed use of biomass combustion plant has potential air quality implications. The installations, and associated stacks and abatement equipment will be controlled by planning conditions and it is anticipated that emissions within the urban area will not be significant compared to traffic emissions and will not influence the extent of the Air Quality Management Area.

3.6.2 Development

a) Ashton Green

This major urban extension in the last remaining large undeveloped area of the City at the northern boundary is at the planning application stage, at time of writing. It has various potential implications for air quality:-

Additions to the road network and increased traffic on the existing network;

The use of biomass fuel in centralised or dispersed heating plant.

Again, these issues will be controlled by means of planning conditions and they are unlikely to make a significant contribution to levels of nitrogen dioxide, for example to the extent of necessitating an extension to the Leicester Air Quality Management Area.

b) The Highcross Shopping Centre

This major shopping development opened in September 2008 and included a 3,000 place multi-storey car park on the inner ring road. It clearly has the potential to attract a significantly increased number of journeys to the City Centre.

3.6.3 Road Schemes

The 2009 statutory Updating and Screening Assessment did not identify any road schemes, or changes to flows on existing roads with the potential to have a significant impact on air quality emissions.

3.7 The Amount of Improvement Required

During drafting of the Central Leicestershire Local Transport Plan 2006-11, consideration was given to the four Key Receptor Points selected to set the principal Air Quality for the LTP. These are locations which were predicted not to achieve the annual mean Limit Value for nitrogen dioxide. This prediction has turned out to be true and, in fact, the shortfall was significantly underestimated (see Table 3.5/1).

Traffic reductions required to meet the annual mean Limit Values for nitrogen dioxide in 2010 at those sites have been calculated using the DMRB (Design Manual for Roads and Bridges) and verified against monitoring data at the site in question. The results are summarised as follows:

Key Receptor Point	Estimated reduction in traffic flow (AADT) needed to achieve the Limit Value in 2010 (%)
Abbey Lane	13
Melton Road	56
Saint Matthews Way	78
Glenhills Way	46

Scenario modelling of various park and ride schemes indicated that, were they to be implemented, they would result in reductions in maximum annual mean levels of, at the very most, 1 – 2 microgrammes per cubic metre of nitrogen dioxide (annual mean), on the adjacent corridors.

3.8 Methodologies for Target Setting

In Leicester City, it is clear from Section 3.4 above that interventions which -

- Are within the scope of available legislation;
- Have identifiable sources of funding; and
- Are currently acceptable to the various stakeholders;

- are unlikely to achieve the full improvement in levels of nitrogen dioxide required within the life of the current Local Transport Plan. (Annual mean not to exceed $40 \mu\text{g.m}^{-3}$)

Setting a single air quality for Leicester City Council's whole area is problematic:-

While excess levels of nitrogen dioxide are clearly a network wide problem -

Peak values for nitrogen dioxide levels differ widely over the zone of exceedance;

Different projects will exert different effects on different areas and parts of the road network;

Year on year, annual mean values will vary unpredictably with the vagaries of the weather and other extraneous factors.

The following general approach has been adopted to setting limits and associated trajectories for Leicester City: Receptor Points have been designated within the LTP area; these correspond to points on the highway network, where:

Automatic monitoring sites for nitrogen dioxide are located;
Exceedances of the Objective for nitrogen dioxide have been measured in the last 5 years OR mapped in the vicinity by dispersion modelling; and
Schemes contained in this Air Quality Action Plan are anticipated to have a significant influence on levels of nitrogen dioxide.
There is significant predicted population exposure.

The Receptor Points have the following purposes:-

Setting an air quality baseline for the Local Transport Plan;
Calibrating / validating predictive dispersion modelling of the measures contained in the Local Transport Plan;
Setting targets for the air quality-related measures contained in the LTP;
Verifying predictions of the impact of such measures over the life of the Local Transport Plan; and
Annual reporting of progress with air quality, under both DfT and DEFRA reporting requirements.

As with the Central Leicestershire Local Transport Plan 2006 – 11, targets were established for four key receptor points:

St. Matthews Way
Abbey Lane
Melton Road
Glenhills Way

In addition, the data for the national AURN background site at New Walk Centre was considered.

A nitrogen dioxide baseline was established, using the validated, average, measured annual mean value for each site over the three years 2007-9 . This approach to some extent smoothes out variations due to the weather and other extraneous factors. This baseline is centered upon 2008, which is the base year used for traffic and dispersion modelling.

Various methodologies and sources of data were considered for setting air quality targets for the Local Transport Plan Preferred Package. These were all subject to various difficulties and limitations, so the approach was taken of collating and comparing the results of the different methods in the light of the

observed air quality data and trends detailed in Section 3.4 above. A composite estimate of the likely range of impact of the interventions proposed in the Local Transport Plan was then constructed.

Computer dispersion modelling using the AIRVIRO (SMHI) model.

Computer dispersion modelling, from a study commissioned for Leicester City Council from TRL consultants using the ADMS (CERC) model.

Extrapolation of monitoring data (Section 3.3), using the methodology set out in DEFRA Technical Guidance (LAQM.TG(09)).

Consideration of trends in the monitoring data over recent years.

Consideration of trends in intermediate (non-air quality) data.

Each approach is described in detail in Sections 3.9 to 3.12, below.

3.9 Dispersion Modelling (AIRVIRO Model)

3.9.1 General Considerations

Measured data provides the most accurate picture of the air pollution. It allows obtain the concentration of the various compounds at a specific place, and non-experts easily understand the results if they are well presented. The disadvantages on relying only on the measured data are as follows:

Single locations only are characterised (even if the results from various measurement stations sometimes may be generalised to larger areas)

They describe concentrations at present and archived data but say nothing about future air quality.

Having a network of hundreds of monitoring stations everywhere would make it possible to gain full knowledge of the ambient air quality, but the costs of such enterprise would be exorbitant. Simulation models offer a cheaper way of describing air quality conditions over large areas, as well as permitting statements about the future. They can also allow to study various scenarios, where air quality measurers are planned to be implemented or designed.

The simulations give the overall description, while the data should be used to confirm the validity of the model results. Validation of simulation results from measurements gives confidence in forecast simulations.

Simulation models are of great value in the interpretation of measured data.

In order to describe the existing or future pollution levels of an urban area we need to have a database full of information on sources of pollution, meteorological data:

Dispersion models used will give poor results if emissions are erroneously specified.

The meteorological parameters used in the modelling have to refer to locally determined conditions, preferably through profile measurements in masts. The wind model must be able to realistically cope with calm situations with weak vertical mixing (stable stratification), i.e. when critical pollution levels are likely to occur.

For urban applications (that is, a few tenths of a kilometre), the use of the Gauss plume models the best option: it is fast to run and is also well tested. Its empirical coefficients have been documented, compared and discussed for many years.

Model results should be presented in such a form that can be directly compared with national standards. This means that the simulations should cover not only specific weather conditions (present or historical) but also a time period specified by regulations (typically covering a whole year).

3.9.2 The AIRVIRO Model

The Airviro system is a tool for both data analysis and dispersion modelling. It is an integrated system that allows for measured and simulated values to be statistically evaluated over a given period.

Airviro has a web based user interface. Airviro can be used from a PC or any other device running Internet Explorer 6 or later and Firefox. After logging in on Airviro the DISPERSION module can be selected. All data processing is made on the Airviro server and the results are transferred to the web browser. Dispersion model was originally developed by INDIC, but now distributed, supported, and further developed by the Swedish Meteorological and Hydrological Institute (SMHI). The model is capable of grid, Gaussian, or canyon dispersion calculations. The model operates on a UNIX workstation, and includes modules for data collection, and dispersion calculations, and an emissions database. Dispersion calculations are performed in the Dispersion Module, using meteorological data collected from the Leicester meteorological mast together with emissions data from the emissions database. Emission sources for modelling using AIRVIRO are defined as point (e.g. industrial and commercial buildings), line (roads), or area (residential estates, or large industrial) sources.

The Leicester AIRVIRO model can be run on either a City or County map, zooming into a smaller area where greater detail is required. Emissions from the entire selected map are used for dispersion calculations; even where the zoom function has been used to select a smaller area for subsequent post modelled display.

The Gauss model was used for this modelling, this is a relatively accurate model and is suitable for use of the area required for this modelling. The Local Air Quality Management Technical Guidance, LAQM TG (03) describes this type of model as being suitable for use.

The following is a summary of how the Gauss model works taken from the manual for the Swedish Meteorological and Hydrological Institute's AIRVIRO Modelling suite:

This model (Gauss) is used to simulate the distribution of ground concentrations of pollutants over urban or industrial areas with a typical scale of one or a few tenths of kilometres. The size of the application area is limited from below by the fact that the Gaussian model coefficients are not valid close to the source (distances below approximately one hundred metres). The upper limit is given by the fact that more or less stationary conditions should prevail for the time it takes for an air parcel to be advected through the area. One hour mean values are simulated, as it is known that the wind may be more or less constant during such a period (daily averages would not be sufficient). With wind speeds of 2 - 5 m/s, an air parcel would travel 7 - 18 km within one hour. This limitation of the Gaussian model should be kept in mind while performing simulations on scales larger than 20 km.

3.9.3 Calibrating and Validating the Model

The methodology adopted was identical to that used during the Stage 3 process, and this is detailed in full at Appendix E of the Stage 3 Review and

Assessment report. In order to estimate the uncertainty associated with the modelling outputs, the approach in the NSCA Guidance Note “Air Quality Management Areas: Turning Reviews into Action” was adopted.

a) Predicted annual means

Current annual mean levels for nitrogen dioxide were modelled, using Airviro at receptor points corresponding to monitoring stations. 2008 was the year selected, as full monitoring data was available and this also corresponded to the latest, updated TRIPS model.

(i) Systematic Error

During Stage 3 work, it was noted that the model was subject to a systematic error in predicting values. There was a tendency to overpredict at background stations not directly affected by road traffic, whilst at roadside locations the model would underpredict. Monitoring stations were therefore classified according to their distance from road; for Stage 4 analysis, data from additional roadside monitoring stations were available.

In interpreting the modelling results across the entire mapped area it is necessary to take account of this systematic error. Direct comparison of monitored values with the model predictions at each monitoring station allowed a correction factor to be calculated:

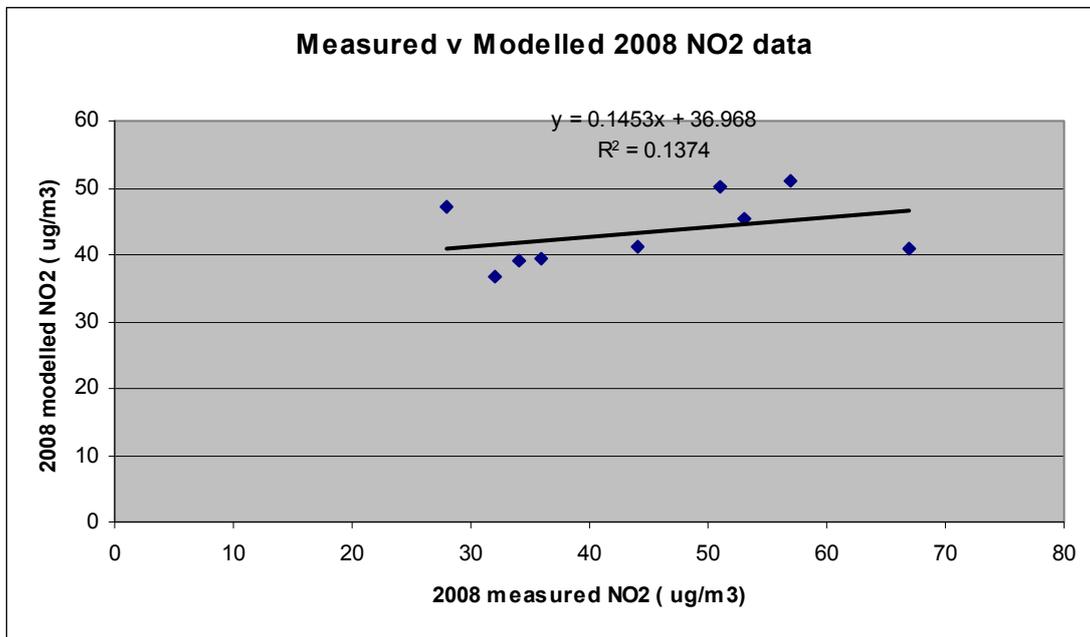
Location	Distance from kerb (m)	Monitored 2008 NO ₂ (ug/m ³)	Modelled 2008 NO ₂ (ug/m ³)	Adjustment factor	Modelled 2008 NO ₂ (ug/m ³) (x adjustment factor)	Modelled 2016 NO ₂ (ug/m ³) (x adjustment factor)
AURN	35	28	47.14	0.59	27.81	20.6972
Melton Road	3	53	45.52	1.16	52.8	39.9272
Imperial Ave	7.5	34	39.03	0.87	33.95	23.9424
Glenhills Way	3	67	40.81	1.64	66.99	41.4428
Abbey Lane	7	44	41.27	1.06	43.74	29.6694
Uppingham Road	2	36	39.48	0.91	35.92	27.1271
St Matthews Way	2	51	50.16	1.016	50.96	37.62248
London Road	3	32	36.68	0.87	31.91	22.1589
Vaughan Way	3	57	51.05	1.11	56.66	41.5251

Mean		44.66667		1.025111		20.6972
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The model predictions showed a similar pattern in over-predicting at the background sites, and under-predicting at the roadside locations. This is not surprising as the model is unable to account for the variability in emissions that will occur close to the road even over a long term averaging period such as the annual mean. This does, however, mean that the error will be more significant for the shorter averaging period required for the 1hour objective.

The ratios for monitored and modelled data were plotted in scatter graphs and a strong relationship was obtained, however it is clear that there is systematic error within the modelled data that needs to be accounted for.

Chart 3.9.3/1: Correlation between monitored and modelled data at automatic sites

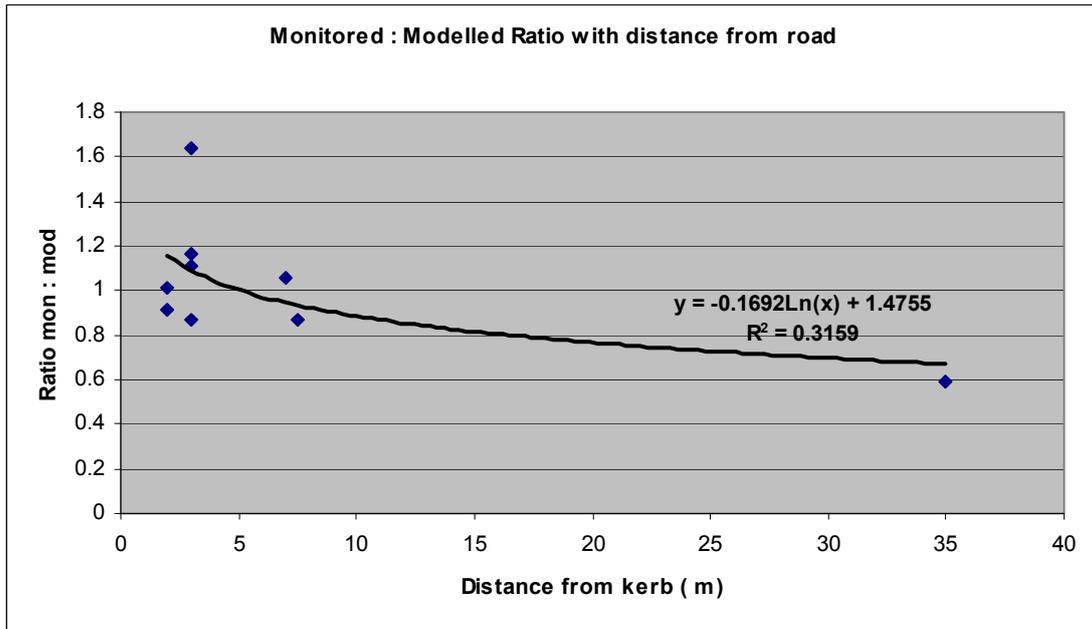


The modelling results from Stage 4 show an improved correlation between monitoring and modeled data. This modelling showed similar overall performance to that undertaken at Stage 3 in predicting non-roadside values, but showed a marked improvement at roadside receptor points.

Table 3.2.2.7/2: Comparison of model performance at Stage 3

	Stage 3 correction factor	Stage 4 correction factor
Background Sites	0.87	0.59
Roadside Sites	1.51	1.025

Chart 3.9.37/2: Kerb distance and model correlation



The relationship between kerbside distance and correlation of monitored and modelled data was also considered.

From the scatter plot, the correction factor is closest to unity at approximately 18 metres from the kerb. As distance from kerb increases, the correlation between modelled and monitored is reduced.

(ii) Random error

After the systematic error has been accounted for, there is still some error remaining within the modelling. There are greater difficulties in defining the degree of uncertainty using statistical analysis of the available data, due to the inherent uncertainties of modelling, together with assumptions or inaccuracies in input data. The method suggested in the NSCA Guidance Note was therefore used to calculate the standard deviation (SDM) for the model.

TABLE 3.9.3/1: MODELLING DEVIATION AT RECEPTOR POINTS

Receptor Point Modelling Deviation Standard Deviation

Receptor Point	Modelling Deviation	Standard Deviation of data (SD)
AURN	1.0364	1.913883
Melton Road	4.6689	
Imperial Ave	1.9082	
Glenhills Way	6.7031	
Abbey Lane	3.3612	
Uppingham Road	2.1988	
St Matthews Way	4.3783	
London Road	1.6176	
Vaughan Way	5.2501	

U = SD/Mean of monitored data

$$U = 5.164815/44.66 = 0.116$$

$$SDM = 0.116 \times 40 = 4.6 \mu\text{g}/\text{m}^3$$

The standard deviation was calculated to be 2.4 $\mu\text{g}/\text{m}^3$ for annual mean NO_2 , and the modelling maps are presented with the increments of +/- 1 SDM's. At stage 3, a conservative approach was taken and the boundary of the AQMA was drawn at the -2 SDM value to ensure that all likely exceedances were included within the AQMA.

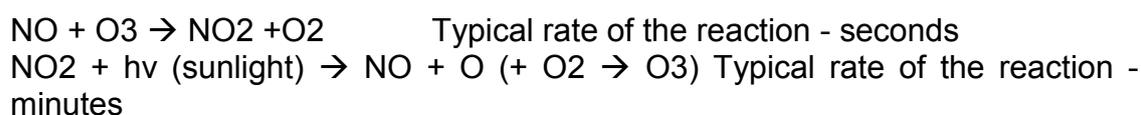
3.9.4 Atmospheric Chemistry of Nitrogen Dioxide

The most important nitrogen oxides that are being monitored are nitrogen monoxide NO and nitrogen dioxide NO_2 . Both together are called NO_x . The nitrogen molecules (N_2) in the air are very stable and it is not easy to oxidise them. This can only happen under extreme conditions. One example is during the combustion of fuel in a car engine. Most anthropogenic NO_x comes from this source. It can also happen during other very hot reactions, e.g. in the hottest parts of biomass burning flames. Across Europe road transport is the largest contributor of NO_2 , accounting for 40% of total European NO_x (EEA 2010). The main reason for the invention of the catalytic converter for cars was, to avoid strong emissions of nitrogen oxides.

We find NO_x (= $\text{NO} + \text{NO}_2$) and other nitrogen oxides nearly everywhere in atmospheric chemistry. During the night, nitrate radicals NO_3 are formed and are the most active oxidants. Radicals are chemical species, which are very instable and usually react extremely fast.

If N_2O_5 is formed in polluted areas, it can react on droplets or wet surfaces with water and nitric acid HNO_3 is formed. HNO_3 contributes to the acid character of the rain. Nitric acid, which can also be formed during the day by oxidation of NO_2 , is the main way how nitrogen oxides are removed again from the atmosphere, either by dry or by wet deposition (wash out by rain).

Nitric acid tryhydrate forms the particles on which the ozone hole developed. Nitrogen oxides as gases are very important for the formation and degradation of tropospheric ozone, because they are involved in catalytic cycles. This is mainly, because NO_2 can be photolysed by the sunlight. It forms NO and this NO is oxidised again to NO_2 . Ozone as well as organic peroxy-radicals (instable oxidised compounds) is involved in this cycle.



3.9.5 Correction for Exposure

Some monitoring sites are at the same distance from the adjacent highway as the nearest sensitive receptor, e.g. houses, and therefore give a good representation of exposure. However, in some cases the distance to nearest sensitive receptor is slightly different, compared to that to the monitoring station. Since compliance with the air quality Limit Value is only relevant where exposure is a factor, it should be borne in mind that an adjustment for distance needs to be made in these cases, in future assessments of whether the Limit Value is likely to have been met.

Evaluating the decay of annual mean levels of nitrogen dioxide with increasing distance from the source is attended with some uncertainty: Conversely, the measured annual mean of hourly values taken at an automatic site with proper maintenance and calibration protocols can be assigned a high degree of accuracy and precision. It should therefore be noted that it has been decided to quote target values derived for the LTP at the relevant automatic monitoring site.

Nonetheless, where receptors do not represent actual exposure (e.g. are closer to the highway than housing), a correction has been estimated to account for the difference in distance from the source road of automatic monitoring site and for the nearest sensitive receptor. Subject to its degree of uncertainty, this can be used to:

- Adjust the targets set for each site for exposure; and
- Correct observed values, when using monitored data to track progress towards the air quality targets, over the lifetime of the LTP.

3.9.6 Modelling Results

Table 3.9.6/1: Summary of Predicted Receptor Point Values, Corrected for Distance
($\mu\text{g.m}^{-3}$, Nitrogen dioxide)

Site	Baseline ($\mu\text{g.m}^{-3}$, Nitrogen dioxide) (2007-09)	Predicted by model at monitoring site, 2016	Distance correction to nearest sensitive receptor (m)	Estimated value at sensitive receptor	Correction to be made to observed value, for distance to sensitive receptor
AURN	28.99	20.6972	-27	19.0983	1.5989
Melton Road	54.08	39.9272	0	39.9272	0
Imperial Ave	34.52	23.9424	0	23.9424	0
Glenhills Way	69.35	41.4428	11	34.8828	6.56
Abbey Lane	47.64	29.6694	0	29.6694	0
Uppingham Road	35.74	27.1271	10	26.7085	0.4186
St Matthews Way	54.32	37.62248	7	35.65144	1.97104
London Road	32.33	22.1589	20	21.4542	0.7047
Vaughan Way	56.96	41.5251	20	32.2122	9.3129

3.9.7 Limitations and Uncertainties of Modelling

Various issues have arisen when carrying out this dispersion model which have raised uncertainties with the reliability of the outputs: These can be summarised as follows:-

a. The Preferred Package

Due to the economic situation and fiscal constraints following the Comprehensive Spending Review in 2010, the funding available for the Preferred Package will be significantly reduced.

b. Traffic Modelling

It has not proved possible to develop and apply the proposed Leicester and Leicestershire Integrated Transport Model in time to use its outputs as inputs for the AIRVIRO model and data from the previous SATURN model have, perforce been utilised. The Emissions Database of the model is not therefore as up-to-date as is desirable to simulate the air quality outcomes of the period up to 2016.

c. Air Quality Trends

As has been discussed in Section 3.4, roadside nitrogen dioxide levels have not fallen as predicted and, in some situations appear to be deteriorating. Work is ongoing to analyse this anomaly but, in the meantime, it raises questions as to whether input data and, in particular vehicle emission factors (See (d) and (e) below) are overly optimistic.

d. Vehicle Emission Factors

The current emission factors for road transport have been revised in June 2010. The new emission factors incorporate the latest test data on vehicles meeting the new vehicle Euro emission standards, the formulae also address published future standards. The emission factors can be found at <http://www.naei.org.uk/index.php> In preparing the formulae, TRL addressed concerns raised in the public consultation.

After extensive scrutiny of the published emission factors it was concluded that there are several issues that concern us.

1. The mileage scaling factors they provided to DfT, which have a large impact on NO_x, PM, HC and CO emissions appear not to recognize the potential for the '...early introduction of EURO classes that was flagged with DfT at the time'. TRL advised that DEFRA commissioned Bureau Veritas to advise on the final form and values of these factors for the EFT. However, there is no clear documentation (that can be found) as to what scaling factors Bureau Veritas eventually recommended to correct the above issue.

2. The EFT includes treatment of cars with failed catalytic converters, and the latest fleet projection documents (Murrells and Li, 2009). However it's not clear from the DfT, TRL or EFT documents as to how these vehicles should be modelled.

3. The EFT includes models for brake and tyre wear contributions to particulate matter – again it's not immediately clear where these models have come from. The QA document from the EFT doesn't seem to mention sources.

4. The EFT document makes basic assumptions on the fleet splits on roads (e.g. the number of motorcycle kms travelled as opposed to cars in the 'light duty' vehicles category) – again it isn't clear where these assumptions are drawn from.

Unfortunately all of the above mean that, the emissions factors underestimate emissions of NO_x and PM. As these are the key pollutants of concern, the discrepancies definitely need to be sorted out.

e. Vehicle NO_x / Primary NO₂ Ratio

Production of NO_x and a vehicle's f-NO₂ is governed by combustion and catalysts used in cars to reduce PM₁₀ emissions. Current technology employed in diesel vehicles leads to greater production of total NO_x and a greater f-NO₂. This leads to a situation where the total amount of NO_x can be regulated but the production of NO or NO₂ (f-NO₂) is not. The after treatment devices for exhaust of some cars cause additional formation of f-NO₂. The situation is going to escalate with more vehicles of this type joining the UK fleet – around 42% of new car sales are predicted to produce more f-NO₂. This in turn will cause a significant rise of f-NO₂. In order to be able to predict air quality issues on roads, the problem with f-NO₂ needs to be addressed. At the moment the on-road f-NO₂ is poorly defined due to the uncertainty of f-NO₂ productions by vehicles and the small number of on the road measurements (Simmons et al 2010).

3.9.8 Discussion and Conclusions for Air Quality Targets

Taking into consideration recent years' monitoring data, we have serious doubts as to the credibility of current dispersion modelling. This question is being addressed by DEFRA and others but it is not considered appropriate to use the model in isolation its current state as a basis for significant administrative decisions, for example Review and Assessment, with consequent implications for the existing AQMA, or for setting formal targets for the third Local Transport Plan.

It was therefore decided to include the model in a review of the outcomes of a range of estimative measures for predicting air quality and this is taken up in Sections 3.11 to 13, below.

3.10 The TRL Study (ADMS Model)

3.10.1 Modelling assessment approach

Atmospheric dispersion modelling was undertaken for the base year 2008 and future year 2013 using the Gaussian-based ADMS-Roads (Extra) software suite (version 2.3), developed by Cambridge Environmental Research

Consultants (CERC)11. This future year was assumed as it is within the time horizon of the Council's LTP3 and the schemes were also considered appropriate to be implemented within 3-4 years.

The ADMS-Roads model uses a number of input parameters to simulate the dispersion of pollutant emissions, predicting pollutant concentrations at specified receptors and across a user-defined area. For the work reported here the key parameters included link based emission rates and local meteorological conditions.

The model domain, considered for this assessment, included the Hinckley Road and Leicester City Centre areas. Pollutant concentrations were modelled at specific receptors along the Hinckley Road (the radial route into the city centre) and at selected receptors within the city centre (see Table 3.12.1 and Figure 3.12.1. Receptors within the city centre were located 100m apart along two transects (north/south and east/west). Two additional receptors were positioned to coincide with current monitoring sites at New Walk and St Mathews Way.

Table 3.10.1: Modelled receptor locations.

Receptor	X	Y	Site information	Within AQMA? (Y/N)
LCC1	454261	303589	Roadside	N
LCC2	454256	303597	Roadside	N
LCC3	454708	303842	Roadside	N
LCC4	454714	303835	Roadside	N
LCC5	455009	303977	Middle of roundabout	Y
LCC6	455371	304041	Roadside	Y
LCC7	455370	304055	Roadside	Y
LCC8	455887	304204	Roadside	Y
LCC9	455892	304197	Roadside	Y
LCC10	456332	304237	Roadside	Y
LCC11	456334	304248	Roadside	Y
LCC12	456912	304235	Roadside	Y
LCC13	456913	304254	Roadside	Y
LCC14	457697	304362	Roadside	Y
LCC15	457701	304383	Roadside	Y
LCC16	458186	304360	Roadside	Y
LCC19	458285	304361	Urban	Y
LCC20	458384	304361	Roadside	Y
LCC21	458484	304360	Urban	Y
LCC22	458584	304361	Urban	Y
LCC23	458685	304361	Roadside	N
LCC24	458785	304361	Roadside	N
LCC25	458886	304360	Urban	N
LCC26	458985	304361	Roadside	N
LCC27	459088	304361	Roadside	N

LCC28	459188	304361	Roadside	N
LCC29	459290	304360	Roadside	Y
LCC30	459390	304363	Roadside	Y
LCC31	458923	305217	Roadside	Y
LCC32	458923	305115	Urban	Y
LCC33	458925	305013	Roadside	Y
LCC34	458923	304914	Roadside	Y
LCC35	458923	304811	Roadside	Y
LCC36	458923	304710	Roadside	Y
LCC37	458928	304607	Urban	Y
LCC38	458922	304507	Urban	Y
LCC39	458924	304403	Urban	N
LCC40	458925	304298	Roadside	N
LCC41	458923	304194	Urban	N
LCC42	458923	304092	Roadside	N
LCC43	458923	303992	Urban	N
LCC44	458923	303887	Roadside	N
LCC45	458923	303787	Roadside	N
LCC46	458924	303687	Roadside	N
LCC47	458924	303585	Urban	N
LCC48	458923	303486	Urban	Y
LCC49	458922	303384	Urban	Y
LCC50	458923	303285	Roadside	Y
New Walk	458762	304065	Roadside	Y
St Matthews	459221	305036	Urban	Y



Figure 3.10.1/1: Modelled receptor locations: Leicester city centre.

The ADMS-Roads model was set up to model emissions from the road source only. The contribution of emissions from roads not modelled and other sources (such as rail and industries) in the local area, as well as regional sources, were accounted for using background files relevant to Leicester, according to the recommended methodology in TG (09) (Defra, 2009).

3.10.2 Detailed methodology

a) Background concentrations

Appropriate background concentrations of NO₂ and PM₁₀ were taken from the UK Air Quality Archive website (Defra, 2009). For PM₁₀ a single average value was applied for the Hinckley Road and City Centre zones in accordance with the grid configuration shown in Figure 3.12.1/1 and for NO₂ each receptor was assigned to a specific grid square with the appropriate background value.

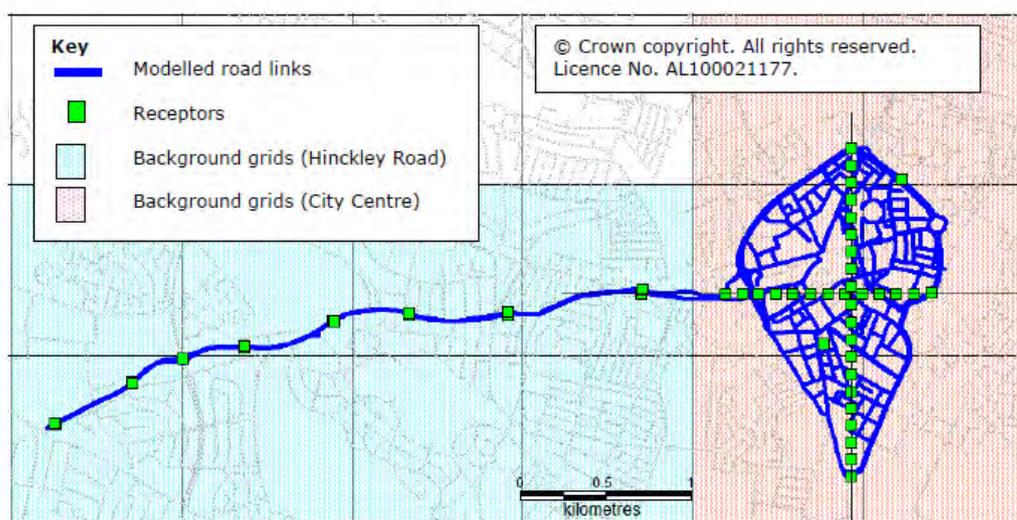


Figure 3.10.2/1: Assessment area: modelled road links, receptor locations and background grids.

b) Traffic activity

Annual average daily traffic (AADT) flows and vehicle speeds (km/h) for year 2004 were obtained from Leicester City Council emissions database (EDB) (LCC, 2009). The road type was determined from the EDB and used to identify a coarse fleet composition for each of the modelled road links in 2004. Traffic flows for each road type were forecast to 2008 and 2013 using factors obtained from the Automated Traffic Growth Calculator spreadsheet¹² and assuming the same fleet composition as in 2004. The Automated Traffic Growth Calculator spreadsheet allows growth factors for each vehicle type, or for all

vehicles, to be determined based on a geographical area or road type. In this case the area selected was the East Midlands and the area type selected was „large urban“. Summarised traffic data are provided in Appendix E.

c) TEEM emission factor database

TEEM currently only includes a calculation method for hot exhaust emissions of certain regulated pollutants. Unregulated pollutants, cold-start emissions, evaporative emissions of VOCs and non-exhaust PM are not yet incorporated. The actual emission model in TEEM is currently a combination of emission factors and algorithms from different sources, but is presented within a common framework. The actual sources of the emission factors used are shown in Table 3.12.2/1. These are the most recent emissions factors available for assessment in the UK and identical to those available from the Department for Transport.

Table 3.10.2/1 Sources of hot exhaust emission factors for CO, NO_x, PM and CO₂.

Vehicle Category		DATA SOURCE	REFERENCE
Level 1	Level 2		
LDVs	Cars	NAEI14 for pre-Euro 1, COPERT IV15 for Euro 1 and later	http://lat.eng.auth.gr/copert/
	Taxis	Assumed equal to diesel cars > 2.0	http://lat.eng.auth.gr/copert/
	LGVs	NAEI	http://lat.eng.auth.gr/copert/
HDVs	Rigid HGVs	COPERT IV functions for level gradient and 50% load	http://lat.eng.auth.gr/copert/
	Artic. HGVs		http://lat.eng.auth.gr/copert/
	Buses		http://lat.eng.auth.gr/copert/
	Coaches		http://lat.eng.auth.gr/copert/
2-wheel vehicles	Mopeds	ARTEMIS	http://lat.eng.auth.gr/copert/
	Motorcycle	ARTEMIS	Elst et al. (2006)

The model uses „average-speed“ functions, based upon the principle that the average emission factor for a certain pollutant and a given type of vehicle varies according to the average speed during a trip. The emission factors are stated in grammes per vehicle-kilometre (g vehicle⁻¹ km⁻¹).

d) Road vehicle fleet

For emission inventories and air pollution models traffic data are required for a large number of vehicle categories in order to reflect variation in emission behaviour. The hierarchical fleet structure employed in TEEM is illustrated in Figure 5.4. In this Figure, each stage in the sub-division of the traffic is termed a „Level“. There are six levels in total, but not all the details are included below Level 3 in the Figure.

In order to estimate emissions from traffic, the proportion of each vehicle category in the traffic (*i.e.* at Level 6) needs to be defined.

Vehicle categories can also be considered as „coarse“ and detailed. The coarse vehicle categories (Levels 0-2) are:

- Cars
- Taxis
- LGV's
- Rigid HGV's
- Articulated HGV's
- Buses
- Coaches
- Mopeds
- Motorcycles
- Other light-duty vehicles (This is an open category which is included to allow the user to define vehicles which are otherwise not covered in the fleet structure)

For these vehicle categories it is usually possible to obtain a correspondence with data from traffic surveys, although the vehicle categories might be defined differently in the traffic data and separate information for, say, cars/taxis or mopeds/motorcycles might not always be available. The coarse vehicle details for Leicester (levels 1 and 2) were obtained from the Leicester EDB 2004.

For each of the coarse categories a further sub-division into „detailed“ categories (Levels 3-6) is required. The detailed categories take account of factors such as fuel type (e.g. petrol, diesel and alternatives such as liquefied petroleum gas (LPG)), engine size or weight, and compliance with emission control legislation. Information on these detailed categories is not routinely collected at the road link level, and therefore a fleet model is usually required, based on national or regional statistics. Given that the proportions of vehicles in the detailed categories vary from year to year (e.g. due to the introduction of new emission standards), a separate fleet model is required for each modelled year.

By default TEEM includes a fleet model for the year 2007. The fleet data are taken primarily from the fleet model used in the UK NAEI and Dore et al. (2008). For the work reported here, the existing fleet model was adjusted at levels 1, 2 and 6 to account for changes in the coarse vehicle composition and Euro standards applicable for year 2013.

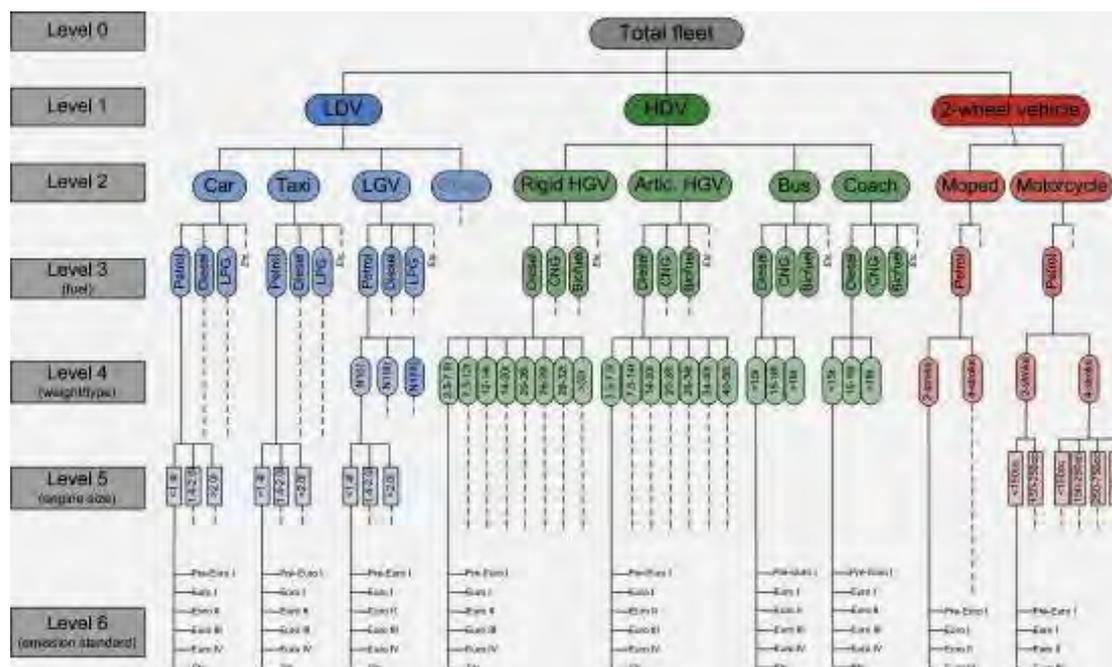


Figure 3.10.2/2 Hierarchical fleet structure for road vehicles.

e) Road geometry

The geometry of each road was determined using GIS mapping data. Road width is defined by the kerb-to-kerb measurement (km). The height of surrounding buildings is accounted for in the model wherever a „street canyon“ effect is observed. For atmospheric dispersion modelling assessments, a street canyon is defined by the building heights being greater than the building-to-building road width (aspect ratio greater than 1.0). Street canyons can have a significant impact on local dispersion processes with vortex air flows established through wind shear across the roof of the canyon. This movement of air within the canyon can influence ground level concentrations, with elevated concentrations typically forming at the bottom of the leeward side of the canyon. No roads in this assessment were assumed to exhibit street canyon effects.

f) Atmospheric chemistry

The concentration of NO₂ at a specific location is determined by a combination of emissions, meteorology and atmospheric chemistry. Some NO₂ is emitted directly from vehicle exhaust (this is known as primary NO₂), mainly from diesel vehicles. Emissions of NO_x from vehicles are primarily in the form of nitrogen oxide (NO) (AQEG, 2007). Nitric oxide (NO) undergoes a chemical reaction with oxidants such as ozone (O₃) to produce secondary NO₂. At a roadside location, there is routinely an excess of NO, and thus the limit to the formation of NO₂ is usually determined by the availability of O₃. Therefore, at

heavily trafficked roadside locations, there is not a linear relationship between changes in NOX emissions and NO2 concentrations.

Nitrogen dioxide concentrations were derived from the NOX concentrations that were estimated by the ADMS-Roads model. To do this, Defra's NOx – NO2 calculator¹⁷ available on the LAQM tools section of the UK Air Quality Archive website was used, specifying the correct year and the Leicestershire area. This is the recommended method as outlined in LAQM.TG(09), Defra, 2009. A primary NO2 fraction applicable for all UK traffic was assumed in this assessment.

f) Meteorological data

The ADMS-Roads model applies hourly sequential meteorological data to calculate atmospheric dispersion. This calculation involves a number of meteorological parameters including wind speed and direction, cloud cover and near surface temperature (the latter two parameters being important for the calculation of atmospheric buoyancy). Meteorological data Birmingham Airport has been used in this assessment. A wind rose obtained from data collected during 2008 at Birmingham Airport is illustrated in Figure 3.12.2/3. The dominant wind speed is from the south west, with maximum speeds of 8-9 ms⁻¹.

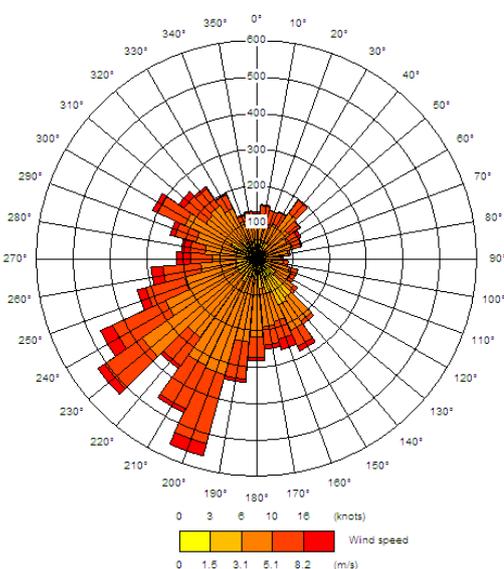


Figure 3.10.2/3 Wind rose based on 2008 data from Birmingham Airport meteorological station.

g) Surface roughness

The interaction of wind flow with the ground generates turbulence, influencing pollutant dispersion. The strength of this turbulence is dependent on the land use, with urban areas generating higher turbulence than open countryside. The ADMS-Roads user guide indicates that a surface roughness length of 1 m is suitable for cities and woodland and 0.5 m is suitable for parkland and open suburbia. This study used a surface roughness of 0.5 m for the modelling domain.

The ADMS-Roads model allows the user to specify the surface roughness length of the site where meteorological data has been recorded (used when the surface roughness length at the meteorological site differs from that at the area under assessment). In this way, the ADMS-Roads model modifies the meteorological data to accommodate differences in surface roughness between the modelling domain and the geographical area from which meteorological measurements are obtained. The surface roughness length at the meteorological site used in this study was assumed to be 0.2 metres.

3.10.3 Scenario 1: Hinckley Road Freight Expressway

As described in Section 5.2, the One Leicester Co2nnect Strategy 1 considers a freight consolidation centre located in the vicinity of Sunningdale Industrial Park to the west of the City and a freight expressway (*i.e.* a no car lane) on the Hinckley Road connected to the city centre environmental zone. The effect of this strategy on emissions and air quality concentrations was modelled and this section describes this scenario in more detail.

The theory behind the Hinckley Road freight expressway is to provide a means for goods vehicles to operate on a priority basis into the city centre (*i.e.* unimpeded by other modes). In practice this would involve lane segregation of the existing available road space, inevitably leading to increases in journey times. A consequence of this measure may well lead to traffic being displaced along alternative routes. However, evidence of displacement would typically require the running of traffic models. For this assessment the potential impact to the wider road network is not considered but recommended to be taken forward.

The expressway is assumed to operate in the inbound direction only as it is more important for retailers that goods are provided at prescribed times, which means that the return journey is not as critical. It was originally intended to include the IRR as part of the expressway but after further consideration of the emissions modelling it was concluded that more information about the traffic activity on adjoining radials would be required to investigate this scenario. Again, it would be recommended to consider these implications if taken forward. The modelled scenario therefore considers the emission impacts on the Hinckley Road only and once on the IRR freight access to the city centre is

via High Street or freight vehicles can choose to rejoin the IRR entering the city centre at an alternative location.

In terms of the emissions modelling the Hinckley Road was divided into 92 links (30 in-bound, 32 out-bound and 30 on the expressway). Spatially, the expressway links are duplications of the in-bound links. Hence, in terms of air quality modelling, emissions from both sets of emission source activity are assumed to be dispersed from the same location in the road. Were this to be taken forward, delineation of source activity would be tested. For this assessment the impact of not segregating source activity is assumed to be negligible and perhaps more important for those receptors close to the air quality objective exceedance values.

The traffic flow (AADT) on Hinckley Road for the scenario in 2013 was assumed to be identical to that of the base case in the same year. The speed of vehicles on the non-expressway was as per the base case, whilst for the expressway, traffic was assumed to be travelling at an average speed of 40 km/h.

The baseline coarse vehicle fleet composition for Hinckley Road was extracted from the 2004 LCC EDB (*i.e.* the Hinckley radial profile) (see Section 5.3.3.1). This baseline was applied in years 2008 and assumed for 2013. The composition for the existing traffic and the expressway was developed from the baseline to account for scenario assumptions and is shown in Table 3.12.2/2.

Table 3.10.3/1 Coarse fleet composition.

		Fleet Composition								
		% Light Duty Vehicles	% Heavy Duty Vehicles	Light Duty Vehicles		Heavy Duty Vehicles				
				Cars		Light Goods Vehicles (LGVs)				
				% Petrol	% Petrol	% Buses	% Right Heavy Goods Vehicles			
Baseline: Hinckley Road Traffic 2008/2013		97	3	90 % Cars	10% LGVs	33	34	33		
				87	15					
				13	85					
Scenario: Non-expressway lane traffic 2013		100	0	90 % Cars	10% LGVs	0		0		
				87	15	0				
				13	85	0				
Scenario: Expressway		20	80	0% Cars	100 % LGVs					

lane Traffic 2013			0 0	5 95	33 0	67
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The expressway scenario assumes that the consolidation centre will operate rigid vehicles that are less than 7.5 tonnes in weight as well as LGVs (*i.e.* vans between 2 and 3.5 tonnes). The Euro emissions standards thought appropriate for these vehicles on the expressway are shown in Table 5-5 (including buses), and for non-expressway traffic (*i.e.* the inbound lane for those vehicles other than HDVs) in Table 3.12.2/3.

Table 3.10.3/2: Euro standards of vehicles operating on the expressway in 2013.

	LGVs >2 <3.5 tonnes	Rigid HGVs <7.5 tonnes	All Buses
.....			
(%)			
Pre Euro	0	0	0
Euro I	0	0	0
Euro II	0	0	0
Euro III	0	0	0
Euro IV	4	4	0
Euro V	90	90	94
Euro VI	6	6	6

Table 3.12.3/3: Euro standards of vehicles operating on the non-expressway in 2013.

	Cars		LGVs >2 <3.5 tonnes	
.....				
%				
	Petrol	Diesel	Diesel	Petrol
Pre Euro	0	0	0	0
Euro I	1	0	0	1
Euro II	5	2	3	5
Euro III	10	15	18	18
Euro IV	46	38	48	45
Euro V	38	45	31	31
Euro VI	0	0	0	0

The emissions standards of vehicles allowed to operate on the expressway would be periodically reviewed according to the latest technologies on engines, fuels and exhaust after-treatment devices. For the scenario it was considered reasonable that in 2013, Euro V vehicles would be relatively abundant. Finally, non consolidation centre vans would be assumed to operate within the non-expressway lane.

3.10.4 Scenario 2: Leicester City Centre Environmental Zone

The strategy for a city centre environmental zone (EZ) was developed into a scenario to include roads within the IRR (see Figure 5.6). The concept initially involves controlling goods vehicles entering the zone at various locations (control points) either by using physical barriers or cameras that can record number plates. Both need enforcement mechanisms, however the former would rely on non-removable transponders which when fitted to vehicles would control the barrier and access to the zone. This information would give details of vehicle Euro emissions standards to allow or prevent access or access could be linked to CO2 emissions.

Message boards prior to approaching barriers could inform drivers as to the status of their vehicle with reference to the access criteria (*i.e.* allowing the option to avoid accessing the zone). Clearly, drivers would need to be made aware as soon as possible perhaps via message boards on all radials. There would also need to be a mechanism to allow temporary access for non local vehicles and dispensation for non compliant vehicles that happen to reside within the zone. Camera enforcement would involve issuing fines to non-compliant vehicles via number plate recognition system similar to the system operated for the London Low Emission Zone. Similar to access controls, dispensation rules would need to be developed for businesses operating from within the zone.

In total, 223 roads were assumed to be included within the zone shown in

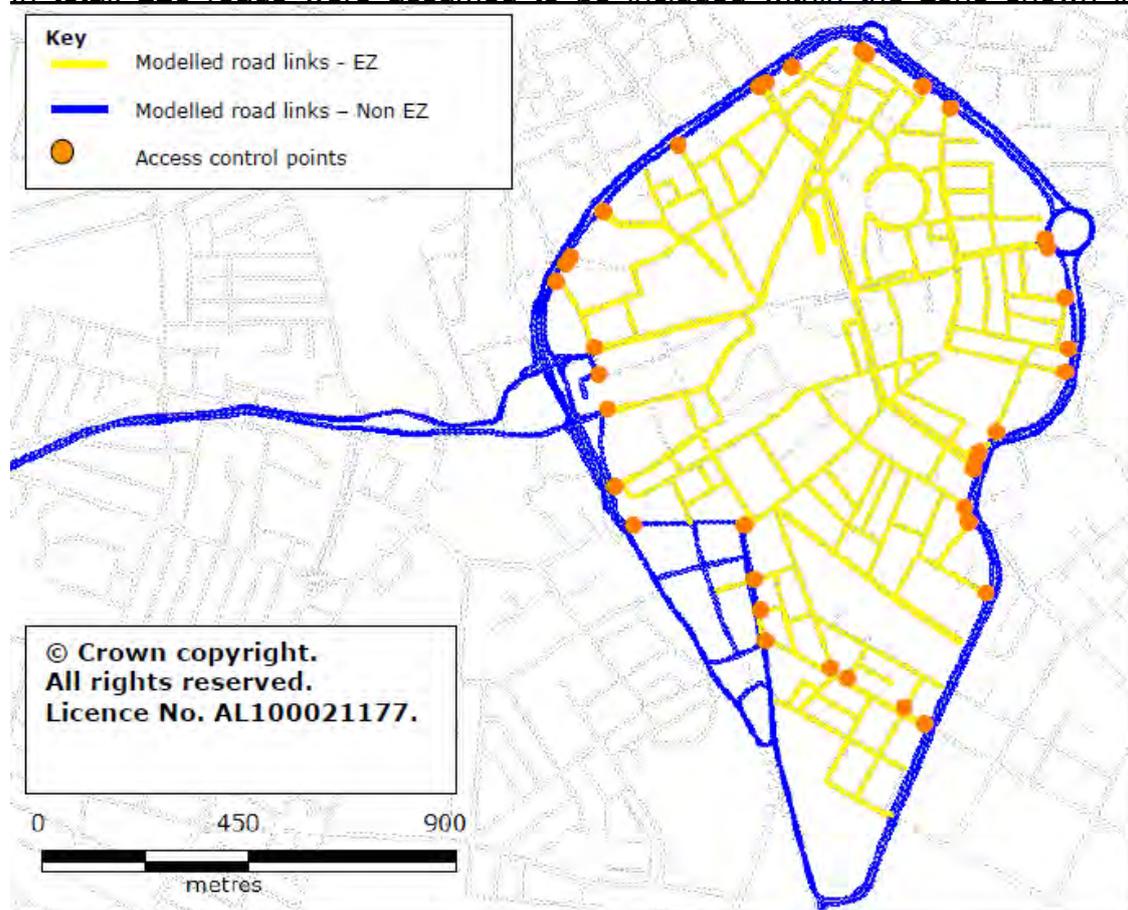


Figure 3.10.4: Proposed Leicester City environmental zone.

The modelling assessment involved testing two scenarios:

1. The impact within the zone in year 2013 with 2013 forecast traffic flows and speeds. This scenario was designed to test the direct effects of the emission based entry criteria compared to do-nothing.
2. The impact in year 2013 with an additional 15% reduction in traffic flows and no change in speed. This scenario considers a change in driving behaviour and perhaps some element of drivers switching to public transport.

All roads within the zone were characterised by a particular road type as defined by the Leicester EDB. In this way a generic coarse fleet composition was applied in a similar way to Hinckley Road. The following road types were considered:

- I/B - O/B Radial low HGV
- O/B Radial high HGV
- Local roads (2 Peaks)
- Local roads O/B
- Ring road low HGV (i.e. some links within the IRR had similar profiles to the IRR)
- Bus
- Cars Only AM/PM Peak
- Bus/Taxi

The following vehicle types would initially have entry criteria applied:

- LGVs (petrol and diesel)
- Rigid HGVs
- Articulated HGVs
- Buses

The 2013 base case and EZ emissions entry criteria are presented in Table 5-7. Access would be allowed for vehicles meeting Euro V emissions standards in 2013. The overall profile represents the fact that some vehicles will inevitably meet Euro VI standards whilst some may choose to pay a fine (i.e. in the case of camera enforcement) and some will have poorly maintained engines and no longer meet their original type approved emissions standard.

Table 3.10.3/4

	LGVs >2 <3.5 tonnes		Rigid HGVs		Artic HGVs		All Busses	
	2013 (base)	2013 (EZ)	2013 (base)	2013 (EZ)	2013 (base)	2013 (EZ)	2013 (base)	2013 (EZ)
	(%)							
Pre Euro	0	0	0	0	0	0	0	0

Euro I	0	0	0	0	0	0	1	0
Euro II	3	0	4	0	2	0	7	1
Euro III	18	2	22	3	19	3	25	2
Euro IV	47	3	16	2	16	2	17	2
Euro V	31	95	53	89	56	89	45	90
Euro VI	0	0	6	6	6	6	5	5

Depending on the success or otherwise, the EZ criteria could be strengthened to include passenger cars and or perhaps motorcycles. The potential impact of strengthening the criteria would require further investigation and has not therefore been included in this report.

3.10.5 Predicted Air Quality Levels

It should be noted that the receptors in this study were selected to indicate the general impact of the proposals contained in the study. They are not therefore located specifically at receptor points selected for Review and Assessment and Transport Planning purposes, i. e. at co-ordinates corresponding to automatic nitrogen dioxide monitoring sites for calibration purposes (See Sections 3.8 and 3.9). The exceptions are sites at New Walk Centre (AURN site) and St. Matthews Way.

Nonetheless, for each receptor, the percentage change above a known baseline is given.

The evaluation of options in Section 2 of this Air Quality Action Plan makes it clear that the conditions are not in place to implement the more radical options identified and evaluated in the TRL Report within the lifetime of the implementation programme of the third Local Transport Plan (Part B). However, the full dataset is given for the sake of completeness in Table 3.10.5, below.

It can be seen from the data that implementation of the proposals would, given the accuracy of the modelling carried out, result in significant percentage reductions in annual mean values for nitrogen dioxide, and widespread compliance with the annual mean criterion, compared to the current situation. The study therefore gives an indication of what is possible in improving air quality given the feasibility of a package of more radical measures in the future.

Some key observations from the data are set out below:

2008 baseline: All roads

- St Mathews Way monitoring site is showing an exceedance of the NO₂ annual mean (47.2 µgm⁻³). This predicted concentration is

slightly lower than the 2008 annual mean from the air quality monitoring analyser of $52 \mu\text{g m}^{-3}$.

- Some of the receptors are showing high NO_2 concentrations because they are positioned for reference purposes in the centre of roads (e.g. LCC16, LCC20) or within gyratory systems (e.g. LCC 19)
- The highest modelled NO_2 annual mean result was $62 \mu\text{g m}^{-3}$ at receptor LCC3, just north of Burleys Flyover.
- The NO_2 annual mean concentration at New Walk monitoring site (Leicester Centre) was $38.5 \mu\text{g m}^{-3}$ (see **Error! Reference source not found.**).

2013 baseline: All roads

- The majority of receptors now meet the annual mean AQS objective for NO_2

2013 scenario with 2008 traffic base: Effects of the fleet only.

- Similarly to the 2013 baseline, exceedances of the NO_2 annual mean are still likely at 5 receptors although only two, LCC15 (Hinckley Road) and LCC35 (Charles Street) may be relevant receptors.
- The predicted NO_2 annual mean concentration at the St Mathews Way monitoring site was $35.4 \mu\text{g m}^{-3}$, which is below the objective
- No change in annual mean NO_2 was predicted at the New Walk monitoring site from 2008.

2013 base with forecast traffic: Effects of the fleet and traffic activity

- Only three exceedances of the NO_2 annual mean were recorded of which one, LCC35 may be relevant.

2013 with EZ and forecast traffic: Effects of the fleet, traffic and entry criteria.

- No changes in concentrations were found at the majority of receptors located outside of the EZ, except for some small reductions in annual mean NO_2 at receptors on the boundary of the zone or located just outside.
- Within the EZ, the percentage reduction in annual mean NO_2 at receptors owing to vehicles complying to the entry criteria ranged from between 0.2% to 12.3%. The maximum reduction was seen at receptor LC35 (Charles Street), where concentrations were predicted to meet the objective, compared to the 2013 baseline. Generally, the impact owing to the proposed entry criteria was negligible although there are a range of criterion that might be considered.

2013 with EZ and forecast traffic reduced by 15%: Effects of the fleet, reduction traffic and entry criteria.

- As expected this scenario resulted in the lowest NO_2 annual means at receptors within the EZ. The range of the reduction at receptors being between 0.02% and 15.7%.

2013 expressway with forecast flows: Effects attributable to the expressway only.

- No exceedances of the NO₂ annual mean were recorded for receptors LCC1 to LCC19 (on the expressway). NO₂ annual mean reduced at receptors by between 2.3% and 16.3% of the expressway over and above 2013 forecast traffic flows.

Overall, it would appear that the NO₂ annual mean concentrations at most receptors in the 2013 base situation with 2013 traffic flows either meet or are very close to meeting the objective. However these results are purely indicative at selected receptors and would be subject to greater scrutiny if a more detailed assessment was required. The council is therefore still advised to take actions to reduce emissions and consider these types of scenarios in their action plan.

In conclusion, the TRL study is of great interest in terms of what interventions might be adopted in the longer term, in order to improve Leicester's air quality. However options appraisal (see Section 2) indicates that such radical measures and their predicted beneficial air quality outcomes, while remaining open as strategic possibilities for the future, are not feasible within the time frame up to 2016.

In addition, as with the AIRVIRO model (Section 3.9) consideration of the behaviour of emissions as measured in the real world suggests that the ADMS model might be subject to some of the same inaccuracies discussed in Sections 3.9.7 – 8).

Therefore, this modelling will not be used in isolation to set targets for LTP-3 although its predictions are included in Section 3.13, where a composite assessment of impacts is discussed.

Table 3.10.5 Predicted Reductions in Nitrogen dioxide values

Receptor ID	Total NO ₂ (µg/m ³)						% reduction*					
	2008	2013	2013 with forecast traffic	2013 EZ with forecast traffic	2013 EZ with 15% traffic reduction	2013 Expressway	2008-2013 base	2008-2013 with forecast flows	2013 with forecast flows-2013 EZ	2013 with forecast flows-2013 EZ with 15% traffic reduction	2013 with forecast flows-2013 Expressway	
LCC1	34.70	23.17	23.56	23.55	23.55	22.54	-33.2	-32.1	0.0	0.0	-4.3	
LCC2	37.96	24.72	25.23	25.22	25.22	23.04	-34.9	-33.5	0.0	0.0	-8.7	
LCC3	35.35	23.65	24.08	24.08	24.07	22.08	-33.1	-31.9	0.0	0.0	-8.3	
LCC4	35.34	23.60	24.02	24.02	24.02	22.80	-33.2	-32.0	0.0	0.0	-5.1	
LCC5	28.16	20.48	20.69	20.68	20.68	20.22	-27.3	-26.5	0.0	0.0	-2.3	
LCC6	33.03	22.32	22.70	22.70	22.69	21.83	-32.4	-31.3	0.0	0.0	-3.8	
LCC7	34.95	23.23	23.68	23.68	23.68	21.56	-33.5	-32.2	0.0	0.0	-9.0	
LCC8	35.66	23.40	23.86	23.86	23.86	21.89	-34.4	-33.1	0.0	0.0	-8.3	
LCC9	35.00	23.14	23.58	23.58	23.57	22.51	-33.9	-32.6	0.0	0.0	-4.5	
LCC10	31.85	22.85	23.10	23.10	23.10	22.50	-28.3	-27.5	0.0	0.0	-2.6	
LCC11	34.97	24.2	24.62	24.62	24.62	23.07	-30.7	-29.6	0.0	0.0	-6.3	

Receptor ID	Total NO ₂ (µg/m ³)						% reduction*				
	2008	2013	2013 with forecast traffic	2013 EZ with forecast traffic	2013 EZ with 15% traffic reduction	2013 Express way	2008-2013 base	2008-2013 with forecast flows	2013 with forecast flows-2013 EZ	2013 with forecast flows-2013 EZ with 15% traffic reduction	2013 with forecast flows-2013 Expressway
		5									
LCC12	30.63	22.39	22.56	22.56	22.55	22.14	-26.9	-26.3	0.0	0.0	-1.9
LCC13	31.95	23.05	23.27	23.27	23.27	21.90	-27.9	-27.2	0.0	0.0	-5.9
LCC14	42.12	39.10	32.35	32.34	32.33	31.24	-7.2	-23.2	0.0	-0.1	-3.4
LCC15	45.62	42.88	34.48	34.47	34.46	30.06	-6.0	-24.4	0.0	-0.1	-12.8
LCC16	57.63	52.63	41.95	41.93	41.87	35.11	-8.7	-27.2	0.0	-0.2	-16.3
LCC19	40.56	32.43	31.94	31.90	31.78	31.87	-20.0	-21.3	-0.1	-0.5	-0.2
LCC20	52.62	38.49	38.83	38.75	38.56	38.90	-26.9	-26.2	-0.2	-0.7	0.2
LCC21	38.60	31.49	31.27	31.03	30.71	31.42	-18.4	-19.0	-0.8	-1.8	0.5
LCC22	36.61	30.65	30.34	30.06	29.73	30.49	-16.3	-17.1	-0.9	-2.0	0.5
LCC23	35.62	30.17	29.83	29.56	29.29	29.95	-15.3	-16.3	-0.9	-1.8	0.4
LCC24	37.39	31.0	30.85	30.13	29.79	30.94	-16.9	-17.5	-2.3	-3.4	0.3

Receptor ID	Total NO ₂ (µg/m ³)						% reduction*				
	2008	2013	2013 with forecast traffic	2013 EZ with forecast traffic	2013 EZ with 15% traffic reduction	2013 Express way	2008-2013 base	2008-2013 with forecast flows	2013 with forecast flows-2013 EZ	2013 with forecast flows-2013 EZ with 15% traffic reduction	2013 with forecast flows-2013 Expressway
		8									
LCC25	34.79	29.62	29.32	29.08	28.90	29.38	-14.9	-15.7	-0.8	-1.4	0.2
LCC26	35.76	29.90	29.67	29.31	29.12	29.72	-16.4	-17.0	-1.2	-1.9	0.2
LCC40	35.75	30.02	29.70	29.37	29.18	29.75	-16.0	-16.9	-1.1	-1.8	0.2
LCC39	35.09	29.67	29.43	29.13	28.95	29.49	-15.4	-16.1	-1.0	-1.6	0.2
LCC38	36.03	30.07	29.94	29.42	29.18	30.01	-16.5	-16.9	-1.7	-2.5	0.2
LCC37	38.71	31.46	31.50	30.36	29.97	31.57	-18.7	-18.6	-3.6	-4.9	0.2
LCC36	45.84	35.60	36.01	33.29	32.50	36.06	-22.3	-21.4	-7.6	-9.7	0.1
LCC35	57.74	43.57	44.54	39.06	37.54	44.58	-24.5	-22.9	-12.3	-15.7	0.1
LCC34	40.11	31.83	32.01	30.86	30.46	32.04	-20.6	-20.2	-3.6	-4.8	0.1
LCC33	41.76	32.85	33.04	32.18	31.80	33.07	-21.3	-20.9	-2.6	-3.8	0.1
LCC32	39.86	32.0	32.22	31.85	31.68	32.24	-19.5	-19.2	-1.1	-1.7	0.1

Receptor ID	Total NO ₂ (µg/m ³)						% reduction*				
	2008	2013	2013 with forecast traffic	2013 EZ with forecast traffic	2013 EZ with 15% traffic reduction	2013 Express way	2008-2013 base	2008-2013 with forecast flows	2013 with forecast flows-2013 EZ	2013 with forecast flows-2013 EZ with 15% traffic reduction	2013 with forecast flows-2013 Expressway
		7									
LCC31	62.00	44.00	45.01	44.87	44.80	45.02	-29.0	-27.4	-0.3	-0.5	0.0
St Matthews	47.20	35.42	35.89	35.66	35.57	35.90	-25.0	-24.0	-0.6	-0.9	0.0
LCC27	40.26	31.88	31.82	31.08	30.72	31.85	-20.8	-21.0	-2.3	-3.5	0.1
LCC28	37.60	31.04	30.93	30.41	30.20	30.95	-17.4	-17.7	-1.7	-2.4	0.1
LCC29	38.87	31.56	31.52	31.25	31.14	31.53	-18.8	-18.9	-0.9	-1.2	0.0
LCC30	57.01	40.79	41.49	41.39	41.33	41.50	-28.5	-27.2	-0.2	-0.4	0.0
LCC41	34.88	29.92	29.41	29.18	29.04	29.45	-14.2	-15.7	-0.8	-1.3	0.1
LCC42	35.39	30.36	29.73	29.42	29.27	29.77	-14.2	-16.0	-1.0	-1.5	0.1
LCC43	31.88	27.58	26.86	26.68	26.59	26.89	-13.5	-15.7	-0.7	-1.0	0.1
LCC44	32.06	27.51	26.89	26.69	26.59	26.92	-14.2	-16.1	-0.7	-1.1	0.1
LCC45	34.21	28.1	27.72	27.29	27.09	27.74	-17.8	-19.0	-1.6	-2.3	0.1

Receptor ID	Total NO ₂ (µg/m ³)						% reduction*				
	2008	2013	2013 with forecast traffic	2013 EZ with forecast traffic	2013 EZ with 15% traffic reduction	2013 Express way	2008-2013 base	2008-2013 with forecast flows	2013 with forecast flows-2013 EZ	2013 with forecast flows-2013 EZ with 15% traffic reduction	2013 with forecast flows-2013 Expressway
		1									
LCC46	32.42	27.41	27.05	26.72	26.59	27.05	-15.5	-16.6	-1.2	-1.7	0.0
LCC47	30.90	26.70	26.25	26.16	26.11	26.26	-13.6	-15.0	-0.3	-0.5	0.0
LCC48	30.56	26.65	26.08	26.04	26.01	26.08	-12.8	-14.7	-0.2	-0.3	0.0
LCC49	30.94	27.29	26.30	26.28	26.26	26.30	-11.8	-15.0	-0.1	-0.2	0.0
LCC50	32.01	29.29	27.11	27.09	27.08	27.11	-8.5	-15.3	-0.1	-0.1	0.0
New Walk	38.48	38.92	33.62	33.48	33.37	33.68	1.1	-12.6	-0.4	-0.7	0.2

3.11 Extrapolation of Monitored Data

As a cross check on the dispersion modelling outputs, various methods were used to attempt to extrapolate measured, ratified annual mean nitrogen dioxide values for the year 2009, for the four key target receptor points:

This is set out in Table 3.13, and is further discussed in Section 3.13.

Using the revised 'Box 2.1' from DEFRA Technical Guidance LAQM.TG (09).

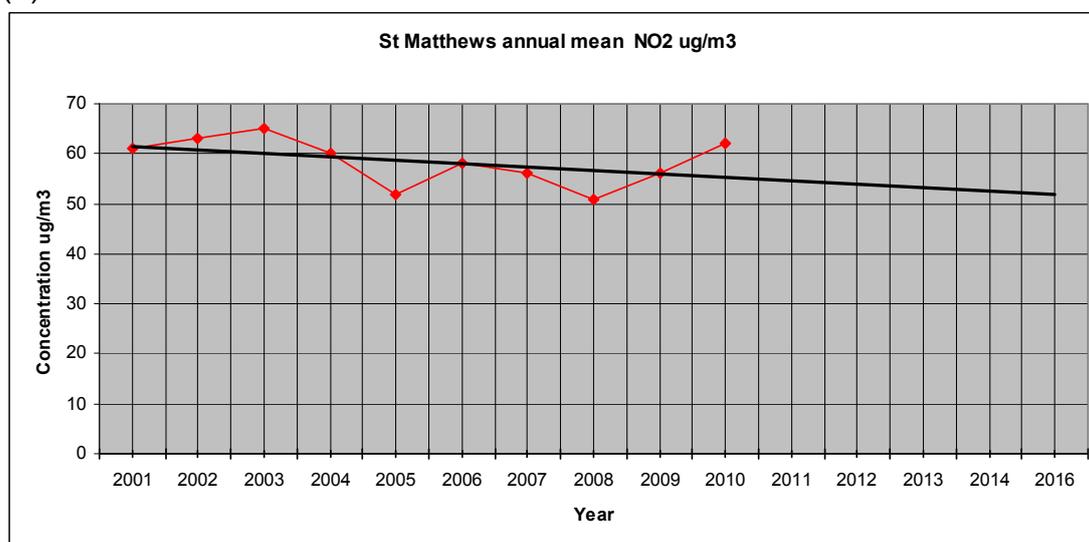
Each relevant annual mean monitored value for nitrogen dioxide for 2009 was multiplied by a correction factor of 0.61 (0.557/0.916), to give an estimated value for 2016.

Extrapolating existing annual mean datasets to 2016 using a 'line of best fit'

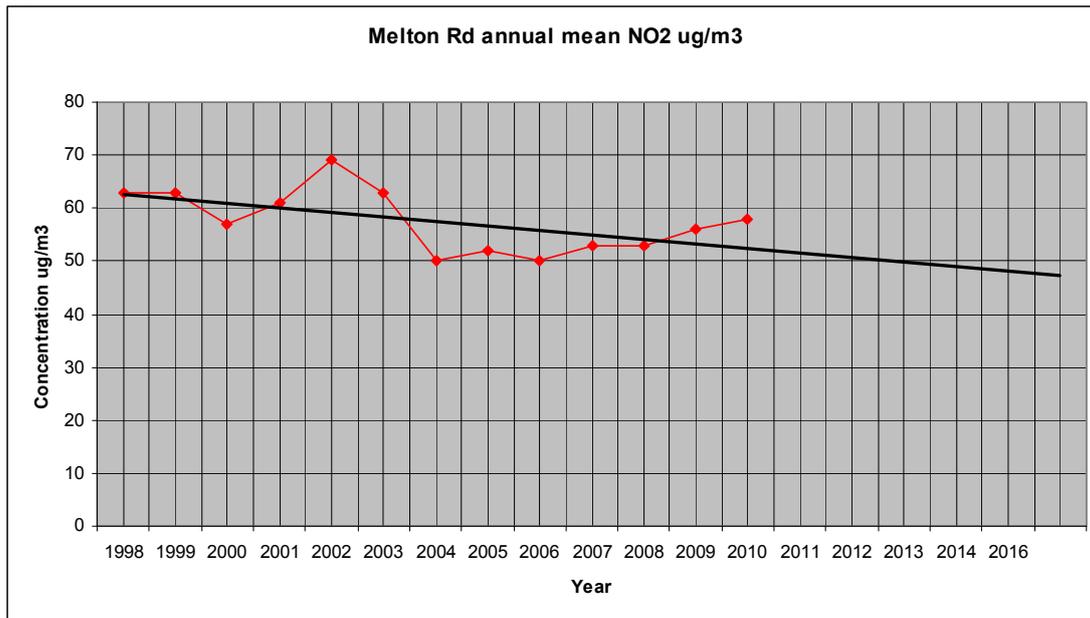
The following charts show this trend estimate (Fig 3.11 (b)): It will be noted that all sites show a distinct upturn since the middle of the last decade and that this is sufficient for the lines of best fit for Glenhills Way and Abbey Lane to actually show an upward trend.

Fig. 3.11 (b)

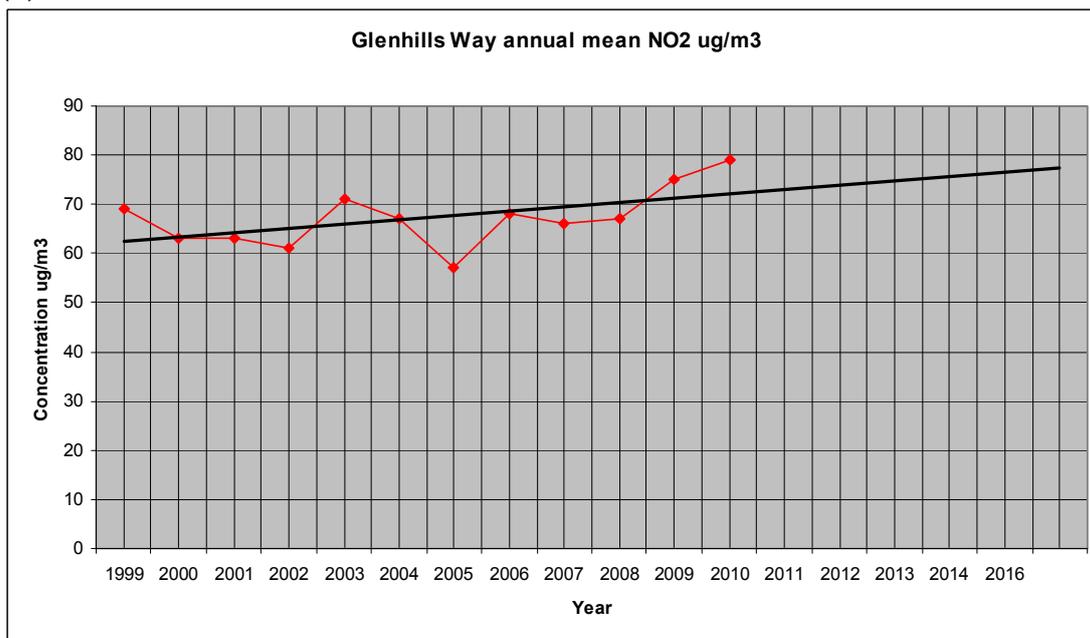
(a)



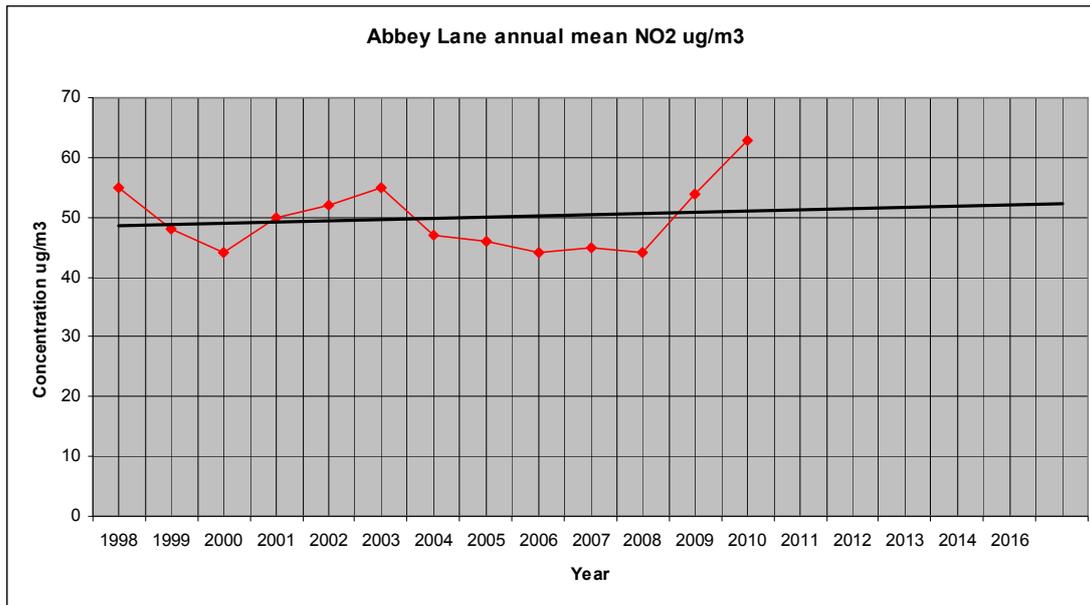
(b)



(c)



(d)



Estimating the impact of changes during the LTP period using the 2009 annual mean data as a baseline.

Examination of trend data for annual mean nitrogen dioxide set out in Section 3.4 appears to justify a conservative approach to “guestimating” impacts for the Preferred Package of the LTP.

Clearly, the rollout of the LTP will produce different effects in different parts of the network and therefore at different receptor points. A baseline was established by taking the average annual mean value for nitrogen dioxide for the three years 2007-9 at each receptor / monitoring site. This smoothed out yearly fluctuations due to the weather and other extraneous factors. This was then corrected by deducting an estimated reduction for each site by 2016.

Estimates of the expected reduction in annual mean values at the various Leicester receptor sites, corresponding to automatic monitoring stations were based on scenario modelling previously carried out. In particular it should be noted that predictive modelling studies for previous park and ride schemes (See *Leicester Air Quality Review and Assessment Report 2003*, Section 3.2.2) yielded reductions of at most 1-2 μgm^{-3} on the affected corridors.

It is acknowledged that some factors are likely to offset any improvement: Growth in vehicle population, additional attractors from development in the City centre and, possibly, an inability to mitigate fully the effects of increased congestion.

It should be noted that, where a façade correction is required, a further adjustment needs to be added or deducted. Due to the existing uncertainties of this approach, this was disregarded in arriving at these estimates.

The following factors were considered:-

(a) 'Hard' measures rolled out under LTP-3

It should be noted that estimating the impact of a constrained range of options is problematic: Table 3.5/1 shows that, not only were modelled projections of the air quality impact of LTP-2 not met, annual mean values actually changed very little compared to the 2003 – 5 averaged baseline, and even possibly deteriorated in certain cases. For example, at the Abbey Lane receptor, the baseline was 49 microgrammes per cubic metre, the predicted target in 2011 was 42, but the measured value for 2009 was 54.

(b) 'Soft' initiatives contained in LTP-3

While the air quality impact of "hard" policy options, such as major traffic schemes, can be readily modelled, given suitable input data, the position with "soft" policy options, such as campaigns of education, promotion and facilitation, is more problematic:

Their air quality effects may be impossible to model;
The time-scale over which they operate may be indeterminate.

Consideration of options in this category, which were identified in the Air Quality Action Planning process, suggests that the aggregate effect of many "soft" measures is likely to be small and not detectable within the limits of modelling error. Attempts in the past in the UK to quantify these impacts have resulted in estimated improvements for individual initiatives which –

Give a spurious air of precision;
While small, are almost certainly far too high; and
When aggregated, therefore give an exaggerated impression of their total effect.

This is not to devalue these initiatives, especially educating people in the implications of their life-choices; they are just not directly quantifiable. A small improvement is therefore (somewhat optimistically) added.

(c) Improvements in vehicle technology penetrating the fleet

As has been noted in Section 3.4 above, recent monitoring data across the UK and elsewhere suggests that replacement of the fleet with newer vehicles is failing to have the predicted effect on levels of roadside nitrogen dioxide, for the reasons discussed. It may be that, at least in the time horizon up to 2016 the effect may be small, or even negative.

(d) The predicted reduction in regional background

This is taken from DEFRA data and approximates to 6 microgrammes per cubic metre per annum.

(e) Growth in the vehicle population

This can be readily estimated from DEFRA data

(f) Regeneration

Since the last LTP (2006-11) there has been considerable regeneration in the City centre, both in the form of new-build and converted apartment buildings, and the opening of the Highcross Shopping Centre, with extensive associated parking. This has had a measurable effect on air quality at some roadside sites. However, the current economic situation is clearly reducing economic activity, so predicting the level of regeneration up to 2016 is again problematic.

(g) Falling or rising congestion

Congestion is a useful surrogate of air quality emissions, while being difficult to simulate satisfactorily with current dispersion models. This is dealt with in more detail in Section 3.12. Measures to reduce congestion are, in the light of previous experience, unlikely to have a large effect, given the likely number of vehicles on the roads, in relation to available road capacity and the less-than-expected reduction in nitrogen dioxide emissions from those vehicles.

The range of estimates is tabulated below in Table 3.11 (c), with the corresponding estimates made in 2005 for comparison.

Table 3.11 (c) Estimated reductions in annual mean Nitrogen dioxide by 2011 (target values)

Factor	Estimated magnitude of change ($\mu\text{g.m}^{-3}$)	
	2005 estimate	2011 estimate
“Hard” traffic measures across the highway network, contained in the LTP-3	- 1 to - 3	0 to - 2
“Soft” initiatives contained in the LTP-3	- 1	0 to - 1
Improvements in vehicle technology penetrating the fleet	- 2 to - 3	0 to - 2
UK-wide fall in background levels	- 6	- 6
Growth in the local vehicle population	Difficult to predict but perhaps in the range + 1 to + 3	0 to +2
Regeneration of the City Centre: More residential accommodation, expansion of shopping centres etc. attracting more travel.		0 to +2
Increased congestion		-2 to +2

It will be noted that the estimates made in 2011 are, in the light of experience of the impact of changes in the intervening period on annual mean levels, less optimistic than those drawn up in 2005:

Year projection made	Aggregate Range of Change
2005	- 7 to - 12
2011	0 to - 9

3.12 Consideration of Intermediate (non-Air Quality) Data

Clearly some traffic indicators are a good surrogate of emissions for a given vehicle population. For example tackling congestion will have beneficial effects upon emissions and, consequently, air quality. It is therefore the case that consideration of the projected movement of these indicators will tend to shed some light upon the likely progress of air quality, subject to the other variables involved.

The following are the LTP-3 Better Air Quality Outcome Indicators:

Table 3.12

Indicator	Baseline / Year	Target 2014/15
L LTP 1 Congestion on locally managed A roads	3.6 minutes per mile (2009/10)	3.6 minutes per mile
L LTP 2 Public transport patronage	41 million (2009/10)	43 million
L LTP 8 Mode of travel to school (reduction of car share to) a) Primary b) Secondary	2009/10 Primary = 27.0% Secondary = 20.8%	Primary = 22.5% Secondary = 23.0%
L LTP 14 Area wide traffic	1397 m vkm	1446 m vkm

It can be seen that area wide traffic (millions of vehicle-kilometres) is predicted to increase slightly (3.5%). As has been discussed above, some of the other variables, and in particular vehicle emissions, are not necessarily improving as predicted a few years ago, with implications for congestion-related pollution.

3.13 Evaluation of Different Prediction Methods and Selection of Targets

3.13.1 DEFRA Guidance

The following guidance was issued by DEFRA (Review and Assessment Helpdesk) in September 2010:-

Defra and the devolved administrations have published “year –adjustment” factors for roadside NO₂ concentrations, and background (1x1 km) maps for NO_x and NO₂ concentrations for all years up until 2020. Technical Guidance (LAQM.TG(09)) advises local authorities to use this information to adjust measured concentrations to future years (e.g. annual mean NO₂ concentrations measured in 2009 can be projected forwards to 2013). Background maps for future years are also used to support modelling studies for Reviews and Assessments.

These projections are based on the Pollution Climate Modelling studies carried out on behalf of Defra and the devolved administrations, and take full account of current understanding of the expected changes in sector-based emissions up until 2020. They also take account of the expected changes to primary NO₂ emissions.

However, recent analyses of historical monitoring data have identified a disparity between the measured concentrations and the projected decline in concentrations associated with the emissions forecasts. Trends in ambient concentrations of NO_x and NO₂ in the UK have generally shown two characteristics; a decrease in concentration from about 1996 to 2002-2004, followed by a period of more stable concentrations from 2002-2004 up until 2009.

As a whole, urban roadside sites show evidence that NO_x concentrations have declined very weakly over the past 6 – 8 years. NO_x concentrations at urban background sites broadly reflect the same trend, and have been close to stable over this same period. For NO₂, levels have largely remained stable at urban roadside and background sites, but show a slight upward trend in inner London. At monitoring sites close to motorways and dual-carriageways, there is evidence that NO_x concentrations have fallen at some, but not all locations, while NO₂ concentrations have levelled off.

In all cases there are differences between individual sites (with some showing upward or downward trends) but overall, there is little evidence of a consistent downward trend in either NO_x or NO₂ concentrations, that would be suggested by emission inventory estimates.

The precise reason for this disparity is not fully understood, and is currently under investigation, but it is thought to be related to the actual on-road performance of diesel road vehicles when compared with calculations based on the Euro standards. Preliminary studies suggest that:

NOx emissions from **petrol** vehicles appear to be in line with current projections and have decreased by 96% since the introduction of the 3 way catalysts in 1993;

NOx emissions from **diesel cars**, under urban driving conditions, do not appear to have declined substantially, up to and including Euro 5. There is limited evidence that the same pattern may occur for motorway driving conditions.

NOx emissions from **HGV** vehicles equipped with SCR reduction are much higher than expected when driving at low speeds.

On this basis, it might also be expected that the forecast reductions in background NOx and NO2 concentrations associated with the road traffic component are optimistic. There is no evidence to suggest that background concentrations associated with the other (non-traffic) source contributions should not behave as forecast.

This disparity in the historical data highlights the uncertainty of future year projections of both NOx and NO2, but at this stage there is no robust evidence upon which to base any revised road traffic emissions projections.

Defra and the devolved administrations are currently investigating these issues, and once the reasons are fully understood updated guidance will be issued. However, the preliminary findings would suggest that the Euro standards will deliver only marginal, if any, reductions in NOx and NO2 concentrations until the Euro 6 emission standards begin, as is currently forecast, to play a major role (i.e. circa post-2015).

Where existing forecasting information is used for decision making or review and assessment and action planning work, local authorities may wish to take account of the emerging findings on the performance of different vehicle types, the performance of Euro standards overall, and the expected effect on forecast background concentrations.

3.13.2 Comparison of Quantitative Assessments

The following is a tabulation of the outputs of the various methods used to predict future air quality in Leicester:

Table 3.13.2: Comparative Tabulation of Results of Predictive Methods

Receptor	LTP-2 Baseline (2003-5 mean)	LTP-3 Baseline (2007-9 mean)	Measured Annual Mean (2009)	Unratified Annual mean (2010)	2016 Modelled (AIRVIRO)	AIRVIRO 2016 (corrected for distance)	TRL Study Prediction (2013)	2016 Extrapolated 2009 Monitoring Data (DEFRA LAQM TG(09))	2016 Extrapolated Monitoring Data (linear regression)	2016 Estimated impact of LTP package an external changes on 2009 monitored values
St. Matthews Way	59	54	56	62	38	36	35	34	52	47 - 56
Abbey Lane	49	48	54	63	30	30		33	52	45 - 54
Melton Road	55	54	56	58	40	40		34	48	47 - 56
Glenhills Way	65	69	75	79	41	35		46	76	66 -75
AURN	35						39			

3.13.3 Setting Air Quality Targets for the LTP

Consideration of the above predictions in conjunction with observed nitrogen dioxide data suggests that –

- Interventions likely to be feasible and in place by 2016 are unlikely to achieve the air quality Objectives for nitrogen dioxide;
- Past and current predictions using recognised nationally and locally deployed modelling methodologies are likely to be significantly underestimating annual mean levels;
- This has been the case over the lifetime of the 2006 – 11 LTP and the situation, if anything, appears to be deteriorating;
- There is significant uncertainty as to the progress of air quality in the next five years; This range of uncertainty is critical in the sense that it lies either side of the Objective criterion for nitrogen dioxide (40 microgrammes per cubic metre). I. e. it represents the difference between significant change for the better in air quality on the one hand and little or no change (or even some deterioration) on the other;
- More work needs to be completed nationally and locally in order to resolve these issues.

For these reasons, a range of values for each receptor point was calculated, framed between “high” and “low” scenarios, in order to compress the range of uncertainty somewhat. The following scenarios were assumed:

- ‘Pessimistic scenario’: No improvement in fleet, small impact of LTP-3 interventions (1%)
- ‘Optimistic scenario’: Predicted improvement in fleet realised, large impact of LTP-3 interventions (10%)

The various estimates are set out for comparison in Table 3.13.3, below. As can be seen and as stated, the issue with this range of projections is that they encompass the annual mean Air Quality Objective for nitrogen dioxide (40 microgrammes per cubic metre), i.e. they represent the difference between achieving, or failing to achieve, the Objective.

A baseline was established by taking the average of the annual mean values for the three years 2007 - 2009.

The final LTP targets were set by using professional judgement to establish a likely, realistic compromise between the ‘high’ and ‘low’ potential outcomes. On balance, it is considered that an outcome towards the ‘pessimistic/high’ scenario is more likely in the short term to 2014/15. The values set still represent continuing exceedances of the air quality Objective criterion.

It should also be noted that while a five year time scale was adopted for purely air quality projections, for statutory Review and Assessment reasons, a shorter time scale (2014/15) was adopted for the formal LTP targets, in line with the shorter-term delivery programme.

The formal air quality targets set for the third Local Transport Plan (see Chapter 7) are set out in the highlighted column of Table 3.13.3, below.

Further work is being put in hand as soon as possible to refine and update these conclusions during the rollout of the LTP programme.

Table 3.13.3 Annual mean nitrogen dioxide ($\mu\text{g.m}^{-3}$)

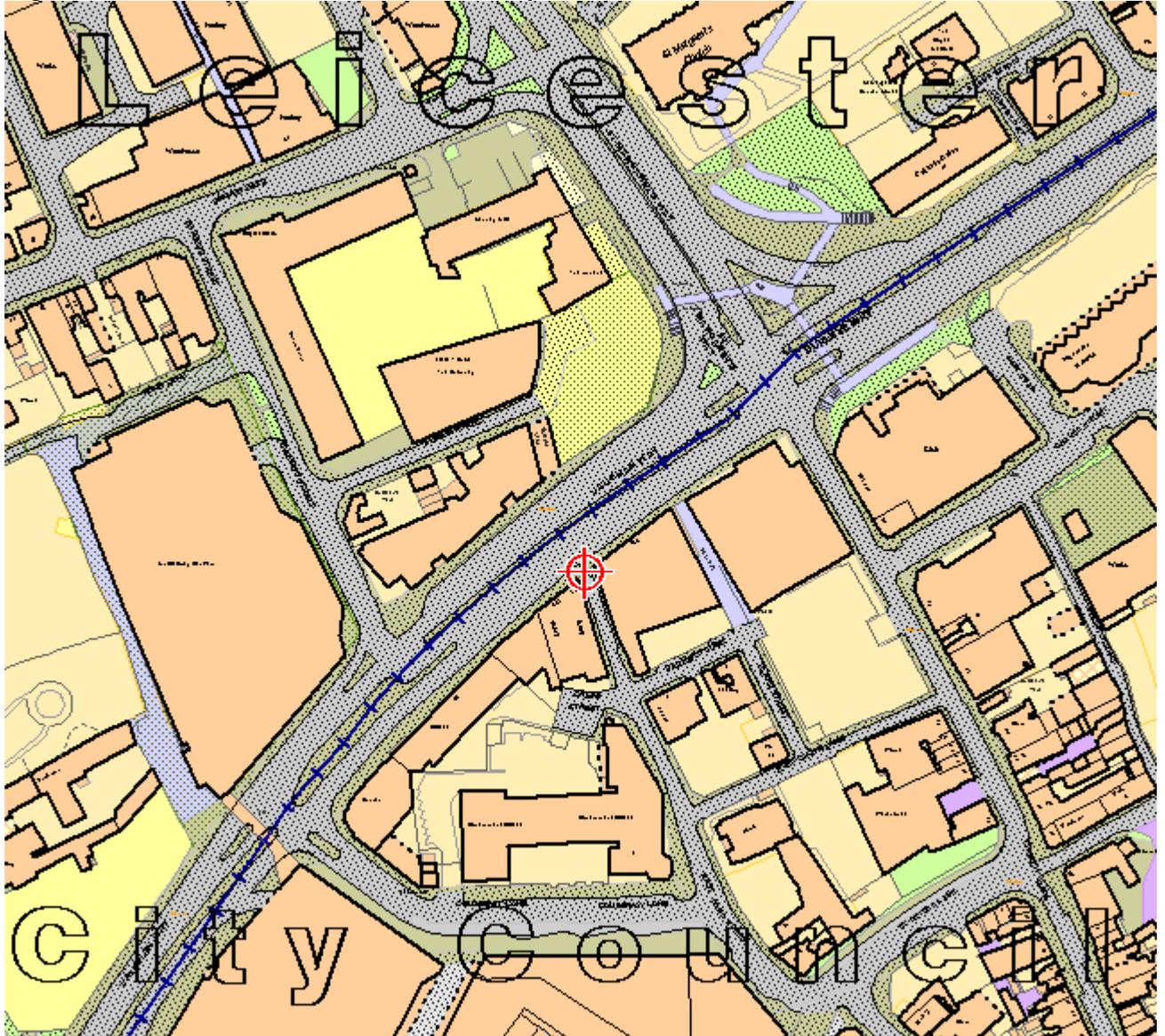
Receptor	Baseline (Average of measured annual mean values for 2007 – 09)	Extrapolated 2016 (Line of Best Fit) [3.11.b]	Extrapolated 2016 (DEFRA factors) [3.11.a]	Extrapolated 2016 (DEFRA + 10% impact of measures) [LOW SCENARIO]	Extrapolated 2016 (line of best fit) + 1% impact of measures) [HIGH SCENARIO]	FORMAL AIR QUALITY TARGETS SET FOR CHAPTER 7 OF MAIN LTP FOR 2014/15
St Matthews Way	54	52	34	31	52	48
Abbey Lane	48	52	33	30	52	45
Melton Road	54	48	34	31	48	50
Glenhills way	69	79	46	41	75	63

APPENDICES

Appendix 1 – Air Quality Receptor Points

Fig. L1

Grid Ref. x 458507 / y 304904



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Vaughan Way

Fig. L2

Grid Ref. x 458763 / y 304065

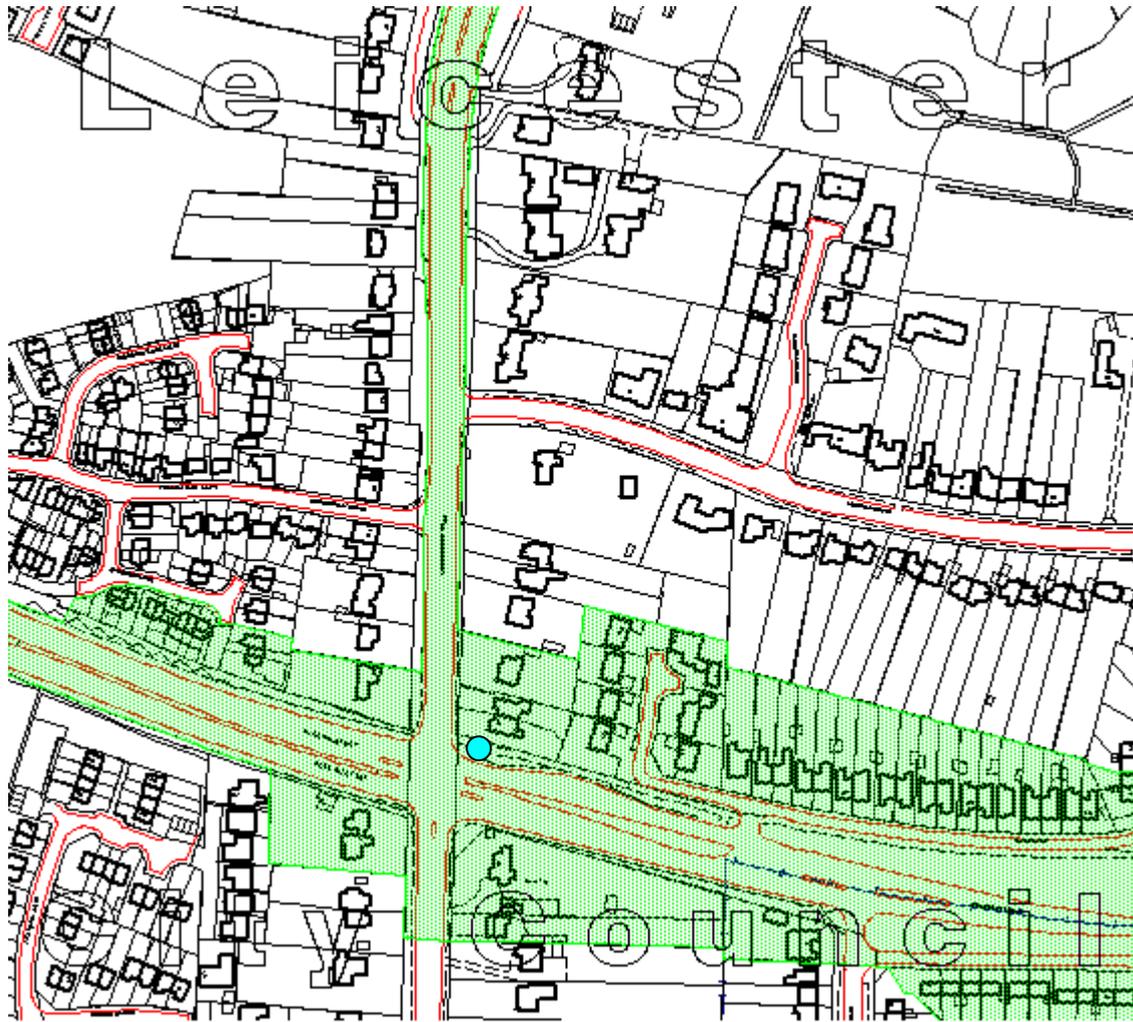


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AORN Site (New Walk Centre)

Fig. L3

Grid Ref. x 457083 / y 300156

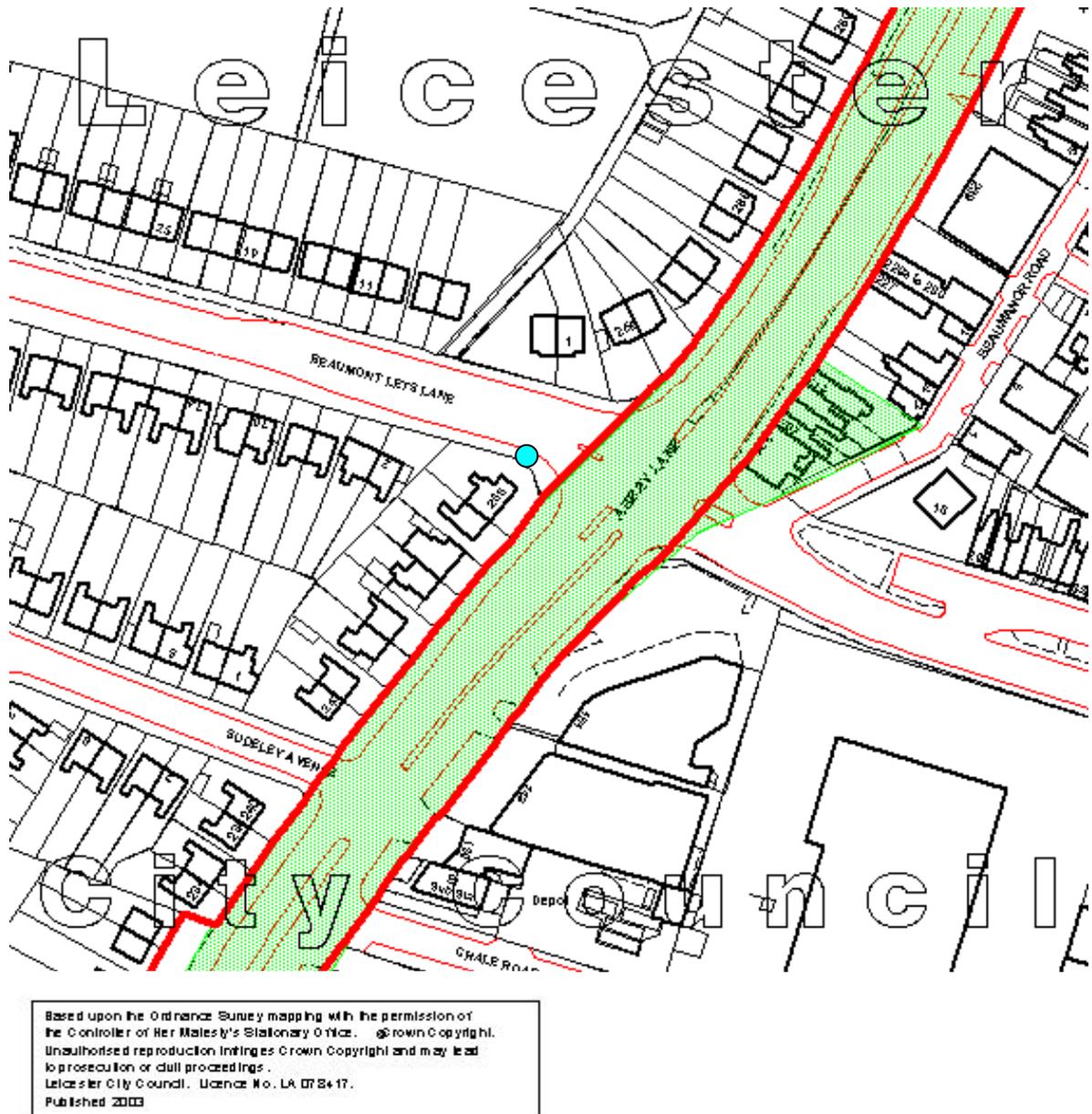


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Glenhills Way
●

Fig. L4

Grid Ref. x 458574 / y 306885



● Abbey Lane

Fig. L5

Grid Ref. x 459528 / y 306316

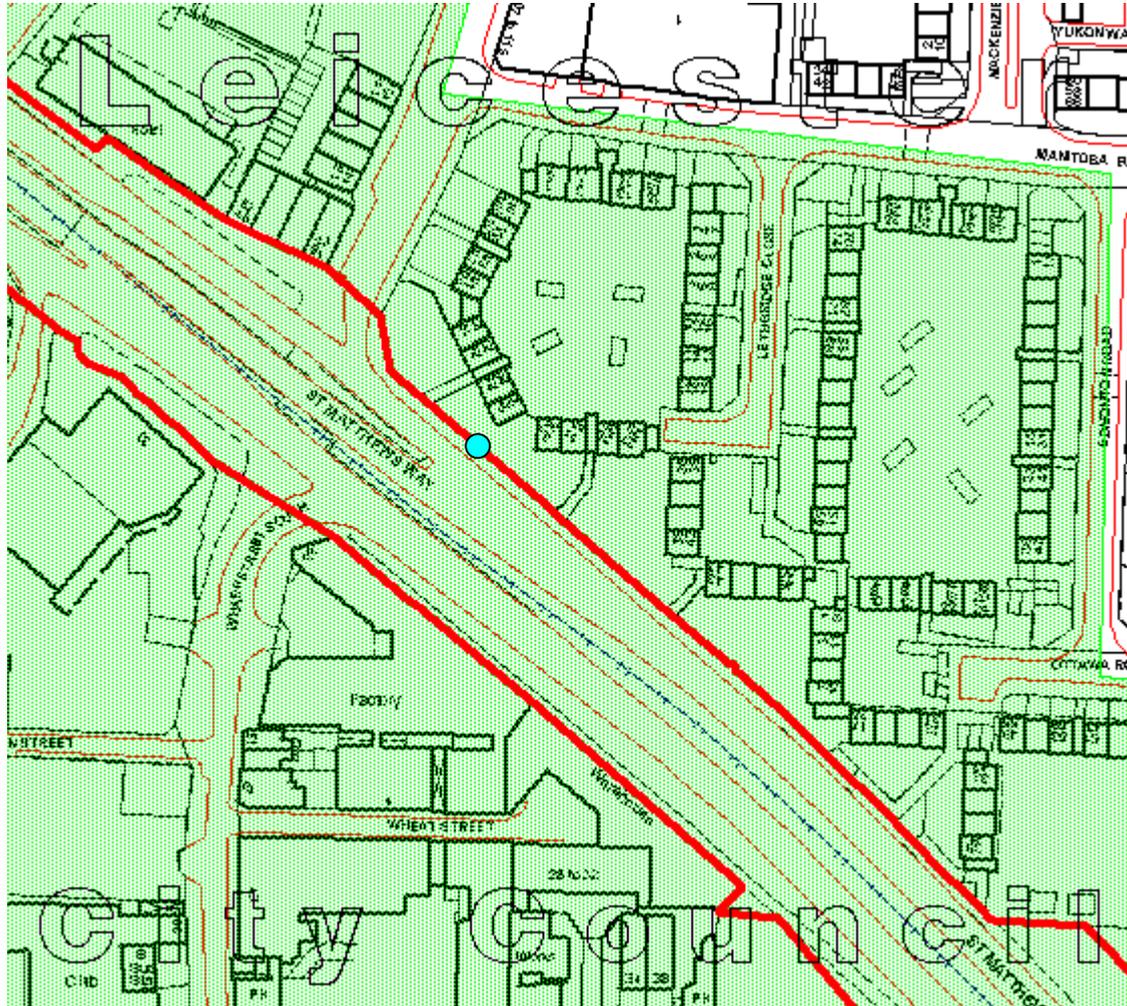


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Moton Road

Fig. L6

Grid Ref. x 459221 / y 305036



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St Matthews Way

Fig. L7

Grid Ref. x 461188 / y 305306

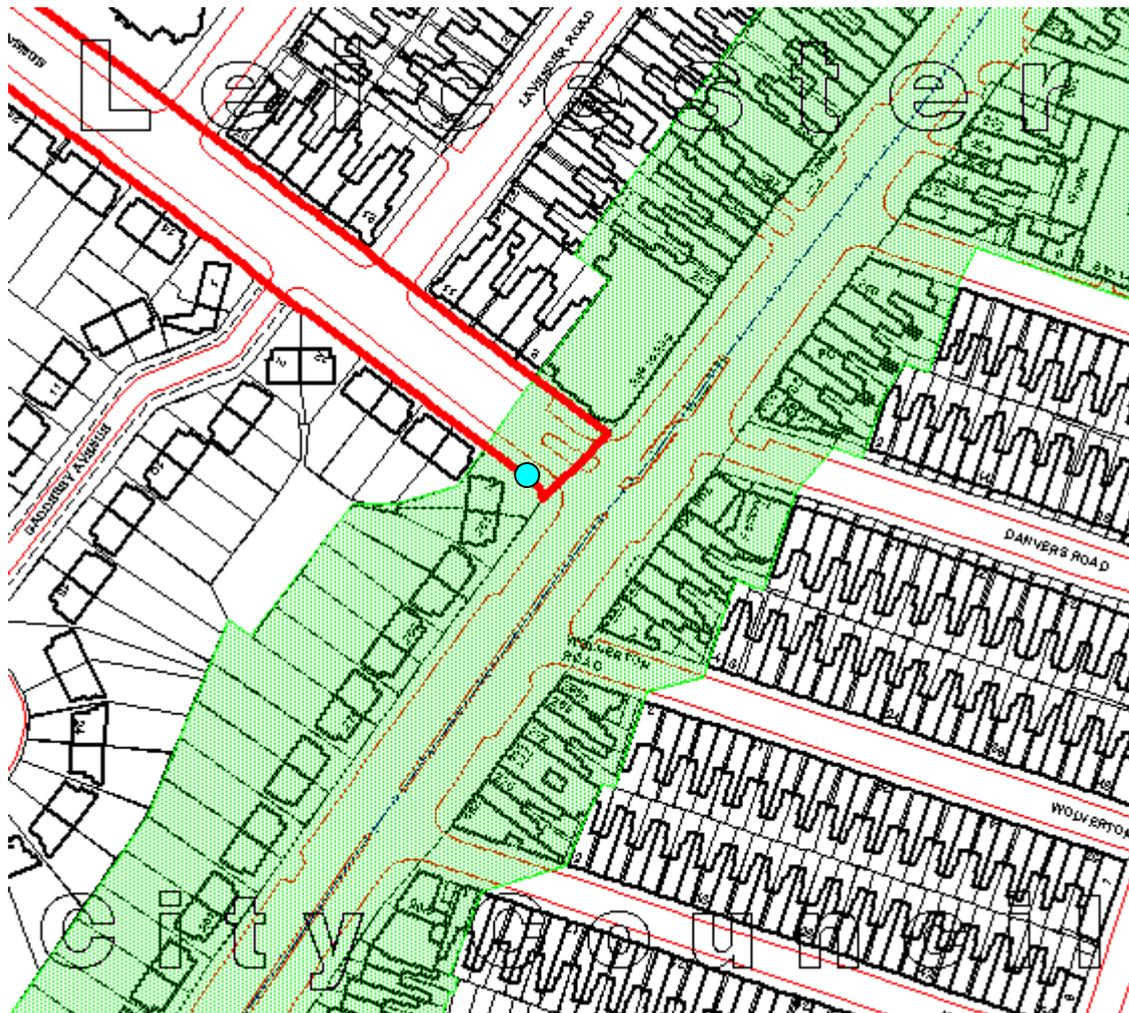


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Upingham Road

Fig. L8

Grid Ref. x 457245 / y 303040



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Imperial Avenue

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- ⁱ Action Planning good practice website at
http://www.airquality.co.uk/archive/laqm/ap_goodpractice.php
- ⁱⁱ Personal communication with Evan Davies on the 14th January 2009
- ⁱⁱⁱ Personal Communication with Evan Davies: Leicester City Council, March 2009
- ^{iv} Personal Communication with Leicester City Council, March 2009
- ^v <http://www.whatgreencar.com/electriccars.php>
- ^{vi} <http://www.whatgreencar.com/biodiesel.php>
- ^{vii} <http://www.whatgreencar.com/hybridcars.php>
- ^{viii} Information from <http://www.whatgreencar.com/carclubs.php>
- ^{ix} <http://www.ipl-airquality.nl/project.php?name=overkapping>
- ^x <http://www.cerc.co.uk/software/admsroads.htm>