Nottingham Local Transport Plan:
Nottingham LTP Strategy 2011- 2026
Nottingham Implementation Strategy 2011 - 2014

Integrated Impact Assessment

Scoping Report

Nottingham City Council

Version 4.0
June 2010

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Introduction 1

1 Introduction

1.1 SEA, HIA and EqIA requirements

1.1.1 **Strategic Environmental Assessment (SEA):** EU Directive 2001/42/EC, and the associated UK Regulations, introduced a legal requirement for public bodies to undertake Strategic Environmental Assessments (SEA) of certain statutory plans and programmes. SEA is a process for appraising the environmental impacts of the plan or programme, and the resulting Environmental Report must be taken into consideration before the plan or programme is approved. Government guidance states that Local Transport Plans (LTPs) are subject to this Directive.

1.1.2 **Equality Impact Assessments (EqIA):** DfT's Guidance on Local Transport Plans (July 2009) states that: "*Local authorities have a duty under race, disability and gender legislation to carry out an Equality Impact Assessment of their LTP. EqIA can help determine how an LTP affects different groups of people. DfT advises that an EqIA encompass race, gender, disability, age, religion/belief and sexual orientation. As with SEA, it is important that EqIA is an integral part of devising an LTP. Working towards an early, evidence-based EqIA will help ensure LTPs address anti-discrimination and equalities legislation and take account of the impacts the Plan may have on the local community. The EqIA process should help inform an LTP accessibility strategy*."

1.1.3 **Health Impact Assessment (HIA):** Although there is no statutory requirement to carry out a HIA for LTPs in the way that an SEA is required, DfT's Guidance on Local Transport Plans (July 2009) states that: *"Consideration of 'Human Health' is a legal requirement in a Strategic Environmental Assessment (SEA) and a health impact assessment (HIA) is an integral part of a SEA to identify and inform health issues in Plans. Undertaking an HIA should provide an evidence base to help the decision making process in developing an effective LTP, and to mitigate the negative effects on health and well-being (whether physical and/or mental health). In addition, it should help to:*

- *Secure consistency between the LTP and work associated with Sustainable Community Strategies and Local Area Agreements;*
- *Coordinate the public health concerns in respect of air quality, noise and climate change;*
- *Contribute to the wider agenda relating to quality of life and reducing health inequalities."*

1.1.4 Nottingham City Council is responsible for producing the LTP3 for Nottingham. A draft document comprising a 15 year Strategy and three year Implementation Plan will be ready for public consultation during autumn 2010 with the final LTP3 documents being approved by March 31st 2011. Both a Strategic Environmental Assessment and an Equality Impact Assessment will be required as part of the process for developing this LTP. The requirements for SEA, incorporating a Health Impact Assessment, and an Equality Impact Assessment will be met through a single assessment process, which we have called an Integrated Impact Assessment (IIA). The IIA will use the SEA guidance as the basis of our assessment methodology supplemented by guidance on good practice for HIA and EqIA.

1.1.5 In accordance with the SEA guidelines this IIA Scoping Report sets out:

- The procedure and timetable the authority intends to adopt to complete the IIA;
- The main areas of impact the IIA intends to analyse.

1.1.6 Under the UK regulations, three statutory consultation bodies must be consulted on the scope of the SEA:

- English Heritage;
- Environment Agency;
- Natural England.

1.1.7 This Scoping Report provides the mechanism for doing so. However as this is an Integrated Impact Assessment with a broader scope than purely environmental issues we also intend to consult additional interest groups and bodies with an interest in the issues covered.

1.1.8 The results of the consultation on the Scoping Report will be used to shape the IIA process, including:

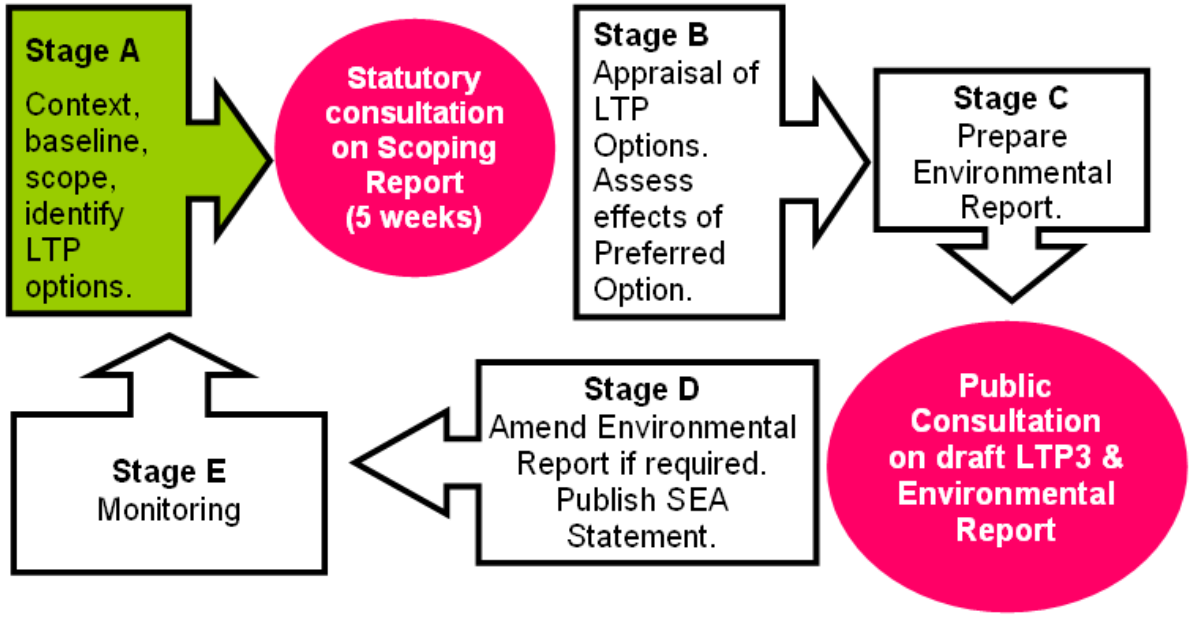
- The selection of environmental, health and equality aspects to be fully assessed;
- The identification of IIA objectives;
- The choice of strategic options to be considered within the LTP.

1.2 Guidance on the Application of SEA to LTPs

1.2.1 Guidance prepared by the Department for Transport (DfT) on how to carry out SEA for Transport in England, is contained within TAG (Unit 2.11) Strategic Environmental Assessment for Transport Plans and Programmes. An “in draft” update to this guidance was issued in April 2009 and is expected to become definitive in 2010. The IIA of the LTP3 for Nottingham is being carried out in accordance with this latest guidance.

1 Introduction

Picture 1.1 The SEA Process



1.2.2 The DfT's guidance outlines five main stages for an SEA as follows:

Stage A:	Setting the context, identifying objectives and problems and establishing the baseline and deciding the Scope
Stage B:	Developing, refining and appraising strategic alternatives and assessing the preferred LTP option
Stage C:	Production of an Environmental Report
Stage D:	Consultation on the draft Plan and the Environmental Report Publication of an SEA Statement
Stage E:	Monitoring the significant effects of implementing the plan on the environment

This report covers **Stage A**.

1.3 Our approach to IIA including SEA, HIA and EqIA requirements

1.3.1 The DfT's guidance on SEA (TAG Unit 2.11 Table 3.3) integrates the SEA with the New Approach to Appraisal (NATA) framework, which is the government's existing transport appraisal process for appraising transport plans, programmes and projects.

1.3.2 **Table 4.1** in Section 4.0 shows the relationship between the SEA requirements, the DfT's Delivering A Sustainable Transport System (DaSTS) Goals, the NATA Sub-Objectives and the regional and local priorities as set out in the East Midlands Integrated Regional Strategy (IRS) and the One Nottingham Sustainable Community Strategy (SCS).

1.3.3 This framework has been used to determine eight topic areas which the IIA for LTP3 will consider:

- Climatic factors, including CO2 emissions;
- Material Assets (including Fossil Fuels, Minerals and Waste);
- Water (including water quality, water resources, and flooding);
- Natural Environment (including Biodiversity, Flora and Fauna, Landscape and Soil);
- Urban Environment (including Townscape and Cultural Heritage);
- Population and Economy;
- Equality and Inclusion (including access to services);
- Human Health (including Safety & Crime, Noise and Air Quality).

1.3.4 A range of policy and strategy documents at European, national, regional and local level have been reviewed for the scoping stage. This review identifies relevant international and national legislation, and national, regional and local strategies and policies, with environmental, health or equalities objectives relating to any of the issues which LTP3 may influence. The review has been used to inform the development of a set of Assessment Objectives which will be used to assess the LTP3 Strategic Options in Stage B of the IIA (Appraisal).

1.3.5 A Scoping Workshop involving City Council officers and key external partners officers, including the statutory consultees, was held in February 2010 to test and refine the Assessment Objectives, as described in Section 4.

1.3.6 Baseline data has been gathered for Nottingham for each of the themes identified, and where possible, this has been compared to the equivalent regional and national data, to provide some context.

1.4 Purpose and Structure of the Scoping Report

1.4.1 The SEA Directive requires that the SEAs of plans are reported and consulted on at two stages: A Scoping Report and an Environmental Report. A final Environmental Statement is published alongside the final Plan document. We are using the SEA Guidance as a template for the approach and format of the IIA.

1 Introduction

Table 1.1 Contents of the IIA Scoping Report

SEA Requirement	IIA Content	Report Section
Spatial and temporal scope of the Plan under consideration	Spatial and temporal scope of LTP3	Section 2
Details of relevant International, European or member state environmental protection objectives and how these will be taken into account in the Plan	Details of contents and objectives of relevant plans and programmes including relevant International, European or member state environmental protection, health and equality objectives and how these will be taken into account in LTP3	Section 3 & App 1
Details of the contents and objectives of relevant plans and programmes		
SEA objectives and indicators	IIA objectives, assessment criteria and proposed indicators	Section 4
Baseline data describing the relevant aspect of the current state of the environment for the Plan area	Baseline data describing the relevant aspect of the current state of the environment including socio-demographic, health and equality aspects	Section 5 & App 2
A summary of the key environmental issues for the Plan area	A summary of the key environmental, health and equality issues for LTP3	Section 6
Identification of strategic alternatives for the Plan	Outline of proposed LTP3 options which will be appraised by the IIA in Stage B	Section 7
Consultation with statutory consultees	How to participate in the consultation and next steps	Section 8
Format of Environmental Report	Proposed contents of Integrated Impact Assessment Report	App 3

1.4.2 This information will then be used to focus the assessment phase of the process, which will be described in the final Integrated Impact Assessment Report.

1.5 Timetable for the IIA of LTP3

Table 1.2 sets out the timetable that Nottingham City Council intends to adopt for LTP3 and the completion of the IIA:

Table 1.2 LTP3/IIA Timetable

Date	LTP3	IIA
Mar/Apr 2010	Stakeholder consultation on LTP Options (aligned with LDF)	
June 2010		Publish Scoping Report (Statutory 5 week consultation) Workshops with stakeholders to assess LTP3 options
Jul- Oct 2010	Publish Integrated Impact Assessment Report Consultation on draft LTP and IIA Report	
Feb 2011	Full Council approval of LTP3 with SEA Statement	
1st Apr 2011 onwards	Plan effective	Monitor significant effects of LTP3 implementation

LTP3 Objectives and Study Area 2

2 LTP3 Objectives and Study Area

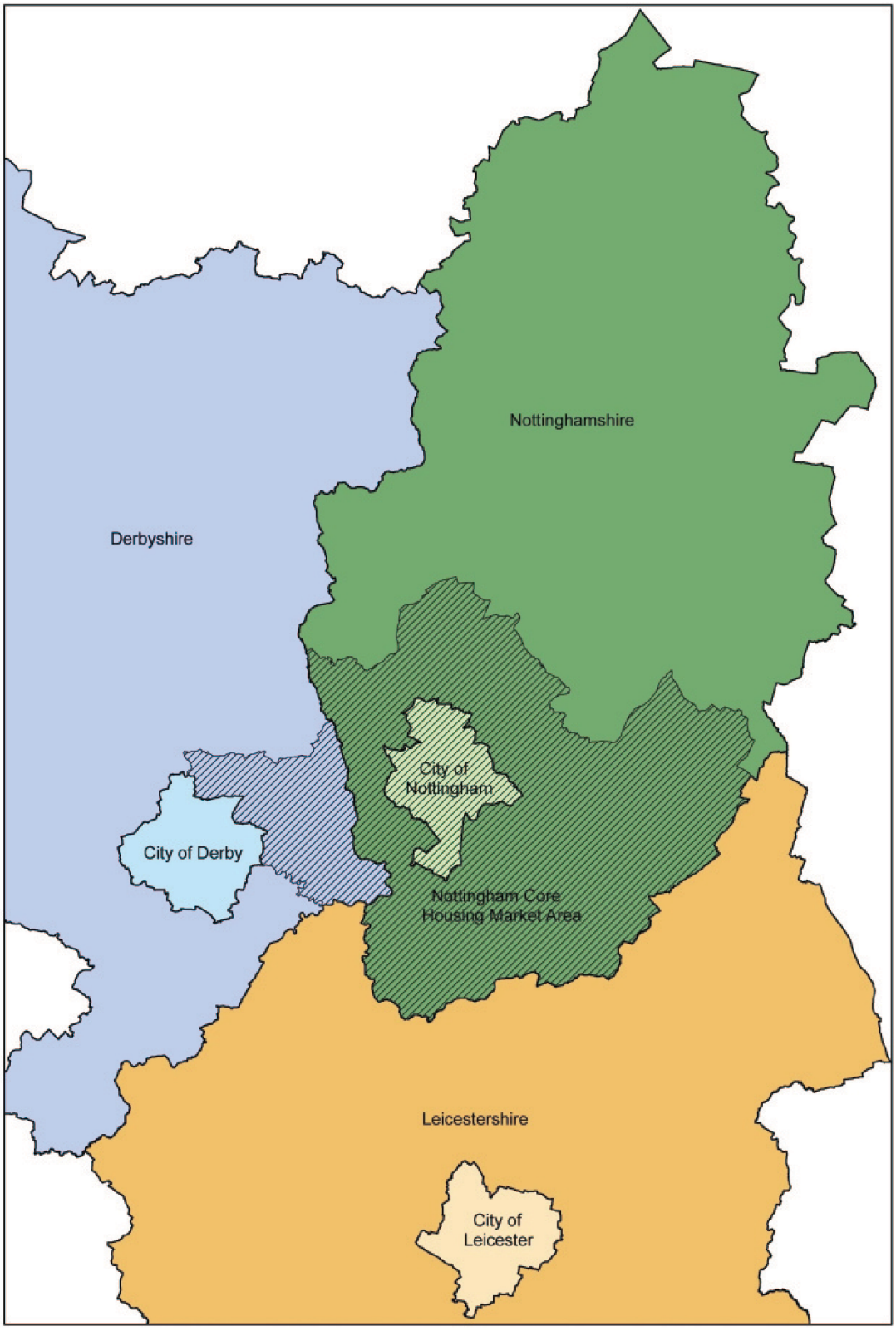
2.1 The Local Transport Plan (LTP3) for Nottingham is the third LTP and will comprise a long term strategy covering the 15 year period 2011 – 2026 and an Implementation Plan covering the first three years from 2011 – 2014. LTP3 replaces the LTP2 for the period 2006/7 – 2010/11.

2.2 LTP2 covers an area comprising the whole of the City of Nottingham, the Boroughs of Broxtowe, Gedling and Rushcliffe and the Hucknall area of Ashfield, referred to as Greater Nottingham and was produced jointly by Nottingham City Council and Nottinghamshire County Council. To support closer alignment with the LAA and the Sustainable Community Strategy, the working arrangements for LTP3 will take a different approach mirroring the arrangements for the Local Development Framework. Therefore Nottingham City Council will produce an LTP for Nottingham City and Nottinghamshire and Derbyshire County Councils will produce separate LTP documents covering the adjacent areas of the Nottingham Housing Market Area (HMA): Broxtowe; Gedling; Hucknall; Rushcliffe; and Erewash. The three LTPs will share a set of aligned core objectives and areas of common interest and joint working arrangements are set out in a Memorandum of Understanding. **Figure 2.1** shows the LTP3 area in relation to the Nottingham Housing Market Area.

2.3 LTP3 will build on the success of LTP2 as recognised by the Government in annual performance assessments and Centre of Excellence designation, Beacon status and Comprehensive Area Assessment Green Flag for public transport improvement.

2 LTP3 Objectives and Study Area

Figure 2.1 The LTP3 area in relation to the Nottingham Housing Market Area



LTP3 Objectives and Study Area 2

2.4 The Plan is themed around five key goals set out by DfT in Delivering a Sustainable Transport System (DaSTS). The DaSTS goals are detailed below:

Support Economic Growth	This means helping to maintain a strong economy and improving business competitiveness by creating a world class transport system that maximises the efficiency of existing transport networks, reduces traffic growth and encourages the use of alternatives to the car.
Reduce CO2 Emissions	This means creating a low carbon transport system that reduces greenhouse gas emissions from transport thereby improving air quality and reducing our carbon footprint.
Promote Equality of Opportunity	This means achieving sustainable access to jobs, learning and other essential services including healthcare, food shopping and leisure and tourism for all, with the greatest focus being given to those most in need. This also means planning the location and delivery of services to make best use of existing transport provision and to reduce the need to travel.
Improve Quality of Life and a Healthy Natural Environment	This means supporting development in identified Regeneration Zones, improving the public realm, rejuvenating run-down neighbourhoods and enhancing the local environment. This includes relieving communities of the adverse effects of transport such as noise, severance and visual intrusion.
Contribute to better safety, security and health	This means supporting citizens to live safe, independent and active lifestyles. It also includes improving road safety, particularly for vulnerable road users and children, addressing community safety and reducing the threat of crime.

Relationship with Other Relevant Plans, Programmes, and Environmental Objectives 3

3 Relationship with Other Relevant Plans, Programmes, and Environmental Objectives

3.1 Introduction

3.1.1 The Directive states that '*the Environmental Report should provide information on the plan's 'relationship with other relevant plans and programmes' and the environmental objectives established at a [European] Community level, which are relevant to the plan….and the objectives and any environmental considerations have been taken into account during the preparation*'"(Annex 1 (a), (e)).

3.2 Policy and strategy review

3.2.1 A review has been carried out of the main international, national, regional and local legislation and policy documents with environmental, health or equality objectives, and other relevant international, national, regional, sub-regional and local plans, programmes and polices which will influence LTP3.

3.2.2 A wide range of documents has been considered under the following SEA themes: Air Quality; Biodiversity; Climate/CO2; Cultural Heritage; Human Health; Landscape & Townscape; Material Assets; Population & Economy; Soil; Waste; and Water. To address the requirements for an Equality Impact Assessment (EqIA) policies and strategies were also considered relevant to the theme of Equality including Access to Opportunity. To address the requirements for a Health Impact Assessment the health documents are separated out into their own theme. In addition some key transport policy and strategy documents were also considered. A more comprehensive review of transport policies and strategies will be given in the main LTP3 document.

3.2.3 The documents are summarised in **Appendix 1**. Each document appears under the theme that is most relevant and is listed hierarchically (European, National; Regional; Sub-regional; Local) and then alphabetically. Due to the cross-cutting nature of many policies and strategies a table has been provided at the start of each theme section listing all the documents relevant to that theme and showing the links between themes. The documents are summarised under the primary theme for each only to avoid duplication.

3.2.4 The document review has been used to draw out the key strategy objectives, legislative requirements and implications for the development of LTP3 and for the Integrated Impact Assessment. These implications are summarised in **Section 3.3** by theme.

3.3 Implications for LTP3 and the IIA assessment framework

Table 3.1 Climate and CO2

Implications for LTP3	Implications for Integrated Impact Assessment
The LTP should respond to the Low Carbon Transport challenge by: • Reducing the need to travel by embedding integration of planning and transport within the Growth and regeneration agendas and working with partners to explore the use of ICT and other technology to deliver services differently; • Providing and promoting a range of accessible and affordable sustainable travel options; • Pursuing opportunities to support low carbon fuel options for public transport and public sector fleet vehicles; • Building on our local strengths: local electricity generation through the district heating system; proposed expansion of tram network through NET Phase 2 and proposal for WPL to fund tram and link bus improvements; • Establishing a network of electric charging points for electric vehicles.	The IIA Framework will consider the extent to which LTP3 maximises opportunities to • Reduce the need to travel; • Promote sustainable travel options, and • Support low carbon fuel initiatives.

Table 3.2 Material Assets including Minerals, Waste, Energy and Fossil Fuels

Implications for LTP3	Implications for Integrated Impact Assessment

• The LTP should seek to reduce the use of **fossil fuels** by reducing drive-alone journeys through the provision and promotion of sustainable alternatives (public transport, cycling and walking).
• The LTP should support appropriate selection of **materials** including:
  • Obtaining street products from local suppliers to support local employment and reduce the environmental impact of transporting;
  • Promoting the use of street furniture and other products which use recycled materials;
  • Reusing salvaged materials reduces expenditure on new materials and the environmental impact of disposal and sourcing of new materials;
  • Minimising use of primary aggregates and promoting the use of recycled aggregates wherever possible;
  • Selecting materials on the basis of whole life costing to reduce the future maintenance burden.
• The LTP must seek to reduce **waste** by minimising the waste arising from transport projects. Such projects should be designed so that waste is recycled on site wherever possible.
• The LTP should seek to maximise development on brownfield land in accordance with national planning policy by providing appropriate transport links.
	The IIA will assess the extent to which the LTP3 strategic options:
	• Reduce the use of fossil fuels by reducing drive alone journeys and supporting use of bio-fuel sources;
	• Support sustainable sourcing of products and construction materials including using local supply chains, recycled products and reclaimed materials;
	• Minimise waste from construction;
	• Support opportunities to develop brownfield sites.

Table 3.3 Water

Implications for LTP3	Implications for Integrated Impact Assessment

• The LTP should increase the use of Sustainable Urban Drainage Systems to ensure that run off from existing and new roads and paths is managed to reduce flooding risks and protect water courses from pollution and improve the quality of surface water run-off;
• The LTP should ensure that resilience to cope with extreme weather conditions i.e. flood and drought is a factor in the design of new transport infrastructure by:
  • Steering development away from areas of highest risk; and
  • Use of appropriate choices of materials and construction techniques.
• The LTP should seek opportunities to improve access to and recreational use of river corridors;
• The LTP should explore opportunities to increase freight transported by the River Trent and inland waterways.
	The IIA will assess the extent to which the LTP3 strategic options:
	• Manage and improve water quality;
	• Reducing the impact of flooding;
	• Resilience to extreme weather conditions i.e. flood and drought;
	• Improve access to and recreational use of river corridors;
	• Increase levels of waterborne freight.
	The IIA Framework will need to balance the conflicting demands to protect species and habitats against the demand to improve access to river corridors and to increase levels of waterborne freight.

Table 3.4 Natural Environment including Biodiversity, Landscape and Soil

Implications for LTP3	Implications for Integrated Impact Assessment
• The LTP should seek to avoid any damage to sites and species either internationally protected or of national importance; • The LTP should seek to avoid damage to locally designated sites and to the wider biodiversity resource. Where damage is unavoidable the LTP should implement appropriate mitigation to offset the damage; • The LTP should seek opportunities to enhance the biodiversity resource, particularly those species and habitats identified in the Nottinghamshire Biodiversity Action Plan; • There are no National Parks or Areas of Outstanding Natural Beauty in Nottingham. The LTP should however seek to minimise damage to Mature Landscape Areas; • The LTP should exploit opportunities to enhance landscape character and quality; • The LTP should not compromise the open character of green belt - NET Phase 2 meets the conditions set out in PPG2 and PPG13 regarding provision of Park & Ride sites within the green belt; • The LTP should seek to improve access to green and open spaces through the provision safe, affordable and suitable transport options.	The IIA Framework will assess the extent to which the strategic options for LTP3: • Take account of protected sites for species of habitats within the City; • Seek to ensure that strategic transport options enhance habitats and conservation where possible; • Provide opportunities to protect and enhance landscape character and quality including protecting the green belt; • Support access to and enjoyment of the green and open spaces. N.B. Site specific issues will need to be considered through the EIAs for major transport schemes. The IIA Framework will need to balance the conflicting demands to protect species and habitats against the demand to improve access to green and open space including the creation of walking and cycling corridors.
The transport authority will need to consider: • Whether a Habitats Regulation Assessment is required should the LTP have a significant effect on any European protected sites within Nottingham City i.e. Special Areas of Conservation including candidate SACs; Special Protection Areas including proposed SPAs; and listed Ramsar sites; • The extent to which the Rights of Way Improvement Plan (ROWIP) can be integrated within LTP3.	

Table 3.5 Urban Environment including Cultural Heritage and Townscape

Implications for LTP3	Implications for Integrated Impact Assessment

• In all urban areas any damage caused by transport measures should be minimised by good design, and mitigated wherever possible;
• Measures proposed within the LTP should specifically avoid damage to:
  • Internationally and nationally designated sites and monuments, including their settings;
  • Regionally and locally designated sites and monuments, including their settings;
  • The character of Conservation Areas;
  • Other sites of cultural heritage interest, as far as possible.
• Where damage is inevitable, the LTP should seek to secure appropriate mitigation to offset the damage. This should include archaeological investigation and recording where appropriate.
 	
N.B. To properly assess the impacts of transport schemes on the historic environment site-specific issues will need to be considered through transport appraisals for major transport schemes.
 	
The LTP should seek to improve access to cultural activities and destinations for all sectors of the community through the provision safe, affordable and suitable transport options.
	The IIA Framework will assess the extent to which the strategic options for LTP3:
	
	• Provide opportunities to enhance the urban environment with particular regard to preserving the character of historic and designated conservation areas;
	• Create opportunities to enhance buildings, sites, areas and features of historic, archaeological and architectural interest by:
	  • Promoting less damaging forms of transport;
	  • Seeking integration with planning policies to reduce the need to travel;
	  • Seeking imaginative solutions to transport problems;
	  • Promoting good design which recognises local and regional distinctiveness;
	  • Encouraging innovative transport management strategies.
	• Improve access to cultural activities and destinations for all sectors of the community.
	
	N.B. The IIA can only consider the impact of the LTP3 options at a strategic level. To fully assess the impacts of transport schemes on the historic environment site-specific issues will need to be considered through transport appraisals for major transport schemes.

Table 3.6 Population and economy

Implications for LTP3	Implications for Integrated Impact Assessment

The LTP should seek to:
• Support the growth and regeneration agendas by:
  • Embedding accessibility planning into new developments to ensure that the location of development makes efficient use of existing physical infrastructure to ensure access to jobs, training, education, health, food stores and leisure facilities;
  • Promoting sustainable travel patterns in urban extensions and other major developments, in particular public transport, and walking and cycling.
• Support the local and regional economy by;
  • Improving accessibility to jobs, recreation and services by increasing the use of public transport, cycling and walking, and reducing traffic growth and congestion;
  • Providing the physical conditions for a modern economic structure through smart use of technology for transport and communications;
  • Improving connectivity to Derby, Leicester and the wider region for personal and business travel;
  • Explore opportunities to increase the amount transported by rail, water and pipeline.
	The IIA will assess the extent to which the LTP3 strategic options support the growth and regeneration agendas and the local and regional economy by:
	• Improving access to jobs and services using sustainable travel options (public transport, and walking and cycling);
	• Supporting the use of smart technology for transport and communications;
	• Improving regional connectivity for personal and business travel;
	• Providing sustainable infrastructure network for freight.

Table 3.7 Equality and Inclusion including Accessibility and Crime

Implications for LTP3	Implications for Integrated Impact Assessment
The LTP3 should meet the DaSTS goal of Improving Opportunity for All by: • Improving access to jobs and key services for those without access to a car; • Addressing barriers to accessibility in terms of geographical accessibility, physical accessibility, affordability, safety and security and provision of information; • Considering the specific travel needs of different communities in Nottingham including Ethnic communities; Disabled people; Women; Older people; Young people, LGBG community and Faith communities • Identifying which transport schemes in the programme require an EqIA: An EqIA has already been completed for NET Phase 2; EqIAs are programmed for the Ring Road Major and Nottingham Station Hub.	The IIA Framework will assess the extent to which the LTP3 strategic options: • Improve access to jobs and key services for those without access to car; • Address geographical travel barriers for different sectors of the community; • Address physical travel barriers for different sectors of the community; • Address cost of travel barriers for different sectors of the community; • Address safety of travel barriers including fear of crime for different sectors of the community; • Provide appropriate information about travel options in formats suitable for different sectors of the community; • Meet the specific travel needs of Ethnic communities; Disabled people; Women; Older people; Young people, the LGBG community and Faith communities.

Table 3.8 Human Health including Safety, Air Quality and Noise

Implications for LTP3	Implications for Integrated Impact Assessment
The LTP should maximise opportunities to: • Increase physical activity by prioritising low-carbon, local transport and improving the supply and integration of public transport; • Improve road safety by reducing traffic speed and danger from traffic, especially in urban areas, • Improve air quality by reducing the need to travel in general, and levels of private motorised road traffic in particular. • Increase the proportion of journeys made by walking, cycling and on public transport; • Improve access to activities and destinations that support active lifestyles; • Improve access to healthcare facilities; • Reduce transport-related noise. The transport authority should: • Explore opportunities for further joint working with health partners on common goals e.g. promoting active travel to increase physical activity; reducing avoidable injury from road traffic; improving access to healthcare; • Work in partnership with planning to improve access to healthy affordable food; • Consider health impact of all major transport schemes; • Develop Noise Action Plans to address noise problem areas.	The IIA Framework will assess the extent to which the LTP3 strategic options will: • Increase the proportion of journeys made by walking, cycling and on public transport; • Increase opportunities for physical activity by prioritising low-carbon active travel options; • Improve road safety by reducing traffic speed and danger from traffic; • Reduce the need to travel in general, and levels of private motorised road traffic in particular; • Improve air quality; • Improve access to services, facilities and destinations that support healthy lifestyles eg health food outlets, sports and leisure destinations; healthcare facilities; • Reduce transport related noise.

Implications for LTP3	Implications for Integrated Impact Assessment

• LTP3 will continue to incorporate transport measures to deliver on the AQMA targets to address air quality problems linked to vehicle emissions, in particular for NOx and PM10 particulates;
• *'A Breath of Fresh Air for Nottinghamshire'* provides recommendations for actions to improve air quality that the councils and their partners will, should and are encouraged to support including an emphasis on the role of travel plans to encourage sustainable travel choices:
  • **Actions the Councils will support**: Use air quality targets in LTPs; The reporting of smoky diesels (heavy goods vehicles) to the Vehicle Inspectorate; Parking restrictions where appropriate; Restricted vehicular access to towns and city centres where appropriate; Ensure that wherever possible all new developments are accessible by alternative means of transport, minimising the need to travel by supporting mixed development schemes;
  • **Actions the Councils should support**: Encouraging larger employers in developing travel plans or car sharing schemes especially through negotiation involving new developments; Use of park and ride schemes to secure improvements in air quality; Integrated transport systems; Cycle and pedestrian routes; Use of green fuels; Bus quality partnerships; Business initiatives to replace their existing fleet vehicles with greener alternatives when they need replacing; Replace Council vehicles with more environmentally friendly vehicles when opportunity arises;
  • **Actions the Council is encouraged to take**: Review how staff travel to work and put in place a travel plan or car sharing scheme where appropriate; Review their car leasing and loan schemes.
	The IIA framework will consider the extent to which the LTP3 strategic options will improve air quality in the Air Quality Management Areas and maintain, and whenever possible improve, air quality across Nottingham City and the conurbation as a whole.
	
	Improving air quality will be achieved by:
	
	• Enabling modal shift from car travel to public transport, cycling and walking;
	• Reducing the need to travel through the promotion of sustainable development locations;
	• Reducing the use of fossil fuels for transport;
	• Traffic management measures to limit traffic volumes in high emission zones.
	
	Reducing transport related noise will be achieved by:
	
	• Encouraging the use of lower noise vehicles;
	• Greater use of low noise road surfaces;
	• Traffic management measures.

IIA Objectives and Indicators 4

4 IIA Objectives and Indicators

4.1 Developing the IIA objectives

4.1.1 The SEA Directive does not specifically require the use of objectives or indicators, but they are a recognised way in which environmental effects can be described, analysed and compared. The policy review summarised in Section 3 has been used to inform the development of a set of Assessment Objectives which will be used to assess the LTP3 Strategic Options in Stage B of the IIA.

4.1.2 **Table 4.1** shows how the IIA themes respond to the NATA objectives, the SEA topics (as set out in the Directive), the Integrated Regional Strategy (IRS) and the One Nottingham Sustainable Community Strategy (SCS). **Table 4.2** details the IRS priorities and objectives which set the overarching framework for spatial, transport and economic development for the East Midlands region. ***Please note that the regional planning process is currently under review and any changes to national and local priorities will be reflected in the Environmental Report.***

4.1.3 A set of ten IIA Assessment Objectives has been developed to consider the impacts of the LTP3 Options under the agreed themes. To assist the assessment process a set of key questions has been identified for each objective against which the LTP3 options will be appraised. The proposed Objectives and the Assessment criteria are as set out in **Table 4.3. Tables 4.1 and 4.2** demonstrate that the Assessment Objectives have been derived from and are very much in line with related plans, policies and programmes, which were summarised in Section 3.0.

4.1.4 The SEA objectives are meant to be separate from the evolving LTP objectives, although the two can influence each other and may overlap. Above all the overall LTP3 objectives should be compatible with the SEA objectives. Therefore the proposed set of IIA Assessment Objectives were tested and refined at a Scoping Workshop in February 2010 involving City Council officers and key external partners, including the statutory consultees. This workshop included exercises to test the internal compatibility of the Assessment Objectives and to test them against the DfT's DaSTS Goals and the emerging LTP3 vision.

4.1.5 The results of these exercises are recorded in **Tables 4.4 and 4.5.** The groups were asked to record compatible objectives with a ✓ ; neutral objectives with a **O**; and incompatible objectives with an **X**. In some cases, where there were both positives and negatives to consider a ✓ and an **X** have been recorded.

Table 4.1 Relationship of the Integrated Impact Assessment Themes for the LTP3 to National, Regional and Local Priorities

Delivering a Sustainable Transport System Goals (DfT)				
Support Economic Growth	Reduce CO2 Emissions	Promote Equality of Opportunity	Improve Quality of Life and Healthy Natural Environment	Contribute to Better Safety, Security and Health
NATA Sub-objectives (Source: TAG Unit 2.11 Table 3.3)				
Public Accounts	Greenhouse gases	Community Severance	Noise	Physical fitness
Business users and providers		Access to the transport system	Local Air Quality	Accidents
Consumer Users			Landscape	Security
			Townscape	
			Heritage	
			Biodiversity	
			Water Environment	
Topics identified for consideration in SEA Directive (Annex If) (Source: TAG Unit 2.11 Table 3.3)				
Material assets	Climatic factors	Population		
			Human Health	
			Air Quality	
			Landscape	
			Cultural Heritage	
			Biodiversity/fauna/flora	
			Soil	
			Water	
East Midlands Integrated Regional Strategy (Refreshed 2008)				
Improve economic performance and competitiveness	Reduce the impacts of climate change and use natural resources more efficiently	Reduce inequalities	Conserve and enhance the natural environment	Create healthy and sustainable communities
One Nottingham Sustainable Community Strategy - Priorities				
Develop Nottingham's international standing for science, innovation and culture	Be environmentally sustainable	Ensure all children and young people thrive and achieve	Transform Nottingham's neighbourhoods	Impove health and wellbeing
		Tackle poverty and deprivation by getting local people into local jobs		Reduce crime, fear of crime and anti-social behaviour
Proposed LTP3 Integrated Impact Assessment Themes				
Population and Economy	**Climate/CO2**	**Equality and inclusion** incl. Accessibility & Crime (= EqIA element)	**Natural Environment** (Biodiversity, Landscape & Soil)	**Human health** incl. Noise and Air Quality (= HIA element)
	Material assets (Minerals, Waste, Energy & Fossil Fuels)		**Urban Environment** (Cultural Heritage & Townscape)	
			Water	

4 IIA Objectives and Indicators

Table 4.2 East Midlands Integrated Regional Strategy (Refreshed 2008): Priorities and Objectives

	East Midlands Integrated Regional Strategy (Refreshed 2008)				
5 Priorities	Improve economic performance and competitiveness	Reduce the impacts of climate change & use natural resources more efficiently	Reduce inequalities	Conserve and enhance the natural environment	Create healthy and sustainable communities
17 Objs	Econ 11: Create high quality employment opportunities and to develop a culture of ongoing engagement and excellence in learning and skills to provide a competitive edge in acquiring and exploiting knowledge	Env 8: Prudently manage natural resources including water air quality, soil and minerals	Social 2: Improve health and reduce health inequalities by promoting healthy lifestyles, protecting health and providing health services	Social 1: Ensure that existing and future housing stock meets the housing needs of all communities	Social 4: Improve community safety, reduce crime and fear of crime
	Econ 12: Develop a strong culture of enterprise and innovation creating a climate in which entrepreneurs and a world-class business can flourish	Env 9: Minimise energy usage and develop renewable energy resources reducing dependency on non-renewable resources	Social 3: Provide better opportunities for people to to value and enjoy heritage and participate in cultural and recreational activities		
	Econ 13: Provide the physical conditions for a modern economic structure including infrastructure to support the use of new technologies	Env 10: Involve people through change to lifestyle and at work to in preventing and minimising adverse local, regional and global environmental impacts	Spatial 14: Improve accessibility to jobs and services by increasing use of public transport, cycling and walking and reducing traffic growth and congestion	Social 5: Promote and support the growth of social capital	
		Spatial 14: Ensure that the location of development makes efficient use of existing physical infrastructure and helps to reduce the need to travel		Env 6: Protect, enhance and manage the rich diversity of the natural, cultural and built environment and archaeological assets.	
		Spatial 15: Promote and ensure high standards of sustainable design and construction, optimising the use of previously developed land and buildings		Env 7: Enhance and conserve environmental quality by increasing environmental infrastructure	
		Spatial 16: Minimise waste and increase the reuse and recycling of waste materials			

Table 4.3 Proposed Integrated Impact Assessment Objectives

Themes	Proposed Assessment Objectives	Proposed Assessment Criteria
Climate/CO2	**1. To reduce carbon and other greenhouse gas emissions from transport.**	**To what extent will the LTP3 option:**
		Reduce the need to travel?
		Promote sustainable travel options? (Public transport, cycling and walking)?
		Support low carbon fuel initiatives?
		Create a resilient transport network?
Material assets (Minerals, Waste, Energy & Fossil Fuels)	**2. To manage scarce resources (minerals, energy and fossil fuels) and minimise waste.**	**To what extent will the LTP3 option:**
		Reduce the use of fossil fuels by reducing drive-alone journeys?
		Foster use of renewable fuels?
		Support sustainable sourcing of transport products and construction materials, including using local supply chains, recycled products and reclaimed materials?
		Minimise waste from construction?
		Support opportunities to develop brownfield sites?
Water	**3. To protect water quality and minimise the impact of flooding.**	**To what extent will the LTP3 option:**
		Manage and improve water quality?
		Reduce the impact of flooding (including contingency planning)?
		Have the capacity to cope with extreme weather conditions ie flood and drought?
		Cope with a rising water table?
		Improve access to and recreational use of river corridors?
		Increase levels of waterborne freight?

Themes	Proposed Assessment Objectives	Proposed Assessment Criteria
Natural Environment (Biodiversity, Landscape & Soil)	**4. To protect and enhance the rich diversity of the natural environment including enhancing and conserving biodiversity.**	**To what extent will the LTP3 option:**
		Take account of protected sites for species and habitats within the City?
		Enhance habitats and conservation?
		Protect and enhance landscape character and quality including protecting the green belt?
		Support access to and enjoyment of green and open spaces for all sectors of the community?
Urban Environment (Cultural Heritage & Townscape)	**5. To protect and enhance buildings, areas and features of historic, archaeological and architectural interest.**	**To what extent will the LTP3 option:**
		Create opportunities to enhance the urban environment including buildings, sites, areas and features of historic, archaeological and architectural interest?
		Preserve the character of buildings, sites, areas and features of historic, archaeological and architectural interest and designated conservation areas?
		Reducing the impact of transport by reducing the need to travel and promoting less intrusive and damaging transport options?
		Promote good design which recognises local and regional distinctiveness?
		Provide innovative transport management strategies for buildings, sites, areas and features of historic, archaeological and architectural interest?
		Improve access to cultural activities and destinations for all sectors of the community?
Population and Economy (Sustainable Communities)	**6. To respond to the regeneration and growth agendas in a sustainable way.**	**To what extent will the LTP3 option:**
		Improve access to jobs and services for City residents using sustainable travel options?
		Support the use of smart technology for transport and communications?

Themes	Proposed Assessment Objectives	Proposed Assessment Criteria
		Improve regional connectivity for personal and business travel?
		Provide sustainable infrastructure network for freight?
Equality and inclusion incl. Accessibility & Crime (= EqIA element)	**7. To improve access to services and opportunities for all.**	**To what extent will the LTP3 option:**
		Improve access to jobs and key services for those without access to car?
		Address geographical travel barriers for different sectors of the community?
		Address physical travel barriers for different sectors of the community?
		Address cost of travel barriers for different sectors of the community?
		Improve safety of travel including improving lighting and reducing fear of crime for different sectors of the community?
		Provide appropriate information about travel options in formats suitable for different sectors of the community?
		Meet the specific travel needs of different ethnic groups; disabled people; women; older people; young people, the LGBT community and faith communities?
Human health incl. Air Quality & Noise (= HIA element)	**8. To improve health and reduce health inequalities.**	**To what extent will the LTP3 option:**
		Reduce the need to travel?
		Promote sustainable travel options? (Public transport, cycling and walking)
		Increase the proportion of active journeys (walking and cycling)?
		Improve road safety by reducing traffic speed and danger from traffic?
		Improve access to healthcare facilities?
		Improve access to services, facilities and destinations that support healthy lifestyles eg health food outlets, sports and leisure destinations, open space?

Themes	Proposed Assessment Objectives	Proposed Assessment Criteria
	9. To improve air quality in the AQMAs and maintain, and wherever possible, improve air quality across Nottingham City and the wider conurbation.	Improve air quality?
		Reduce the use of fossil fuels for transport?
		Improve the efficiency of the transport network i.e. reduce congestion?
	10. To reduce levels of transport related noise in areas of sensitivity.	Reduce levels of transport related noise and vibration in areas of sensitivity?

Table 4.4 Integrated Impact Assessment Objectives: Internal Compatibility

Climate/ CO2	1. To reduce carbon and other greenhouse gas emissions from transport										
Material assets	2. To manage scarce resources (minerals and fossil fuels) and minimise waste	✓									
Water	3. To protect water quality and minimise the impact of flooding	✓	✓								
Natural Environment	4. To protect & enhance the diversity of the natural environment incl. enhancing & conserving biodiversity	✓	✓	✓							
Urban Environment	5. To protect and enhance buildings, areas and features of historic, archaeological and architectural interest	✓	✓	o	✓						
Population and Economy	6. To respond to the regeneration and growth agendas in a sustainable way	x	✓	✓	✓x	✓x					
Equality and inclusion	7. To improve access to services and opportunities for all	✓	x	✓	x	✓	✓				
Human health incl. Air Quality & Noise	8. To improve health and reduce health inequalities	✓	✓	✓	✓	✓	✓	✓			
	9. To improve air quality in the AQMAs and maintain, and across Nottingham and the wider conurbation	✓x	✓	o	✓	o	x	✓	✓		
	10. To reduce levels of transport related noise and vibration in areas of sensitivity	o	✓	o	✓	✓	✓	o	✓	✓	
Proposed Assessment Objectives		1. To reduce carbon and other greenhouse gas emissions from transport	2. To manage scarce resources (minerals and fossil fuels) and minimise waste	3. To protect water quality and minimise the impact of flooding	4. To protect & enhance the diversity of the natural env incl. enhancing & conserving biodiversity	5. To protect and enhance buildings, areas and features of historic, archaeological and architectural interest	6. To respond to the regeneration and growth agendas in a sustainable way	7. To improve access to services and opportunities for all	8. To improve health and reduce health inequalities	9. To improve air quality in the AQMAs and maintain, and across Nottingham and the wider conurbation	10. To reduce levels of transport related noise and vibration in areas of sensitivity
Integrated Impact Assessment Theme											

Key: ✓ Compatible O Neutral/no link X Incompatible

Table 4.5 Integrated Impact Assessment Objectives: Compatibility with DaSTS Goals and LTP3 Vision

DaSTS Goals/ Emerging LTP3 Vision	**Support Economic Growth** (Create a world class transport system)	X	✓	✓	X	✓ X	✓	✓	✓	X	X
	Reduce CO2 Emissions (Create a low carbon transport system)	✓	✓	✓	✓	✓	✓ X	✓	✓	✓	O
	Promote Equality of Opportunity (Improve access for all to key services, employment and training opportunities)	X	O	✓	X	O	✓	✓	✓	O	O
	Improve Quality of Life and Health Natural Environment (Minimise adverse impacts on the natural environment & improve the quality of citizens' lives)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Contribute to better Safety, Security and Health (Support citizens to live safe, independent and active lifestyles)	X	X	✓	✓	O	✓	✓	✓	✓	✓
Proposed Assessment Objectives		1. To reduce carbon and other greenhouse gas emissions from transport	2. To manage scarce resources (minerals and fossil fuels) and minimise waste	3. To protect water quality and minimise the impact of flooding	4. To protect & enhance the diversity of the natural environment incl. enhancing & conserving biodiversity	5. To protect and enhance buildings, areas and features of historic, archaeological and architectural interest	6. To respond to the regeneration and growth agendas in a sustainable way	7. To improve access to services and opportunities for all	8. To improve health and reduce health inequalities	9. To improve air quality in the AQMAs and maintain, and across Nottingham and the wider conurbation	10. To reduce levels of transport related noise and vibration in areas of sensitivity
Integrated Impact Assessment Themes		**Climate/CO2**	**Material assets (Minerals, Waste, Energy & Fossil Fuels)**	**Water**	**Natural Environment (Biodiversity, Landscape & Soil)**	**Urban Environment (Cultural Heritage & Townscape)**	**Population and Economy (Sustainable Communities)**	**Equality and inclusion incl. Accessibility & Crime**	**Human health incl. Air Quality & Noise**		

Key: ✓ Compatible O Neutral/no link X Incompatible

4.2 Testing the IIA Objectives

4.2.1 The objective compatibility testing exercises at the Scoping Workshop identified a number of areas of possible conflict between individual IIA Objectives and with the DaSTS Goals highlighted in yellow on **Tables 4.4** and **4.5** either with an **X** or with a ✓**X** if there were also some positive impacts which the group thought needed to be recorded rather than balancing the positive and negative impacts as a **O**. A note of these potential conflicts was recorded and is summarised below in sections 4.2.2 and 4.2.3.

4.2.2 Areas of possible conflict between individual IIA Objectives are:

- Responding to the regeneration and growth agenda **(Obj. 6)** may conflict with reducing carbon emissions from transport **(Obj. 1)** as building new housing will create additional travel demand and therefore CO2 emissions from transport. However this also provides an opportunity to create sustainable communities which reduce the need to travel and which are supported by a sustainable transport network providing realistic low carbon travel choices. Also impacts may reduce over time as low carbon personal transport solutions such as electric vehicles become more widely available.

- Improving access by addressing crime and the fear of crime **(Obj. 7)** through provision of increased street lighting may be in conflict with:

  - Managing scarce resources **(Obj. 2)** by increasing use of energy;

  - Protecting the natural environment **(Obj. 4)** where additional lighting results in increased levels of light pollution.

- Increasing access to green and open spaces **(Obj. 7)** may be in conflict with conserving and enhancing biodiversity **(Obj. 4)** so appropriate management strategies will need to be adopted at sensitive sites.

- Reducing carbon emissions from transport **(Obj. 1)** by reducing traffic levels will have some positive health benefits by also reducing air pollution which can exacerbate respiratory conditions. However some low carbon fuel options can reduce air quality **(Obj. 9)** i.e. higher blends of some conventional biofuels (e.g. conventional biodiesel or bioethanol) could increase NOx and VOC emissions. [1] However the term 'biofuels' covers a very wide range of fuels which can be made from a wide variety of feedstocks through a wide variety of processes. Independent studies [2][3] have shown that the reduction in CO2 emissions resulting from using ethanol over fossil fuels is between 18% to 87% depending on the source of the ethanol. In the Nottingham Ecolink bus trial the ethanol is derived from Swedish wood waste where the greenhouse gas savings

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1 Air Pollution: Action in a Changing Climate, March 2010, Defra, page 15 http://www.defra.gov.uk/environment/quality/air/airquality/strategy/documents/air-pollution.PDF

2 Brinkman, N., M. Wang, T. Weber, T. Darlington, 2005, Well-to-Wheels Analysis of Advanced Fuel/Vehicle Systems — A North American Study of Energy Use, Greenhouse Gas Emissions, and Criteria Pollutant Emissions: updated key assumptions in GREET 1.7.

3 Well-to-Wheels analysis of future automotive fuels and powertrains in the European context WELL-to-WHEELS Report Version 2c, March 2007

4 IIA Objectives and Indicators

are in the region of 80 percent to 90 percent over petrol. [(4)] Examples of other beneficial biofuels are biomethane from manure, with emissions savings of over 170 percent.[(4)] The Scania ethanol fuelled engine also results in significant improvements in air quality: NOx is reduced by 28%, CO by 80%, HC by 50% and Particulate Matter (PM) is reduced by 60% (based on the ESC European Steady Cycle test).

- Responding to the regeneration and growth agenda **(Obj. 6)** may conflict with protecting the natural environment **(Obj. 4)** as new transport infrastructure could involve land take but development also offers opportunities to enhance landscape and habitats through remediation of brownfield sites.

- Responding to the regeneration and growth agenda **(Obj. 6)** may conflict with protecting the urban environment **(Obj. 5)** as new transport infrastructure can involve land take but also offers opportunities for public realm improvements.

- Responding to the regeneration and growth agenda **(Obj. 6)** may conflict with improving air quality **(Obj. 9)** as increased levels of traffic could reduce air quality in the short term but may improve over time with a move to more low emission transport options.

4.2.3 There are also areas of possible conflict between the DaSTS Goals and the IIA Objectives:

Supporting economic growth presents a challenge for achieving:

- **Obj. 1 Reducing carbon emissions**, so LTP3 will need to respond by reducing the need to travel; promoting sustainable transport alternatives and fostering new technology in terms of low carbon travel and ICT solutions. Similarly the DaSTS Goal Reducing CO2 emissions could conflict with Obj. 6 Responding to the regeneration and growth agendas in a sustainable way.

- **Obj. 4 Protecting the natural environment & Obj. 5 Protecting the urban environment** in terms of managing the potential impacts of delivering significant new infrastructure schemes such as NET Phase 2. However this must be balanced against the wider benefits of delivering a high quality sustainable transport system would bring across the area. Site specific issues and appropriate mitigation measures will be picked up by the Environmental Impact Assessment of individual schemes.

- **Obj. 9 Improving air quality** in the short term but may improve over time with a move to more low emission transport options.

- **Obj. 10 Reducing levels of transport-related noise and vibration** in the short term due to increased traffic levels and disruption associated with construction of new transport infrastructure but noise from road transport may reduce over time with the introduction of electric vehicles.

4 Towards Sustainable Production and Use of Resources: Assessing Biofuels, International Panel for Sustainable Resource Management, UNEP 2009, ISBN no. 978-92-807-3052-4

Promoting equality of opportunity:

- Is consistent with **Obj. 1 Reducing carbon emissions** provided that LTP3 delivers better integration of the transport system enabling people to use sustainable travel options;

- Could be in conflict with **Obj. 4 Protecting the natural environment** as increasing access to green and open spaces may impact on sensitive habitats and species unless there are appropriate management strategies in place.

Contributing to better safety, security and health could conflict with:

- **Obj. 1 Reducing carbon emissions & Obj. 2 Managing scarce resources**, if lighting was reduced for carbon reduction reasons thereby increasing perceptions of crime. Measures which impact adversely on people's perceptions of personal safety could create barriers to independent living.

4.3 IIA Indicators

4.3.1 For each objective, a set of indicators has been identified as summarised in **Table 4.6** below. The identified indicators will provide a means for monitoring the performance of LTP3 against the IIA objectives. The indicators have been selected for their relevance to LTP3 and with the aim of making best use of existing data and monitoring programmes wherever possible, to reduce future monitoring burdens. To ensure clarity and to demonstrate the links to other planning and investment frameworks, indicators have been selected from the National Indicator set or from local indicators in the Local Area Agreement, the Local Development Framework Annual Monitoring Report and Sustainability Appraisal, as well as drawing on data available through the LTP monitoring process.

4.3.2 The next stage will be to define targets which show the direction in which the indicator should progress if sustainability is to be achieved in the longer term. The indicators will show the extent to which progress is being made towards meeting the targets and achieving the overall objectives.

4.3.3 Baseline data for the indicators at a regional and national level have been collected where available alongside contextual socio-demographic and health data. This information is set out in **Appendix 2** and a commentary by theme is provided in **Section 5.0**.

4.3.4 **Table 4.6** suggests preferred indicators for each of the assessment criteria proposed for each theme and then proposes the best match from the data currently available. These indicators will be refined as part of the consultation process to ensure a cost effective monitoring programme that is integrated with monitoring for other statutory documents. Many of the indicators can be used to monitor progress against desired outcomes common to more than one theme.

Table 4.6 Preferred Indicators and Best Available Data by IIA Theme

Proposed Assessment Objectives	Proposed Assessment Criteria To what extent will the LTP3 option:	Preferred Indicators	Available Data
1. To reduce carbon and other greenhouse gas emissions from transport.	Reduce the need to travel?	• Volume of traffic on local authority network	• Local indicator Area Wide Traffic a. Greater Nottingham b. City-wide
	Promote sustainable travel options (Public transport, cycling and walking)?	• Public transport trips • Non-car trips to school • Non-car trips to work	• NI 177 Public transport patronage • NI 198 Mode of travel to school • Local indicator Cycling trips • Local indicator Mode share at Inner Traffic Area cordon • Census 2001 Mode of travel to work
	Support low carbon fuel initiatives?	• Availability of alternative fuel options e.g. Electric vehicle charging; biofuels • Ownership of low carbon private transport e.g. hybrid cars, electric cars/mopeds • Proportion of GO2 routes/local bus fleet running on alternative fuels	• NI 186 Per capita CO2 emissions in local authority area
	Create a resilient transport network?	• Highway disruption due to adverse weather events	• NI 188 Adapting to climate change • Number of incidences p.a. of highway disruption caused by adverse weather event

Proposed Assessment Objectives	Proposed Assessment Criteria To what extent will the LTP3 option:	Preferred Indicators	Available Data
2. To manage scarce resources (minerals, energy and fossil fuels) and minimise waste.	Reduce the use of fossil fuels by reducing drive-alone journeys?	• Mode share of single occupancy vehicles	• Local indicator: Mode share at Inner Traffic Area cordon
	Foster use of renewable fuels?	• Availability of alternative fuel options e.g. Electric vehicle charging; biofuels • Ownership of low carbon private transport e.g. hybrid cars, electric cars/mopeds • Proportion of GO2 routes/local bus fleet running on alternative fuels	• Energy use by road users from petroleum products (GWh) • Per capita energy use for transport across the City (NEP) • Fuel consumption for road transport by type in Nottingham (Source NEP)
	Support sustainable sourcing of transport products and construction materials including using local supply chains, recycled products and reclaimed materials?	• Recycling rate for transport schemes • Sustainable sourcing for transport schemes	• Proportion of recycled aggregates used in transport and public realm schemes • Proportion of materials and products used in transport schemes sourced in the East Midlands
	Minimise waste from construction?	• Recycling rate for transport schemes Construction and demolition waste sent to landfill	• Proportion of recycled aggregates used in transport and public realm schemes • Construction and demolition waste: Amount produced • Construction and demolition waste: Amount sent to landfill

Proposed Assessment Objectives	Proposed Assessment Criteria To what extent will the LTP3 option:	Preferred Indicators	Available Data
	Support opportunities to develop brownfield sites?	• Proportion of new development on brownfield sites	• Percentage of employment land on previously developed land • Percentage of new and converted dwellings on previously developed land Source: LDF Annual Monitoring Report 2009
3. To protect water quality and minimise the impact of flooding.	Manage and improve water quality?	• Water quality	• Quality of rivers, canals and freshwater bodies ○ Biological ○ Chemical
	Reduce the impact of flooding (including contingency planning)?	• Proportion of transport and public realm schemes p.a. with SUDS • Highway disruption due to flooding	• Area of land covered by flood zones 2 & 3 • Number of developments incorporating SUDS • Number of incidences p.a. of highway disruption caused by flooding
	Have the capacity to cope with extreme weather conditions ie flood and drought?		
	Cope with a rising water table?		
	Improve access to and recreational use of river corridors?	• Length of new/improved multi-user paths to river and canal corridors	• Length of new/improved multi-user paths to river and canal corridors
	Increase levels of waterborne freight?	• Volume of freight carried by river and canal network in Greater Nottingham p.a.	• Regional data from British Waterways

Proposed Assessment Objectives	Proposed Assessment Criteria To what extent will the LTP3 option:	Preferred Indicators	Available Data
4. To protect and enhance the rich diversity of the natural environment including enhancing and conserving biodiversity.	Take account of protected sites for species and habitats within the City?	• Number of designated SINCs, LNRs, SSSIs damaged or destroyed by transport related schemes.	• Number and area of Local Nature Reserves • Condition of SSSIs • Area of biological SINCs
	Enhance habitats and conservation?	• Improvement scheme implemented	• Number of improvement scheme implemented p.a.
	Protect and enhance landscape character and quality including protecting the green belt?	• Transport impact on greenbelt and protected landscape areas	• Amount of ancient woodland – Total area • Transport development on previous greenbelt land
	Support access to and enjoyment of green and open spaces for all sectors of the community?	• Length of new/improved multi-user paths to green/open space including river and canal corridors • Data in Open Space Commentaries	• Length of new/improved multi-user paths to green/open space including river and canal corridors • Open space managed to Green Flag and PPG17 accessibility standards • Registered parks and gardens – number and area
5. To protect and enhance buildings, areas and features of historic, archaeological and architectural interest.	Promote good design which recognises local and regional distinctiveness?	• Recognition of good design for transport schemes • Number of public realm improvement schemes	• Design awards received for transport and public realm schemes • Area covered by public realm improvement schemes
	Provide innovative transport management strategies for buildings, sites, areas and features of historic, archaeological and architectural interest?		

Proposed Assessment Objectives	Proposed Assessment Criteria To what extent will the LTP3 option:	Preferred Indicators	Available Data
	Create opportunities to enhance the urban environment including buildings, sites, areas and features of historic, archaeological and architectural interest?		
	Preserve the character of buildings, sites, areas and features of historic, archaeological and architectural interest and designated conservation areas?	• Number of designated sites and buildings negatively impacted by transport related schemes.	• Conservation area – area and number • Number of listed building by grade • Number of scheduled ancient monuments • Number of designated sites and buildings negatively impacted by transport related schemes
	Reducing the impact of transport by reducing the need to travel and promoting less intrusive and damaging transport options?	• Public transport trips • Non-car trips to school • Non-car trips to work	• NI 177 Public transport patronage • NI 198 Mode of travel to school • Local indicator Cycling trips • Local indicator Mode share at Inner Traffic Area cordon • Census 2001 Mode of travel to work
	Improve access to cultural activities and destinations for all sectors of the community?	• Public transport access to museums and galleries • Public transport access to tourist attractions	• Mode share surveys for key leisure and tourist destinations
6. To respond to the regeneration and growth agendas in a sustainable way.	Improve access to jobs and services for City residents using sustainable travel options?	• NI 175 Access to services and facilities • NI 176 Working age people with access to employment	• DFT Core Accessibility Indicators

Proposed Assessment Objectives	Proposed Assessment Criteria To what extent will the LTP3 option:	Preferred Indicators	Available Data
	Support the use of smart technology for transport and communications?	• Proportion of home workers within work force • Number of teleworking facilities in Nottingham • Number of residential travel plans supporting home working	• Journey to Work data 2001 census
	Improve regional connectivity for personal and business travel?	• Data on intra and inter regional journey times and frequency by mode	• Travel time and frequency distance times to London and Core Cities by rail –calculated from National Rail timetables
	Provide sustainable infrastructure network for freight?	• Volume of freight carried by river and canal network in Greater Nottingham p.a. • Volume of freight carried by rail network in Greater Nottingham p.a. • Proportion of freight deliveries in City using low carbon vehicles	• Regional data from British Waterways • Network Rail or Regional Transport Strategy Annual Monitoring Report
7. To improve access to services and opportunities for all.	Improve access to jobs and key services for those without access to car?	• Public transport access to jobs and services and facilities	• DFT Core Indicators
	Address geographical travel barriers for different sectors of the community?	• Proportion of key demographic groups within 400m of frequent bus service e.g. over 60s, Jobseekers and Incapacity Benefit/Severe Disablement Allowance/Employment Support Allowance claimants etc	• See Public Transport Accessibility Study for baseline

Proposed Assessment Objectives	Proposed Assessment Criteria To what extent will the LTP3 option:	Preferred Indicators	Available Data
	Address physical travel barriers for different sectors of the community?	• Data on DDA compliance bus services and routes	• Local indicator: Number of accessible bus services
	Address cost of travel barriers for different sectors of the community?	• % uptake of Easyrider City cards for different low income groups • Relative costs of bus fares against Retail Price Index	• Local indicator: % uptake of concessionary fare entitlement within eligible population
	Improve safety of travel including improving lighting and reducing fear of crime for different sectors of the community?	• Perceptions of safety when using the bus at night • Crime incidents relating to travel and transport which could deter travel by public transport, cycle or walking	• Local indicator: Perceptions of safety when using the bus at night • IPSOS Mori Place Survey: Perceptions of safety • Annual police crime stats for ○ Robbery ○ Theft from a motor vehicle ○ Theft of a motor vehicle ○ Violence against a person
	Provide appropriate information about travel options in formats suitable for different sectors of the community?	• Satisfaction with public transport information	• Local indicator: Satisfaction with public transport information
	Meet the specific travel needs of different ethnic groups; disabled people; women; older people; young people, the LGBT community and faith communities?	• Satisfaction of specific groups with public transport services e.g. ethnic groups; disabled people; women; older people; young people, the LGBT community and faith communities.	• Local indicator: Satisfaction with public transport services

Proposed Assessment Objectives	Proposed Assessment Criteria To what extent will the LTP3 option:	Preferred Indicators	Available Data
8. To improve health and reduce health inequalities.	Reduce the need to travel?	• Level of traffic on local roads	• Local indicator Area Wide Traffic a. Greater Nottingham b. City-wide
9. To improve air quality in the AQMAs and maintain, and wherever possible, improve air quality across Nottingham City and the wider conurbation.	Promote sustainable travel options (Public transport, cycling and walking)?	• Public transport trips • Non-car trips to school • Non-car trips to work	• NI 177 Public transport patronage • NI 198 Mode of travel to school • Local indicator Cycling trips • Local indicator Mode share at Inner Traffic Area cordon • Census 2001 Mode of travel to work
	Increase the proportion of active journeys (walking and cycling)?	• Cycling trips for commuter and school journeys • Walking trips for commuter and school journeys	
	Improve road safety by reducing traffic speed and danger from traffic?	• Road casualty data	• NI 47 People killed and seriously injured • NI 48 Children Killed and seriously injured
	Improve access to healthcare facilities?	• Access to hospital • Access to GP services	• Public transport access to hospital • Public transport access to GP services
	Improve access to services, facilities and destinations that support healthy lifestyles e.g. health food outlets, sports and leisure destinations, open space?	• Access to leisure opportunities • Access to food shops providing healthy affordable food • Access to parks and open space	• Public transport access to City Council leisure centres • Open spaces meeting PPG17 accessibility standards for Parks & gardens; Natural and semi-natural open space; Play areas; Allotments & community gardens.

Proposed Assessment Objectives	Proposed Assessment Criteria To what extent will the LTP3 option:	Preferred Indicators	Available Data
	Reduce the use of fossil fuels for transport?	• Availability of alternative fuel options e.g. electric vehicle charging; biofuels • Ownership of low carbon private transport e.g. hybrid cars, electric cars/mopeds • Proportion of frequent routes/local bus fleet running on alternative fuels	• Energy use by road users from petroleum products (GWh) • Per capita energy use for transport across the City (Source: NEP) • Fuel consumption for road transport by type in Nottingham (Source NEP)
	Improve the efficiency of the transport network i.e. reduce congestion?	• Congestion data	• NI 167 Congestion (average journey time) • NI 178 Bus services running on time
	Improve air quality in the AQMAs and maintain, and wherever possible, improve air quality across Nottingham City and the wider conurbation?	• Local air quality data	• Concentration of NO_2 in City Centre AQMA • Concentration of NO_2 in Ring Road AQMA
10. To reduce levels of transport related noise in areas of sensitivity.	Reduce levels of transport related noise and vibration in areas of sensitivity?	• Number of households in the City affected by noise and vibration from transport sources	• Number of dwellings (people) affected by road traffic noise • Number of dwellings (people) affected by rail noise • Number of dwellings (people) affected by airport noise Source: Defra Noise Action Plans

Baseline Data 5

5 Baseline Data

5.1 Approach

5.1.1 The SEA Directive requires that the SEA considers "*the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan*" (SEA Directive, Annex 1b). This section therefore describes the baseline for each IIA topic (drawing upon the baseline data tables in **Appendix 2**) and their objectives and also provides an indication of future trends where possible.

5.1.2 The baseline data will provide a basis for forecasting and monitoring environmental, health and equality impacts and helps in the identification of environmental health and equality issues. Government guidance set out in TAG Unit 2.11 states that the development of objectives and indicators and the collection of baseline data should inform each other. The guidance also highlights that data collection is not a one-off process and that further data collection may be needed at later stages of the SEA. It should be pointed out however that data collection could be an indefinite process and so a limit should be set (as stated in the guidance) that is reasonable. The level of baseline data therefore reflects the level of information required to assess LTP3 against the IIA objectives.

5.1.3 **Appendix 2** contains the baseline data collated to date, which has been drawn from the 2001 Census, the Nottingham City Local Development Framework Core Strategy Sustainability Appraisal and the 2008 Delivery Report for the second Greater Nottingham Local Transport Plan 2006/7 – 2010/11. The key information and data is summarised in this section for each of the IIA themes to give an overview of environment, health and equalities issues for the LTP3 area and how this compares regionally and the nationally.

5.2 General Characteristics

5.2.1 Nottingham City lies at the heart of the Greater Nottingham sub-regional area (comprising Broxtowe, Erewash, Gedling, Nottingham City, Rushcliffe and the Hucknall part of Ashfield). It is located centrally within England in the East Midlands region. A snapshot of the key characteristics is given in **Table 5.1**.

Table 5.1 Key Characteristics

Social

- Population – 292,400 (mid year estimate 2008).
- Housing Market Area of around 700,000 population.
- Family age groups population falling.
- Net outward migration over 10 years.
- Ethnically diverse population
- High level of deprivation (13th most deprived LA area in England).10 of the City's 20 wards are in the most deprived 10% in England.
- Life expectancy is lower than regional or national averages with particularly low rates in the deprived areas of the city.
- General level of health is below regional / national averages.
- High proportion of children eligible for free school meals and high number of households in receipt of council tax / housing benefits.

- 45% of households without a car but significant investments in public transport resulting in high degree of geographical accessibility to education, work, health, shopping by public transport.
- Education is improving but attainment rates are still below national targets.
- Two major universities with more than 42,000 full-time university students.
- Crime levels have fallen by 28% since 2003/04, but are significantly higher than regional/national averages.

Economic

- Greater Nottingham is 6th highest per capita GVA in England
- Designation as a Science City
- Employment rate is low and issues of access of local people to City jobs.
- Recent increase in registered unemployed rate is high but lower than the increase at the national and regional level
- High percentage of development on previously developed land
- Dwellings built at high density.
- Limited supply of allocated employment land
- Significant redevelopment potential on the edge of the City Centre regeneration zones
- City Centre ranked 6th in Experian's national retail rankings for 2008.

Environmental

- Flood risk affects 12% of the City's area and 5,500 dwellings in the City are subject to a 1 in 100 chance of flooding
- Local Nature Reserve designations quadrupled in 2003/05.
- Household waste recycling rate is low but heat from waste percentage is well above average, meaning less than average goes to landfill.
- Domestic electric and gas consumption is lower than average in Nottingham and commercial usage is lower than regional average.
- CO2 emissions per capita are close to regional and national averages.
- Two designated Air Quality Management Areas
- Transport noise affecting approximately 3,000 households

5.2.2 Greater Nottingham is amongst the 10 largest conurbations in the Country with around 700,000 people living in the Housing Market Area which extends to Erewash The built-up area of Nottingham, known as the Principal Urban Area or PUA, has a population of about 627,800 of which 292,400 (mid year estimate 2008) live within the City boundary. The Travel-To-Work Area has a population of 786,600. The conurbation is surrounded by designated Green Belt which is drawn very tightly to the urban area, offering limited opportunities for development unless its boundaries are reviewed.

5.2.3 Within the City area Bulwell and Clifton play an important role as local centres providing a range of services. In the wider conurbation local services are provided by the suburban centres of Arnold, Beeston, Carlton, Long Eaton and West Bridgford and the two Sub Regional Centres of Hucknall (population 30,400) and Ilkeston (population 38,100) are important towns with their own identity and economic roles.

5 Baseline Data

5.2.4 The City is recognised as having a comprehensive, efficient, accessible and integrated transport network. Significant resources have been invested on local transport improvements across the City over the last decade which includes the development of the Nottingham Express Transit tram network.

5.2.5 Being centrally located Nottingham has good connectivity to most of the country. There are direct rail connections from Nottingham to London, Manchester, Birmingham, Sheffield, Leeds and Liverpool but currently no direct rail services to the south west, north east or Scotland. Compared to some other routes however journeys times are uncompetitive and there is a lack of capacity on some services.

5.2.6 Also within easy reach of Nottingham is the East Midlands Parkway railway station, a £25 million investment in the region, located just off the A453, near junction 24 of the M1. The station is predominantly served by the East Midlands Trains' Nottingham to London fast train service and provides services to the capital in around 1 hour 35 minutes. The Parkway also provides a park and ride facility for Nottingham, Derby and Leicester.

5.2.7 Nottingham is connected to the M1 and the national motorway network via the A453 to junction 24, the A52 to junction 25 and the A610 to junction 26. The A52 provides a trunk road connection to the east including to the A46 which itself connects from the M1 north of Leicester to the A1 at Newark. Orbital movements are less well accommodated, there being only a partial Ring Road (A52 and A6514).

5.2.8 Nottingham residents and businesses have also benefited from the opening of the International Rail Terminal at St Pancras and services to mainland Europe via High Speed One and the Channel Tunnel. Nottingham East Midlands Airport also provides access to a range of European destinations.

5.3 Population and Economy

5.3.1 Nottingham is a city of contrasts: It has an attractive and successful City Centre with nationally acclaimed shopping facilities and a vibrant and growing leisure and cultural life attracting around 12 million visitors a year who spend over £460million. Nottingham is a designated Core City, recognised as a city of national importance, and an important driver of the East Midlands regional economy. It is also a designated Science City, in recognition of the vital importance of the two hospitals and two universities to its economy, particularly in terms of offering knowledge intensive jobs and spin-out opportunities. There is a strong service sector presence including education, health, public administration and business services. However Nottingham City also has some of the worst areas of deprivation and under achievement in the country.

5.3.2 The Index of Multiple Deprivation (2007) ranks Nottingham 13th out of the 354 local authority districts in England. The high level of deprivation affects an extensive part of the city, with 56 of the 176 Super Output Areas being within the 10% most deprived in the country, and 106 in the worst 20%. Sixty percent of residents live in the 20% most deprived areas of the country.

5.3.3 Mosaic © is a geo-demographic tool to describe different groups within a population. This sophisticated tool includes extensive information on socio-economic and lifestyle factors. **Figure 5.1** shows the ten Mosaic groups living in Nottingham, with the population per group

and their proportion. This illustrates that there are a number of dominant groups in Nottingham, compared to the national average – Groups D, E, F and G. **Figure 5.2** shows where Groups F and G live in Nottingham.

5.3.4 In 2008, Nottingham City's resident population was estimated to be 292,400. Nottingham's population may be larger than this census-based figure: in 2008, there were 306,876 people resident in the City registered with primary care practices – an additional 14,476 over and above the census estimate. Overall, there is a rising trend in the population, with a 23,500 increase since 2001 and a projected rise to at least 301,400 by 2013 and 309,600 by 2018. While the population increase remains significant, it seems to be slowing down.

5.3.5 The main reasons for the population increase are international migration (recently from Eastern Europe) and an increase in university students, supported by a big increase in house building. The number of births has risen considerably and is likely to continue to rise over the next five years. However, the proportion of children is lower than average, although much less so for under-fives. This may indicate that although birth rates are comparatively high, a considerable number of parents and children leave the City before starting school. The City therefore gains young adults due to migration while losing all other age groups.

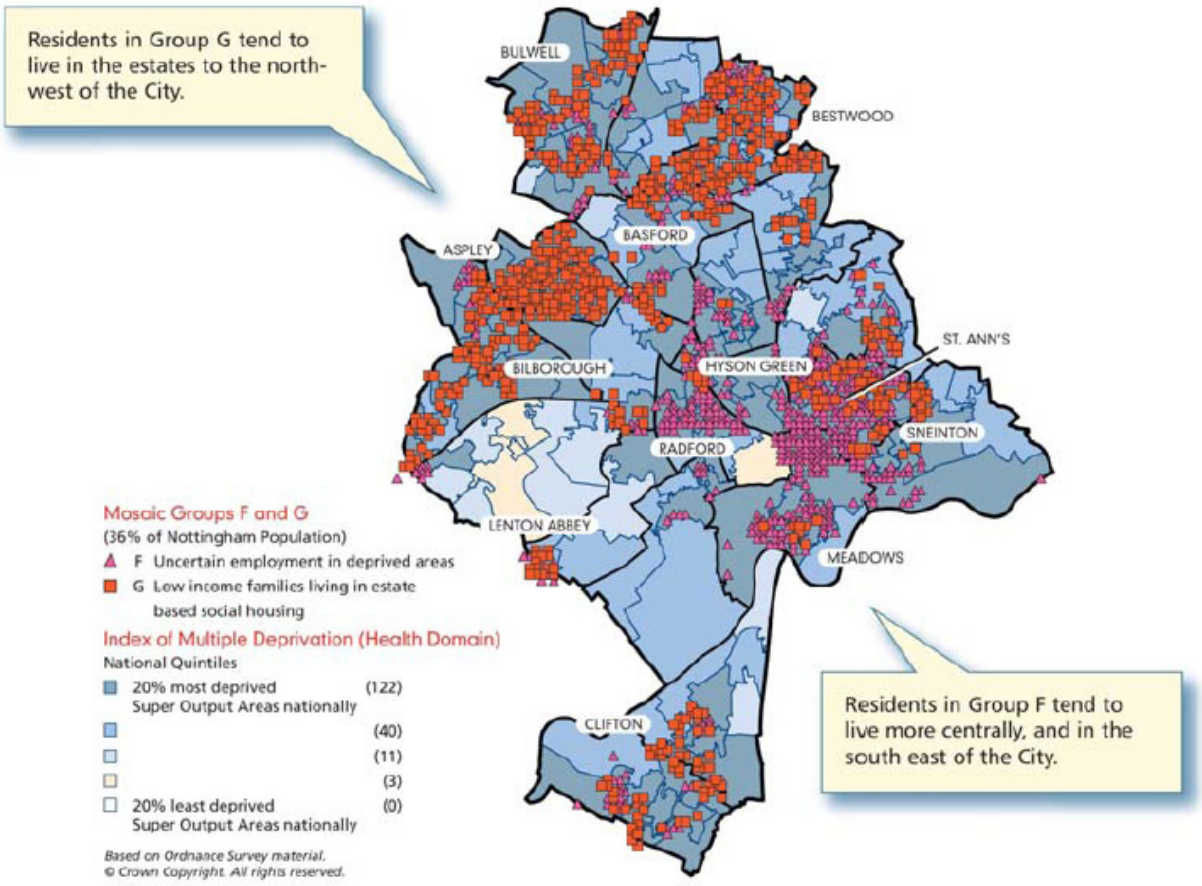
Figure 5.1 Nottingham's Mosaic profile with key national Mosaic lifestyle indicators

Mosaic Group	Mosaic Tile	Nottingham Population	% population by Mosaic group	Nottingham:England Population Index	Index of Multiple Deprivation	Long-term illness	Smoker or buys tobacco products	Heavy smokers	Bad diet	Drink alcohol daily	Heavy/ medium beer drinking
A	Career professionals living in sought after locations	9,122	3.3	30	41	59	80	38	68	174	58
B	Younger families living in newer homes	13,672	4.9	43	75	71	92	70	102	83	100
C	Older families living in suburbia	15,071	5.4	31	70	77	91	57	78	106	62
D	Close-knit, inner city and manufacturing town communities	40,878	14.7	86	134	104	109	109	108	88	160
E	Educated, young, single people living in areas of transient populations	52,787	19.0	272	123	79	99	92	80	97	130
F	People living in social housing with uncertain employment in deprived areas	45,182	16.2	347	182	185	113	195	138	59	143
G	Low income families living in estate based social housing	53,980	19.4	297	181	153	125	203	155	68	173
H	Upwardly mobile families living in homes bought from social landlords	29,560	10.6	99	144	124	116	151	126	73	118
I	Older people living in social housing with high care needs	10,072	3.6	139	144	136	106	42	89	85	72
J	Independent older people with relatively active lifestyles	8,084	2.9	42	87	83	91	93	73	146	77

1. Mosaic uses an index, where 100 is the England average, enabling us to benchmark our population groups and their atributes against other areas with a similar demography.
2. 1 in 3 residents are from Groups F and G, which have the highest index for deprivation and long-term illness.
3. Groups F and G are also the heaviest smokers, have the worst diets and are the heaviest drinkers.

5 Baseline Data

Figure 5.2 Nottingham City: Where Mosaic Groups F and G live and levels of deprivation

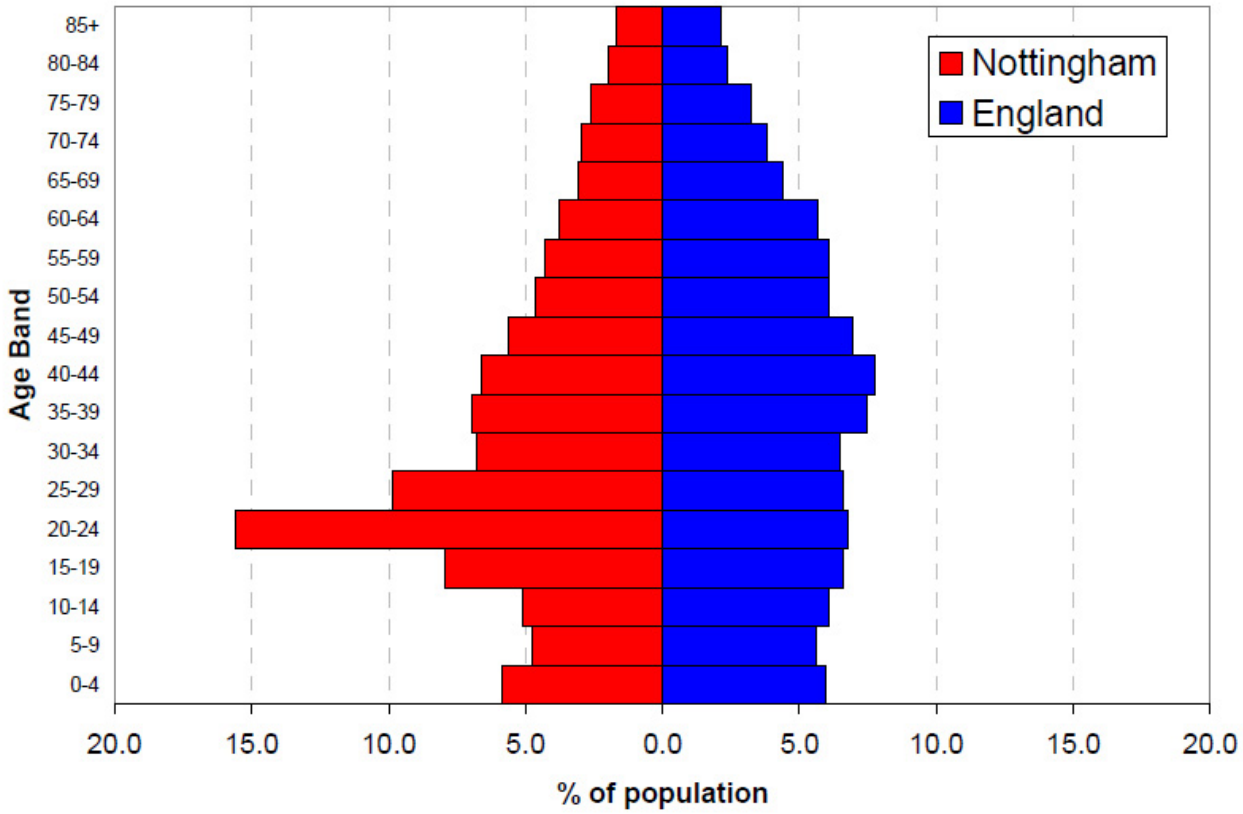


Source: Index of Multiple Deprivation, Experian Public Sector Mosaic

5.3.6 The City has a very young population as shown in **Figure 5.3**, with a high proportion (30%) of people aged 18 to 29, due largely, but not entirely, to the presence of the two universities (Over 45,000 full time students attend Nottingham's two universities, of which more than 34,000 live within the City boundary so students account for approximately 1 in 9 of the population). The percentages in other age-groups are commensurately lower than average, with the proportion aged 40 to 69 being particularly low. The trends in the age structure of the city do not follow the average national trends. In the short to medium term, the city is unlikely to follow the national trend of increasing numbers of people over retirement age.

5.3.7 Educational attainment is improving with 67% of pupils at City secondary schools achieved 5 or more A* to C grades at GCSE in 2009, Nottingham's highest level of attainment to date.

Figure 5.3 Age structure for Nottingham City



5.3.8 Another major strength and a significant opportunity is that the City lies at the heart of a much larger urban area. It has undergone a transition with sectors that will leave the economy in a good position to bring future growth. The recent designation as a Science City is a good reflection of this. Big name companies have also demonstrated their commitment to the City; Experian has built its new European HQ on the ng2 edge-of-centre business park. Nottingham is also at the centre of the region's main economy - Greater Nottingham has approximately 15,700 VAT registered businesses, 299,700 jobs and around 25,500 residents in self-employment. [5]

5.3.9 Nearly 60% of the jobs (181,400) are within the Nottingham City boundary. A number of different research reports project growth in jobs, to be realised by developments such as Science City and the Eastside Regeneration Zone. [6]

5.3.10 Until recently, whilst unemployment has fallen and the number of jobs has risen, this has been managed without significant traffic growth. It has been contained to just 1.2% over the last five years, a far lower growth rate than previously and lower than comparable cities in the UK. Public transport use has grown against the national trend. However, both Greater Nottingham and Nottingham City have been affected by the recent economic

5 Sources: Small Business Service, 2007, 2008 Annual Business Inquiry, July 2008-June 2009 Annual Population Survey.

6 Source: 2008 Annual Business Inquiry.

5 Baseline Data

downturn, with unemployment levels rising by 15% from February 2009 to February 2010 in Greater Nottingham and 16% in the City over the same period, however this is a smaller rate of increase than in recent quarters.

5.3.11 Within the City boundary employment rates remain low, with some parts of society being disproportionately disadvantaged. The 2007 employment rate for the City was significantly lower than nationally. A high proportion of "workless" people are economically inactive, including sickness/disability related benefits and those for lone parents. These groups typically need the most help to gain employment, as, amongst other reasons, they tend to have low or outdated skills, low confidence and little recent work experience.

5.3.12 The City Council has designated three Regeneration Zones to drive city centre regeneration by allowing the city centre to expand, establishing new residential areas, and linking communities back into the city centre. The Southside Regeneration Zone is focused on the railway station, and allows for the city centre to expand to the south whilst improving linkages with The Meadows community. The Eastside Regeneration Zone will transform the eastern fringe of the city centre, provide new business and housing locations, and link St Anns and Sneinton with the city centre. The Waterside Regeneration Zone will provide high quality residential-led mixed use communities focussed on the river and the canal.

5.3.13 It is estimated that congestion costs the East Midlands regional economy over £935 million per annum in lost time with delays and negative impacts on economic productivity and these impacts are felt most strongly in the urban areas. Greater Nottingham is estimated to suffer direct economic costs of around £310 million per annum, with the local road network in Nottingham accounting for £160m of this cost with peak traffic delay identified as being particularly severe. The survey results of the 6Cs (Nottingham, Leicester, Derby and its surrounding Counties) Congestion Management Study for the morning peak hour (8am to 9am found that the areas worst affected by congestion are the radial routes running in and out of the three main cities of Nottingham, Leicester and Derby, and on city ring roads, where delays are at their most severe in the peak periods. In the case of Greater Nottingham, the analysis suggests a significant proportion of the delay cost is experienced by bus passengers. Local businesses identify increasing congestion as a significant threat to business competitiveness and growth.

5.3.14 Future trends indicate that the amount of road travel within the Three Cities sub-region is likely to increase significantly over the next 10 to 20 years without significant intervention. This is partly because of increasing car ownership per head of population (which is forecast by Government to continue to rise throughout the next 20 years), and partly because of plans for increasing economic activity and growth in population placing significant pressures on the transport system.

5.4 Climate and CO2

5.4.1 It is now widely accepted amongst the scientific community that global emissions of greenhouse gases due to human activity continue at today's levels, then average global temperatures could rise by 4°C by as early as 2060 and up to 6°C by the end of this century [7]. Alongside frequent and unpredictable extreme weather events, these temperature rises

7 United Nations Environment Programme (UNEP) (2009). Climate Change Science Compendium. Available at: http://www.unep.org/compendium2009/

will bring severe and permanent changes to regional climates with impacts on global economies and socio-political instability; resulting in growing conflicts, public health related deaths and migration of peoples. It is important to note that early action could prevent some of the worst impacts of climate change.

5.4.2 To avoid the most dangerous impacts of climate change, we must limit the rise in temperature to no more than 2°C, [8] which means that global emissions must start falling before 2020 and then fall to at least 50% below 1990 levels by 2050.

5.4.3 In recognition of this, the UK has committed to cut its own greenhouse gas emissions by 34% from 1990 levels by 2020[9], and potentially by 42% if other countries play their part at the global climate negotiations. The UK will make an above average contribution within the EU, reflecting our relatively high income and by 2050 cut CO_2 emissions by 80%. This commitment has resulted in the Government setting detailed carbon budgets nationally and, effectively, for large organisations, through the Climate Change Act[10].

5.4.4 Action to reduce CO_2 emissions at local level will also help to reduce fossil fuel reliance and enhance energy security, create new economic opportunities and bring wider environmental benefits.

5.4.5 However the levels of greenhouse gases already in the atmosphere are sufficient to guarantee some level of climate change and current data indicates that we are already locked in to around 40 years of unavoidable change due to the life cycle of carbon within the atmospshere[11].

5.4.6 UK Climate Impacts Change Programme (UKCIP) [12]UKCP09 science report: *The climate of the United Kingdom and recent trends* provides data on recent observed climate trends for the UK:

- Average global temperature and sea level have risen since the late 19th century, and at an increased rate over the past few decades.
- Warming of the global climate system is unequivocal, with global average temperatures having risen by nearly 0.8 ºC since the late 19th century, and rising at about 0.2 ºC/decade over the past 25 years.
- It is very likely (>90% probability, Intergovernmental Panel on Climate Change) that man-made greenhouse gas emissions caused most of the observed temperature rise since the mid 20th century.

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8 At the G8 summit held in L'Aquila, Italy, in July 2009, world leaders agreed that the increase in global average temperatures should not exceed 2 degrees Celsius over pre-industrial levels by 2020. http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=593&ArticleID=6245&l=en

9 Climate Change Act, 2008.

10 Further details available at: http://www.hm-treasury.gov.uk/bud_bud09_carbon.htm

11 United Nations Environment Programme (UNEP) (2009). Climate Change Science Compendium. Available at: http://www.unep.org/compendium2009/

12 http://www.ukcip.org.uk/index.php?option=com_contents&task=view&id=353&Itemid=408 and http://ukclimateprojections.defra.gov.uk/content/view/512/9/

5 Baseline Data

- Average UK temperature has risen since the mid 20th century, as have average sea level and sea surface temperature around the UK coast. Over the same time period, trends in precipitation and storminess are harder to identify.

- Central England Temperature has risen by about a degree Celsius since the 1970s, with 2006 being the warmest on record. It is likely (>66% probability, IPCC) that there has been a significant influence from human activity on the recent warming.

- Annual mean precipitation over England and Wales has not changed significantly since records began in 1766. Seasonal rainfall is highly variable, but appears to have decreased in summer and increased in winter, although with little change in the latter over the last 50 years.

- All regions of the UK have experienced an increase over the past 45 years in the contribution to winter rainfall from heavy precipitation events; in summer all regions except NE England and N Scotland show decreases.

- Severe windstorms around the UK have become more frequent in the past few decades, though not above that seen in the 1920s.

- Average temperature across all regions of the UK has risen since the mid 20th century. Over the same time period, trends in precipitation are harder to identify.

- All regions of the UK have experienced an increase in average temperatures between 1961 and 2006 annually and for all seasons. Increases in annual average temperature are typically between 1.0 and 1.7 °C, tending to be largest in the south and east of England and smallest in Scotland.

5.4.7 UKCIP also provides data on regional emissions scenarios. The predictions have been made using a computer model based on natural variation and human influence. The main human influence is the emission of greenhouse gases. How much our climate will change depends on net global greenhouse gas emissions. The UKCIP model was used to predict changes in climate based on two different scenarios; one using high emissions of greenhouse gases and another using low emissions. N.B. Due to the rapid industrialisation of China and India we are already operating above the high emissions model.

5.4.8 The regional emissions scenarios shown in **Figures 5.4** and **5.5** and **Table 5.2** predict that the East Midlands will continue to get warmer, wetter and windier, with more storms and flooding in the winter and more droughts in the summer. This could have some very severe consequences for the city of Nottingham e.g. increased temperatures, evaporation and changing rainfall patterns would mean less water available from the River Trent and Derwent valley reservoir system, exacerbated by an increased likelihood of summer droughts and higher water demand for irrigation, whilst in winter there will be an increase in rainfall leading to increased flooding risks.

5.4.9 Nottingham has been very successful over the last two LTP periods in increasing the capacity and use of public transport, cycling, tram and foot traffic over personal vehicle use as highlighted in sections 5.3.11 and 5.3.12. In 2006 transport represented 21% of the city's total energy consumption. Per capita energy use for transport across the city has fallen by 3.2% from 2005 to 2007. **(13)**

5.4.10 Whilst vehicles can be expected to get more efficient in the future, the impact of technological advances may be countered by increasing vehicle use. However Nottingham is a city with a constrained highway network. The Government is currently funding a number of programmes to promote the uptake of electric vehicles. However reducing carbon dioxide and other greenhouse emissions from transport will also require reducing the need to travel through integrated spatial planning and provision of high quality alternatives.

Figure 5.4

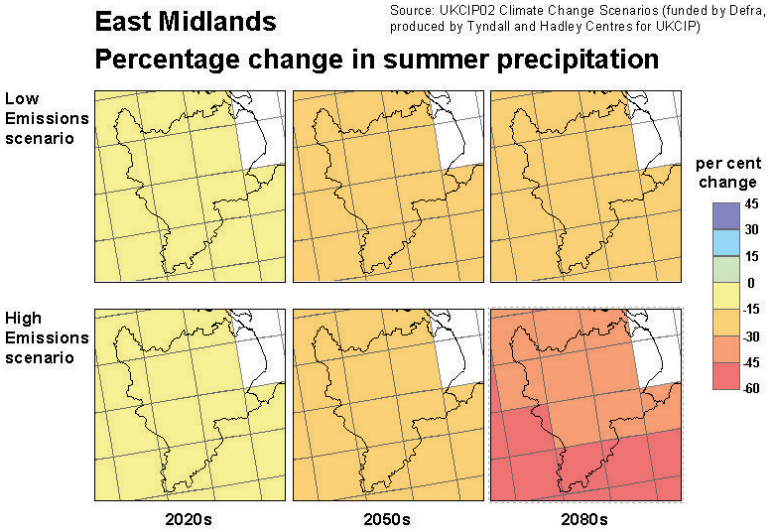


Figure 5.5

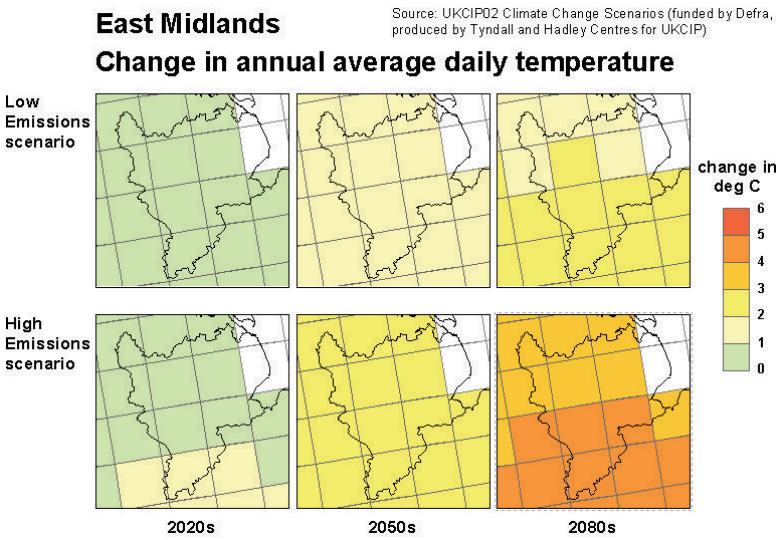


Table 5.2 UKCIP emissions scenarios for the East Midlands region for the period 2010 - 2039

	UKCP Emissions scenarios for the East Midlands region for the period 2010 – 2039		
	The wider range is defined as the range from the lowest to highest value of change for all emissions scenarios and all three (10, 50, and 90%) probability levels for each 30-year time period.		
Emissions scenario	**Low**	**Medium**	**High**
The central estimate of increase in **wintermean temperature**	**1.3ºC**; it is very unlikely to be less than 0.5ºC and is very unlikely to be more than 2.1ºC. A wider range of uncertainty is from 0.5ºC to 2.2ºC.	**1.3ºC**; it is very unlikely to be less than 0.6ºC and is very unlikely to be more than 2.1ºC. A wider range of uncertainty is from 0.5ºC to 2.2ºC.	**1.3ºC**; it is very unlikely to be less than 0.5ºC and is very unlikely to be more than 2.2ºC. A wider range of uncertainty is from 0.5ºC to 2.2ºC.
The central estimate of increase in **summer mean temperature**	**1.5ºC**; it is very unlikely to be less than 0.6ºC and is very unlikely to be more than 2.5ºC. A wider range of uncertainty is from 0.4ºC to 2.5ºC.	**1.4ºC**; it is very unlikely to be less than 0.5ºC and is very unlikely to be more than 2.5ºC. A wider range of uncertainty is from 0.4ºC to 2.5ºC.	**1.4ºC**; it is very unlikely to be less than 0.4ºC and is very unlikely to be more than 2.4ºC. A wider range of uncertainty is from 0.4ºC to 2.5ºC.
The central estimate of increase in **summer mean daily maximum temperature**	**2ºC**; it is very unlikely to be less than 0.7ºC and is very unlikely to be more than 3.4ºC. A wider range of uncertainty is from 0.5ºC to 3.4ºC.	**1.9ºC**; it is very unlikely to be less than 0.5ºC and is very unlikely to be more than 3.4ºC. A wider range of uncertainty is from 0.5ºC to 3.4ºC.	**1.8ºC**; it is very unlikely to be less than 0.5ºC and is very unlikely to be more than 3.4ºC. A wider range of uncertainty is from 0.5ºC to 3.4ºC.
The central estimate of increase in **summer mean daily minimum temperature**	**1.6ºC**; it is very unlikely to be less than 0.7ºC and is very unlikely to be more than 2.7ºC. A wider range of uncertainty is from 0.6ºC to 2.7ºC.	**1.5ºC**; it is very unlikely to be less than 0.6ºC and is very unlikely to be more than 2.6ºC. A wider range of uncertainty is from 0.6ºC to 2.7ºC.	**1.5ºC**; it is very unlikely to be less than 0.6ºC and is very unlikely to be more than 2.7ºC. A wider range of uncertainty is from 0.5ºC to 2.7ºC.
The central estimate of change in **annual mean precipitation**	**1%;** it is very unlikely to be less than –4% and is very unlikely to be more than 6%. A wider range of uncertainty is from –5% to 6%.	**0%;** it is very unlikely to be less than –5% and is very unlikely to be more than 6%. A wider range of uncertainty is from –5% to 6%.	**0%;** it is very unlikely to be less than –5% and is very unlikely to be more than 6%. A wider range of uncertainty is from –5% to 6%.
The central estimate of change in **winter mean precipitation**	**6%;** it is very unlikely to be less than –3% and is very unlikely to be more than 16%. A wider range of uncertainty is from –3% to 16%.	**5%;** it is very unlikely to be less than –3% and is very unlikely to be more than 16%. A wider range of uncertainty is from –3% to 16%.	**6%;** it is very unlikely to be less than –2% and is very unlikely to be more than 16%. A wider range of uncertainty is from –3% to 16%.
The central estimate of change in **summer mean precipitation**	**–6%;** it is very unlikely to be less than –21% and is very unlikely to be more than 11%. A wider range of uncertainty is from –22% to 15%.	**–6%;** it is very unlikely to be less than –22% and is very unlikely to be more than 12%. A wider range of uncertainty is from –22% to 15%.	**–4%;** it is very unlikely to be less than –20% and is very unlikely to be more than 15%. A wider range of uncertainty is from –22% to 15%.

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5.5 Material Assets (Minerals, Waste, Energy and Fossil Fuels)

5.5.1 The loss of material assets in the form of landfill capacity, minerals availability, peak oil and fossil fuels are all significant environmental issues, plus waste management and minerals extraction can create impacts in terms of transportation.

Minerals and Aggregates

5.5.2 Nottingham's geological profile comprises the coal measures which underlie much of the City at varying depths consisting of inter-bedded mudstone, siltstone and sandstone with common coal seams; to the north west of the city there are deposits of Magnesium Limestone and Marl; further southeast towards the city centre is Sherwood Sandstone overlain by the Triassic Sneinton Formation (formerly Keuper Waterstones) to the east and the Mercia Mudstones (formerly Keuper Marl) to the east and south; superficial deposits include an area of alluvial deposits, which including sand and gravel and/or clay associated with the River Trent flood plain and the flood banks of the River Leen. Looking beyond the City boundary, Nottinghamshire contains nationally important reserves of coal, sand, gravel and gypsum, and others including clay and limestone but these are inevitably limited.

5.5.3 The movement of minerals and/ or the importing of waste to infill mineral workings, can generate large volumes of traffic. Transport options include rail, road, water, pipeline or conveyor. Coal used to supply power stations is ideally suited to rail transport where large quantities of mineral need to be conveyed between fixed points. Other minerals, such as sand and gravel, usually require the greater flexibility offered by road transport since markets are more local and scattered. However some sand and gravel operations in the Trent Valley are able to make use of barges to carry material to markets in Yorkshire and Humberside. Pipelines or conveyors may convey waste materials, such as colliery spoil and power station ash.

5.5.4 The potential off-site effects of road traffic are:

- Increasing the number and size of vehicles on the road which may cause congestion, accidents, difficulties for pedestrians, particularly in areas where the road network may not be suitable for concentrated movements of Heavy Goods Vehicles (HGVs);
- Damage to roads and verges;
- Spillage onto roads causing mud and dust;
- To create visual intrusion, air pollution, dust, noise and vibration in areas adjacent to the roads;
- Damage to property, particularly historic buildings from vibration and spray eroding stone work.
- On-site, the potential effects are largely noise and dust in neighbouring areas.

5.5.5 Measures to limit the adverse transport impacts of mineral extraction include:

- Operational measures such as sheeting of lorries; installation of wheel cleaning facilities; controlling hours of working;

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- Highway improvements and maintenance;
- Appropriate lorry routing to mitigate impact upon the environment and disturbance to local amenity.

5.5.6 Bulk movement of minerals by rail or water can help to reduce environmental impacts and improve the sustainability of minerals operations such as the effect on the amenity of residential areas along possible routes and reduced fuel consumption. Outside the City the River Trent already plays an important role with barge transportation of sand and gravel from a number of quarries which offers a lower carbon freight transport solution. There is the capacity to be able to handle more and additional facilities such as wharfs at key locations would make its use even more viable. Where large amounts of material are involved, and the flexibility of road transport is not essential, alternative more sustainable means of transport should be encouraged, but this would need to be balanced with the impacts on the local environment of specific river and waterway corridors in terms of disturbance to habits, species and loss of leisure amenity.

5.5.7 Historically mining played a significant part in the local economy of Nottingham but all the collieries within Nottingham have long since closed. Also in the past mudstone, sandstone, magnesium limestone, marl and local sand deposits have all been quarried in various areas of the City. However the built up nature of the City means that there are unlikely to be any planning applications for mineral extraction in the foreseeable future.

5.5.8 Aggregates are a finite resource and building and maintaining transport infrastructure can require significant amounts of aggregates and cement, and other materials such as asphalt and stone which come from elsewhere. Therefore it is important the demand for such materials is minimised by using recycled products wherever possible.

Waste

5.5.9 The links between waste and transport are quite complex. On the surface it appears that the direct relationship between transport and waste generally has negative effects, however, there can also be positive indirect effects through the generation of renewable fuel sources from waste.

5.5.10 The construction of transport infrastructure has the potential to generate construction waste and it is important that transport policy seeks to minimise the amount of waste arising from transport projects (for example by balancing cut and fill requirements) and to use recycled products (particularly aggregates) wherever possible. Furthermore, recycling materials for construction on site can have beneficial impacts through removing the requirement to transport them elsewhere.

5.5.11 In Nottingham, the majority of waste, in particular municipal waste, is transferred via the road network. This is the main impact of waste on the transport network, as the transfer of waste generally requires the movement of large vehicles, which have greater requirements for manoeuvring etc. These impacts are present, whether the waste is transferred to landfill, to an incinerator or to a recycling facility, although the scale of the impact will vary in relation to the location of the facility for which the waste is destined.

5.5.12 There are opportunities for waste to indirectly have beneficial effects on transport. In particular, it can be used to generate low carbon renewable energy and fuel. Research by the Nottingham Energy Partnership shows that Nottingham is well placed to exploit these opportunities. For example:

- Anaerobic digestion of food and garden waste could generate biogas. A part of the generated renewable energy could be used to fuel electric vehicles;
- The City's waste district heating system may have spare capacity at times of low energy demand. During this period, the electricity generated could power electric vehicle options, particularly for fleet vehicles, including public transport and community transport.

5.5.13 However, transporting waste to facilities that will transform the substance into a renewable fuel source can also have negative impacts, as can the waste (bottom ash etc) from such plants. Therefore, it is important to locate these facilities in areas where it is possible to transport material by rail and water, in order to achieve amore sustainable solution.

Peak oil and energy security

5.5.14 By 2025, the UK will be importing 57% of its oil up from 15% in 2010[(14)]. There has been no appreciable increase in global conventional crude oil output since 2005 despite increases in drilling rig activity (see **Figures 5.6** and **5.7**). The economic crisis over the last 12 months has also reduced global crude oil output and investment in new exploration. This issue has been recognised by Nottingham City Council in the December 2008 motion[(15)] acknowledging the forthcoming impact of Peak Oil.

5.5.15 The International Energy Agency (IEA) now believe that we will pass geological peak oil for conventional crude oil within 10 years, then all oil, including non conventional sources, within 20 years. The IEA also predict a supply crunch due to industry under-investment in five years with tightening demand and supply pressures pushing up prices from as soon as 2010. It can also be seen from **Figure 5.3** that we may already have reached the peak of conventional oil output, given that the amount of crude oil available worldwide has not increased since 2005, despite demand and exploration growth.

5.5.16 Actual global crude oil output is limited by political and economic factors well before geological peak oil is reached. Many credible sources including several governments, independent expert bodies and major oil companies believe we will reach peak oil well in advance of IEA projections. We will see the economic impacts of falling global crude oil supply well before 2020; in reality, with an oil price spike of $147 in 2008, we are already experiencing them.

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14 Analytical Annex, Table 19, UK Low Carbon Transition Plan (2009). Available at: http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx.

15 Nottingham City Council (NCC) (2008). *Motion in the name of Councillor Bull – Forthcoming impact of Peak Oil.* Internal minutes of the meeting of the Nottingham City Council, held at the Council House, Nottingham, on Monday 8th December 2008 at 3:15pm, pages 141-143.

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Figure 5.6 Global crude oil output between 1997 and 2009 (measured in millions of barrels per day)

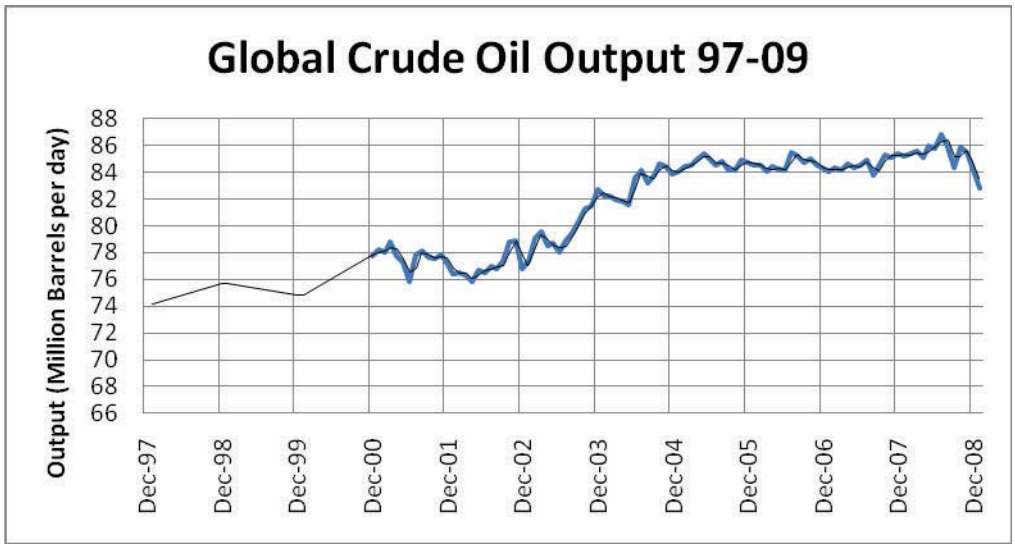
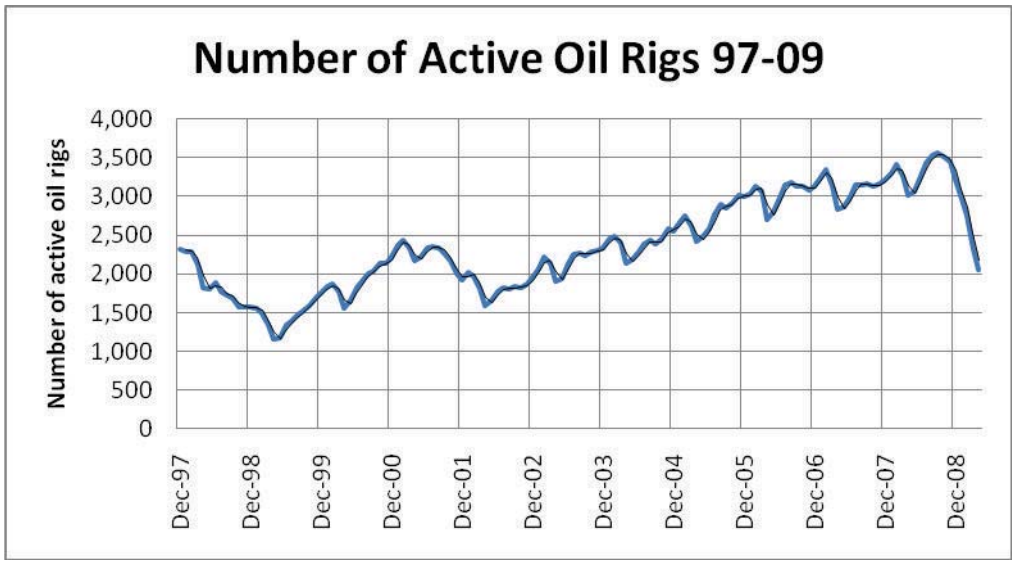


Figure 5.7 Number of active oil rigs worldwide between 1997 and 2009

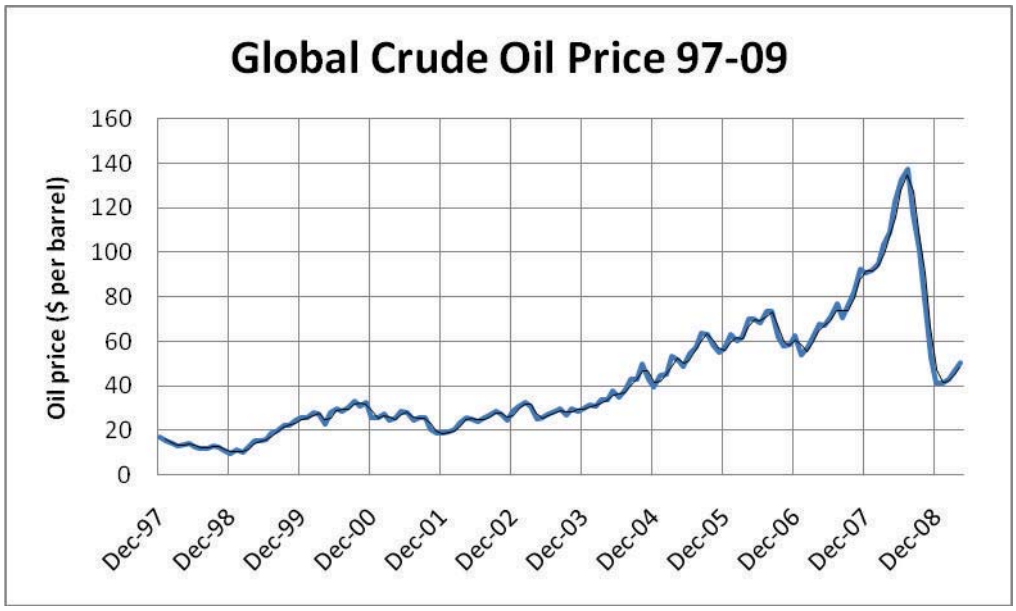


5.5.17 Spikes in the price of crude oil (see **Figure 5.8**), followed by those in energy, food and inflation as experienced in 2008, will become more frequent and more severe, as global oil supply falls and competition for energy resources increases. The IEA has pointed out that any recovery of the global economy will inevitably lead to a recovery in oil demand and consequential steep energy commodity price rises.

5.5.18 As recognised in Nottingham City Council's Peak Oil motion[16], these impacts will clearly have significant effects on the residents and the economy of Nottingham.

16 Nottingham City Council (NCC) (2008). *Motion in the name of Councillor Bull – Forthcoming impact of Peak Oil.* Internal minutes of the meeting of the Nottingham City Council, held at the Council House, Nottingham, on Monday 8th December 2008 at 3:15pm.

Figure 5.8 Global crude oil price between 1997 and 2009 (measured in $ per barrel)



Source: EIA, 2009

Energy

5.5.19 **Figure 5.9** shows that the transport sector is responsible for 21% of the energy consumption in Nottingham. In terms of road transport, although Nottingham's transport fuel consumption rose between 2004 and 2006, the trend has been reversed since then as shown in **Table 5.3** and **Figure 5.10**. Petrol vehicle use in particular is falling with an increasing use of more efficient and lower CO_2 emission diesel. *(Source: Nottingham Energy Partnership, 2009)*

Figure 5.9 Nottingham's total energy use during 2006 a. By consumer type b. By energy use type



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Figure 5.10 Total fuel consumption in Nottingham between 2003 and 2007 (5 yr period) by proportional contribution of different types of road transport systems

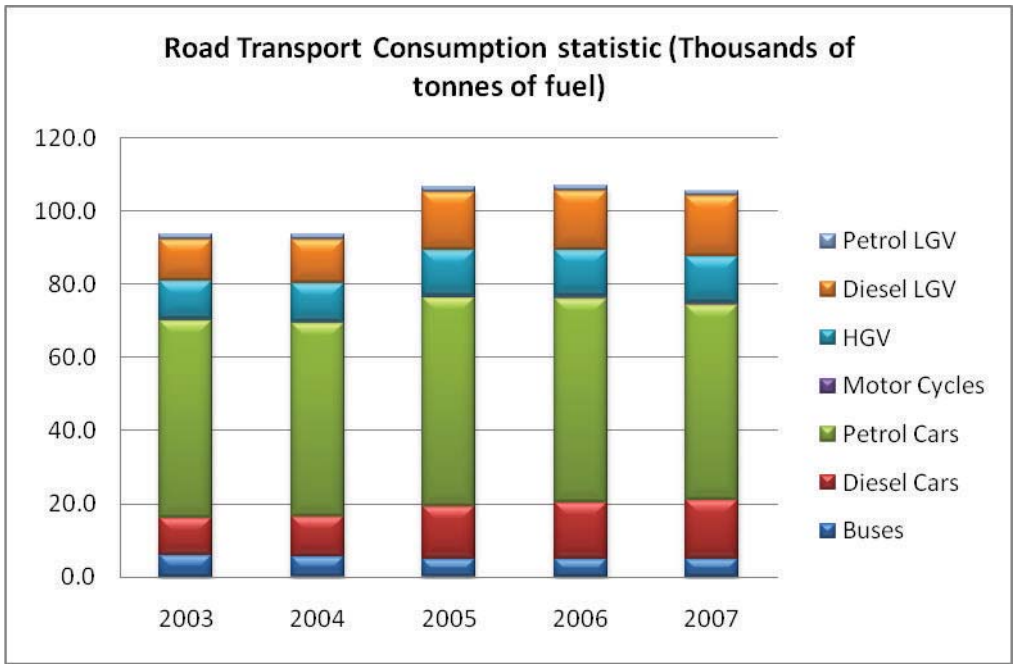


Table 5.3 Total fuel consumption in Nottingham between 2003 and 2007 (5 yr period) by different types of road transport systems (thousands of tonnes of fuel)

	2003	2004	2005	2006	2007
Buses	6.0	5.5	4.8	4.9	5.0
Diesel Cars	10.3	11.1	14.4	15.4	16.2
Petrol Cars	53.7	52.8	57.2	55.8	53.2
Motor Cycles	0.5	0.4	0.6	0.6	0.6
HGV	10.4	10.6	12.4	12.8	12.6
Diesel LGV	11.4	11.9	16.0	16.2	16.7
Petrol LGV	1.5	1.4	1.4	1.4	1.2
Personal [(1)]	70.5	69.8	77	76.7	75
Freight [(2)]	23.3	23.9	29.8	30.4	30.5
Total	***93.8***	***93.7***	***106.8***	***107.1***	***105.5***
[(1)]Personal travel includes buses, diesel cars, petrol cars and motor cycles					
[(2)] Freight includes HGV, diesel LGV and petrol LGV					

5.6 Water

5.6.1 Water resources present a particular problem. As set out in section 5.4 the effects of climate change are likely to create water shortages in the summer months and an increase in the proportion of rainfall falling in storm events which lead to surface run-off rather than absorption. This in turn leads to increased flooding combined with reduced recharge of groundwater, with less availability of water after flooding subsides.

5.6.2 Although rainfall in the UK is high, parts of the East Midlands are among the driest in the country and there are limited natural or artificial facilities to store water in the region. The region has a high population density, which means that there is a relatively small amount of available water for each person and many demands on the available water, including public water supply, industry, irrigation, navigation, recreation, and ecology as shown by these Environment Agency headline statistics:

- The average annual rainfall in the East Midlands is less than 700mm per year, compared to an average of around 900mm for England and Wales;
- Over 1150 million litres of water per day (Ml/d) are abstracted for public water supplies in the East Midlands, and 350Ml/d for industrial uses;
- Domestic water consumption is around 135 litres per person per day.

5.6.3 There are four areas of consideration for the IIA with regard to water:

- Water availability;
- Water quality;
- Flood risk management;
- Use of inland waterways for water freight and leisure corridors;

of which the last three are the most relevant to LTP3.

Local context - water availability

5.6.4 The Environment Agency prepares Catchment Abstraction Management Strategies (CAMS) to assess the availability of water resources. The Lower Trent and Erewash CAMS sets out how the Environment Agency will manage water abstraction over the next few years.[17] It outlines where water is available, and where current rates of abstraction need to be reduced.

5.6.5 The Lower Trent and Erewash CAMS covers an area of 2,045km^2. Downstream of Shardlow the Trent becomes navigable, deepened by locks and weirs. Through the city of Nottingham the river is flanked by formal embankments and riverside developments. Downstream, the river widens as it flows towards the market town of Newark.

17 Source: http://publications.environment-agency.gov.uk/pdf/GEMI0308BNPT-E-E.pdf

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5.6.6 The River Leen rises in the Newstead area, north of Nottingham. It flows southwards through the series of ornamental lakes in the grounds of Newstead Abbey. Continuing downstream the Leen enters the City of Nottingham where the river has been heavily modified – the channel having been canalised and culverted throughout much of its course through the urban area.

5.6.7 The River Erewash is a major tributary of the River Trent within this CAMS area, flowing in a southerly direction through a series of urban areas including Ilkeston and Long Eaton, located to the west of Nottingham. Rather than flow directly into the River Trent, the River Erewash flows into the lake area of Attenborough Nature Reserve, a wetland area designated a Site of Special Scientific Interest (SSSI), created from a former sand and gravel quarry.

5.6.8 The average annual rainfall for the CAMS area is 591mm (based on rainfall data from the period 1961 to 1990). This means there is less than the average annual rainfall for England of 897mm. Rainfall is fairly evenly spread over the catchment, although larger amounts are recorded within the Erewash catchment.

5.6.9 The Lower Magnesian Limestone and Sherwood Sandstone Group are the two major aquifers in the Catchment. The Cadeby Formation, of the Sherwood Sandstone aquifer, is exposed in outcrop in the area to the west of Basford in Nottingham and forms the watershed between the Rivers Leen and Erewash.

5.6.10 Agriculture is the dominant land use in the CAMS area especially east of Nottingham running north towards the Humber Estuary. The area has high quality and productive soils and with the draining of land in parts of the catchment, there has been a move away from pasture to arable cropping.

5.6.11 Forty-seven major industrial process plants have been listed in the CAMS area, including large steelworks and a number of power stations. At Beeston, south west of Nottingham City, a hydroelectric power (HEP) station operates adjacent to a weir that maintains water levels for the Beeston Canal.

5.6.12 The transition from water dependent manufacturing and process industries to the service sector has led to a decline in the amount of water abstracted which has impacted on the Basford area of Nottingham causing flooding due to rising groundwater levels in response to reductions in actual abstraction across the groundwater unit and continued recharge.

Water quality and ecology

5.6.13 River water quality is affected by many factors. These can generally be divided into point sources, which have a traceable discharge point, and diffuse sources, which can not usually be traced back to a single discharge point. Examples of point sources include domestic and industrial waste water; examples of diffuse sources include polluted water and sediment washing off fields, recreational areas, roads and pavements. There have been big improvements in waste water discharges over recent years but pollution from diffuse sources is becoming an increasing threat.

5.6.14 Modifications to the River Trent for flood defence, land drainage and navigation have affected the ecological character of the river. Ecological diversity is limited by the slow flowing, over-deepened nature of the channel. Floodplain areas are also heavily modified and, as a consequence, there are relatively few sites of national conservation importance and fewer still that are dependent upon the supply of water from the river.

5.6.15 The quality of water in different watercourse stretches is compared using the General Quality Assessment (GQA) scheme, in which quality grades are assigned according to the water chemistry; biology & nutrient levels. For Nottingham City DEFRA data (2006) shows that:

Quality grade	***Trend***	***Context***
River water quality – biological (2006)		
Good = 43%	Great improvement on 2005 figure	Still below regional and national level
Fair = 44.9%	Significant decrease since 2005	Above regional and national level
Poor = 12.1%	No change from previous year	Significantly above regional and national level
Bad = 0%	No change from previous year	Above regional and national level

Quality grade	***Trend***	***Context***
River water quality – chemical (2006)		
Good = 53.9%	Decreased since 2005	Below regional and national level
Fair = 36.7%	Increased since 2005	Above regional and national level
Poor = 9.4%	No change from previous year	
Bad = 0%	No change from previous year	

5.6.16 The Water Framework Directive (WFD) is new legislation to improve the quality of water bodies across Europe. It focuses on protecting the habitat of aquatic life, rather than other uses of the water, and sets targets for most water bodies to reach a 'good ecological status' by 2015. The risk of failing these targets has been estimated for a number of key pressures, based on factors such as land use, water use, and pollution pressures.

- 93% of East Midlands rivers are at high risk of failure due to nitrates; less than 1% are at moderate risk;
- 10% are at high risk of failure due to phosphates; 45% are at moderate risk;
- 13% of groundwaters are at high risk of failure due to nitrates, mainly north of Nottingham and south of Lincoln;

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- 23% are at moderate risk of failure from urban discharges;
- 13% of groundwaters are at moderate risk of failure due to urban discharges.

Flood risk and management

5.6.17 The Greater Nottingham Strategic Flood Risk Assessment (SFRA) and River Leen SFRA represent the best currently available flooding information for the City of Nottingham. They should be read in conjunction with the Environment Agency's Flood Zone Maps. Together these documents form the starting point for establishing the risk of flooding to sites in the City. [18][19]

The SFRAs identified that:

5.6.18 Along the River Trent corridor in the City

- The existing River Trent flood defences provide protection against flooding for up to about a 1 in 50 annual chance flood event. The flood defences on the right bank of the River Trent have already been improved through West Bridgford, protecting Silverdale and Wilford within the Nottingham City area.
- The Environment Agency proposes to increase the standard of protection through Nottingham, as part of the Nottingham Trent Left Bank Flood Alleviation Scheme (FAS). Once the Nottingham Trent Left Bank FAS is completed, the City of Nottingham will benefit from flood protection up to a 1 in 100 year standard, based upon current understanding of the FAS and flood risk. If a 1 in 100 year event was to occur prior to the defences being raised, the SFRA has identified a flow route into the City Centre using the Nottingham Canal and railway line which act as secondary channels. This is broadly similar to a flow route observed during the 1947 flooding.
- However it is predicted that flooding will significantly increase with climate change, such that the flood outlines closely resemble the 1 in 1000 annual chance flood event. During a climate change scenario, it is expected that the new defences will overtop and there will be major flooding of the City of Nottingham. Major infrastructure such as the A453 would also be affected.

5.6.19 Along the River Leen corridor in the City

- Generally, the River Leen defences provide protection up to a 1 in 25 year standard and major overtopping occurs during a 1 in 100 year flood event at Bulwell, Basford, Bobbers Mill and Sherwood.However, flooding is predicted to start at a 1 in 5 year flood event north of Moor Bridge at Bulwell, Southwark Street meander and Day Brook confluence in Basford and along the length of Day Brook.

18 Greater Nottingham Strategic Flood Risk Assessment, Summary of Key Findings for Nottingham City Council, July 2008

19 River Leen and Day Brook Strategic Flood Risk Assessment, Summary of Key Findings July 2008

- There are a total of 696 residential and commercial properties at flood risk during a 1 in 100 year event on the River Leen and Day Brook. There are also 99 non-postal properties including tram stops and car parks at flood risk in a 1 in 100 year event. The SFRA predicts that major overtopping of the flood defences occurs at Bulwell, Basford, Bobbers Mill, Radford and Sherwood.

- Overtopping also affects major transport infrastructure such as the railway line, tram line and arterial roads in the north and west of the city. The NET tramline and major road infrastructure (Wollaton Road,Mansfield Road and Valley Road) as well as smaller roads (Main Street, Bulwell and Vernon Road, Basford) are modelled to flood during a 1 in 100 year event and may be impassable.The Robin Hood railway line floods at Southwark Street meander in Basford in a 1 in 50 year event. During a 1 in 100 year flood depths of up to 0.5m are expected on the track at PZ Cussons Soap Factory, Bobbers Mill, Chettles Yard in Radford and Radmarsh Road in Lenton.

- Much of the flooding experienced on the River Leen and Day Brook is attributed to a legacy of unattenuated surface water run-off generated by historic urban development within the Nottingham City boundary and elsewhere.

5.6.20 The River Leen and Day Brook catchment area is located on rocks that are part of the Sherwood Sandstone, which can hold a lot of water. Historically, industry has taken advantage of groundwater for use in their processes and lowered groundwater levels in the Sherwood Sandstone. Reductions in abstraction due to the decline of manufacturing industry and increases in rainfall have resulted in a general rise in groundwater levels and flooding of basements and cellars in the Basford area. However, the groundwater system is complex and the relationship between abstraction and groundwater levels is not straightforward. Within Nottingham City a large area of rising groundwater levels has been identified in Old Basford which causes property flooding.

5.6.21 Sewer Flooding and highway drainage issues have been identified at Daleside Road, Clifton Boulevard, Queens Drive, Lenton Lane, Bagnall Road in Basford/Cinderhill, Moor Road in Bestwood, Ragdale Road, Linby Street and Commercial Road in Bulwell.

Protecting the Railway Line

5.6.22 The SFRA revealed a considerable amount of floodwater flows across, along, or is stored on the Robin Hood Nottingham to Hucknall rail line during times of flood. The railway line in effect becomes a secondary channel for the River Leen during a 1 in 100 year event with water depths of up to 0.5m predicted on it. Major spills of floodwater onto the railway line occur at Old Basford, PZ Cussons Soap Factory, at Bobbers Mill South and at Chettles Yard.At Old Basford, the railway flooding is part of more extensive flooding and cannot be separated. The SFRA has identified the need to protect the railway line and associated properties from flooding, where possible.

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5.6.23 PPS25 [20] points out that road and railway embankments and other linear infrastructure may hold back water or create enclosures to form flood storage areas in addition to their primary function. This may or may not be a deliberate design. It is important that this is recognised, and where use of such infrastructure is proposed for flood management purposes, this should be discussed with the infrastructure owners.

Use of river and waterway corridors

5.6.24 The River Trent is navigable from Shardlow to the Humber, with canal bypasses at Sawley, Cranfleet and Beeston and several large marinas along the river and bypass canals. The system is used extensively by boaters, mainly cruisers and narrow boats, with numerous sailing clubs and rowing clubs.

5.6.25 The Grantham Canal runs for a distance of 33 miles between the River Trent at Nottingham to Grantham, Lincolnshire. The canal is currently undergoing restoration towards navigation.

5.6.26 Colwick Country Park within the City and the National Watersports Centre at Home Pierrepont south of the City boundary provide facilities for many types of boating activity, including a canoe slalom and white water rafting course, whilst Colwick provides a still water trout fishery. Gravel pits have provided large open waters, used for sailing and other watersports, angling and bird watching.

5.6.27 The Trent Valley Way runs along the river and gives a continuous walk from Attenborough to West Stockwith, but walkers can generally continue along the flood banks to the Humber. Locally the Big Track has been developed as 10 mile circular walking and cycling route along the Trent and the canal from Trent Bridge to Beeston Lock. As well as providing a car-free leisure route the Big Track also provides cycle access to a number of businesses in the NG2 and Lenton Lane area.

5.6.28 The River Trent is an under-utilised transport artery within the East Midlands region. The main freight movements are for aggregates between Newark and Gainsborough to Humberside and West Yorkshire and to transport large componants to power stations. The River Trent Water Freight Feasibility Study prepared by emda, emra and British Waterways identifies that there is sufficient capacity on the River Trent to carry an extra million tonnes per annum particularly for the movement of dry bulks and waste. However opportunities are restricted by navigation issues at Newark and currently the largest barges that can reach Nottingham are restricted to 300 tonnes.

5.7 Natural Environment (Landscape, Biodiversity, Soil and Contaminated Land)

5.7.1 Nottingham City has a historic network of open and green spaces whose legacy dates back from the early 18th century and, despite the City's tight urban boundary the city has managed to retain a strong provision of parks, gardens and allotments, along with natural and semi-natural spaces, playing pitches and playgrounds. These are all vital for both human wellbeing and for wildlife and biodiversity.

20 PPS25 Paragraph G3 and Practice Guide/Paragraph 7.16

5.7.2 In December 2006 Nottingham City Council adopted a new Open and Green Spaces Framework "Breathing Space". This strategy recognises the importance of the City's network of open and green spaces and sets the framework for the City Council to plan effectively to ensure that Nottingham's citizens retain adequate provision and access to high quality green spaces, outdoor playing pitches and both formal and informal sport and recreation spaces in the event of any future developments and changes that might take place to the City, in terms of built environment; population and demographic changes; economic expansion or changes in neighbourhoods or local estates.

5.7.3 To support this work the City Council is in the process of preparing three Area Commentaries for the North West, East/Central and Southern areas of the City. The purpose of these Commentaries is to develop a clearer understanding of the existing gaps, issues and opportunities to inform decisions affecting provision and will be the basis for recommending standards in terms of quality and accessibility, which the emerging LDF Core Strategy can consider with other evidence when establishing strategic guidance and policies on open and green space. The Area Commentaries seek to put together both visually and via data audits, the challenges and opportunities that need to be addressed over the next twenty years for quality open and green space infrastructure provision. The key findings from the final drafts for two of the areas are summarised below. Information from the Southern Area Commentary is not available at this stage of the IIA.

5.7.4 Key findings for North West Nottingham

- North West Nottingham contains some of the most deprived areas in the city which tend to be concentrated in some of the large local authority-built estates which are characteristic of this area. There is limited car ownership across the area, with relatively high numbers of households with children, and consequently dependence on public transport, walking or cycling. This creates a specific demand for the local play areas, parks and sports facilities.

- In terms of accessibility, for the typologies where a local standard has been set, the percentage of households in the North West who have access to open and green space provision are high. There is very good provision of both parks and gardens and natural and semi natural green space.

- In terms of quantity, the North West has 35% of the City's population and 36% of the open and green space in the City. This equates to a current level of 5.16 hectares per 1000 population which shows that the North West has good provision of open and green space and that quantity is currently not an issue. However the quality of the open and green space in this area is a major issue with an average score of 37% (below average) across all sites/typologies.

- There is a serious shortfall of allotment provision in the Bestwood, Top Valley and Rise Park areas and also in Broxtowe.

- At local and neighbourhood level play provision in the North West in terms of number of sites is plentiful, with minor gaps around the Broxtowe and Bilborough areas although there is currently a legacy of playgrounds of similar ages, many of which are now in need of refurbishment.

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5.7.5 Key Findings East/Central areas

- The East / Central areas are densely populated and include the city centre and inner city areas such as Radford, Hyson Green, St Ann's, Sneinton, Sherwood which means that the open and green space provision generally is made up of smaller, individual sites.
- There are significant gaps in the natural and semi natural typology and in play above the local hierarchy.
- There are a number of historic sites which are part of the areas landscape character and need to be taken into consideration when looking at future improvement/developments in the area, e.g. St Ann's Allotments, Forest Recreation Ground, Green's Windmill, The Arboretum, etc.
- There are a number of green routes through the areas such as St Ann's Chase and Waterloo Promenade which have the potential to be re-developed/re-instated as green space networks. This will improve links between a number of open and green space sites as well as improving access across the areas. However the natural and semi-natural space at Colwick Park is considered to be relatively inaccessible (judged by distance).
- The quality of the open and green space in this area is a major issue with an average score of 40% (below average) across all sites/typologies.
- At the local level play provision in the area is sufficient. There is however a significant deficiency in provision at a city level which needs to be addressed.
- There are currently no allotments in Area 4 and there is difficulty in identifying potential new sites as it is a heavily built up area. There is also an under provision of allotments in the Sherwood area.
- The inner city nature of most of this sub-area means that opportunities to provide new open and green space sites are extremely limited. Deficiency could however be addressed by improving the quality of spaces; heightening access to existing spaces (both inside the sub area and close to its boundary) and investigating the potential for changing open space use from one typology to another.

Biodiversity

5.7.6 Nottingham has a wealth of wildlife rich sites and areas including parks, open spaces, wildlife corridors, nature reserves, rivers and woodlands and residential gardens. Wildlife also inhabits many other spaces such as walls, roofs and roadside verges that are often over looked.

5.7.7 The City Council has a duty both as a Local Authority and as a land owner to protect and enhance biodiversity to ensure that everyone has a chance to enjoy and benefit from nature now and in the future. The city has over 400 Hectares of natural and semi natural area including woodlands, river corridors and post industrial land, most of which are accessible to the public and free to enjoy. There is also more wild space in the City that forms part of parks or small but important wildlife stepping stones.

5.7.8 Over one fifth (20%) of the City of Nottingham's total land area is made of accessible open and green spaces; there are over 400 hectares of land classed as natural and semi natural space in the city and many other natural areas within parks. The city is also home to Water Voles, birds such as the Peregrine Falcon and at least 6 different species of bats.

5.7.9 Within the city boundary there are:

- 72 geological and biological Sites of Importance for Nature Conservation (SINCs);
- 9 Designated Local Nature Reserves (LNRs): Beeston Sidings; Bulwell Hall Park; Clifton Grove/Clifton Wood/Holme Pit; Colwick Wood; Harrisons Plantation; Martin's Pond; Seller's Wood and Sunrise Hill. Also small areas of Nottingham Canal (Trowell to Balloon Wood) and Alexandrina Plantation fall inside the city boundary.
- 4 Nationally important Sites of Special Scientific Interest (SSSIs): Colwick Wood, Holme Pit (Clifton), Seller's Wood (Bulwell), and Wilwell Cutting.

5.7.10 Evidence suggests that the trends in biodiversity are almost exclusively negative. With relatively few exceptions, over time there has been both a reduction in the area and quality of habitats of conservation concern, and a decline (or in some cases a loss) of species of conservation concern. There has also been a loss of diversity more generally, particularly as a result of damage to ecological corridors connecting sites of interest. Further detail is provided in the Local Biodiversity Action Plan for Nottinghamshire. Most of the decline and loss relates to agricultural practice, physical development, and lack of sensitive management, and transport projects have contributed relatively little to this decline. Conversely the role played by highway verges, lagoons and roadside trees can be significant in providing ecological corridors and habitats of value in their own right.

Soil and contaminated land

5.7.11 Contamination of land may threaten public health and safety, the natural environment, the built environment and economic activities, through its impacts on the users of the land, and on neighbouring users. The presence of contamination can affect or restrict the beneficial use of land, although development presents an opportunity to deal with it. Land contamination, or the possibility of it, is therefore a material planning consideration in the preparation of development plan documents and in taking decisions on individual planning applications.

5.7.12 "Contaminated Land" is defined in the Environmental Protection Act (1990) (with amendments made in the Environment Act 1995 (Part 2A) and the Radioactive Contaminated Land (Modification of Enactments)(England) Regulations 2006) as: "*Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in on or under the land, that:*

- *Significant harm is being caused or there is a significant possibility of such harm being caused; or*
- *Pollution of controlled waters is being, or is likely to be caused*"

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5.7.13 In order for a site to be determined as "Contaminated Land" under the EPA Part IIA legislation, a "pollutant linkage" must exist. The pollutant linkage consists of a **pollutant** (the contaminant), a **pathway** (the route for the contaminant to move along) and a **receptor** (person, property). All three must be linked in order for the land to be determined as contaminated.

5.7.14 The Government's objectives for dealing with contaminated land are:

- To identify and remove unacceptable risks to human health and the environment;
- To seek to bring damaged land back into beneficial use; and
- To seek to ensure that the cost burdens faced by individuals, companies and society as a whole are proportionate, manageable and economically sustainable.

5.7.15 The real or perceived costs of treatment/remediation can act as significant barriers to successful development, particularly if the contamination issues and their solutions are not identified early and integrated into the scheme for development of the site. Where land is affected by contamination, development can provide an opportunity to address the problem for the benefit of the wider community and bring the land back into beneficial use.

5.7.16 In practice, most sites with a previous potentially contaminating history are remediated to a condition suitable for use under the planning regime rather than the Part IIA legislation. Part IIA legislation would not normally be applied to sites remediated as suitable for use under the planning process.

5.7.17 The redevelopment of previously developed sites is central to the achievement of the Government's objective of ensuring sustainable development. Such development minimises the need to develop 'greenfield' land.

5.7.18 Trends in relation to derelict/previously used land (whether contaminated or not) are positive. Strong planning policy presumption for using "brownfield" land over and above "greenfield" sites, in accordance with national policy, has led to significant reductions in the levels of derelict land: 95% of housing built in the last seven years was on brownfield sites. **(21)**

5.7.19 The approach under Part IIA focuses on the risks caused by land contamination. It recognises that the risks presented by any given level of contamination will vary according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Part IIA of the 1990 Act focuses on voluntary remediation where possible. Much of this will be secured through the planning system rather than through Part IIA, because development provides both the opportunity and resources to carry out remediation.

5.7.20 Nottingham City Council has a duty to inspect the land within its area to identify contaminated sites and act as an enforcing authority for contaminated land. The identification and safe re-use of contaminated land plays a key part in the sustainable development of the area. The first Contaminated Land Strategy (Phase 1) was published in July 2001. A revised strategy is currently in preparation.

21 Nottingham City Council, 2008

5.7.21 At the present time (3 March 2010), no sites have been determined as contaminated land or Special Sites in the Nottingham City Council area

5.7.22 In certain cases, the Environment Agency is the regulatory authority for the contaminated land legislation. This arises if the site under investigation has been used for certain processes, or if the site is situated on bedrock classed as a Major Aquifer (i.e. water-bearing strata). In the legislation, these sites are referred to as "Special Sites". Details are given in Statutory Instrument 2000 No 227 The Contaminated Land (England) Regulations 2000, Section 2 and Schedule 1.

5.7.23 There are two major aquifers in the Nottingham City Council area, the Upper Permian Cadeby Formation (formerly Lower Magnesian Limestone, locally "Bulwell Stone") and the Permo-Triassic Sherwood Sandstone Group rocks, which include the Lenton Sandstone and the Nottingham Castle Sandstone Formations (formerly Lower Mottled Sandstone and Bunter Pebble Beds respectively).

5.7.24 Many of the former quarries and colliery pits were used as landfill, which represents a particular problem for Nottingham. A register of landfill sites was only introduced following The Control of Pollution Act 1974. However, former landfill sites were not included. These sites represent a particular area of concern in relation to contaminated land because of the risk to human health and controlled water from landfill gas and leachate.

5.8 Urban Environment including Townscape and Cultural Heritage

5.8.1 Much of the city centre of Nottingham was built on sandstone, which has been extensively excavated for caves since medieval times. The city is substantially built up and has a lengthy and varied history including considerable industrial development. The City has not however inherited an industrial wasteland as vacant areas such as power stations, railway lands and colliery sites have largely undergone redevelopment.

5.8.2 The city was dominated by the textile industry throughout the 18th and early 19th century and mining and mineral extraction represents an industry of some historic importance for Nottingham, with many former collieries and quarries located throughout the city. Subsequently, there is a great deal of historic and architectural heritage within Nottingham, including: 29 Building Conservation Areas and 795 Listed Buildings (10 Grade I listed buildings; 754 Grade II listed and 31 Grade II* listed; and 13 Scheduled Ancient Monuments.

5.8.3 Townscape character is difficult to quantify, and there are no formal measures of the quality of designated areas such as conservation areas. However generally there is positive correlation between townscape quality and economic vitality. The character of the city centre has been greatly improved through opportunities provided by regeneration and development and through a positive town centre management programme. The City Council's work to redesign the Old Market Square and make the City more pedestrian friendly has helped to retain the attractiveness of the City Centre.

5.8.4 Nottingham's culture and leisure offer is excellent and improving, with many nationally recognised facilities, including world class sporting venues such as Trent Bridge (just outside the City boundary), Nottingham Tennis Centre, the National Ice Centre/Trent FM Arena, four theatres, the new Nottingham Contemporary and Art Exchange galleries, and the Broadway independent cinema and film centre. There are around 300 leisure units, including clubs,

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pubs, café bars and restaurants, in the City Centre. Tourism, centred around Robin Hood, Byron and DH Lawrence, is also a key element of the cultural offer of the wider conurbation. The City's shopping facilities are also well developed and Experian data ranks Nottingham as the 6th best retail centre in Britain in terms of comparison shopping expenditure in 2008.

5.8.5 The character of residential areas is more mixed, with some areas improving but others declining due to local deprivation, environmental crime, and/or increases in traffic congestion.

5.9 Equality and Inclusion

5.9.1 To fulfil the requirements for carrying out an Equalities Impact Assessment. this section has been included in addition to the themes normally considered by an SEA and highlights the available socio-demographic data regarding the main groups which should be considered for EqIA i.e. age; gender; sexual orientation and gender reassignment (lesbian, gay, bisexual and transgender or LGBT); and faith communities (religion or belief).

Ethnicity

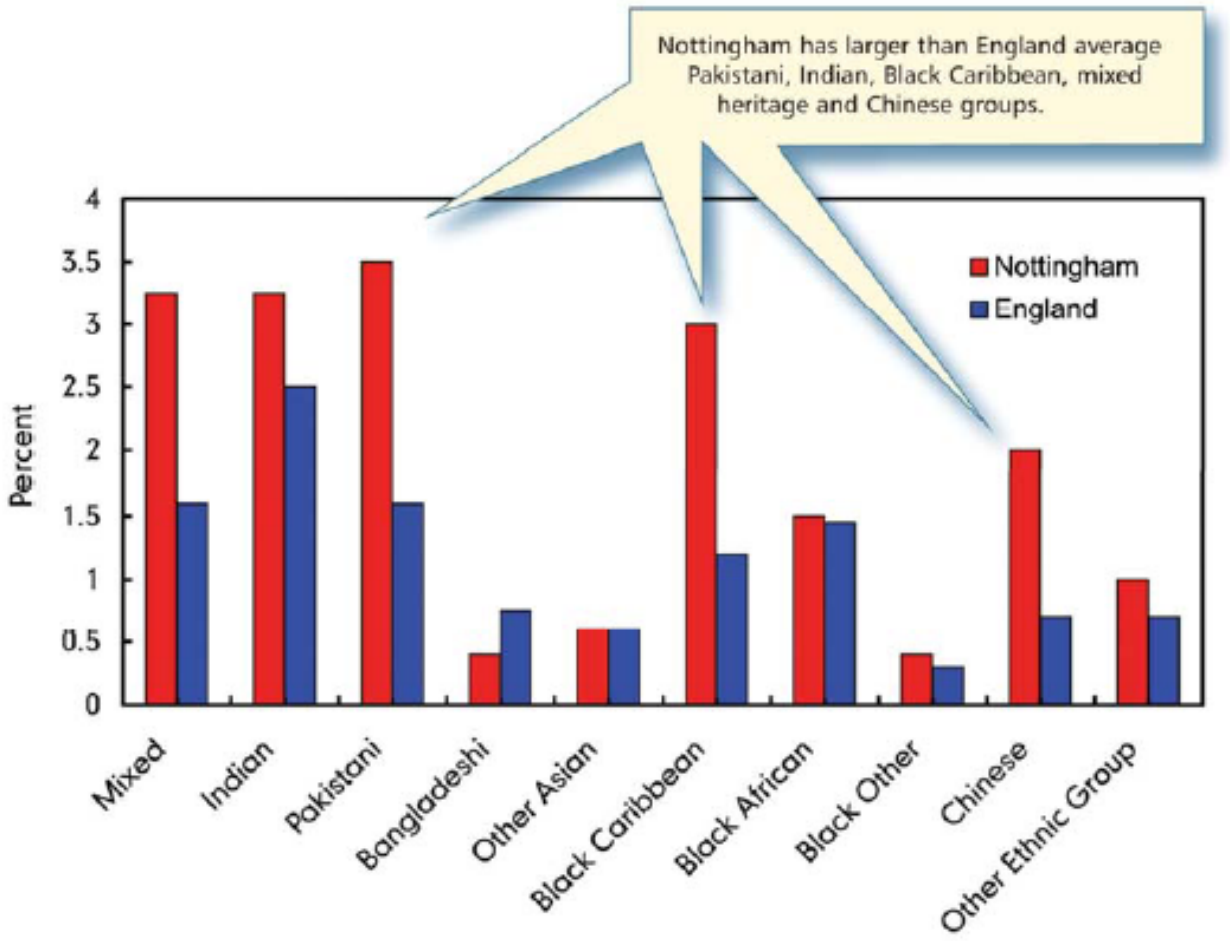
5.9.2 The large majority of people who live in Nottingham are White British, although 24% of Nottingham's population described themselves as being from Black and minority ethnic (BME) groups, compared to 16% nationally. [(22)] This proportion has been steadily increasing and is projected to increase to at least 25% by 2016. The Pakistani, Indian, African Caribbean and mixed heritage groups are the largest Black and minority ethnic groups within Nottingham.

5.9.3 Analysis of 2001 Census data for Nottingham shows that :

- Half of the Mixed (White and Black Caribbean) ethnic group were aged 13 or under;
- The Indian ethnic group had low levels of both unemployment and people with no qualifications;
- The Black or Black British ethnic groups were the oldest of the non-white ethnic groups. Half of the Black Caribbean ethnic group were aged 36 or over;
- The Chinese population was characterised by a high number of students (63.4% of the population aged 16 to 74).

22 ONS, 2007

Figure 5.11 Black and minority ethnic groups in Nottingham compared to England



Source: ONS, 2008

Age

5.9.4 Half of all the people in the City are aged 32 or under. However, the age structure varies considerably between different ethnic groups. BME groups generally have a younger age structure than the overall population and account for more than one in three (37%) of Nottingham school pupils. The mixed groups (46%) and the Pakistani group (30%) have the highest proportion of their total population aged under-16. These compare with only 16% of White British people.

5.9.5 There were similarly high proportions of younger people for the Chinese and 'Other' ethnic groups but these were mainly due to high proportions of people, mostly university students, aged 18 to 24 (45.2% and 36.7% respectively) rather than younger people as in the Asian and Mixed ethnicity groups. The oldest were the Black Caribbean and White groups; particularly the Irish group half of which were aged 50 or over.

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Qualifications and employment

5.9.6 Qualifications are linked to both age and ethnicity. In general, within each ethnic group the proportion with no qualifications increases with age although the large number of students in the City may exaggerate the differences. The Chinese group shows this in particular.

5.9.7 For some ethnic groups, it is difficult to make comparisons due to small numbers of people in older age categories. However, there are some patterns in the data. The Indian, Black African and Other White groups are consistently below the average level of people without qualifications. Three groups, Pakistani, Bangladeshi and Mixed (White and Black Caribbean), all have higher than average levels of people without qualifications in all age groups.

5.9.8 These groups do show different trends by looking at changes between age groups. The Pakistani group seems to be fairly constant at around twice the city average, the Mixed (White and Black Caribbean) group seems to be getting higher, rising from just above average for 35 to 49 year olds, to over double the city average for 16 to 24 year olds. The proportion of Bangladeshis with no qualifications however appears to be falling and is just above average for 16 to 24 year olds having been more than double the average in the 25 to 34 and 35 to 49 age groups.

5.9.9 Unemployment rates vary between ethnic groups. Only the White British, Indian and Chinese groups had percentages below the City average. Unemployment was highest in the mixed ethnicity and Black or Black British groups. Unemployment was also high amongst the Pakistani and Bangladeshi groups.

Access to services

5.9.10 2001 census data shows that there were 84,433 cars or vans in Nottingham available for private use by households. Although the proportion of households in the City with no car or van fell slightly from 49.3% in 1991 to 44.9% in 2001 car ownership in Nottingham is relatively low with 45% of households not having access to a car compared to the national (27%) and Greater Nottingham (32%) averages.

5.9.11 Car ownership also varies between wards in the City: Wollaton West ward has the highest percentage of households with access to more than one car or van (77%) whereas 67% of households in St Ann's ward and over half of households in Arboretum, Aspley, Bestwood and Bridge wards do not have access to a car or van.

5.9.12 Car ownership is much lower amongst some types of household than others. The two groups with the lowest car ownership rates are pensioners living alone, 80.9% of which do not have access to a car or van and lone parents with dependent children (65.6%). Couple family households tend to have the highest rates of car ownership with 81.4% having at least one car. **(23)**

5.9.13 Due to the relatively low levels of car ownership it is important that there is good public transport access to jobs and key services. Because of the City's tight boundaries the vast majority of the City is urban and well served by public transport and services and so the

23 2001 Census Key Statistics, Crown Copyright 2003

City scores relatively well in relation to access to services. Only two of the 176 Super Output Areas in the City are the 10% most disadvantaged in the country in terms of the extent of deprivation in terms of 'barriers to housing and services' (IMD).Geographical access by public transport remains high with 95% of households in Nottingham City within 30 minutes travel time of a town centre by bus or tram with no more that a 400m walk to the stop.

5.9.14 The Nottingham Local Plan Policy ST4 sets the context for ensuring that new development is located in sustainable locations. An indicator of the success of this overarching policy is that 100% of 716 net residential developments are within 30 minutes public transport time of a hospital, GP, primary and secondary school, employment and a major retail centre.

5.10 Human Health including Safety, Air Quality and Noise

5.10.1 There are both positive and negative links between transport and human health: Transport can adversely impact on human health and wellbeing in terms of air pollution, road injuries, stress caused through noise and vibration and severance. However transport is also an enabler of good health and wellbeing by providing access to key services that influence the determinants of good health; including jobs and training and destinations providing opportunities for healthy lifestyles e.g sports, leisure and open spaces and access to healthy affordable food shopping, as well as health care services. Active travel options (walking and cycling) are an easy way of building physical activity into everyday routines

5.10.2 In overall terms Nottingham's residents are less healthy than elsewhere in the country. The City's high levels of deprivation, high level of unemployment, low educational attainment and unhealthy lifestyle (high smoking, poor diet, low physical activity) are all interrelated determinants of its poor health outcomes and high level of health inequalities.

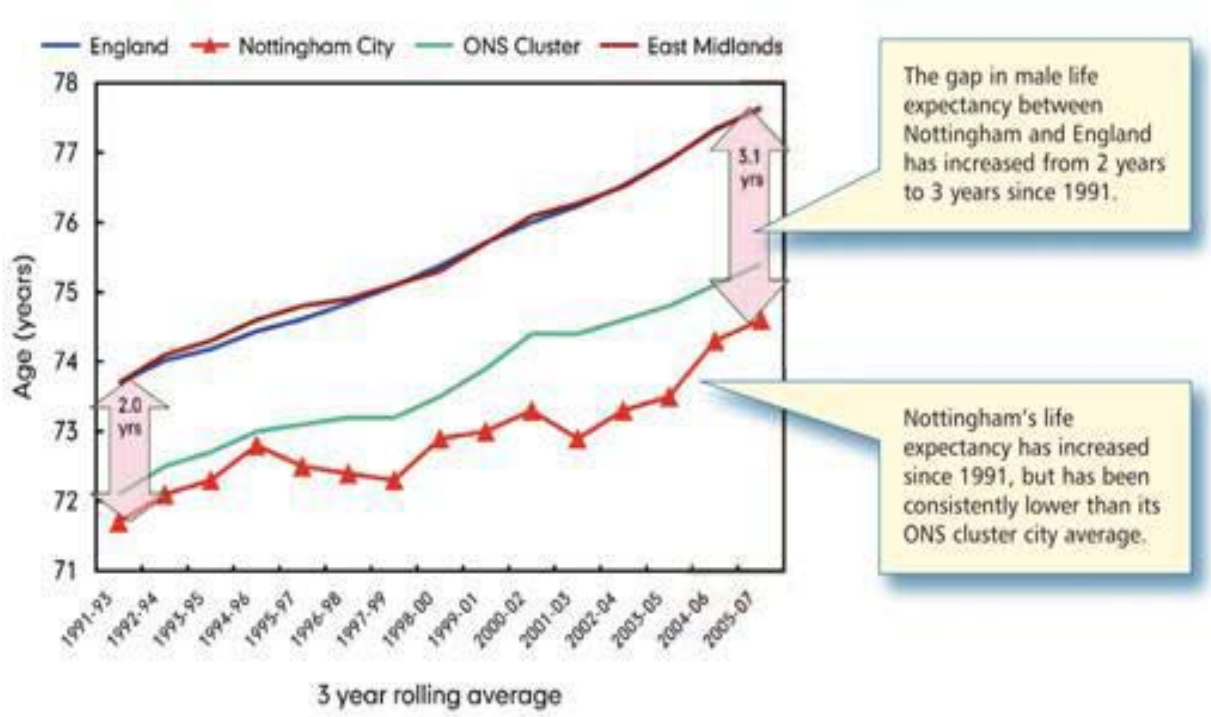
Life expectancy

5.10.3 Life expectancy in Nottingham for men is 75 years, compared with 78 years for Greater Nottingham and for England, and for women 80 years compared with 82 years for Greater Nottingham and England. The gap in life expectancy between Nottingham and England has been widening since the early 1990s (see **Figure 5.12)**. Within the City there are high levels of health inequalities – life expectancy varies by 10 years between the most and least deprived wards of St Ann's and Wollaton West. Fifteen of the 20 wards in the City have significantly lower life expectancy than the regional average.

5.10.4 The most significant disease contributors to lower than average life expectancy for the City's residents are premature deaths caused by cardiovascular disease (CVD), respiratory diseases and cancers. Although the level of premature death from CVD (which includes heart disease and stroke) has fallen significantly in Nottingham (a 46% fall between 1997 and 2007) mirroring the national trend, the gap with the rest of the country is not closing. Locally a marked gap persists between the most deprived and least deprived fifth of areas.

5 Baseline Data

Figure 5.12 The growing gap in life expectancy for men between Nottingham, England and our ONS cluster



Obesity

5.10.5 **Children and young people**: Nottingham's children have similar levels of obesity than the England average in Reception, although levels are higher than the England rate in Year 6 where 22.6% of those measured were obese (2008/9) and are likely to grow into obese adults at risk of heart disease, stroke and type 2 diabetes.

5.10.6 Mapping illustrates the extent to which obese children are concentrated in the more deprived City areas. The wards with the highest proportion of obese children are: Aspley, Bilborough, Bulwell Forest, St Anns, Arboretum, Mapperely, Lenton Abbey and Clifton (**Figure 5.13**). In terms of service planning it is useful to examine which wards have the highest number of obese children. This shows a similar, yet slightly different picture with the highest numbers in: Aspley, Bilborough, Bulwell, Bulwell Forest, Bestwood, Berridge, Basford, St Anns, Dales and Clifton (**Figure 5.14**). These are areas where estimates of adult obesity are also relatively high. **(24)**

5.10.7 26.7% of children in Nottingham belong to ethnic groups other than White British and about 1.75% of the overall rate in Year 6 children (21.95%) is attributable to ethnic mix.

Figure 5.13 Number of obese children: 2006 - 2009



5 Baseline Data

Figure 5.14 Proportion of obese children: 2006 - 2009



5.10.8 **Adults**: In England, 37% of people aged 16 and over are overweight and 25% obese. Nationally obesity is predicted to rise from 2006 levels of 24% of men and 24% of women to 60% of men and 50% of women by 2050. It is estimated that adult obesity prevalence in Nottingham is significantly higher than the England average. [25][26] This is partly due to Nottingham's relatively high level of deprivation. It is estimated that nearly 40% of adults are overweight and nearly 30% obese. Areas 3 and 5 in the City have the highest levels of obesity and Area 7 the lowest

Health of older people

5.10.9 Although the city has a relatively young population, analysis using MOSAIC® profiling data shows a higher than average proportion of 'Twilight Subsistence' households in the City. These are characterised as households with older people living in social housing with high care needs. One third of City residents aged 60 plus claim Pension Credit, an entitlement intended to raise their income to a minimum level, compared to just over one fifth in Greater Nottingham and England. Within Nottingham, areas with the highest proportions of income deprived older people tend to be areas where relatively few older people live, which can create isolation. Those of pensionable age also tend to have low levels of car ownership (unless they live with somebody of a younger age), which can act as a barrier to accessing services. Older peoples' health is generally much worse than that of other groups, with the Census reporting that nearly half had a limiting long term illness or disability. Two thirds of clients receiving adult social care support are older people. Most of these require help because of a physical disability (including sensory impairment) or frailty, and one in ten needs support due to mental health.

Mental health

5.10.10 Mental health and physical health are interlinked, with people with mental illness experiencing higher rates of morbidity and a lower life expectancy, and people with chronic physical health problems more likely to experience mental health problems.Adults with mental health problems are one of the most socially excluded groups in society, and one in four adults will experience mental health problems at some point in their lives.

5.10.11 Mental illness can be both a cause and effect of not working, and the City has higher than average numbers claiming Incapacity Benefit for mental health reasons. In Nottingham it has been estimated that around 40,000 people have a common mental health problem. The level of severe mental illness in the City is 45% above the national average, with around 1,000 people having a psychotic disorder.

5.10.12 The number of people with mental health problems may increase in the short to medium term because of the current economic climate causing increased financial hardship and unemployment.

25 National Centre for Social Research, 2007
26 Association of Public Health Observatories, 2009

5 Baseline Data

Disability

5.10.13 An estimated 8,700 people have a severe disability of some kind, but only around 15% of this number use health and social care support services. Older people with physical disabilities or difficulties are the largest social care client group. The Department of Health records 770 people registered as blind in Nottingham and 1,090 people registered as partially sighted. There are 615 people registered as hard of hearing and a further 555 registered as deaf, the largest group of which will be aged 65 plus due to increased incidence of hearing impairment with age. This figure is likely to be an undercount as registration is voluntary with no immediate benefit to the individual. Medical advances which have increased survival rates of premature babies and life expectancy, are expected to lead to growing numbers of people with disabilities and in particular, more complex disabilities and needs.

5.10.14 It is estimated that there are nearly 6,000 people aged 18+ with a learning disability in the City. The South Asian community has a three times higher prevalence of learning disability due to complex factors. The Health Joint Service Needs Assessment 2010 reported that a local mapping exercise of people with learning disabilities concluded that the number of day service users could increase by 73% by 2020.

Physical activity

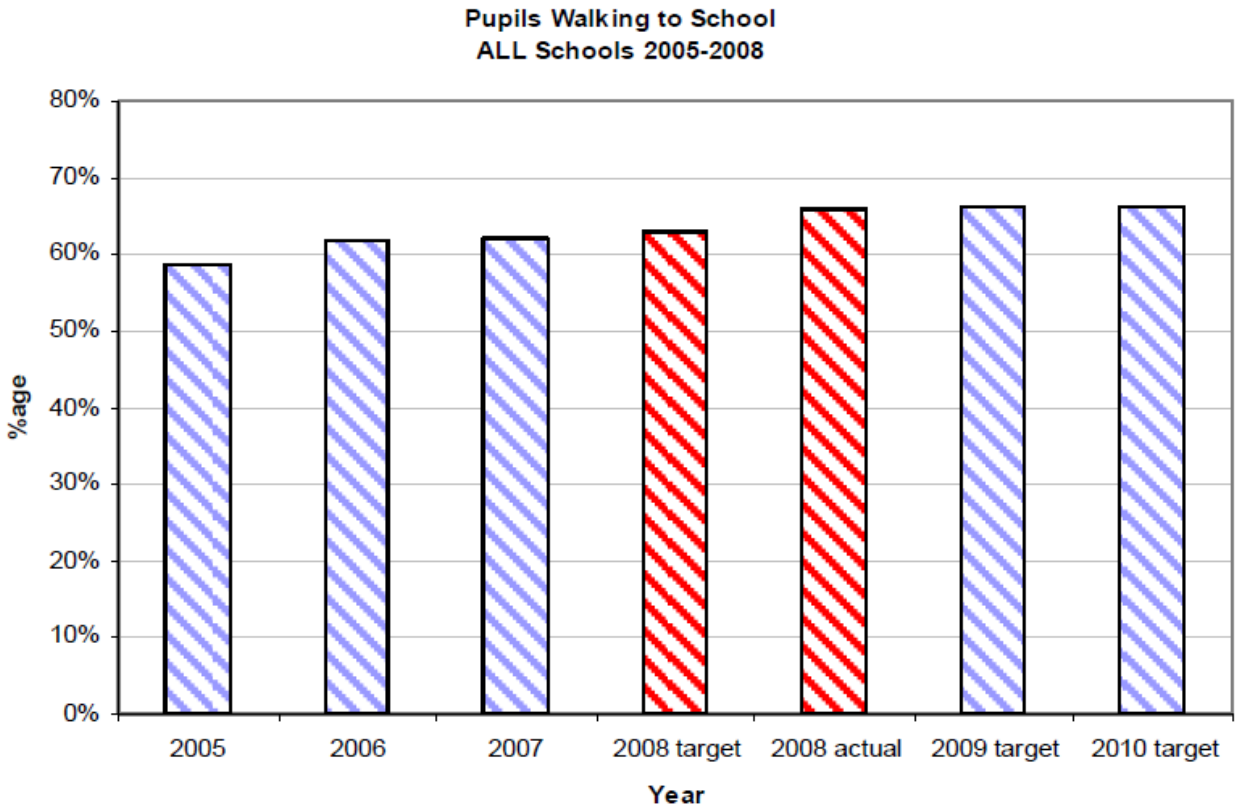
5.10.15 Physical activity is hugely important to good health. Walking and cycling is the most cost effective way of addressing coronary heart disease, which is the biggest cause of premature death in the UK, and contributes significantly to combating other major health conditions, including obesity, stroke, Type B Diabetes, cancer and osteoporosis.

5.10.16 **Children and young people:** Using the national proportions from the 2008 Health Survey for England, it is estimated that approximately 29,000 boys and 33,000 girls of the 43,000 resident population in Nottingham City aged between 2-15 years are not meeting the recommended levels of physical activity. We have no data to indicate how accurate this is locally. Boys achieve higher levels of physical activity than girls across age groups. From Year 7 (aged 11-12 years), participation in physical activity decreases, particularly for girls with the lowest levels in Year 11 (aged 15-16 years). This continues into adulthood, with lower physical activity amongst women than men.

5.10.17 Walking or cycling to school may make a significant contribution to young people's activity levels. With 65.4% of all journeys to school made on foot, Nottingham City has the highest level of walking to school out of the Core Cities and the joint second highest level of walking to school nationally (Department for Transport, 2008). When this is broken down by primary and secondary school pupils, 71.4% and 57.8% of pupils walk to school respectively. These rates have increased year on year since the introduction of national school travel plan programme (see **Figure 5.15)**.

5.10.18 Compared to walking, total numbers of cycling to school in Nottingham are comparatively small at 1.2%, with less than half a percent of primary school pupils and 2.5% of secondary school pupils cycling to school.

Figure 5.15 Pupils walking to school (2005 – 2008)



5.10.19 **Adults aged 16 years and over**: It is estimated that adult physical activity levels in Nottingham are not significantly different from the England average. [27] Using this assumption it is estimated in that 157,600 adults are not currently meeting the Chief Medical Officer's recommendations of 5 times 30 minutes moderate activity.

5.10.20 **Adults aged 50-74 years**: A postal survey commissioned by NHS Nottingham City in 2009 found that 29% participated in moderate physical activity (excluding walking) (IPSOS MORI, 2009). This equates to 38,200 people from a population of 53,800 being inactive. Inclusion of walking in the calculation of physical activity levels resulted in a very high prevalence of achievement of physical activity recommendations. This may have been due to over reporting of walking in this population which is reported for the use of the International Physical Activity Questionnaire used to self report physical activity levels.[28] This was a slight, but not statistically significant increase from the 2005 survey (27%). Only 7% of these survey respondents were found to correctly describe the physical activity recommendations for health which is similar to the figures reported in the Health Survey for England.

5.10.21 National information shows that physical activity levels are lower for women than men at all ages. It is reasonable to assume that this is the case for Nottingham city.

27 Association of Public Health Observatories, 2009.
28 Bauman et al, 2009

5 Baseline Data

5.10.22 National information shows that physical activity levels are lowest amongst adults from Pakistani and Indian Communities when compared with the general. [29] This is particularly the case for women from these communities. The Pakistani community is one of the largest minority communities in the city. People from this community tend to live in areas of deprivation.

5.10.23 National information shows that people with disability have lower sport and active recreation participation levels. This also applies to people with long standing illness. [30] It is reasonable to assume this is the case locally as disability/long standing illness is also identified as a reason as to why people are not active locally. [31]

5.10.24 Nottingham's focus on improving lifestyle risk factors for disease is beginning to have encouraging results, with an increase in physical activity levels in the city. However current national trend of rising obesity levels is set to continue with obese children at high risk of becoming obese adults: 40% of Britons are predicted to be obese by 2025 and nearly 60% of the UK population could be obese by 2050.The levels in the City will almost certainly follow this trend and may well be higher. These factors are likely to detrimentally impact on the recent improvements in life expectancy in the City and are of particular concern given the levels of inactivity noted above.

Safety

5.10.25 Compared to the 94-98 baseline there has been a 49.5% reduction of total road casualties for the Greater Nottingham area (November 2009) and a 75% reduction in child casualties (KSIs killed and seriously injured). This significant reduction shows that the authorities are ahead of the trajectory to meet the 52% reduction from the baseline by 2010. In the City total and child KSIs for 2008 were the lowest on record with 15% fewer total casualties than in 2006.

5.10.26 In relation to crime and the fear of crime the IPSOS Mori Place Survey 2008 reported that 79% of residents in Nottingham feel safe outside in the day but only 36% feel safe outside at night whereas 44% state they feel unsafe outside at night. It is unclear to what extent safety may present a barrier to people travelling by public transport at night. LTP2 Local Indicator 16 perception of safety when using the bus at night (after 7pm) is based on user experience of the journey including accessing the bus stop and the wait for the bus measured through quarterly surveys of bus users at the travel centre. In 2007/8 74% of bus users felt safe when using the bus at night representing an 9% increase since 2005/6 when this data was first collected and would appear to show a more positive experience than the Place survey.

5.10.27 The Nottingham Crime and Drugs Partnership report annually through the Joint Strategic Assessment report on levels of crime including Theft from a Vehicle and Theft of a Vehicle which are both measured as part of NI16. Data from the 2009/10 Report shows that:

29 NHS Information Centre, 2006
30 Department of Health, 2009
31 IPSOS MORI, 2009

- **Theft from a vehicle** continues to fall in both the long and short-term with a 35% decrease over the last two years (approximately 4,000 offences per year). [32] However car parks are still vulnerable locations and although offences have reduced there are still occurrences of six or more offences in a single night in some car parks showing that crime has not been designed out. The most vulnerable police beats for Theft from a Vehicle are Lace Market (6%), The Park (4%) and Lenton Triangle (4%). Over a quarter of the offences in the Lace Market occurring in Stoney Street NCP car park. (70 offences which equals 26.6% of the Lace Market offences). Lenton Triangle has recorded a 40% increase (from 114 to 160 offences), of offences in vehicles parked on-street.

- **Theft of a vehicle** continues to fall in both the long and short-term with a 34% reduction over the last two years. [33] Theft of a vehicle represents almost 2.5% of all crime in the City and at approximately 1,200 offences per year is a much smaller problem in terms of volume compared to burglary or theft from a vehicle. Attempted theft of vehicles has also reduced significantly (-34%) from 1,640 offences to 1,057. The most likely reason for the sustained reduction in Theft of a Vehicle offences is the increasing levels of security in vehicles that primarily makes them harder to steal (Immobilisers and Alarms) and secondly technology that makes them traceable (such as Tracker and Micro Dots). This technology is now limiting the types and age of vehicle able to be stolen.

5.10.28 There are an estimated 4,000 Problem Drug Users in the City. As well causing harm to the individual (including premature death and illness), there is an impact to the immediate family and friends and/or the wider community e.g. violent and acquisitive crime. Drug driving is of increasing concern for road safety

5.10.29 Alcohol misuse is another feature of the City that contributes to lower life expectancy, as well as to greater violence and disorder and mental health problems. It is estimated that there are over 15,000 harmful drinkers and 4,500 dependant drinkers in Nottingham, and that 1 in 20 deaths in the City are alcohol related. There are also rising rates of alcohol-related hospital admissions. Alcohol is also a contributory factor in many road accidents.

Air quality

5.10.30 There are two air quality management areas relating to vehicle use in the City Council area: Nottingham No:2 AQMA is located in the City centre and Nottingham No:3 AQMA is located in the Dunkirk area of the City.

5.10.31 A Detailed Assessment was carried out for:

- Nitrogen dioxide - for a number of roads and junctions with traffic flows meeting the guidance criteria and some of the diffusion tubes monitoring results indicate exceedance of the NO2 annual mean objective.

- Particles (PM10) - for two roads that meet the criteria specified in the guidance.

32 Assessment period: 01/07/2008-30/06/2009 compared 01/07/2006-30/06/2007
33 Assessment period: 01/07/2008-30/06/2009 compared 01/07/2006-30/06/2007

5 Baseline Data

5.10.32 Nitrogen dioxide is known to cause respiratory problems, particularly to people who already suffer from breathing difficulties as a result for example of asthma.

5.10.33 The Assessment concluded that for **Nitrogen dioxide** the annual mean AQO of 40µg/m3 is likely to be met in the Nottingham City area. However there are parts of the City, mostly near existing AQMAs, where modelling and monitoring results suggest that the objective is being exceeded at locations with relevant exposure of members of the public. While it is not necessary to declare any new AQMAs for nitrogen dioxide it is necessary to modify both of the existing AQMAs as follows:

- Nottingham No:2 AQMA to be amended to extend the area of the AQMA to the north and north-west where there are residential properties and remove a bus depot and the Ice Arena.

- Nottingham No:3 to be amended to extend the AQMA along a road to incorporate the residential properties that border it and modifies the area around a major junction. The amendment removes the QMC Hospital campus from the AQMA (three years of continuous monitoring at the site has shown that neither of the nitrogen dioxide objectives have been exceeded).

5.10.34 **For Particles PM10,** the Detailed Assessment of the 2004-2006 monitoring and 2006 modelling results showed that the annual mean Air Quality Objectives have been and are likely to continue to be met at locations of 'relevant exposure' in the Nottingham City area so it is not necessary to declare any AQMAs for this pollutant.

Noise

5.10.35 Environmental Noise arising from transport and industry is an inevitable consequence of a vibrant urban society. Noise is subjective and different people react to it in different ways and what can cause annoyance to some people maybe barely noticeable for others. As the noise level increases it can interrupt conversation and disturb sleep. In general, noise can be classified into fairly broad categories; occupational noise, which is experienced at work, neighbour and neighbourhood noise, and environmental (ambient) noise.

5.10.36 European Directive 2002/49/EC, more commonly known as the Environmental Noise Directive (END), is concerned with noise from road, rail and air traffic and from industry. It focuses on the impact of such noise on individuals, complementing existing EU legislation which sets standards for noise emissions from specific sources. The END requires European Member States to:

- Determine the number of people exposed to noise levels above 55 dB(A) L_{den} and 50 dB(A) L_{night} from major roads, major railways, major airports and in agglomerations (large urban areas) from environmental noise, through noise mapping;

- Provide information on environmental noise and its effects on the public;

- Adopt action plans, based upon noise mapping results, which should be designed to manage noise issues and effects, including noise reduction if necessary;
- Preserve environmental noise quality where it is good.

5.10.37 In England the Directive is implemented through The Environmental Noise (England) Regulations 2006. Those areas/noise sources in England for which noise mapping has occurred are identified in The Environmental Noise (Identification of Noise Sources) (England) Regulations 2007.

5.10.38 Defra have produced a set of noise maps available at http://services.defra.gov.uk/wps/portal/noise to meet the requirements of the Environmental Noise (England) Regulations 2006, and to inform the production of noise action plans for large urban areas, major transport sources, and significant industrial sites in England. The maps provide an overview of the ambient noise environment in large urban areas and from major transport sources in England and allow the determination of the number of people affected by different levels of ambient noise, the source of that noise (i.e. road, rail, air or industry) and the locations of the people affected. The map for the Nottingham agglomeration is shown in **Figure 5.16**.

Noise Action Plans

5.10.39 The Secretary of State for Environment, Food and Rural Affairs formally adopted Noise Action Plans for 23 agglomerations (large urban areas), including Nottingham along with major roads and major railways in England on 15th March 2010.

5.10.40 The purpose of Noise Action Plans is to assist in the management of environmental noise and its effects, including noise reduction if necessary, in the context of government policy on sustainable development. Noise Action Plans are based on the results of the strategic noise maps published in 2008.

5.10.41 The Action Plans represent a strategic approach to managing environmental noise. They set out a direction of travel for managing noise, but do not propose any specific noise mitigation measures at this stage. It is intended that any such measures will be identified and agreed at a local level. Responsibility for implementing the plans will fall on those authorities who generate the noise (road, rail and airport authorities).

5.10.42 The Action Plans apply in particular to the most 'Important Areas' as established by the noise mapping and also set out a process for identifying and aiming to protect 'Quiet Areas' from an increase in noise in agglomerations. The Action Plans are intended to apply in particular to the most 'important areas' identified by the noise maps. Therefore, a set of Important Areas and First Priority Locations have been identified for each of the Noise Action Plans. The Noise Action Plan for Nottingham Agglomeration can be downloaded from http://www.defra.gov.uk/environment/quality/noise/environment/documents/actionplan/noiseaction-agglom-nottingham.pdf

5 Baseline Data

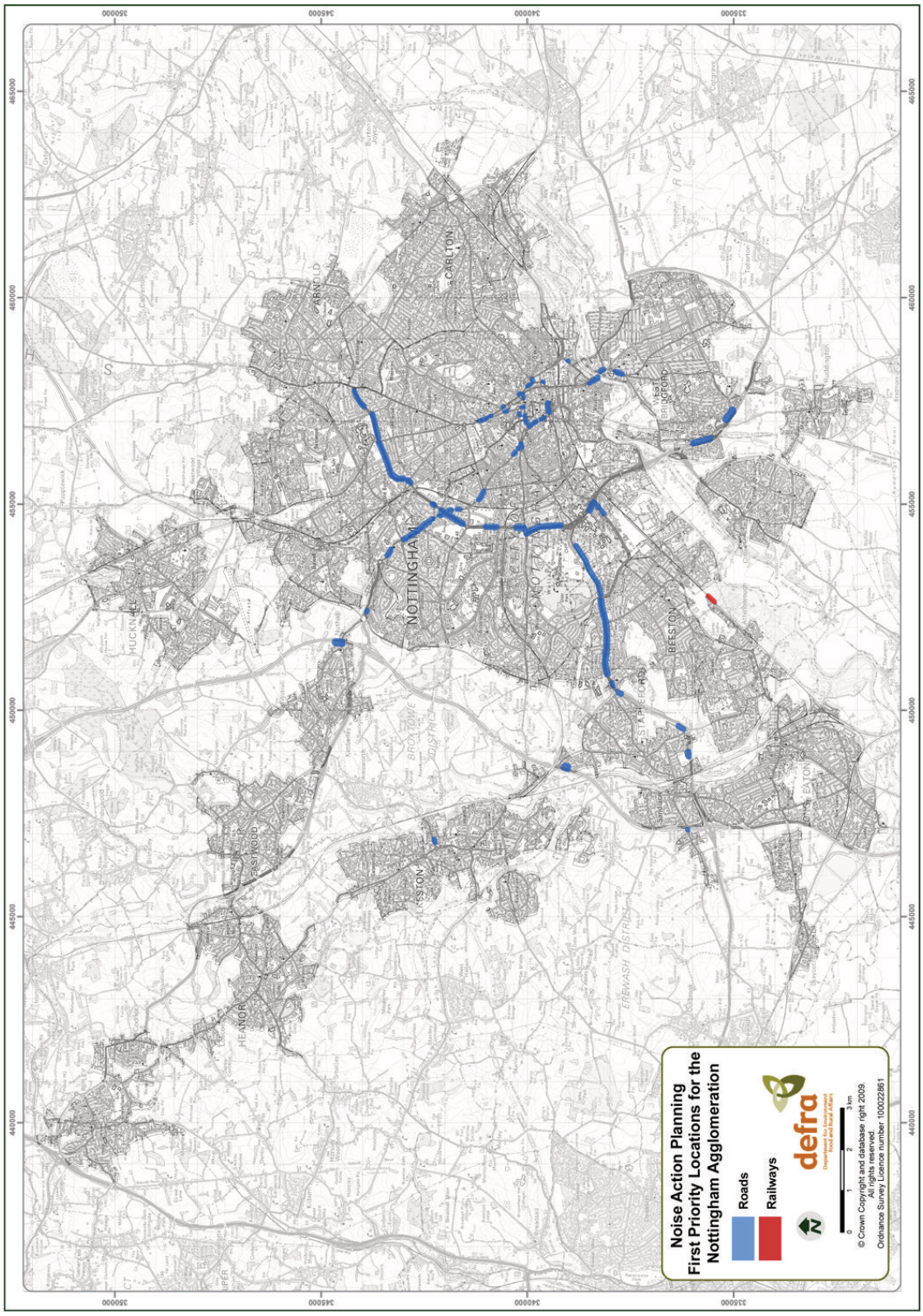


Figure 5.16 Noise Action Planning First Priority Locations for the Nottingham Agglomeration

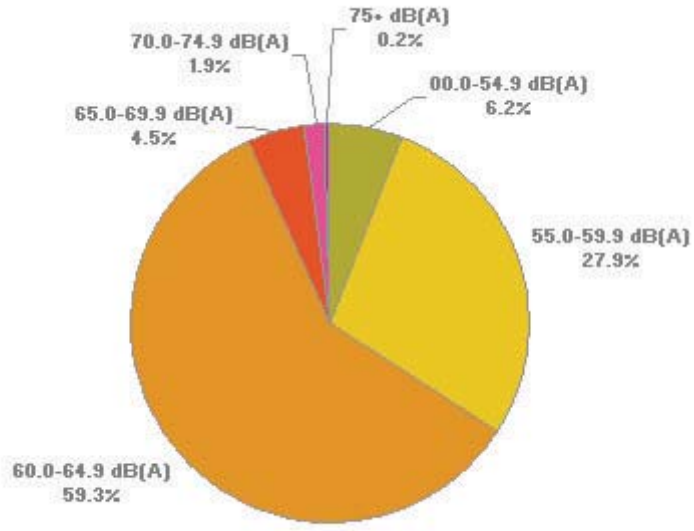
Noise from road traffic in the Nottingham agglomeration

5.10.43 The Regulations required that noise level information be determined in terms of several noise indicators: L_{den} ; L_{night}; and $L_{A10,18h}$. The estimated number of people and dwellings (rounded to the nearest thousand) exposed above various noise levels from the strategic mapping of road traffic noise in this agglomeration are shown in **Tables 5.4, 5.4 and 5.6** below:

Table 5.4 Estimated number of people and dwellings above various noise levels due to road traffic noise, L den

Noise Level (L_{den}) (dB)	Number of Dwellings	Number of People
55	278,000	621,000
60	196,000	437,000
65	19,000	44,000
70	7,000	14,000
75	<500	1,000

Figure 5.17 Total Road Noise Population Exposure in Nottingham, Lden



5 Baseline Data

Table 5.5 Estimated number of people and dwellings above various noise levels due to road traffic noise, L night

Noise Level (L_{night}) (dB)	Number of Dwellings	Number of People
50	219,000	491,000
55	31,000	69,000
60	9,000	19,000
65	1,000	2,000
70	<500	<500

Figure 5.18 Total Road Noise Population Exposure in Nottingham Lnight

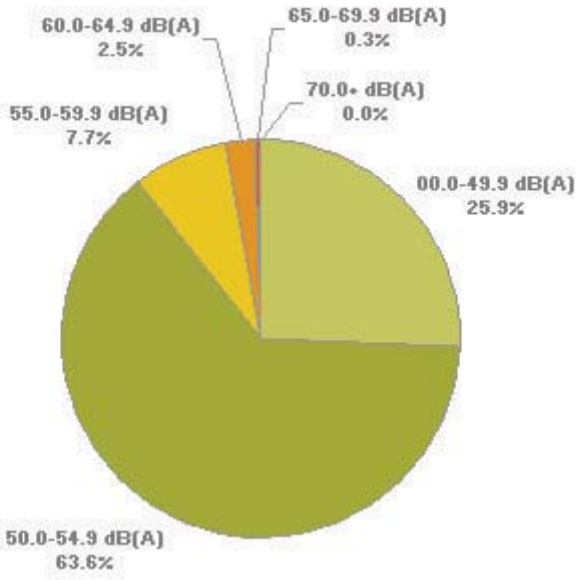


Table 5.6 Estimated number of people and dwellings above various noise levels due to road traffic noise, L A10,18h

Noise Level ($L_{A10,18h}$) (dB)	Number of Dwellings	Number of People
55	278,000	621,000
60	205,000	457,000
65	22,000	48,000
70	8,000	17,000
75	2,000	4,000

5.10.44 It has been decided that the Important Areas with respect to road traffic noise in the Nottingham agglomeration will be where the 1% of the population that are affected by the highest noise levels from those roads mapped for this agglomeration are located according to the results of the strategic noise mapping. 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. In addition, those locations where the $L_{A10,18h}$ is at least 76 dB according to the results of the strategic noise mapping have been identified as "First Priority Locations".

5.10.45 The Noise Action Plan for the Nottingham Agglomeration identifies that in Nottingham City there are approximately 3,000 dwellings (equating to 5.600 of associated population) located in Important Areas of which 1.200 dwellings (equating to 2,200 of associated population) are in First Priority locations. It is envisaged that the highways authorities will investigate as a priority the Important Areas that contain First Priority Locations.

5.10.46 For each Important Area the relevant highway authority will consider what, if any, actions might be taken. This will include, but not be limited to, exploring the scope for (in no particular order): erecting noise barriers; installing low noise road surfaces; local traffic management measures; or improving the sound insulation depending on feasibility and available finances.

Noise from railway sources in the Nottingham agglomeration:

5.10.47 The Regulations required that noise level information be determined in terms of several noise indicators. These include: L_{den}; L_{night}; and $L_{Aeq,18h}$. The estimated number of people and dwellings (rounded to the nearest thousand) exposed above various noise levels from the strategic mapping of railway noise in this agglomeration are shown in **Tables 5.7, 5.8 and 5.9** below:

Table 5.7 Estimated number of people and dwellings above various noise levels due to railway noise, L den

Noise Level (L_{den}) (dB)	Number of Dwellings	Number of People
55	5,000	11,000
60	3,000	5,000
65	1,000	1,000
70	<500	<500
75	<500	<500

5 Baseline Data

Table 5.8 Estimated number of people and dwellings above various noise levels due to railway noise, L night

Noise Level (L_{night}) (dB)	Number of Dwellings	Number of People
50	3,000	6,000
55	1,000	2,000
60	<500	<500
65	<500	<500
70	0	0

Table 5.9 Estimated number of people and dwellings above various noise levels due to railway noise , LAeq,18h

Noise Level ($L_{Aeq,18h}$) (dB)	Number of Dwellings	Number of People
55	4,000	8,000
60	1,000	3,000
65	<500	1,000
70	<500	<500
75	0	0

5.10.48 It has been decided that the Important Areas with respect to noise from railway sources in the Nottingham agglomeration will be where, according to the results of the strategic noise mapping, the 1% of the population that are affected by the highest noise levels from the railway sources are located. 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 rail traffic noise. In addition, those locations where the $L_{Aeq,18h}$ is at least 73 dB according to the results of the strategic noise mapping have been identified as First Priority Locations. It is envisaged that in general the relevant rail authorities will investigate as a priority the Important Areas that contain First Priority Locations. In Nottingham City there are fewer than 50 dwellings (equating to fewer than 100 people) within priority areas and no dwellings within the defined First Priority Areas.

The management of the impact of aircraft noise in the Nottingham agglomeration

5.10.49 For the purposes of the noise action plan for the Nottingham agglomeration, only the noise impact from those airports for which noise mapping was required to be carried out according to the Environmental Noise (England) Regulations 2006 (as amended) has been considered, which included the East Midlands Airport. The Nottingham agglomeration is not affected by noise from any of those airports.

Table 5.10 Key to Noise Measurement Units

$L_{Aeq,T}$	The A-weighted equivalent continuous sound pressure level which is a notional continuous level that, at a given position and over the defined time period, T, contains the same sound energy as the actual fluctuating sound that occurred at the given position over the same time period, T
L_{night}	The L_{Aeq} over the period 2300 – 0700, local time (for strategic noise mapping this is an annual average)
L_{den}	The L_{Aeq} over the period 0000 – 2400, but with the evening values (1900 – 2300) weighted by the addition of 5 dB(A), and the night values (2300 – 0700) weighted by the addition of 10 dB(A) (for strategic noise mapping this is an annual average)
$L_{A10,18h}$	The noise level exceeded for 10% of the time averaged hourly over the period 0600-2400.
$L_{Aeq,18h}$	The L_{Aeq} over the period 0600 – 2400, local time (for strategic noise mapping this is an annual average)

6 Key Environmental, Health and Equalities Issues

6 Key Environmental, Health and Equalities Issues

6.1 Introduction

6.1.1 The SEA Directive states that the Environmental Report should provide information on *"Any existing problems which are relevant to the plan or programme including in particular, those relating to any areas of a particular environmental importance, such as those pursuant to Directives 79/409/EEC and 92/43/EEC" (Annex 1d).*

6.2 Identification of problems and opportunities

6.2.1 **Table 6.1** identifies the existing and future problems and opportunities that have been identified as part of the baseline scoping in **Section 5** and also the preliminary review of other plans, policies and programmes set out in **Section 3**. The table also includes recommendations as to how these will be incorporated into LTP3 so that the plan will contribute towards the IIA objectives.

Table 6.1 Problems and Opportunities

Existing problems (can be location specific)	Opportunities provided by the LTP	Evidence	Recommendations Comments
Climate Change/CO2 emissions			
CO2 emissions from transport continue to rise	Transport is a major and growing contributor to CO2 emissions, and LTP3 policies and interventions offer potential to reduce emissions	Transport modelling	Commission further modelling of CO2 from transport options.
Resilience of transport network to changes in weather patterns e.g. local flooding	Design standards for new infrastructure and mitigation measures to reduce local impacts e.g. SUDS	Three Cities Asset Management Study	Implement the recommendations of the Three Cities Study.
Material assets (Minerals, energy, fossil fuels, waste)			
Peak oil impacting on supply and cost of fuels. Rises in fuel prices disproportionately affects low income groups.	Promotion of smarter alternatives (public transport, cycling and walking) and cleaner fuel vehicles	Nottingham Energy Strategy	Consider oil use within scheme appraisal.
Shortage of waste treatment facilities, particularly landfill	Transport projects should specify recycled products wherever possible	Regional Waste Strategy Waste Local Plan	Transport schemes must be designed to minimise waste arising.

6 Key Environmental, Health and Equalities Issues

Existing problems (can be location specific)	Opportunities provided by the LTP	Evidence	Recommendations Comments
Minerals are a finite resources	Transport projects should specify recycled products wherever possible	Minerals Local Plan	Transport schemes must be designed to minimise use of primary aggregates.
Fossil fuels are a finite resource	Transport policy should seek to reduce vehicle miles and therefore fuel use	Nottingham Energy Strategy	Reducing vehicle use should feature in LTP policy as well as reducing congestion
Extreme weather leading to shortage of salt impacting on costs and storage capacity.	Appropriate winter maintenance regimes.	Highways Asset Management Plan	Use latest technology to minimise salt use through better information about requirements and efficient spreading.
Water			
Water resources may be very limited in the future, particular in the summer. Situation will probably be considerably worse as a result of climate change	Roads must be designed to maximise absorption into the ground	Nottinghamshire Climate Change Plan Environment Agency Catchment data	SUDS should be considered wherever possible in road drainage projects
Flooding is likely to increase dramatically as a result of climate change	Protection of critical transport infrastructure	Nottinghamshire Climate Change Plan Environment Agency Catchment data Evidence from recent flooding events	Care must be taken to avoid new transport projects becoming barriers to the flow of floodwater
Rising water table is a significant issue for parts of the City	Protection of critical transport infrastructure	Strategic Flood Risk Assessments	Highways schemes to provide appropriate drainage and water run off solutions
Contaminated water run off from highways	Highways drainage solutions and use of balance ponds to segregate polluted water from water courses	Environment Agency water quality data	Highways schemes to provide appropriate drainage and water run off solutions

Key Environmental, Health and Equalities Issues 6

Existing problems (can be location specific)	Opportunities provided by the LTP	Evidence	Recommendations Comments
Salt water run off impacting on freshwater ecosystems	Appropriate winter maintenance regimes.	Defra	Use latest technology to minimise salt use through better information about requirements and efficient spreading.
Natural Environment (Biodiversity, flora and fauna, soil, landscape)			
Protection of habitat types of conservation concern.	Emphasis on ensuring protection of existing assets, though may be limited potential for enhancement	Local Biodiversity Action Plan	Major transport projects should be assessed for impacts, normally as part of Environmental Impact Assessment
Protection of species of conservation concern (many associated with the above habitats); and species with specific action plans	Emphasis on ensuring protection of existing assets, though may be limited potential for enhancement	Local Biodiversity Action Plan	Major transport projects should be assessed for impacts, normally as part of Environmental Impact Assessment
Fragmentation and deterioration of areas of wildlife value	Management of verges and highways land to maximise wildlife potential	Local Biodiversity Action Plan	Positive management should be considered. The plan will seek to prevent fragmentation of habitats and promote green corridors to ensure connectivity irrespective of a designation, and to maximise their benefits for human health and well-being
Damage to Mature Landscape Areas	Sensitive design	Nottinghamshire Historic Landscape Assessment 1999; Greater Nottingham Landscape Character Assessment 2009.	High quality design standards should be applied throughout the City (particular care should be taken in designated areas). Need to consider national designations as well as non-designated features of more local historic interest and value.
Remaining legacy of contaminated and derelict land	New transport projects can bring such land into positive use	Contaminated and derelict land databases Planning policy and targets for use of “brownfield” sites	Bringing derelict land into positive use should be considered benefit in prioritising specific transport projects.

6 Key Environmental, Health and Equalities Issues

Existing problems (can be location specific)	Opportunities provided by the LTP	Evidence	Recommendations Comments
Urban Environment (Townscape, Cultural Heritage)			
Damage to individual sites, monuments and buildings of historical and archaeological interest and their settings	Transport schemes may be able to contribute positively	Sites and monuments record. Historic buildings record	Careful assessment of the impacts Use of Manual for Streets and the Design Code
General loss of historic character of the built environment	Transport schemes can contribute positively to public realm improvements	Historic landscape characterisations	Careful design of all transport projects Look for opportunities to deliver public realm enhancements and integration of transport with physical regeneration projects such as Sneinton Market
Damage to Conservation Areas	Sensitive design	Conservation Area designations (including Conservation Area Appraisals). Urban characterisation studies.	High quality design standards should be applied throughout the City (particular care should be taken in designated areas). Need to consider national designations as well as non- designated features of more local historic interest and value.
Particulates from vehicle exhausts can damage buildings.	Promotion of smarter alternatives (public transport, cycling and walking) and cleaner fuel vehicles	Condition of listed buildings	Consider traffic management in most sensitive locations.
Population and Economy			
Outward migration of families from Nottingham City	Support the inward migration of families through improvements in transport infrastructure	Census	Implement integrated transport measures which support the development of family housing particularly Regeneration Zone transport strategies and school travel plan measures.

Key Environmental, Health and Equalities Issues 6

Existing problems (can be location specific)	Opportunities provided by the LTP	Evidence	Recommendations Comments
High demand for housing in the Nottingham area combined with a national trend towards smaller household size.	Ensuring new housing sites are located to benefit from good links to employment sites and services	East Midlands Regional Spatial Strategy Local Development Framework Core Strategy	LTP3 to integrate with the Growth Point proposals to ensure infrastructure is in place to support new housing developments
Better regional connectivity to London, other core cities and the north-east.	Removing transport barriers will facilitate agglomeration bringing economic benefits	East Midlands Regional Spatial Strategy Three Cities DaSTS Study	Continue lobbying for Electrification of Midland Mainline And High Speed Rail
Congestion impacting on business competitiveness	Manage congestion through provision of high quality alternatives and network managment	East Midlands Regional Spatial Strategy Three Cities DaSTS Study	Consider wider economic benefits alongside transport benefits
Regeneration	New infrastructure to support developments	Local development plans	Ensure high quality through application of highway design guides.
Health			
Health inequalities	Improve road safety, increase opportunities for physical activity and improve air quality	NCC/PCT Joint Service Needs Assessment 2010	Implement casualty reduction measures and Safer Routes to School schemes. Promote more active travel options and improve infrastructure for walking and cycling.
Rates of physical activity are low and there are large numbers of people who have coronary heart disease	Increase opportunities for walking and cycling with the aim of raising levels of physical activity and reducing incidences of coronary heart disease	NCC/PCT Joint Service Needs Assessment 2010	Implement walking and cycling measures and continue to promote school and workplace travel plans.
Large numbers of people who have a respiratory disease	Reduce air pollution in the Greater Nottingham area in order to have an	NCC/PCT Joint Service Needs Assessment 2010	Implement congestion management measures and support the development of

6 Key Environmental, Health and Equalities Issues

Existing problems (can be location specific)	Opportunities provided by the LTP	Evidence	Recommendations Comments
	impact on the numbers of people who have a respiratory disease		clean vehicle technologies e.g. through travel plan and quality partnership initiatives.
Rising levels of obesity in young people	Increase opportunities for physical activity in terms of active travel, improving access to leisure and open spaces, and creating safer communities.	NCC/PCT Joint Service Needs Assessment 2010	Implement casualty reduction measures and Safer Routes to School schemes. Promote more active travel options through School Travel Plans Improve infrastructure for walking and cycling. Use Manual For Streets guidelines for new residential development to create places for people.
Air quality hotspots relating to traffic	Policies and measures in the LTP3 can address these pollution hotspots	Air quality monitoring and Air Quality Management Area designations	LTP3 should include specific proposals to address AQMA's and air pollution hotspots where these relate to traffic emissions.
Transport noise negatively impacting on residents' quality of life and health and wellbeing	Monitor and mitigate against noise problems Improved construction practices Improved construction and maintenance practices for road surfaces	Defra noise maps for the Nottingham Agglomeration. Noise Action Plan for the Nottingham Agglomeration.	Utilise noise reducing road surfaces in maintenance schemes. Ensure construction practices take account of potential noise impacts i.e. night working.
Crime (theft of vehicles and personal safety)	Support crime reduction measures through Respect for Transport and local safety improvements	Nottingham Crime and Drugs Partnership Joint Strategic Assessment 2009/10	To be addressed through the Respect for Transport initiative CCTV and improved lighting at public transport stops.

Key Environmental, Health and Equalities Issues 6

Existing problems (can be location specific)	Opportunities provided by the LTP	Evidence	Recommendations Comments
Equality and Inclusion			
Access to jobs and key services for disadvantaged groups within Nottingham	Improve physical accessibility and affordability of public transport for disadvantaged groups in Nottingham.	Public Transport Team's monitoring of fare prices One Nottingham GNLP study: *Accessibility of Employment and Training Opportunities in Greater Nottingham*	Implement accessibility Strategy measures
Peak oil impacting on supply and cost of fuels. Rises in fuel prices disproportionately affects low income groups.	Promotion of smarter alternatives (public transport, cycling and walking) and cleaner fuel vehicles	Nottingham Energy Strategy	Consider in Equality Impact Assessment

6.2.2 Further consideration to the equalities issues is being managed through the City Council's approach to Equality Impact Assessment (EqIA). More information about the problems and opportunities for LTP3 from an equalities perspective is given in **Table 6.2** which records the outcome of the EqIA Screening exercise for LTP3.

Table 6.2 Equality Impact Assessment Screening

Department: Development/Environment & Regeneration
Service Area: Transport Strategy
Name and description of policy/ service/ function/ strategy being screened: Nottingham's third Local Transport Plan ("LTP3")
Manager Responsible for Area: Chris Carter (CC - Team Leader Transport Strategy) Jennie Maybury (JM - Principal Transport Planner – Project Manager)
Date screening completed: March 2010
Is completing this EIA a corporate priority? Yes

Key screening questions:

Could this policy or service and the way we deliver it affect some groups in society differently (negative impact)? Can this policy or service and the way we deliver it promote equal opportunities (positive impact)?

Equality Strand	Assessment of Potential Impact of policy/service (delete as appropriate)		Reason for the Assessment of Potential Impact (provided in previous column)	Are there any mitigating circumstances??	Actions Required (with timescales and name of responsible officer)
Race **Gender**	**Positive**	**Medium**	The strategy may be able to identify objectives that could help improve safety and reduce hate crime while using public transport for minority ethnic people or women. The strategy may be able to help make transport more accessible for people using pushchairs (who are more likely to be women). Feedback from BME groups indicates that transport for older people provided through adult services and health is a major concern for the ethnic minority community.	The Respect for Nottingham and Respect for Transport initiatives have already developed some relevant issues for example street lighting and safe taxi arrangements. A number of adjustments and initiatives to make transport and transport information more accessible to disabled people have been put in place or are being developed (for example disability awareness training for tram staff) which LTP 3 can build on. The Council's equality scheme sets out separate	1. Ensure these impacts are addressed in LTP3 option assessment criteria – by April 2010 (JM). 2. Ensure the development of the plan including any consultation gains the views and responds to the needs of disabled people, older and younger people, LGBT groups, different ethnic and faith groups, women - by end of July 2010 (JM) 3. Produce full equality impact assessment (based on [2]) – by end July 2010 4. Ensure any LTP3 consultation is publicised in ways that are accessible to disabled people – ongoing
Disability	**Negative** **Positive**	**High** **High**	Disabled people's groups report that some current transport arrangements have a disproportionate impact for example bus designs that cannot accommodate both a pushchair and wheelchair, the need for systems to alert people with visual impairment that buses are arriving, the need for accessible information for disabled people on access to the city centre (for example parking and transport links to Shopmobility), and the impact of restrictions to private hire access to the City centre. The strategy has the potential to set objectives which could significantly improve access to public transport, information about public transport options, and access to different City locations (including for example city centre venues and hospitals) for disabled people. The strategy is relevant to the Council's equality scheme objectives on improving satisfaction with public transport for disabled people, and improving satisfaction with information for disabled people.		

Religion/ Belief	**Positive**	**Medium**	The strategy may be able to identify objectives that could help improve safety and reduce hate crime against LGBT people or different faith groups while using public transport.	assessments for other major transport developments for example Ring Road Major Scheme, Nottingham Station Hub Scheme, NET (tram lines) phase 2.	
Sexual Orientation					
Age	**Positive**	**High**	The strategy has the potential to significantly improve transport (including for example to voluntary group meetings, city centre venues and hospitals) for older people. The strategy may be able to improve younger people's access to schools/colleges.		
Other (e.g. Community Cohesion)	**Positive**	**Medium**	The strategy has the potential to promote community cohesion by making it easier for (in particular) disabled people, women, older, LGBT and ethnic minority people to participate in consultations, volunteering and other civic activities in the City centre and across the city. Improving information on transport will also benefit people with low levels of literacy and people with learning disabilities. Improving access to sustainable transport choices may help to address the impacts of peak oil/rising fuel costs on the affordability of transport options.		These positive impacts in relation to cohesion and literacy would be an additional benefit arising from the actions above.

Strategic Alternatives 7

7 Strategic Alternatives

7.1 Introduction

7.1.1 The SEA Directive requires that, *"….reasonable alternatives, taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated*." This means that the IIA should consider alternative scenarios for the overall management of transport in Nottingham to ensure that the range of likely transport effects arising from LTP3 are addressed during the preparation of the plan. It also assists in explaining to decision makers and consultees why these strategies, and no others, are being put forward.

7.1.2 DfT guidelines[34] state that alternatives can be different ways of:

- Achieving the objectives of the plan;
- Achieving the aspirations of the local community;
- Dealing with environmental problems;
- Dealing with transport problems.

7.2 Without plan scenario

7.2.1 One situation which needs to be considered in all SEAs is the likely expected evolution of the baseline conditions without the plan. For a transport plan, the 'Without Plan' scenario should, according to the DfT guidelines be developed in line with certain principles, such that it:

- Is based on current government policies;
- Should assume that other adopted plans and programmes will deliver as planned – establishing what this means for the plan being developed is a significant task, drawing on the need to review other plans and programmes;
- Should assume the continued implementation of strategies and measure planned in earlier adopted versions of the plan, unless they were planned to be time limited;
- Should not assume any new strategies or measures even if these appear to be essential in the light of current government policies or of other plans and programmes – these should be included in the alternatives to be considered.

7.2.2 For LTP3 the "Without Plan" scenario is based on a "Base LTP Package". This includes mandatory and key elements that the Authority must seek to fulfil, whether there is an LTP in place or not, for instance, statutory obligations relating to the authority's role as a highway authority. The Base LTP Package comprises:

34 DfT 'Strategic Environmental Assessment for Transport Plans and Programmes' Tag Unit 2.11, December 2004

- Asset management;
- Network management;
- Road safety; and
- Rights of Way management and maintenance.

7.3 Alternative options to be assessed

7.3.1 In addition to the "Without Plan" scenario (Option A) the LTP3 Board have identified four strategic alternatives:

- **Option B:** Cater for growth with major schemes
- **Option C:** Cater for growth without major schemes
- **Option D:** Neighbourhood focus with major schemes
- **Option E:** Neighbourhood focus without major schemes

These strategic alternatives all include the Base LTP Package described in 7.2.2.

7.3.2 The five options which the IIA will assess are set out in Table 7.1. The table identifies the key differences in each strategy option against the Sustainable Development Commission's hierarchy for sustainable transport:

- Reduce demand;
- Encourage alternatives;
- Improve efficiency;
- Build capacity.

Table 7.1 Strategic Alternatives for Local Transport Plan 2011 - 2026

	Option A: **Without Plan Scenario**	Option B: **Cater for Growth with Major Schemes**	Option C: **Cater for Growth without Major Schemes**	Option D: **Neighbourhood focus with Major Schemes**	Option E: **Neighbourhood focus without Major Schemes**
Reduce Demand	Existing policy measures	Introduce Workplace Parking Levy scheme with increased parking enforcement and travel plan support	Emphasis on travel behaviour change/smarter choices measures Constrained car parking provision for new developments	Introduce Workplace Parking Levy scheme with increased parking enforcement, travel plan support for business and individualised travel planning support	Increased residents parking schemes
Encourage Alternatives	As existing	Emphasis on NET integration and development of strategic bus corridors including Worklink bus network expansion Localised 20 mph zones Upgrade strategic walking and cycling networks and green infrastructure links Focus on City centre public realm improvements	Emphasis on increasing bus use across the commercial network and existing Link services including P&R expansion Localised 20 mph zones Upgrade strategic walking and cycling networks and green infrastructure links Focus on City centre public realm improvements	Emphasis on NET integration and development of local link bus network Area-wide 20 mph zones Focus on walking and cycling for short trips Focus on district/local centre public realm improvements	Emphasis on small scale neighbourhood transport schemes Local link bus network expansion Area-wide 20 mph zones Focus on walking and cycling for short trips Focus on district/ local centre public realm improvements
Improve Efficiency	Manage existing networks	Manage existing networks Focus on low carbon public transport system and fleets	Increased network management solutions Focus on low carbon public transport system and fleets	Manage existing networks Focus on incentives for private low carbon vehicle ownership	Manage existing networks Focus on incentives for private low carbon vehicle ownership
Build Capacity	Maintain only	Major capacity improvements including NET extensions and Station Hub Major new highway infrastructure including A453 and Ring Road upgrading Other development related highway improvements	Modest capacity improvements focused on increasing public transport priority and junction improvements at congestion hotspots Other development related highway improvements	Major capacity improvements including NET extensions Major new highway infrastructure including A453 and Ring Road upgrading Small scale localised public transport and highway improvements	Small scale localised public transport and highway improvements

Next Steps 8

8 Next Steps

8.1 Work so far

8.1.1 Section 1.2.2 provides an outline of the main stages of the SEA as set out in government guidance. In accordance with the guidance, this Scoping Report has covered Stage A.

8.2 Remaining stages of the IIA

8.2.1 The diagram below shows the remaining stages that need to be undertaken for the IIA of LTP3. These are also in accordance with government guidance for SEAs.

Stage B: Assessing the effects of the plan or programme
• Develop, refine and appraise strategic alternatives for the LTP Strategy and Implementation Plan Options • Predict and evaluate the significant effects of LTP3 preferred option, resulting in a refinement of the LTP3, if appropriate • Propose mitigation measures for significant adverse effects of LTP3 and identify residual effects • Propose measures to monitor the significant environmental effects of the implementation of LTP3, providing detailed methods by which the environmental performance of the LTP3 can be assessed.

Stage C: Reporting and consulting
• Preparation of the Integrated Impact Assessment Report • Consultation with the public and consultation bodies on the draft LTP3 and the Integrated Impact Assessment Report

Stage D: Decision making
• Assessment of significant changes to the draft LTP3 to ensure that the environmental implications are identified and influence the revision of the LTP3 • Decision making and provision of information on how the Integrated Impact Assessment Report and consultees' opinions were taken into account in preparing the LTP3

Stage E: Monitoring the implementation of theplan
• Developing aims and methods for monitoring the environmental performance of the LTP3 to determine whether its effects are as predicted • Identifying and responding to adverse effects and developing appropriate responses

8.2.2 The IIA Report will Environmental Report will meet the government requirements for the preparation of an Environmental Report as well as picking up the HIA and EqIA elements. The report will be structured as set out in **Appendix 3**.

8.3 How to comment on this report

8.3.1 In accordance with the SEA Directive, this document will be sent to the three SEA Consultation Bodies: Natural England; English Heritage; and the Environment Agency in order to receive their comments on the scope of the assessment. In view of the Scoping Report's wider remit to also cover health and equality impacts comments will also be invited from NHS Nottingham City (the PCT), the Greater Nottingham Transport Partnership, the Health and Environment Partnership and the City Council's Equality and Diversity Team.

In responding to this consultation, please consider the following:

- Have the key issues for environment, health and equality been identified?
- Is the scope of the Integrated Impact Assessment considered to be adequate?
- Are the Integrated Impact Assessment objectives and indicators considered to be appropriate?
- Do you have access to any further baseline data or information that should be included within the baseline in Section 5.0 and Appendices 1 and 2?

8.3.2 The closing date to give us your feedback is **before 5pm on Friday23rd July 2010**. Comments can be made via the online questionnaire link supplied or by e-mail.

8.3.3 For more information or if you would like to respond but have not received a questionnaire link please contact:

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Appendix 1

Appendix 1

See separate report

Appendix 2

Appendix 2

Baseline Data

Baseline Data

The baseline data set out below was that available at the time of publication of the Scoping Report. Any consultee with data which helps to increase the understanding of baseline conditions is encouraged to provide this as part of their response to the consultation stage.

Baseline data - contextual

Contextual data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Population	292,400	656,900 PUA = 627,800Travel to Work area = 786,600	Greater Nottingham is one of the 10 largest conurbations in England	Contextual – no target	Rising trend with projected rise to 301,400 by 2013 and 309,600 by 2018		ONS mid year estimate 2008
Age/Gender	**0-14 yrs = 16%** M= 23,600 F= 22,300 **15 -29 yrs = 34%** M = 50,500 F = 48,300 **30-44 yrs = 20%** M = 31,300 F = 27,500 **45-64 M** = 27,600 **45-59 F** = 20,900 **= 17%** **65yrs & over** M = 14,900 **60yrs & over** F = 25,600 **= 14%**	**0-14 yrs = 16%**M= 54,100 F= 51,000 **15 -29 yrs = 25%**M = 85,400 F = 78,200 **30-44 yrs = 21%** M = 69,700 F = 66,600 **45-64 M** = 75,800 **45-59 F** = 57,800 **= 20%** **65yrs & over** M = 42,700 **60yrs & over** F = 72,900 **= 18%**	**England:** 0-14 yrs = 18% 15 -29 yrs = 20% 30-44 yrs = 21% 45-59 yrs = 19% 60+ yrs = 22%	Contextual – no target	Young population partly due to 2 universities (students comprise 1 in 9 of the resident population). Unlikely to follow the national trend on increasing numbers of people over retirement age in the short to medium term.		ONS mid year estimate 2008

Contextual data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Ethnicity	White: 84.9% Mixed:3.1% Asian/Asian British:6.5% Black/Black British:4.3% Chinese:0.6% Other: 0.5%	White: 91.3% Mixed:1.9% Asian/Asian British:3.8% Black/Black British:2.2% Chinese:0.5% Other: 0.3%	**England:** White: 90.9% Mixed:1.3% Asian/Asian British:4.6% Black/Black British:2.3% Chinese:0.5% Other: 0.4%	Contextual – no target	Next census due 2011	Nottingham has a more diverse population. This data won't record any impact of asylum seekers or economic migrants from the accession states.	Census 2001
Unemployment % of working age population claiming JSA	Jan'10 = 6.2%	Jan'10 = 4.7%	East Mids = 4.2% England = 4.3%		Unemployment has increased since 2009 at the same rate as nationally. Unemployment rate has stayed at 6.2% since Oct09 but remains at its highest level since Apr09.		ONS NCC Benefits Bulleting Feb 2010
Incapacity Benefit/Severe Disablement Allowance and Employment Support Allowance % of working age population	Aug04 = 9.8% Aug08 = 8.7% Jan10 = 8.5%	Aug04 = 9.4% Aug08 = 5.9% Jan10 = 6.9%	**East Midlands:** Aug04 = 8.2% Aug08 = 4.6% Jan10 = 6.6% **England:** Aug04 = 10.4% Aug08 = 4.7% Jan10 = 6.7%		Slight fall in claimants in the City in the last year and a small increase in Gtr Nott'm compared to slightly larger increases regionally and nationally		ONS NCC Benefits Bulleting Feb 2010

Contextual data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Car ownership	None car households = 44.9%	None car households = 31.8%	East Midlands: None car households = 24.3% England: None car households = 26.8%		Below national and regional levels	Below national and regional levels	Census 2001
Dwellings (total)	2005/6: 125,122 2006/7: 126,389 2007/8:				Increase of 1%		LDF Core Strategy SA

Baseline data - IIA Indicators

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
NI 47 People killed and seriously injured	3 year rolling average (number) 2005 = 210 2006 = 202 2007 = 187 2008 = 186 2009 = 172			Reduce to 150 by 2010 = 20% reduction from 2007 baseline	7.5% reduction since 2007	Slowly going in the right direction but not fast enough to meet new LAA stretch target	City Council LTP monitoring Police Stats 19 returns
NI 48 Children Killed and seriously injured	2005 = 32.0 2006 = 29.7 2007 = 28.3 2008 = 25.0 2009 = 19.7			Reduce to 22.8 by 2010 = 20% reduction from 2007 baseline	30% reduction since 2007	Ahead of trajectory to meet the 2010 target.	City Council LTP monitoring Police Stats 19 returns
NI 167 Congestion (average journey time per mile during the morning peak)		**Journey times in minutes per person mile** 2005/6 = 3.8 mins 2006/7 = 3.9 mins 2007/8 = 3.8 mins 2008/9 = 3.8 mins **Person miles** 2005/6 = 321,000		To achieve no more than 10.5% increase in person journey times by 2010/11 in the context of projected 4.2% increase in person mils travelled on the monitored network.	Person journey times are at base year levels. N.B. Person miles travelled has reduced by 2.5% since 2005/6		City Council LTP monitoring

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
		2006/7 = 318,000 2007/8 = 317,000 2008/9 = 313,000					
NI 175 Access to services and facilities (N.B. Indicator locally defined through LTP2)		2006 = 93% 2007 = 94% 2008 = 95%		% of households within 30 minutes travel time of a town centre by bus tram or train with no more than 400m walk to a stop. To maintain baseline level of accessibility.	Accessibility levels have increased year on year from an already high base.		City Council LTP monitoring
NI 176 Working age people with access to employment	2007 = 85% 2008 = 85%			Retain level of accessibility by 2010	Access to employment has remained constant since 2007. 2009 data will be available in Nov-10	On track	DfT dataset
NI 177 Public transport patronage **(Includes bus and tram)**	2007/8 = 56.0M 2008/9 = 56.3M 2009/10 = 55.0M	2007/8 = 75.1M 2008/9 = 75.9M		Increase patronage level to 2 million by 2020/21	Patronage levels increasing year on year until 2008/9.	On track	City Council LTP2 monitoring

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
NI 178 Bus services running on time **% of non frequent services on time**	2005/6 = 87% 2006/7 = 86% 2007/8 = 84% 2008/9 = 84% 2009/10 = 85%	2007/8 = 84% 2008/9 = 86% 2009/10 = 86%		DfT target for 90% of services to be within Traffic Commissioners timeframe (1 min early to 5 mins late) by 2014	Improving	On track	
NI 178 Bus services running on time **Excess waiting time of frequent services (mins)**	2005/6 = 0.71 2006/7 = 0.59 2007/8 = 0.61 2008/9 = 0.58 2009/10 = 0.58	2005/6 = 0.71 2006/7 = 0.57 2007/8 = 0.63 2008/9 = 0.60 2009/10 = 0.63		Target for Gtr Nott'm = 0.66 minutes by 2010/11	Improved since 2005/6	Within Traffic Commissioners maximum excess waiting time of 1.25 minutes	
NI 186 Per capita CO2 emissions in LA area	2005 = 6.5 tonnes CO2 published autumn 2008 2006 = 6.4 tonnes CO2 published autumn 2009			2008/9 = 3% decrease 2009/10 = 7% decrease 2010/11 = 12.6% decrease	Decrease of 1.56% so below target. N.B. Data has 2 year time lag	Decreasing but below trajectory	LAA 2008/9 Q4 End of Year Performance Report
NI 188 Adapting to climate change	Awaiting data						
NI 198 Mode of travel to school: Reduce % of car travel	2005/6 = 26.0% 2006/7 = 19.5 % 2007/8 = 19.4% 2008/9 = 17.9%		Ranked joint second nationally (excluding London Boroughs). Also lowest number	Decrease to 20% by 2010/11	Year on year decrease. 2009/10 data due Sept 2010.	Target achieved in 2008/9	LTP monitoring 2005/6 data = City Council hands up survey returns

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Age 5-15 years			of trips to school by car of the Core Cities and in the region.				2006/7 onwards = DCSF PLASC data
Local indicator Area Wide Traffic a) Greater Nottingham b) City-wide (Million vehicle kms p.a.)	2004 = 979 2005 = 968 2006 = 973 2007 = 965 2008 = 946 2009 = 960	2004 = 2933 2005 = 2921 2006 = 2921 2007 = 2917 2008 = 2852 2009 = 2869		Target for Greater Nottingham = 3109 by 2010 i.e keep traffic growth below 1% p.a.			City Council LTP monitoring
Local indicator Cycling trips		2003 = 100 2004 = 104.7 2005 = 105.3 2006 = 103.8 2007 = 94.8 2008 = 99.1 2009 = 98.4		To achieve 7% increase by 2010 based on index. Baseline = 2003.		Sharp decrease in 2007 attributed to heavy and persistent rain in the summer. 2009 level has increased but still below target.	City Council LTP monitoring
Local indicator Mode share at Inner Traffic Area cordon – Public transport mode share %	2002 = 34.4 2003 = 34.0 2004 = 36.1 2005 = 34.8 2006 = 35.9 2007 = 36.0 2008 = 35.1 2009 = 34.6			No target set		Slight overall increase since 2002 though dropped in 2005 and decreased year on year since 2007	City Council LTP monitoring

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Local indicator: Number of fully accessible bus services	2005/6 = 2 2006/7 = 3 2007/8 = 3 2008/9 = 2009/10 = 2010/11 =	2005/6 = 2 2006/7 = 3 2007/8 = 3 2008/9 = 2009/10 = 2010/11 =		To add 1 complete service each year resulting in 7 fully accessible services in operation in 2010/11			City Council LTP monitoring
Local indicator: % uptake of concessionary fare entitlement within eligible population		2005/6 = 62% 2006/7 = 70% 2007/8 = 85%		To achieve 70% by 2010/11	Improving	Above target	LTP monitoring
Local indicator: Perceptions of safety when using the bus at night		2005/6 = 65% 2006/7 = 74% 2007/8 = 74%		To achieve 67% by 2010/11	Improving	Above target	Council monitoring for LTP based on quarterly survey of users at bus station
Local indicator: Satisfaction with public transport services **% of users**	2006/7 = 74.0% 2008/9 = 76.9%		Highest level of satisfaction nationally (excluding London Boroughs)		Improving		IPSOS MORI PlaceSurvey

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Local indicator: Satisfaction with public transport information **% of users**	2006/7 = 70.0% 2008/9 = 70.5%		Highest level of satisfaction nationally (excluding London Boroughs)	LTP2 target of 60% by 2009/10	Improving	Above target	IPSOS MORI PlaceSurvey
Mode of travel to work	Car driver/ passenger: 51% Public transport: 23% Active Travel: 18% Work at Home: 7%	Car driver/ passenger: 60% Public transport: 17% Active Travel: 14% Work at Home: 8%	**East Midlands:** Car driver/ passenger: 67% Public transport: 8% Active Travel: 14% Work at Home: 9% **England:** Car driver/ passenger: 61% Public transport: 15% Active Travel: 13% Work at Home: 9%		Next census due 2011	Levels of public transport and active travel are higher in the City than in Gtr Nottm, regionally and nationally	Census 2001
Number of incidences p.a. of highway disruption caused by adverse weather	Awaiting data						
Number of incidences p.a. of highway disruption caused by flooding	Awaiting data						

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Energy use by road users from petroleum products (GWh)	**2006:** 1096.20GWh **2005:** 1098.84GWh	**2006:** 4,614.71GWh **2005:** 4,613.09GWh	**East Midlands** **2006:** 40,534.52GWh **2005:** 40,191.34GWh **England** **2006:** 48,945.58GWh **2005:** 48,764.47GWh		Slight reduction in City. Slightly better than EM and England		BERR
Per capita energy use for transport across the City	Awaiting data				Fallen by 3.2% from 2005 to 2007		Nottingham Energy Partnership
Fuel consumption for road transport by type in Nottingham **Private transport (car/motorcycle)**	Thousands of tonnes of fuel 2003 = 64.5 2004 = 64.3 2005 = 72.2 2006 = 71.8 2007 = 70.0				Rising until 2005. Now falling slightly		Nottingham Energy Partnership
Fuel consumption for road transport by type in Nottingham **Buses**	Thousands of tonnes of fuel 2003 = 6.0 2004 = 5.5 2005 = 4.8 2006 = 4.9 2007 = 5.0				After initial decrease remained stable.		Nottingham Energy Partnership

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Fuel consumption for road transport by type in Nottingham **Freight**	Thousands of tonnes of fuel 2003 = 23.3 2004 = 23.9 2005 = 29.8 2006 = 30.4 2007 = 30.5				Rate of increase has slowed		Nottingham Energy Partnership
Construction and demolition waste: Amount produced	Awaiting data						
Construction and demolition waste: Amount sent to landfill	Awaiting data						
Percentage of recycled aggregates used in transport and public realm schemes	Awaiting data						
Percentage of materials and products used in transport schemes sourced in the East Midlands	Awaiting data						

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Percentage of employment land on previously developed land	2008/9: 6,387 sqm = 100% of floorspace was on brownfield land			At least 60% to be built on brownfield land	2000 – 2005 = 69.3% of ha of development land on brownfield sites including ng2	On track	Nottingham Local Development Framework Annual Monitoring Report 2009
Percentage of new and converted dwellings on previously developed land	2000/1: 80.5% 2001/2: 97.1% 2002/3: 99.2% 2003/4: 93.9% 2004/5: 83.0% 2005/6: 100.0% 2006/7: 99.7% 2007/8: 97.4% 2008/9: 89.4%		Regional: 55.3% (2002) National: 63% (2001)	At least 85% over Local Plan period	2000 – 2009: 95.3%	On track	Nottingham Local Development Framework Annual Monitoring Report 2009
Quality of rivers, canals and freshwater bodies: Biological	**2006:** Good = 43% Fair = 44.9% Poor = 12.1% Bad = 0% **2005:** Good = 10.9% Fair = 77% Poor = 12.1% Bad = 0%	**2006:** Good = 44.46% Fair = 47.86% Poor = 6.7% Bad = 0% **2005:** Good = 38.28% Fair = 54.44% Poor = 7.3% Bad = 0%	**East Midlands** **2006:** Good = 59% Fair = 33.7% Poor = 5.4% Bad = 3.7% **2005:** Good = 57.3% Fair = 35% Poor = 6% Bad = 1.8% **England** **2006:** Good = 72.3%		Marked improvement in biological water quality from Fair to Good which brings the quality of water in the City more on a level with that in Gtr Nott'm but still below regional and national levels.		Defra

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
			Fair = 23.2% Poor = 3.8% Bad = 0.8% **2005:** Good = 72.1% Fair = 23.4% Poor = 3.8% Bad = 0.8%				
Quality of rivers, canals and freshwater bodies: Chemical	**2006:** Good = 53.9% Fair = 36.7% Poor = 9.4% Bad = 0% **2005:** Good = 66.8% Fair = 23.8% Poor = 9.4% Bad = 0%	**2006:** Good = 34.56% Fair = 5.66% Poor = 5.66% Bad = 0% **2005:** Good = 28.56% Fair = 7.22% Poor = 7.22% Bad = 0%	**East Midlands** **2006:** Good = 64% Fair = 28.9% Poor = 6.7% Bad = 0.4% **2005:** Good = 59.2% Fair = 32.4% Poor = 7.8% Bad = 0.6% **England** **2006:** Good = 69.5% Fair = 28.9% Poor = 5.8% Bad = 0.4% **2005:** Good = 67.7% Fair = 25.8%		Decrease in chemical river quality from Good to Fair. Below regional and national level.		Defra

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
			Poor = 5.9% Bad = 0.5%				
Area of land covered by flood zones 2 & 3 (ha)	2008 = 1,598.27 2009 = 1,768.09	2008 = 10,286.67 2009 = 10,523.61			10% increase in City area.	Could be due to changes in EA data.	Environment Agency
Number of developments incorporating SUDS	2005/6 = 1 2006/7 = 2 2007/8 = NA	2005/6 = 2 2006/7 = 3 2007/8 = 0			Slight improvement but data limited		LDF Core Strategy SA
Number and area of Local Nature Reserves	2008 = 11 LNRs = 120.54ha 2009 = 11 LNRs = 120.54ha	2008 = 31 LNRs = 252.35ha 2009 = 31 LNRs = 289.98ha			No change		LDF Core Strategy SA
Condition of SSSIs	**SSSIs in favourable condition** 2006 = 2.8ha 2009 = 2.8ha **SSSIs in unfavourable declining** **condition** 2006 = 0ha 2009 = 0ha	**SSSIs in favourable condition** 2006 = 80.74ha 2009 = 79.85ha **SSSIs in unfavourable/ declining** condition 2006 = 1.05ha 2009 = 0ha			No change for City		LDF Core Strategy SA

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
	SSSIs in unfavourable recovering condition 2006 = 4.97 2009 = 4.97	**SSSIs in unfavourable recovering condition** 2006 = 140.72 2009 = 250.19					
Area of biological SINCs	2008 = 676.85ha 2009 = 676.40ha	2008 = 4554.63ha 2009 = 4575.62ha			Small loss in City		Nottinghamshire Biological and Geological Records Centre
Number of improvement schemes	Awaiting data						
Amount of ancient woodland – Total area and area per SOA	2009 = 38.63ha	2009 = 342.04ha	East Midlands 2009 = 24,261ha England 2009 = 353,385ha		No trend data available		Natural England
Length of new/improved multiuser paths to green/open space	Awaiting data						
Length of new/improved multiuser paths to river and canal corridors	Awaiting data						

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Volume of freight carried by rail network in Gtr Nottingham p.a.	Awaiting data						
Volume of freight carried by river and canal network in Gtr Nottingham p.a.	Awaiting data						
Proportion of freight deliveries in the City using low carbon vehicles	Awaiting data						
Open spaces meeting PPG17 accessibility standards % of households within 600m	**Parks & gardens:** City = 98% North West Area = 99% East Central area = 98% **Natural and semi-natural** City = 66% North West Area = 71% East Central area = 51% **Play provision:** City = 88% North West Area = 82%				Baseline established		NCC PPG17 audit of open space typologies 2009 draft reports

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
	East Central area = 94% **Allotments and community gardens:** City = 65% East Central area = 64%						
Registered parks and gardens – number and area	**2008** = 9 = 313.58ha **2009** = 9 = 313.58ha	**2008** = 17 = 1,037.85ha **2009** = 17 = 1,037.85ha	East Midlands **2008** = 136 = 21,624.07ha **2009** = 136 = 21,624.07ha England **2008** = 1,595 = 171,300.98ha **2009** = 1,595 = 171,300.98ha		No change		English Heritage Nottinghamshire County Council
Design awards received for transport and public realm schemes	Awaiting data						
Conservation Areas – area and number	**2008** = 29 = 771.16ha **2009** = 29 = 771.16ha	**2008** = 100 = 2,316ha **2009** = 100 = 2,316ha			No change in the City		LDF Core Strategy SA

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Number of listed building by grade	**2008** Grade I = 9 Grade II = 750 Grade II* = 31 **2009** Grade I = 10 Grade II = 754 Grade II* = 31	**2008** Grade I = 64 Grade II = 1,847 Grade II* = 95 **2009** Grade I = 64 Grade II = 1,852 Grade II* = 96			Improvement in the City in terms of quality of Grade I & II		English Heritage
Number of scheduled ancient monuments	2008 = 13 2009 = 13	2008 = 65 2009 = 65			No change in the City		English Heritage
Number of designated sites and buildings negatively impacted by transport related schemes	Awaiting data						
Travel time and frequency to London and CoreCities by rail	Awaiting data						
Annual police crime stats for **Robbery**	2006 = 1,313 2007 = 1,479 2008 = 1,497 2009 = 1,259	2006 = 1,659 2007 = 1,911 2008 = 1,904 2009 = 1,676	2006 = 1,811 2007 = 2,175 2008 = 2,170 2009 = 1,986		Reduction from 2008 and now lower than 2006 level		Nottinghamshire Police from www.nottinghaminsight.org.uk

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
Annual police crime stats for **Theft from a motor vehicle**	2006 = 5,123 2007 = 5,791 2008 = 4,802 2009 = 3,294	2006 = 8,312 2007 = 9,306 2008 = 7,304 2009 = 5,628	2006 = 12,019 2007 = 14,609 2008 = 12,023 2009 = 9,046		Year on year reduction from 2007 and now lower than 2006 level		Nottinghamshire Police from www.nottinghaminsight.org.uk
Annual police crime stats for **Theft of a motor vehicle**	2006 = 1,342 2007 = 1,684 2008 = 1,297 2009 = 973	2006 = 2,108 2007 = 2,473 2008 = 1,994 2009 = 1,522	2006 = 3,428 2007 = 4,433 2008 = 3,650 2009 = 2,871		Year on year reduction from 2007 and now lower than 2006 level		Nottinghamshire Police from www.nottinghaminsight.org.uk
Annual police crime stats for **Violence against a person**	2006 = 8,209 2007 = 9,914 2008 = 9,191 2009 = 8,286	2006 = 11,330 2007 = 13,509 2008 = 12,470 2009 = 11,360	2006 = 17,933 2007 = 21,299 2008 = 20,233 2009 = 19,328		Year on year reduction from 2007 but still higher than 2006 levels		Nottinghamshire Police from www.nottinghaminsight.org.uk
Public transport access to hospital: % of households without a car within 30 minutes travel time of a hospital	2005 = 94.92% 2007 = 100%	2007 = 96.3%	Nottinghamshire = 94.3% in 2007		Level increased for an already high base		
Public transport access to GP services: % of households without	2005 = 93.97% 2007 = 100%	2007 = 98.4%	Nottinghamshire = 98.2% in 2007		Level increased for an already high base		

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
a car within 15 minutes travel time of a GP							
Public transport access to City Council leisure centres	Awaiting data						
Concentration of NO_2 in City Centre AQMA *u*gm^{-3}	2005 = 43 2006 = 39 2007 = 42 2008 = 44 2009 = 40			Target is 38*u*gm^{-3} by 2010	Levels initially dropped in 2006 but rose each year until 2008. Significant decrease in 2009 but above target.		LTP monitoring
Concentration of NO_2 in Ring Road AQMA *u*gm^{-3}	2005 = 42 2006 = 35 2007 = 34 2008 = 35 2009 = 35			Target is 38*u*gm^{-3} by 2010	Levels dropped below target in 2006 and have remained stable.	On track	LTP monitoring
Number of dwellings (people) affected by road traffic noise above 55dB (A) L_{den} and 50dB (A) L_{night}	There are approx 1,200 dwellings (2,200 people) in Nottingham City within "First Priority" locations where the $L_{A10,18h}$ is at least 76dB.	In the Nottingham agglomeration 500,500 households or 1,117,000 people are affected by noise above 55dB in the daytime and 260,500					Defra Noise Action Plan for the Nottingham Agglomeration 2010

IIA Indicator Available Data	Nottingham City	Greater Nottingham	Regional/ National Context	Target if available	Trend	Indicator Status and Comments	Data Source
		households or 581,500 people are affected by noise above 50dB at night.					
Number of dwellings (people) affected by rail noise above 55dB (A) L_{den} and 50dB (A) L_{night}	There are fewer than 50 dwellings fewer than 100 people) in Nottingham City within "First Priority" locations where the L_{Aeq}, 18h is at least 73dB.	In the Nottingham agglomeration 10,000 households or 18,000 people are affected by noise above 55dB (in the daytime and 5,000 households or 9,000 people by noise above 50dB at night.					Defra Noise Action Plan for the Nottingham Agglomeration 2010
Number of dwellings (people) affected by airport noise above 55dB (A) L_{den} and 50dB (A) L_{night}	There are no dwellings in Nottingham City affected by noise from airports.	The Nottingham agglomeration is not affected by noise from airports.					Defra Noise Action Plan for the Nottingham Agglomeration 2010

Appendix 2

Appendix 3

Appendix 3

Proposed structure of the Integrated Impact Assessment report

SECTION	DESCRIPTION OF TASKS
SUMMARY	• Non-technical summary of the IIA process carried out for LTP3
BACKGROUND	• Requirements and purpose of the SEA (and integration with NATA)
	• Coverage of the Integrated Impact Assessment Report
	• LTP3 and SEA, HIA and EqIA processes
	• Links to other plans, programmes and environmental protection objectives
APPROACH	• Who carried out the IIA, how, when, who was consulted,
	• Outline of how the baseline data was collected and difficulties in collecting the data/limitations of the data.
	• How the IIA objectives were developed
	• Details of the assessment methods used
	• Description of the consultation process and how responses have been used to inform the IIA process
BASELINE DATA AND DEVELOPMENT OF IIA OBJECTIVES	• Baseline environmental data, analysis of future trends including the future baseline without the plan
	• IIA objectives
PLAN ISSUES, STRATEGIES AND ALTERNATIVES	• Existing and foreseeable future environmental problems
	• Description of significant environmental effects of the alternative strategies and outline of why the preferred alternatives were selected, in light of identified environmental options
LTP3 POLICIES AND PROPOSALS	• How environmental problems were considered in developing and choosing the preferred alternatives
	• Proposed mitigation and enhancement measures to deliver objectives
IMPLEMENTATION AND MONITORING	• Links to project environmental impact assessment, design guidance etc.
	• Proposals for monitoring and reporting