

4. State of the Environment

4.1. Baseline Overview

The London Borough of Haringey is located in the centre of North London and is defined as an Outer London Borough by TfL and the GLA. Despite this some of its social and environmental characteristics are more akin to an inner London borough. The Lee Valley marks the eastern boundary of the borough which extends in the west to Muswell Hill, Fortis Green and Highgate. The main commercial areas within the borough are at Wood Green, one of the largest shopping and service centres in London, and Tottenham.

The eastern part of Haringey bordering on the Lee valley was formerly a significant part of London's light industrial base but has suffered from economic decline since the 1970s and is now the focus of regeneration programmes. The Haringey Contaminated Land Strategy summarises the industrial base in the Borough:

“Haringey has a diverse industrial base with companies operating in a wide range of sectors. In comparison with London as a whole there is a relatively high concentration of manufacturing, in particular, metal goods, food, clothing and textiles, distribution, hotels and catering.”

The baseline has been broken down into the following components:

- Soil;
- Water;
- Air;
- Climatic factors;
- Population;
- Human Health;
- Noise;
- Material Assets;
- Biodiversity;
- Archaeology and Cultural Heritage; and
- Landscape.

The interrelationship between these factors will also be considered. The SEA Directive provides an indicative list of topics that should be included when looking at the environmental effects of a plan or programme. Noise is not included within SEA Directive topic list. However noise impacts on the environment are considered to be particularly significant for local implementation plans and are therefore included within this report.

TRL developed the following tips and hints for baseline information (TRL for DfT2004)

- How good or bad is the current situation? Is it getting worse or improving? How is the situation likely to change in the future?
- Are there any critical thresholds and if so how far is the current situation from these?

- Are particular important elements of the environment affected: resources, species, habitats, people?
- Are the problems large or small scale, reversible or irreversible, permanent or temporary, direct or indirect?
- Is it possible to reduce, offset or remedy any damage?
- Have there been any important cumulative or synergistic effects over time? Are these expected to continue?

On the basis of this the structure adopted for baseline information is broadly as follows:

- The current situation, trends and predicted changes and critical thresholds;
- Who or what is affected, resources, species, habitats, people;
- Are the problems large or small scale, reversible or irreversible, permanent or temporary, direct or indirect;
- The scope for mitigation;
- Cumulative effects with other topic areas;
- The relevance of the topic in terms of SEA of the LIP.

Any existing environmental protection objectives are identified under the relevant subject areas.

4.2. Soil quality

4.2.1. Overview

The main environmental concerns in regard to soil are related to contamination of soils and the resulting adverse effects that this can have on:

- The uses to which land can be put; and
- Water resources, both surface and groundwater.

The extent of adverse effects depends on a number of factors including:

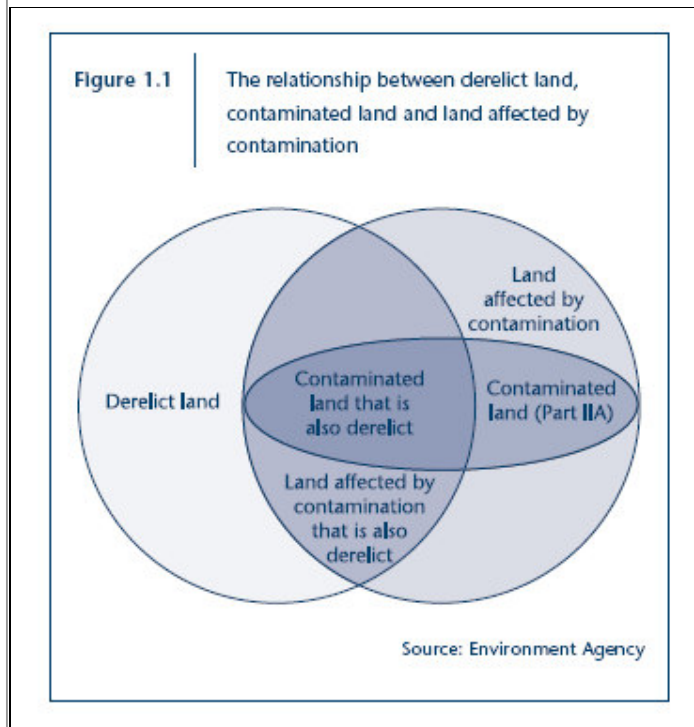
- The surface and underlying geology of an area;
- Surface water flows;
- Groundwater flows.

Contamination of land may arise from a number of sources including industrial activities, maintenance of vehicles and waste disposal. In regard to transport key sources of contaminants relevant to Haringey are:

- The use of motor vehicles which may result in contamination from oil, fluids, rubber and other matter that may be deposited by motor vehicles typically on roads and on areas where they are parked;
- The maintenance of motor vehicles which may result in contamination from oil and fluids, rubber and other matter on sites where these activities take place;
- The use and maintenance of trains which may result in contamination from oil, fluids, and other matter that may be deposited by trains on railway land.

The closure of industrial sites and sites used for transport often leaves vacant/derelict brownfield land in existing urban areas that is contaminated to a greater or lesser degree. The demand for housing and other land uses stock has encouraged government to develop legislation for the identification and management of this contaminated land. **Figure 4.1** summarises the relationship between derelict land, contaminated land and land affected by contamination.

Figure 4.1: Relationship between derelict land, contaminated land and land affected by contamination



Source: Environment Agency

All Local Authorities and London Boroughs are legally required under Environmental Protection Act 1990 and the Contaminated Land (England) Regulations 2000 to prepare a Contaminated Land Strategy. This legislation requires all local authorities to develop and implement a Contaminated Land Strategy. The assessment strategy is developed from a three-stage risk-based approach to identifying contaminated sites, based on source-pathway-receptor linkages. The potential contaminated sites are prioritised in terms of hazard severity based on impact to human health and/or controlled waters. The *London Borough of Haringey: Contaminated Land Strategy Consultation Draft* sets out the Borough's strategy for dealing with the contamination of land.

4.2.2. Existing situation

Geology

The London Borough of Haringey lies on elongated basin comprised of chalk, deposited during the Cretaceous period. Overlying the chalk aquifer is the London Clay, and on top of this are drift deposits of sand and gravel aggregates. River gravels are located in low lying river valleys, notably the Lea Valley), and much older glacial gravels are located on higher ground.

In the Borough there are formations of unconsolidated drift material, including two areas of younger material; the Claygate and Bagshot beds, which run in a ridge from Haringey west towards Ealing and mark the northern edge of the Thames Valley.

The London Clay Formation forms an almost impervious layer to waterborne contaminants preventing their transmission to groundwater. The risk of aquatic pollution migration is highest to the south east of the Borough where the clay is missing exposing the chalk aquifer via the Kempton Park and Reading and Woolwich sand and gravel beds.

Existing contamination

Within Haringey former industrial sites and transport sites are concentrated along the Lee Valley often in close proximity to dwellings. Other potentially contaminated land sites include isolated industrial works and hospitals. With the increasing demand for housing, former brownfield sites have been considered as potential sites for redevelopment as housing. Any earthworks associated with redevelopment or maintenance of existing sites could potentially expose contaminated land.

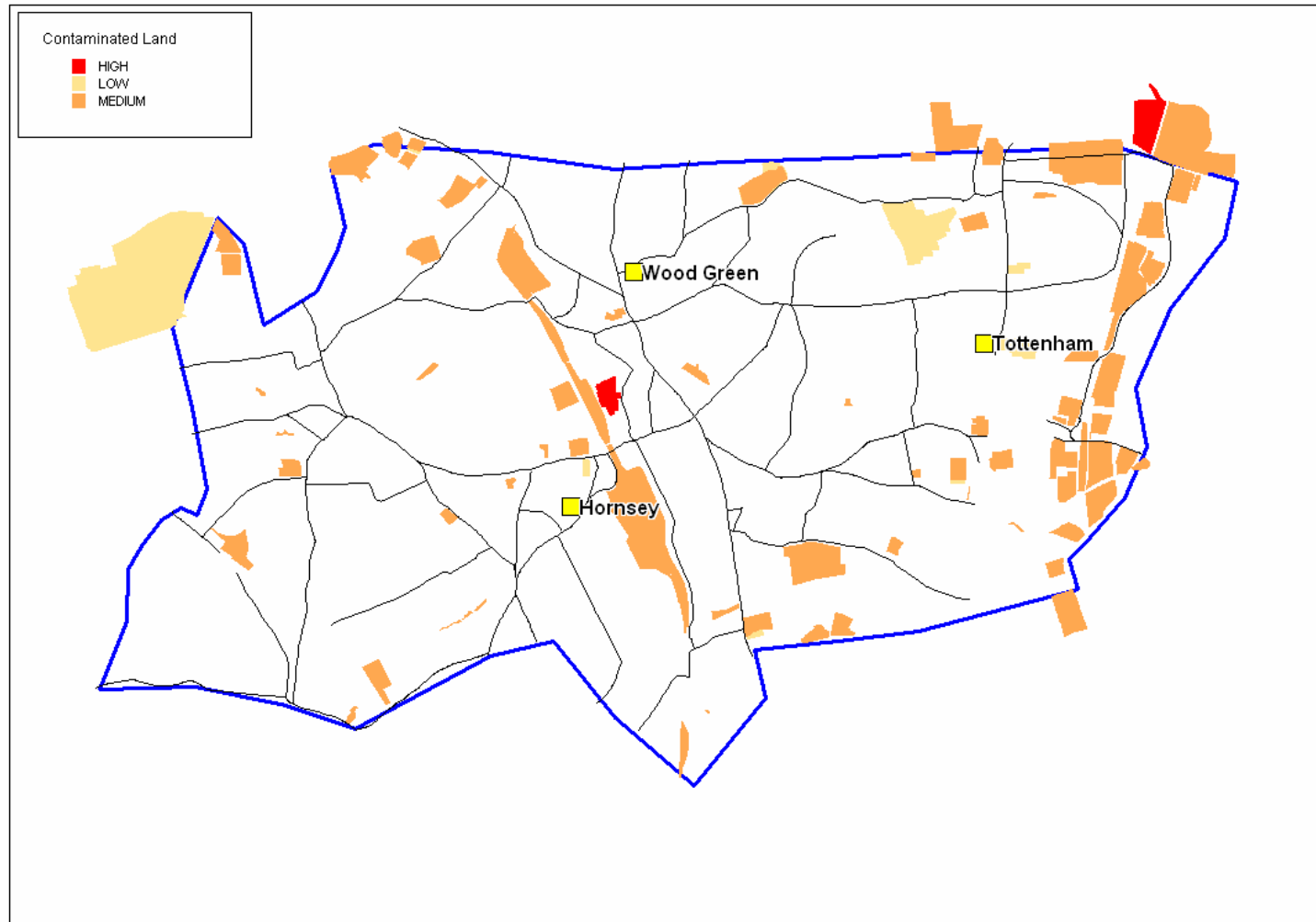
All land previously used for industrial, utility or commercial uses in the borough must be regarded as potentially contaminated. A list of potential contaminated land types in Haringey is listed in **Table 4.1** below. Potential contaminated land sites in Haringey are shown on **Figure 4.2**.

Table 4.1: Description of contaminated land types and associated risk

<i>Description of contaminated land type</i>	<i>Risk</i>
Gas manufacture & distribution	High
Factory or works - use not specified	Medium
Hospitals	Medium
Leather tanning & dressing	Medium
Machinery: engines, building and general industrial [manufacture]	Medium
Mineral products non-metallic [inc. abrasives & asbestos] [miscellaneous manufacture]	Medium
Natural and man-made textile manufacture and products	Medium
Paper packaging products [manufacture]	Medium
Railways	Medium
Refuse disposal	Medium
Road haulage	Medium
Saw-milling, planing & impregnation [i.e. treatment of timber]	Medium
Sewage	Medium
Transport support & cargo handling	Medium
Unknown Filled Ground (Pit, quarry etc)	Medium
Unknown Filled Ground (Pond, marsh, river, stream, dock etc)	Medium
Brewing & malting	Low
Cemetery or Graveyard	Low
Clay bricks & tiles [manufacture]	Low
Food processing - major	Low
Glass & glass products exc. Flat glass [manufacture]	Low
Quarrying of sand & clay, operation of sand & gravel pits	Low
Rubber natural products manufacture	Low
Tableware & other ceramics [manufacture]	Low

Source: Haringey Contaminated Land Strategy

Figure 4.2: Potentially contaminated land in the London Borough of Haringey



Source: London Borough of Haringey

Trends and future changes

There has been a continuing trend to remediate contaminated land in the Borough thus allowing its reuse for non-industrial uses including residential, retail and business. This is expected to continue with the remediation and redevelopment of further sites

4.2.3. Who or what is affected?

The main risks in regard to soil and contamination occur where the development/redevelopment of Brownfield Sites could potentially expose contaminated sources to receptors. The potential receptors are:

- Surface water resources;
- Groundwater resources

There are indirect effects where:

- These water resources are part of a wildlife habitat;
- Surface water or groundwater resources are used for water supply.

There are surface water resources, notably in the Lee Valley that could potentially be affected by contamination. These include water supply reservoirs. The impermeable London clay protects groundwater resources over most of the Borough.

4.2.4. Nature of the problems and scope for mitigation

The contaminants found on a site will vary according to former or present site activities. While problems on specific sites can be serious, in overall Borough terms the situation is manageable. Through effective identification and management, contaminated land sites can be redeveloped following remediation. Effective management of existing/current industrial and commercial activities prevents further contamination of sites.

4.2.5. Cumulative effects

No significant cumulative effects have been identified in relation to soil and its contamination.

4.2.6. The relevance of soil quality in terms of SEA of the LIP

Soil quality is considered of marginal importance in terms of SEA of the LIP proposals unless there are major transport infrastructure proposals that cross contaminated land. It is understood that the LIP is not likely to include such proposals. The only other strategic impact is likely to be where contaminants from roads are washed onto other land but this is likely to be much less significant than direct impacts to water quality. Furthermore the change in the level of contaminants that fall onto road surfaces following implementation of LIP measures is likely to be very small.

4.3. Water resources

4.3.1. Overview

The main environmental concerns in regard to water are related to contamination of water and the resulting adverse effects that this can have on:

- Existing water supply;
- Habitats and biodiversity; and
- Recreational use of water resources.

Contamination of water resources may arise from a number of sources including:

- Changes in the direction of watercourses;
- Changes in land use in areas adjacent to water resources;
- Changes in the volume of water held within the water shed; and
- Changes in the level of water table/flooding.

The water environment is sensitive to change and can easily be damaged by development. Water quality can be measured by both the quality of groundwater and the quality of surface water.

The historic use of the River Lee as a major route for transporting of goods throughout north London has left an industrial imprint on the quality of water within the river and adjoining watercourses. Legislation prohibiting direct discharge into watercourses has reduced concentrations of pollutants. Lower water quality has detrimental impacts on biodiversity, habitats and recreational use of water resources.

Groundwater contamination and surface run-off

One of the greatest concerns to water quality is surface water run-off and leakage from contaminated sites. This will be of particular concern where contaminated land is in close proximity to an open watercourse or at risk of entering groundwater. Within Haringey there are significant areas of potential contamination in the eastern part of the Borough, an area that is at risk of flooding, see **Figure 4.3** below.

Discharges from surface water drains can be damaging to the environment (receiving waters) because urban run-off is likely to contain dissolved and suspended matter washed from streets, pavements and other surfaces. More attention is being paid to these discharges through guidelines for the planning and design of highway drainage systems often in the form of Sustainable Urban Drainage Systems (SUDS).

Examples of problem issues include:

- Use of rock salt in the grit mix applied to roads in wintry conditions and direct application of rock salt to footways leads to increased chloride presence in watercourses;
- Spillage of loads in accidents; and
- Use of pesticides/herbicides in highway verge maintenance.

The Environment Agency has indicated that there is a low risk of the underlying chalk aquifer being contaminated by surface water or groundwater because of the overlying impermeable London Clay.

Flooding

Development on the floodplain is of particular concern. Floodplain storage is a natural and sustainable response to flood flows in rivers and has the effect of reducing flood water levels and the risk of flooding elsewhere. Developing in the floodplain or raising ground levels in floodplains reduces the flood storage capacity and may impede flood flows. This will have the effect of increasing flood water level elsewhere within the catchment. Uncontrolled works may lead to effects such as an increased risk of flooding, erosion, increased danger to the public, restricted access for maintenance purposes, and damage to the water environment.

Development within the river catchment can have a significant impact on flooding simply by increasing surface water run-off. Sustainable Urban Drainage Systems (SuDS) provide a way of controlling surface water run-off so that it does not increase flood risk elsewhere. They can also significantly improve water quality, amenity and biodiversity.

4.3.2. Existing resources

Surface water features

The River Lee is the principal watercourse in the Borough, and marks the eastern boundary between Haringey and Waltham Forest. The River Lee, originating from Hertfordshire and Essex, flows through Haringey and continues southeast to join the River Thames at Blackwall.

The New River is a minor tributary that runs through the centre of Haringey, from Enfield to Hackney. It is culverted for part of its length within the Borough.

Trends and future changes

Upstream of its confluence with Pymmes Brook the River Lee has been assigned River Quality Objective (RQO) class 2, whilst downstream of this point it is RQO class 5. The Lea Navigation is RQO class 3. RQO relates to the level of water quality that a watercourse should achieve in order to be suitable for its agreed uses; class 1 being suitable for all uses and class 5 being suitable for very restricted uses.

Annual water quality samples, taken along the River Lee between King's Weir and Tottenham Lock, indicate that the water quality targets set by the Environment Agency are achieved each year. Samples were taken in 1995, 2000, 2001 and 2002. Individual water quality measurements are of concern as follows:

- Biochemical Oxygen Demand (BOD) has been assessed as good – representing a natural ecosystem at or close to natural. BOD levels have generally remained constant however have slightly increased over the last couple of years to 1.63 mg/l.

- Ammonia and Dissolved Oxygen levels have both remained constant with 2002 levels assessed as very good – representing a natural ecosystem.
- Nitrate levels have generally remained constant at circa 33 mg/l. This level has been assessed as high by the Environment Agency.
- Phosphate levels have generally been decreasing since 1995 from 1.44 to 1.2 mg/l in 2002 but rose to 1.76 mg/l in 2000. The 2002 levels are still assessed as excessively high.

Annual water quality samples, taken along the River Lee Navigation indicate similar trends to the River Lee. Assessments of chemical and biological levels are indicated below:

- BOD and Dissolved Oxygen levels have been assessed as fairly good in 2002 at 2.24 mg/l and 91.08% respectively;
- Ammonia levels have remained around 0.15 mgN/l and have been assessed as good – representing a natural ecosystem at or close to natural.
- Nitrate levels have been assessed as moderate remaining around circa 21 to 22 mg/l; and
- Phosphate levels have over the last few years generally been decreasing however are still assessed as excessively high at 0.54 mg/l in 2002.

A comprehensive list of all water quality samples within Haringey, including samples taken at Pymmes Brook is given in **Appendix C**.

4.3.3. Who or what is affected?

Surface water resources that could potentially be affected by contamination include:

- Chingford Reservoir – SSSI;
- Walthamstow Reservoir – SSSI, SAP, RAMSAR;
- Walthamstow Marshes – SSSI;
- The River Lee and its tributaries; and
- The New River

Flooding may affect land and development within the flood plain and locally elsewhere.

4.3.4. Nature of problem and scope for mitigation

The main risks in regard to water quality occur where the development/redevelopment of sites in close proximity to water resources could potentially expose these to water flowing through or over contaminated soils and allow contaminated water to flow to and adversely affect both surface water and groundwater resources.

There may be indirect effects where these water resources are part of a wildlife habitat or surface water or groundwater resources are used for water supply.

The main risk of flooding occurs where the development/redevelopment of sites on floodplain or in catchment areas that are susceptible to increased run-off. In Haringey large parts of the Lee Valley are known to have flooded. Catchment Zoning Maps, created by the Environment Agency, indicate areas that are likely

to be affected by increased run-off. In Haringey, developments where surface water run-off drains to the New River may require appropriate attenuation measures.

4.3.5. Cumulative effects

No significant cumulative effects have been identified.

4.3.6. The relevance of water resources in terms of SEA of the LIP

The main strategic impact is likely to be where contaminants from roads are washed into watercourses and water bodies. However the change in the level of contaminants that fall onto road surfaces as a result of LIP measures is likely to be very small and the potential impact on water resources is likely to be insignificant.

4.4. Air quality

4.4.1. Overview

Air quality is influenced by both local emissions and by emissions from elsewhere which are blown into an area. Air quality affects both human health and the health of other living things.

One of the major sources of local air pollution is from motor vehicle transport, which is a significant source of particulate matter (PM₁₀) and nitrogen dioxides (NO₂). Today the amount of pollutants dispersed by heavy industrial activity has declined due to closure of heavy industry and retro-fitting of cleansing equipment to reduce emissions. The reduced volume of industrial activity that produce vast quantities of air pollutants, including Carbon Monoxide, Lead, Nitrogen Dioxide (NO₂) and Nitrogen Oxides (NO_x), Particulate matter (PM₁₀) and Sulphur Dioxide, has meant that across a national/strategic level, transport based pollution has overtaken industrial based pollution.

The principal sources of fine particulates (PM₁₀) can be divided into three main categories:

- *Primary Sources* - from combustion sources including road traffic, power generation and industrial combustion;
- *Secondary sources* - formed from chemical reactions in the atmosphere; and
- *Coarse Sources* – all other sources including re-suspended dusts, construction work dust, mineral extraction works, wind-blown dusts and soils, including sea salt and biological particles.

Particulate emissions are associated with increased occurrence of asthma related illnesses, bronchitis and increased susceptibility to chest infections. The young and old are most vulnerable to continued high exposure to dust and particulates. Preliminary assessments have shown exceedences adjacent to busy roads.

The increased reliance of the motor vehicle for all aspects of movement has seen a dramatic rise in the levels of car usage across the nation. In urban centres where motor vehicle traffic is concentrated, the impacts of emissions on

the environment are of greatest concern, particularly where there is a high proportion of heavy goods vehicles (HGVs). HGVs, buses and coaches are of particular concern as these vehicles have disproportionately high emissions per vehicle. Rate of pollutant emissions from vehicle sources has a direct correlation with the distance travelled, ambient temperature and average vehicle speed:

- a) Distance = most journeys are of short duration and take place in urban areas. The term 'cold start' is used to describe the engine state when started and represents the moment of greatest excess emissions/pollution incidents from vehicle engines. Commuting traffic and haulage vehicles are a good example of 'cold start' emission sources. *Excess cold start emission* is therefore of considerable significance for environmental planning.
- b) Ambient Temperature = Warmer temperatures are likely to have a greater negative effect on vehicle pollution emissions.
- c) Average Speed = the highest emission rates occur at the lowest speed of 5 km/hr for all of the pollutants. The lowest emission rates occur at 60-65 km/hr for NO_x, 65-80 km/hr for PM₁₀, 75-80 km/hr for CO, 90-100 km/hr for hydrocarbons and 65-70 km/hr for CO₂. Traffic modelling shows that idling traffic at junctions and passing through speed calming areas increase pollution incidents. Some roads have considerable variation in speed from hour to hour with lower speeds during peak hours. The number of hours with congested traffic is likely to increase in the future as traffic flows increase. Increasing speed from an hourly average of 5 km/hr to 10 km/hr could decrease emissions by 27% for NO_x and 33% for PM₁₀.

4.4.2. Existing air quality

Table 4.2 lists likely pollutants and their sources within Haringey.

Table 4.2: Pollutants and their sources within Haringey

<i>Pollutant</i>	<i>Main Source</i>
Benzene	Petrol vehicles
1, 3-butadiene	Road transport
Carbon Monoxide	Petrol vehicles and industry
Nitrogen oxides (NO _x)	Road transport, power generation and industry
Particles (PM ₁₀)	Road transport, power generation and industry

Of the above nitrogen dioxide and particles are now the most significant. Note that carbon dioxide is considered elsewhere as a greenhouse gas. Under the National Air Quality Strategy, Haringey Council has undertaken a three-stage review and assessment of the air quality in the Borough. The review indicated that the Government's air quality standards for PM₁₀ and Oxides of Nitrogen (NO_x) would not be met by the required dates (PM₁₀ – 2004 and NO₂ – 2005). The Council subsequently declared an Air Quality Management Area (AQMA) that covers the whole Borough.

The role of transport is significant and many of the proposals in the Action Plan relate to reducing these emissions. **Table 4.3** below shows the emissions for each type of road vehicle.

Table 4.3: NO₂ and PM₁₀ emissions for each type of road vehicle in Greater London

<i>Greater London</i>		
<i>Road Transport</i>	<i>% of NO₂</i>	<i>% of PM10</i>
Cars	53.8	31.9
Light goods vehicles	9.3	32.8
Heavy goods vehicles	26.1	23.3
Buses	9.6	7.3
Taxis	1.0	3.9
Motorcycles	0.1	0.8

Source: Greater London Authority/Transport for London 2001

The *Haringey Air Quality Management Area: Action Plan* illustrates that, while cars and HGVs dominate the NO₂ contribution (circa 50% to 80% of NO₂), the PM₁₀ transport contribution is spread across cars, light goods vehicles and HGVs. The ability to reduce the impact of air pollution in and around the borough lies chiefly with the effective management of traffic on the borough's roads.

The Council has modelled air pollution in the borough and identified locations with poor air quality. Two hotspots were identified:

- Tottenham Hale; and
- Muswell Hill roundabout.

Trends and future changes

Car ownership continues to rise in the London Borough of Haringey. In 1996 there were 0.79 cars per household and this is expected to rise to 0.95 cars per household by 2011. The 2001 Census indicates that 46.5% of households within Haringey have no car or van, and that 12.3% have two or more cars or vans. The proportion of Haringey households that own 1, 2 and 3 or more cars has increased steadily over the last three Censuses from 48.7% to 53.5% [source: *Haringey Draft Local Implementation Plan*].

In common with many London boroughs, Haringey suffers the effects of heavy flows of through road traffic arising from radial commuter movements.

The Government is committed to a 60% reduction in carbon dioxide emissions by 2050. By reducing the dependency on unnecessary conventional private motor vehicle use, efforts can be made to reduce carbon dioxide emissions, which also contribute to global warming [source: *Haringey Unitary Development Plan Revised Deposit Consultation Draft*].

4.4.3. Who or what is affected?

The main risks in regard to motor vehicle emissions are lower air quality with potentially damaging effects on:

- Human Health; and
- All other plant and animal species including those within recognised wildlife habitats.

Congestion on main roads at peak periods often results in rat running on residential side streets with consequent reduced air quality for residents, pedestrians and others in those streets.

4.4.4. Nature of the problems and scope for mitigation

Air pollution from NO_x and PM₁₀ is predominantly attributed to motor vehicles, accounting for circa 60% and 70% of emissions respectively. Both forms of pollution are detrimental to human health and the local environment. These transport related pollutants are of particular concern within residential areas, shopping areas and conservation areas where the concentration of people is greatest. Motor vehicle traffic is one of the main sources of air pollution and good maintenance of motor vehicles is essential to minimising emissions.

The *London Low Emission Zone Feasibility Study* has looked at the scope for improving air quality by designating the London Low Emission Zone (LEZ). The LEZ is a defined area where only vehicles that meet certain emission criteria or standards can enter. The LEZ Feasibility Study indicated that major improvements to London's air quality could be achieved by increasing the number of modern, cleaner vehicles complying with a lower emission "Euro" standard.

The study recommends that LEZ start by targeting lorries, London buses and coaches as these vehicles have a disproportionately high emissions per vehicle. This policy should then be extended in later years to include vans and taxis (depending upon socio-economic cost). The study does not recommend that cars are included within the scheme.

A LEZ would have the greatest impact in targeting PM₁₀ emissions reducing emissions by 23% in London by 2010. A LEZ would also achieve a reduction of 43% in the area of London exceeding PM₁₀ air quality target in 2010, and 19% reduction in the area of London exceeding the relevant NO₂ air quality target in 2010.

All Haringey policies seek to reduce car dependency.

4.4.5. Cumulative effects

Cross boundary air quality impacts are present in areas with high levels of vehicle emissions, e.g. Tottenham Hale and the Muswell Hill roundabout, which are close to the Borough boundary.

Adverse impacts on air quality may combine with other adverse impacts, for example noise, intimidation by traffic, accidents and severance, to create an environment that is unpleasant for residents, for those working in an area and for people passing through on foot or cycle.

4.4.6. The relevance of air quality in terms of SEA of the LIP

Air quality is considered to be one of the major potential issues in terms of SEA of the LIP proposals. Transport is the major source of NO_x and PM₁₀, key pollutants that affect air quality. Even though LIP measures may have a comparatively small impact on overall air quality the link between overall traffic and air quality is very strong.

4.5. Climate change

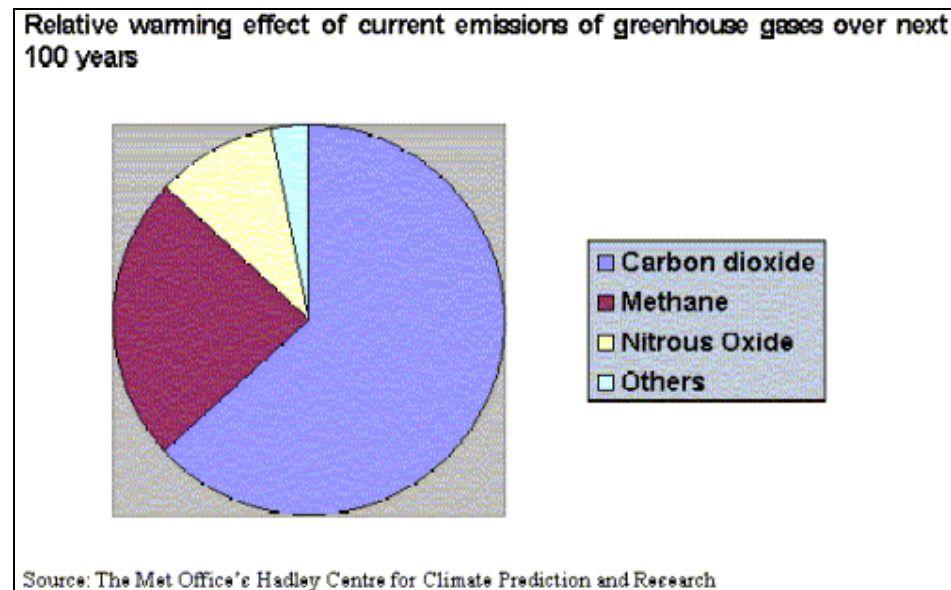
4.5.1. Overview

The main human influence on global climate is likely to be emissions of greenhouse gases such as carbon dioxide (CO₂) and methane. The government through existing Kyoto protocol guidance have identified 6 main greenhouse gases:

- carbon dioxide;
- methane;
- nitrous oxide;
- hydrofluorocarbons;
- perfluorocarbons; and
- sulphur hexafluoride.

Figure 4.3 below indicates the relative warming effect of current emissions of greenhouse gases over the next 100 years.

Figure 4.3: Greenhouse gas emissions



Source: www.Defra.gov.uk

Two additional powerful greenhouses gases that cause damage to the stratospheric ozone layer include:

- Chlorofluorocarbons (CFCs); and
- Hydrochlorfluorocarbons (HCFCs)

Both of these greenhouse gases are currently being phased out under the Montreal Protocol.

Emissions from sources such as power stations and transport form small particles known as aerosols. These small particles reflect sunlight back out into space and therefore have a cooling influence on the climate. Measures are being taken in Western Europe and North America to reduce sulphur emissions, mainly to tackle acid rain, and this will cut the level of aerosols.

4.5.2. Existing emissions

Transport

Carbon dioxide emissions from the transport sector currently represent a quarter of the UK's total emissions, and are forecast to increase proportionately by 2010 as traffic grows. Road traffic is the principal source of these and emissions from rail operations represent a very small proportion. Carbon dioxide emissions are a direct result of the consumption of carbon-based fuels and therefore an increase in fuel consumption through travel directly increases carbon dioxide emissions.

Emissions from industrial sources

Historically commercial and light Industrial activities were present across the four north London boroughs of Barnet, Haringey, Enfield and Waltham Forest. These industries were diverse and included for example manufacture of furniture, vacuum flasks, clothing, electrical goods and paper products. Many of these industries have now declined and in Haringey manufacturing now employs only 9% of workers (source - Draft LIP). Industrial sites are mainly located in the east of the borough towards the Lee Valley.

Trends and future changes

A fluctuating economy, an increasing tendency for manufacture to move overseas to low cost countries and an increased conflict between existing industrial sites and residential land resulted in the closure of industrial sites. Today, industrial activities have continued to decline, but industrial activities are still present in some areas. **Figure 4.4** identifies key areas for employment.

Greenhouse gas emissions from industrial land use have recently reduced because of environmental legislation such as the *Clean Air Act: C11, 1993*, prohibiting direct discharge of untreated pollutants into the atmosphere. The decline in industry and improved controls on industrial greenhouse gas emissions has seen motor vehicle associated greenhouse gas emissions rise above industrial emissions.

4.5.3. Who or what is affected?

London's Warming - The Impact of Climate Change on London, October 2004 summarised the potential climate change impacts on transport as:

- *London's transport system and ancillary services are vulnerable to disruption from flooding and other extreme weather events that are expected to increase in frequency and intensity.*
- *Increased temperatures on the London Underground, exacerbated by the urban heat island effect, will lead to passenger discomfort.*

- *Hotter summers may damage elements of transport infrastructure, causing buckled rails and rutted roads, with their attendant disruption and repair costs.*
- *Higher temperatures will lead to a reduction in cold weather-related disruption.*

4.5.4. Nature of the problem and scope for mitigation

The *London Low Emission Zone Feasibility Study* indicated that major improvements to London's air quality could be achieved by increasing the number of modern, cleaner vehicles to a lower emission "Euro" standard. To achieve lower emissions Low Emission Zones (LEZ) were proposed within which only vehicles meeting certain emission criteria or standards can operate. The study recommended that LEZ should initially target lorries, London buses and coaches as these vehicles have disproportionately high emissions per vehicle. This policy should then be extended in later years to include vans and taxis (depending upon cost). The study did not recommend that cars should be included within the scheme.

LEZ would have the greatest impact on PM₁₀ emissions potentially reducing emissions by 23% in London by 2010. LEZ would also achieve a reduction of 43% in the area of London exceeding the PM₁₀ air quality target by 2010 and 19% reduction in the area of London exceeding the relevant NO₂ air quality target by 2010.

London is currently one of nine European cities currently taking part on a major international hydrogen fuel cell bus trial. Buses are ideal for running on hydrogen fuel cells since they have sufficient space to store hydrogen, travel limited distances along known routes and refuel at central bus depots where hydrogen can be provided. Transport for London is also currently investigating the use of photovoltaic cells at bus shelters, a further means of reducing carbon dioxide emissions.

4.5.5. Cumulative effects

Adverse impacts on climate may combine with other adverse impacts, for example air quality, intimidation by traffic, accidents and severance, to create an environment that is unpleasant for residents, for those working in an area and for people passing through on foot or cycle.

4.5.6. The relevance of climate change in terms of SEA of the LIP

Climate change is considered to be one of the major potential issues in terms of SEA of the LIP proposals. Transport is a major source of greenhouse gases notably carbon monoxide and carbon dioxide. Even though LIP measures may have a comparatively small impact on overall greenhouse gas emissions the link between overall traffic and climate change is very strong particularly when considered with other local, regional and central government policies.

4.6. Population and social exclusion

4.6.1. Overview

The main environmental concerns in regard to population are related to access to work and to community facilities. To achieve sustainable economic development, job and wealth creation opportunities must be generated close to local communities. The North London Strategic Alliance has adopted a complementary strategy at the sub-regional level and through doing so aims to encourage the creation of new jobs and opportunities within North London. It identifies areas of brownfield land for development, which may place increased pressure on existing transport infrastructure, and its strategic accessibility to the M11 corridor, including Cambridge and Stansted Airport, as important.

The development of new places of work tends to lead to an increase in daytime working population. With today's current reliance on private motor vehicles for transport, there is a conflict between commuter traffic and the number of people travelling to work, the benefit of taking public transport and the time and convenience of getting there.

The development of new housing can also lead to the polarisation and exclusion of communities by physical and social severance. Mixing of social and private housing helps to create more inclusive local communities. It is vital for economic development that local people, particularly those living in socially deprived areas, are able to access jobs, both inside and outside the Borough.

4.6.2. Existing population and status

Population

London is a large and rapidly growing city. Its current population of 7.4 million is predicted to increase by 700,000 over the next 15 years (source; *Mayor's Air Quality Strategy*). The resident population of Haringey, as measured in the 2001 Census, was 216,507, of which 48 per cent were male and 52 per cent were female.

The average age of residents in Haringey is 34.1 years circa 4.5 years younger than the average age for England and Wales. **Table 4.4** compares the proportions of resident population by age group in Haringey and England and Wales.

Table 4.4: Proportion of resident population by age group – London Borough of Haringey compared to England and Wales

<i>Age group</i>	<i>Haringey</i>	<i>England and Wales</i>
Under 16	20.6%	20.2%
16 to 19	4.8%	4.9%
20 to 29	19.2%	12.6%
30 to 59	42%	41.5%
60 to 74	9.1%	13.3%
75 and over	4.2%	7.6%
Average age	34.1 years	38.6 years

Source: Census 2001, ONS

Table 4.5 indicates that Haringey is already a very diverse, multi-cultural area and by 2011 it is estimated that 30.1% of residents living within the Borough will be from black or ethnic minorities.

Table 4.5: Proportion of resident population by ethnic group – London Borough of Haringey compared to England

<i>Ethnic group</i>	<i>Haringey</i>	<i>England</i>
White of which	65.6%	90.9%
• White Irish	4.3%	1.3%
Mixed	4.6%	1.3%
Asian or Asian British of which	6.7%	4.6%
• Indian	2.8%	2.1%
• Pakistani	1.0%	1.4%
• Bangladeshi	1.4%	0.6%
• Other Asian	1.6%	0.5%
Black or Black British of which	20.0%	2.1%
• Caribbean	9.5%	1.1%
• African	9.2%	1.0%
• Other Black	1.4%	0.2%
Chinese or Other Ethnic Group	3.1%	0.9%

Source: 2001 Census, ONS

Existing employment

Table 4.6 summarises economic activity of the resident population. Within the London Borough of Haringey 56.1% of residents between the ages of 16 and 74 were employed in 2001, compared to an average of 60.6% in England and Wales. The proportion of residents within the Borough that are retired is 8.1%, lower than the England and Wales average of 13.6%.

Table 4.6: Economic activity of resident population - London Borough of Haringey compared to England and Wales

<i>Economic activity</i>	<i>Haringey</i>	<i>England and Wales</i>
Employed	56.1%	60.6%
Unemployed	5.8%	3.4%
Economically active full time students	3.5%	2.6%
Retired	8.1%	13.6%
Economically inactive students	8.2%	4.7%
Looking after home/family	7.2%	6.5%
Permanently sick or disabled	5.2%	5.5%
Economically inactive	5.8%	3.1%

Source: 2001 Census, ONS

Local unemployment exceeds regional averages as the Borough's claimant unemployed as a percentage of the workforce in March 2002 was 9.1% which is greater than North London and Greater London rates of 5.6% and 3.6% respectively. In some parts of Tottenham unemployment rates are as high as 13.5% [*Haringey UDP, 2004*].

Existing access to transport

Car ownership continues to rise in the London Borough of Haringey, in 1996 there were 0.79 cars per household and this is expected to rise to 0.95 cars per household by 2011. The 2001 Census indicates that 46.5% of households within Haringey have no car or van, and that 12.3% have two or more cars or vans.

In the more deprived parts of the Borough, generally towards the east and including Tottenham, there are low levels of car ownership. Some of these areas are well served by both rail and bus services particularly in the Victoria Line corridor. In the east of the borough:

- Areas away from the rail stations and High Road Tottenham have poorer access to public transport;
- Rail transport does not serve local trips effectively.

Car ownership is higher towards the west of the borough but the level of car use is understood to be modest. Some areas notably Wood Green, those served by the Northern Line and those to the north of Finsbury Park have good access to rail services but Muswell Hill and Crouch End are reliant on local bus services.

The Gospel Oak to Barking train service provides for some orbital movement but the service is only half hourly and other orbital movements are reliant on bus services.

Table 4.7 covers travel to work in the Borough. The proportion of resident population in Haringey that travel to work by public transport, at 31.9%, is greater than those that travel by car, 14.9%. The use of public transport by residents of the Borough is also greater than the average for London as a whole at 26.8%. However, only 5% of the population of Haringey travel to work by non-polluting modes including walking or cycling, slightly lower than the London regional average of 6.7%. 5.2% of the population works mainly at or from home and 35.5% of the population is not currently working.

Table 4.7: Travel to work by mode – London Borough of Haringey compared to London and Outer London

<i>Mode</i>	<i>London</i>	<i>Outer London</i>	<i>Haringey</i>
Work mainly from home	5.4%	5.5%	5.2%
Underground; metro; light rail; tram	11.8%	8.6%	20.5%
Train	7.6%	8.5%	3.7%
Bus; coach or minibus	7.0%	5.9%	7.6%
Taxi or minicab	0.4%	0.4%	0.2%
Public Transport	26.8%	23.5%	31.9%
Driving a car or van	21.0%	26.9%	14.9%
Passenger in a car or van	1.6%	2.0%	1.0%
Motorcycle; scooter or moped	0.9%	0.9%	0.7%
Driver or passenger in a car or van plus Motorcycle; scooter or moped	23.5%	29.8%	16.5%
Bicycle	1.5%	1.1%	1.5%
On foot	5.3%	4.4%	3.5%
Bicycle or on foot	6.8%	5.5%	5.0%
Other	0.3%	0.2%	0.2%
Not currently working	37.4%	35.5%	41.2%

Source: 2001 Census, ONS

Household size and housing

The average household size in the Borough is circa 2.3 people. of all residences are owner occupied, with a further rented private accommodation. 45.8% of all households live in owner occupied dwellings, with 23.9% of households in rented private accommodation.

Crime and social exclusion

Home Office offence records between April 2000 and March 2001 indicate that the rate of offences per 1,000 people in Haringey is higher than that for England and Wales for:

- Violence against another person;
- Sexual offences;
- Robbery;
- Burglary from a dwelling;
- Theft of a motor vehicle; and
- Theft from a motor vehicle.

Safety and perception that the local environment is safe are extremely important, and due consideration needs to be taken into account when developing sites across the Borough.

The borough is economically and socially polarised, a consequence of an extensive area of deprivation in the centre and the eastern part of the borough, with the more affluent areas in the west. Tottenham is generally the poorest area of Haringey. Another characteristic of Haringey is the transience of a significant proportion of the population, again largely concentrated in the areas of deprivation to the east. Also, a large proportion of minority ethnic communities is concentrated in those parts of the borough where the greatest concentrations of disadvantage are found. Therefore regeneration initiatives will be targeted at the centre and the east to narrow the gap between the east and the west of the borough.

Haringey will maximise the development opportunities presented by major brownfield sites and by those smaller sites, which can help regenerate local areas.

The borough has many of the characteristics of an Inner London borough although it is closer to outer London than most Inner London boroughs. It is currently registered 37th on the Government Index of Local Deprivation, and the 5th most deprived district in London. Haringey is also the 10th most deprived district in England as defined by the Indices of Deprivation 2004. On its own Tottenham would be the 4th most deprived area in the country and the most deprived area in London [*Haringey Draft Local Implementation Plan*].

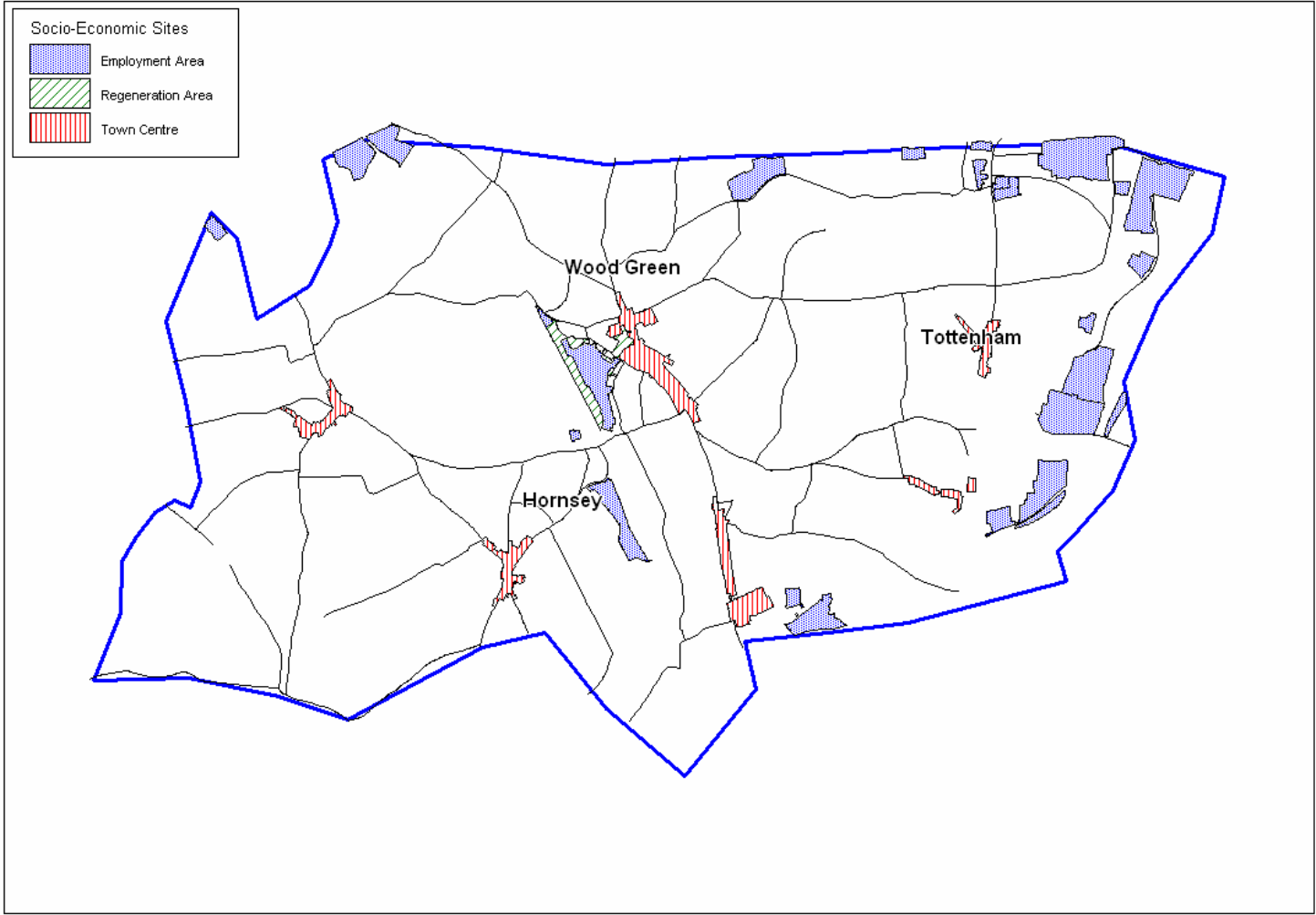
4.6.3. Who or what is affected?

All who live or work within the Borough are potentially affected by change as a result of the LIP. Those who are socially excluded, for example by higher levels of deprivation will be affected more.

4.6.4. Nature of the problems and scope for mitigation

It is vital for economic development that local people, particularly those living in socially deprived areas, are able to access jobs, both inside and outside the Borough. **Figure 4.4** identifies key areas for development.

Figure 4.4: Areas for employment and regeneration and town centres



Source: London Borough of Haringey

4.6.5. Cumulative effects

Adverse impacts on the population, particularly those who are socially excluded, may combine with other adverse impacts, for example air quality, noise, intimidation by traffic, accidents and severance, to create an environment that is less conducive to righting the wrongs of social exclusion.

4.6.6. The relevance of population and social exclusion in terms of SEA of the LIP

Population and social exclusion is considered to be one of the major potential issues in terms of SEA of the LIP proposals. Transport is an important factor in the lives of all people and is a key factor in social exclusion particularly in respect of employment. How LIP measures affect the access which socially excluded people have to transport and the ability to move around is critical.

4.7. Human health

4.7.1. Overview

The main concerns in regard to human health are related to conflict between motor vehicles and people, air quality and noise. These can have adverse affects on:

- Physical well-being; and
- Psychological well-being of individuals.

There is conflict between pedestrians/cyclists and motor vehicles on many of London's roads. This conflict is exacerbated at peak travel times with high flows of commuters travelling to and from work and motor vehicle traffic associated with the school run. The conflict exists in part because of the lack of planned intervention to resist the growth of motor vehicle trips in the past. Conflict includes road dangers to vulnerable road users (pedestrians and cyclists), the affects of motor vehicle traffic on the amenity of streets and severance. Severance includes any obstacle that prevents safe and efficient movement within an area. Severance affects all road traffic but for pedestrians and cyclists it includes the difficulty of crossing busy roads notably at junctions.

Human health is adversely affected by the reduced exercise associated with motorised modes, by injury accidents associated with their use, by the adverse effects of emissions on air quality and through increased stress as a result of reduced amenity within streets.

Promotion of alternative modes of transport, such as cycling to work or to school, forms a major part of the initiatives to reduce road traffic levels, accidents and to improve air quality.

4.7.2. Existing health considerations

General health

The 2001 Census asked people to describe their health, over the preceding 12 months as 'good', 'fairly good' or 'not good' and the results are summarised in **Table 4.8**. The responses in Haringey follow the national average for England and Wales very closely, with 70.2% of responses stating they were in good health.

Table 4.8: Health status of resident population

<i>Health Status</i>	<i>Haringey</i>	<i>England and Wales</i>
Good	70.2%	68.6%
Fairly good	20.9%	22.2%
Not good	9.0%	9.2%

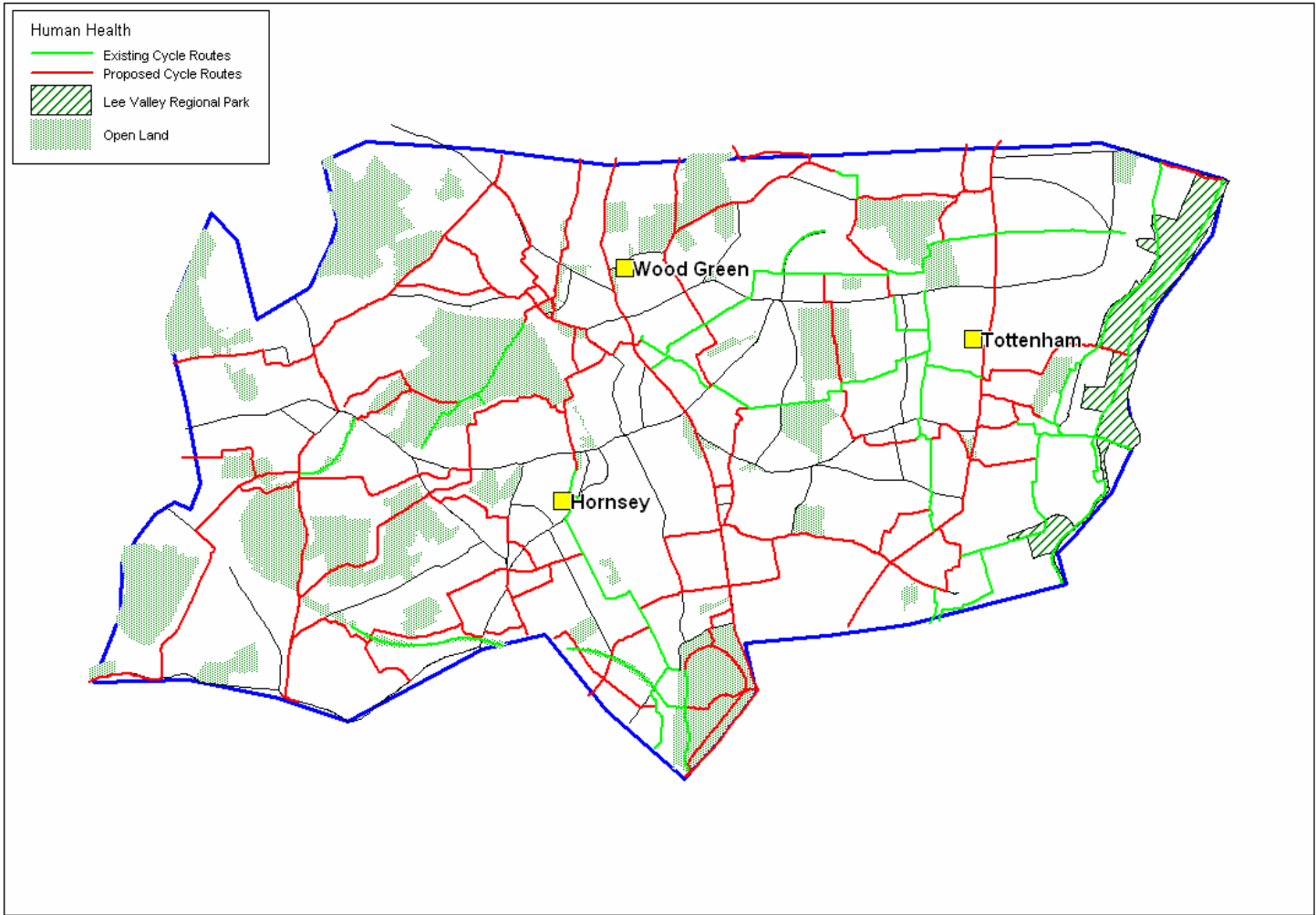
Source Census 2001, ONS

Access to open space

Open space is an important resource in terms of human health as outdoor activities improve individual overall well-being. Providing access to areas of open space is extremely important, particularly for those that do not have access to private transport.

Haringey provides a large number of open spaces for residents of the Borough to enjoy. Circa 20% of the borough is encompassed by designated open land including, 452 ha of metropolitan open land, 68 ha of significant open land, and a further 61 ha of green belt. To the east of the borough, the Lea Valley provides the greatest expanse of open water within London, the Walthamstow and Chingford Reservoirs. These are shown in **Figure 4.5**.

Figure 4.5: Existing and proposed cycle routes and areas of open land



Source: London Borough of Haringey

Use of healthy modes of travel - walking and cycling

Walking is one of the most popular leisure activities and is important in terms of recreation and human health. Furthermore the 2001 Census indicated that 6,915 residents (3.1% of the Borough's population) of Haringey walk to work. The most comprehensive data source on walking in London is the London Area Transport Survey, 2001. The survey indicated that within Haringey, 34% of all trips are made on foot. This is greater than the London wide average of 30%. 97% of walking trips were under 3km in length.

On average half of all trips made by cyclists are less than 3km (2 miles). There are currently circa 29km (18 miles) of cycle routes in the Borough; the Council have proposed a further 64km (40 miles) which will take the total to approximately 93km (58 miles). Existing and proposed cycle routes are shown on **Figure 4.5**. However many cycle routes are in the form of dedicated on-street lanes along the kerbside which are often blocked by parked cars/vehicles thus preventing effective segregation of cyclists and motor vehicles. This problem is particularly acute in town centre/high street locations where there is inadequate provision of off-street servicing areas.

Walking or cycling trips may be inhibited by severance which can result in increased difficulty in making such trips where:

- Roads are difficult to cross because of high traffic flows and/or the absence of safe and convenient crossing facilities;
- Routes are not direct, notably where railway lines and rivers obstruct movement;
- Pedestrian footways are reduced resulting in increased congestion for pedestrians;
- Cycle lanes are blocked causing increased conflict between cyclists and other road users.

Severance is difficult to measure but is present, particularly in the busier parts of the Borough and along major transport links.

Accidents and road dangers

Accidents represent a direct adverse impact on health as a result of transport. Road dangers may not always result in accidents but affect the sense of security felt by pedestrians and cyclists particularly the young, elderly and less able. **Tables 4.9 and 4.10** summarise casualty figures for Haringey, Outer London and Greater London for 2004. **Table 4.9** gives casualty numbers by road user type and **Table 4.10** by degree of injury.

Table 4.9: Casualties by road user type in 2004 as percentage change over 2003 figures (Jan-Jun) Greater London

Area	Total Casualties		Pedestrians		Pedal Cyclists		Powered two wheelers		Car occupants		Total vehicle occupants	
	Number	% change 2003 -04	Number	% change 2003 -04	Number	% change 2003 -04	Number	% change 2003 -04	Number	% change 2003 -04	Number	% change 2003 -04
Haring-ey	507	-17.8%	131	-8.4%	36	-50.0%	45	-40.0%	241	-24.7%	376	-20.7%
Total Outer London	9,814	-9.7%	1,581	-13.4%	507	-6.1%	1,141	-16.2%	5,685	-9.1%	8,233	-8.9%
Greater London	16,852	-10.1%	3,169	-12.6%	1,361	-3.1%	2,624	-15.1%	7,923	-10.3%	13,683	-9.5%

Source:

TfL

http://www.tfl.gov.uk/streets/downloads/pdf/LRSR/Quarterly_Factsheets/Q2-2004.pdf

Table 4.10: Casualties in Greater London 2004 by severity with percentage change over 2003 figures (Jan-Jun)

Area	Fatal		Serious		Slight		Total Casualties	
	Number	% change 2003 -04	Number	% change 2003 -04	Number	% change 2003 -04	Number	% change 2003 -04
Haring-ey	3	-72.7%	74	-18.7%	430	-16.5%	507	-17.8%
Total Outer London	62	-21.5%	1,248	-15.6%	8,504	-8.6%	9,814	-9.7%
Greater London	97	-28.1%	2,211	-12.1%	14,544	-9.6%	16,852	-10.1%

Source:

TfL

http://www.tfl.gov.uk/streets/downloads/pdf/LRSR/Quarterly_Factsheets/Q2-2004.pdf

Table 4.11 gives an indication of journey and accident percentages across Haringey in 1991. The table shows that, of the main modes of transport, bus/coach is by far the safest with the proportion of casualties significantly lower than the amount of travel by bus/coach. In contrast travel by bicycle and particularly motorcycle, is less safe with a higher proportion of casualties than would be expected for these modes.

Table 4.11: Journeys and Casualties as a percentage across Haringey, 1991 figures

<i>Mode of travel</i>	<i>% of journeys</i>	<i>% of casualties</i>
Walk	32.1	32.9
Bicycle	2.0	7.4
Motorcycle	0.5	14.4
Car	44.1	35.3
Bus/Coach	17.3	7.0
Small/medium van	1.7	2.2
Other van/lorry	0.5	0.1
Other including taxi	1.8	0.6

Source: Road Safety Plan, Haringey Council.

Table 4.12 gives an indication of the change in pedestrian and cyclist casualties within Haringey between 1994 and 2003. The table seems to indicate a decline in both pedestrian and cyclist casualties, with the exception of 2000 when pedestrian casualties increased to 342.

Table 4.12: Number of pedestrian and cyclist casualties within Haringey

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Pedestrian	322	319	288	300	277	283	342	290	292	255
Cyclist	75	109	93	83	86	71	74	72	78	53
Total	397	428	381	383	363	354	416	362	370	308

Source: Road Safety Plan, Haringey Council.

Air quality and human health

The *Mayor's Air Quality Strategy* states that:

“Poor air quality damages health and quality of life, particularly affecting the most vulnerable in society – the very young and the old. High levels of pollution are known to affect cardiovascular and respiratory diseases, both of which are common causes of death in London. It is estimated that 1,600 accelerated deaths and 1,500 respiratory hospital admissions per year occur in London as a result of air pollution.”

Within the borough industrial and commercial premises (potential sources) are often located in close proximity to houses (receptors).

Air pollution from NO_x and PM₁₀ is predominantly attributable to HGVs. Both forms of pollution are detrimental to human health and the local environment. These transport related pollutants are of particular concern within residential and shopping areas where the concentration of pedestrians is greatest, and where wildlife habitats are adjacent to major roads.

Noise and human health

Noise may affect health particularly at night. Traffic contributes significantly to noise levels and disturbance in the local community/environment. The Borough has imposed an on-street night-time lorry parking ban on all vehicles exceeding 5 tonnes gross vehicle weight.

Trends and future development

The Draft Road Safety Plan, published in July 2004, aims to meet the following national, London wide and Haringey targets for crash casualty reduction by 2010 from an average based on 1994 to 1998 figures:

National targets include:

- 40% reduction in the numbers of people killed or seriously injured;
- 50% reduction in the number of children killed or seriously injured; and
- 10% reduction in the slight casualty rate.

London wide targets include:

- 40% reduction in pedestrians killed or seriously injured casualties;
- 40% reduction in cyclists killed or seriously injured casualties; and
- 40% reduction in the powered two wheeler casualties.

Local Public Service Arrangement (LPSA) targets include:

- Reduce Killed or Seriously Injured (KSI) casualties to 145 by March 2006

4.7.3. Who or what is affected?

All who live, work or are otherwise present within the Borough are potentially affected by changes in health.

4.7.4. Nature of the problems and scope for mitigation

There is a relationship between human health, the transport impacts in the form of emissions to air, noise, accidents and severance that adversely impact on health, and the health benefits from walking and cycling. In general reductions in motor vehicle use and increases in walking and cycling will benefit health.

4.7.5. The relevance of human health in terms of SEA of the LIP

Human health is considered to be one of the major potential issues in terms of SEA of the LIP proposals. Transport has a very direct impact on human health in terms of road accidents and indirect impacts in terms of air quality, noise, other impacts on amenity and through encouragement or otherwise of walking and cycling.

4.8. Noise

4.8.1. Overview

Traffic, particularly road traffic, is a major, often the major, source of noise in urban areas. It can have adverse effects on both the physical and psychological well-being of people. At low speeds noise tends to be predominantly engine noise emitted mainly from exhausts. This is particularly evident from motorcycles, heavy goods vehicles and buses. At higher speeds noise from tyre/road interaction predominates.

Traffic noise increases with volume and is affected by the speed of vehicles, the manoeuvres they are performing, the type of vehicle and the proximity of traffic to people. It is a major concern for communities living close to our road network. Noise can cause nuisance to local communities, and noise pollution can also result from construction vehicles and site activities.

Heavy goods vehicles (HGVs) contribute significantly to noise levels and disturbance to the local community/environment. The Borough has imposed an on-street night-time lorry parking ban on all vehicles exceeding 5 tonnes gross vehicle weight.

4.8.2. Existing noise levels

The London Road Traffic Noise Map was commissioned by Defra in 2004 and modelled the level of noise associated with motor vehicle traffic. The model calculated that during the daytime, 14% of Haringey is affected by noise levels greater than 60 dB(A), see **Table 4.13** below. At night the area that is affected by noise levels greater than 60 dB(A) is reduced to 3% of the Borough.

Table 4.13: Area affected by L_{den} levels of > 60 dB(A) - London Borough of Haringey (adapted from *Noise Mapping England: The London Road Traffic Noise Map - September 2004*)

Borough	Total Area (km^2)	Daytime		Night time	
		Area with L_{den} > 60 dB(A)	Percentage of Borough area	Area with L_{night} > 60 dB(A)	Percentage of Borough area
Haringey	29.6	4.0	14%	1	3%

Source:

<http://www.noisemapping.org/docs/LondonRoadTrafficNoiseMap.doc>

Trends and future changes

It is generally anticipated that traffic levels will continue to rise, putting more pressure on the transport network and increasing noise levels. However, with future improvements in engine technology, and a potential shift towards more sustainable/environmentally friendly vehicles, we are likely to see an increase in quieter motor vehicles. For example the replacement of older buses by modern vehicles is likely to reduce noise.

4.8.3. Who or what is affected

Residential areas that are within close proximity to major transport networks are likely to feel the greatest impacts of noise from motor vehicles. As noted in **Table 4.13** above, the percentage of Haringey that is affected by noise levels greater than 60dB(A) at night time is only 3%. A detailed noise map of London can be viewed at <http://www.londonnoisemap.com/>.

4.8.4. Nature of the problem and scope for mitigation

A reduction in noise can be achieved by:

- Specifying quieter surfaces as a matter of course where new roads are to be built or existing roads resurfaced particularly where noise is of particular concern;
- Identifying sites for the provision of noise mitigation such as noise barriers and double-glazing;
- Working towards improved noise control during construction/maintenance activities;
- Traffic regulation to restrict through traffic in sensitive areas.

4.8.5. Cumulative effects

Noise may combine with other adverse impacts, for example air quality, intimidation by traffic, accidents and severance, to create an environment that is unpleasant for residents, for those working in an area and for people on foot or cycle.

4.8.6. The relevance of noise in terms of SEA of the LIP

Noise from traffic is the main source of noise in most urban areas. It is considered to be one of the major potential issues in terms of SEA of the LIP proposals. Transport has a very direct impact on noise levels which has indirect impacts on amenity and on human health.

4.9. Material assets

4.9.1. Overview

This includes other material resources notably mineral resources.

4.9.2. Existing situation

There are no current mineral workings in the Borough. Shallow river gravels deposits have been documented across much of the Lea Valley.

4.9.3. The relevance of material assets in terms of SEA of the LIP

This topic is considered of relevance only in the sense that maintenance of transport infrastructure requires the consumption of material assets notably in the form of mineral aggregates.

4.10. Biodiversity

4.10.1. Overview

Biodiversity encompasses all living things, from ants to oak trees. While Haringey is mainly urban there are important local sites exist for wildlife, for example, ancient woodlands, churchyards and gardens. Running the length of the eastern boundary is the nationally important Lee Valley. The Lee Valley Regional Park Authority (LVRPA), which owns and manages Tottenham Marshes, plays an important role in wildlife conservation. There are other features of local and historical interest exist within the borough, for example the ancient hornbeam woodlands containing wild service trees which are particularly distinctive to this part of London. Often the areas most valuable wildlife sites to local people are those close to their homes, for example, parks, allotments, playing fields, school grounds and even individual trees.

An important aspect of wildlife sites is their size and the links between them. The ability for wildlife to disperse and move between appropriate sites is often as important as the quality of the sites themselves. Roads and rail lines can act both as green corridors that allow wildlife to move in one direction and as barriers that sever movement across them, particularly where traffic is heavy.

Air quality, water quality and soil quality all impact on biodiversity but the major concern is the availability of suitable habitat.

4.10.2. Existing biodiversity

The geographic distribution of protected sites of nature conservation interest within Haringey are given in **Figure 4.6** below.

Habitats

A habitat is a type of place where animals and plants live. Some habitats will support a greater range of plants and animals than others. Some habitats are scarce and need protection, wood pasture for example; others are commonplace but locally important, for example, parkland or railway embankments.

There is little presence of nationally important habitats within the majority of the borough because of residential, commercial and industrial development. However the ancient woodlands (those in continuous existence since before 1600AD) of Queen's Wood, Highgate Wood, Coldfall Wood and Bluebell Wood are situated in the west of the Borough.

Haringey has two large areas of Metropolitan Open Land in close proximity; Lee Valley to the east and Hampstead Heath to the southwest. The only nationally important habitats within Haringey form part of the Lea Valley Regional Park. The Lee Valley acts as an important wildlife corridor for London and provides protected shelter for a number of plants and animals. Hampstead Heath contains several tracts of land designated as SSSIs.

Locally important habitats that occur across the borough are private gardens and allotments. Private gardens and allotments are essential for providing shelter to numerous mammals, insects, reptiles and amphibians.

The Haringey Biodiversity Action Plan (BAP) sets out the measures that are required to review the local wildlife resource and the steps required to safeguard habitats and associated species and where possible increase biodiversity. Few of these areas of habitat lie within protected sites.

The Haringey Biodiversity Action Plan states that:

“The key to conserving species is to protect and enrich their habitats. Our aim will be to protect irreplaceable habitats such as ancient woodland and old hedgerows, and to maintain and where possible increase the area of other habitat types.”

Habitat Action Plans have been prepared for the following habitat types:

- Ancient woodland (woods over 400 years old, e.g. Highgate Wood, Queen’s Wood, Coldfall Wood and Bluebell Wood) and recent woodland (e.g. Alexandra Park, Bruce Grove Wood, Parkland Walk, Granville Road Wood, Rhodes Avenue Spinney, Railway Fields and new planted areas in Lordship Recreation Ground, Crouch End Playing Fields, Scout Park, Palace Gates Embankment, The Paddock, Saint Ann’s Hospital grounds and Down Lane Park);
- Private gardens (including house sparrows, hedgehogs, stag beetles);
- Wastelands;
- Railway linesides;
- Aquatic habitats;
- Grasslands; and
- Urban habitats such as churchyards and cemeteries, backlands, old walls, orchard fragments.

Species

The Haringey BAP highlights flora and fauna within Haringey that are globally threatened or rapidly declining, nationally notable or of local importance. These are included under **Appendix D**.

Most species are associated with particular habitats. Their conservation needs are therefore addressed in the appropriate HAP. However, a specific plan has been produced for bats and the *Haringey Biodiversity Action Plan - Consultation Draft 2002* states that *“This is partly because bats use a number of different habitats, and partly because there are a large number of species and individuals in the borough.”*

Designated habitats – statutory

There are few locations within or close to Haringey that contain habitats or areas that are statutorily protected under national legislation. Only three sites close to or within the Borough are designated as Sites of Special Scientific Interest (SSSIs):

- North Wood in Hampstead Heath;
- Walthamstow Reservoirs; and
- Tottenham Marshes.

Walthamstow Reservoirs are also classified as a Special Protection Area (SPA), identified under the EC Birds Directive, and they form part of the Lee Valley SPA and Wetland of International Importance (RAMSAR site). The Council has an international responsibility towards the safeguarding of these sites.

Three sites have been declared statutory Local Nature Reserves (LNRs); all are protected under the terms of the *National Parks and Access to the Countryside Act, 1949*:

- Queen's Wood;
- Parkland Walk; and
- Railway Fields.

Designated habitats - non-statutory

The Lee Valley sites are included under the Lee Valley Regional Park Authority's (LVRPA) Plan (adopted April 2000) and the Council is required to consult the LVRPA on any proposal which may affect the Regional Park.

In addition to the Statutory Designations detailed above, the Council, in its Unitary Development Plan, has designated an additional tier of sites defined as 'Ecologically Valuable Sites'. These are based on those sites identified by the former London Ecology Unit and described in the unpublished handbook, *Nature Conservation in Haringey*.

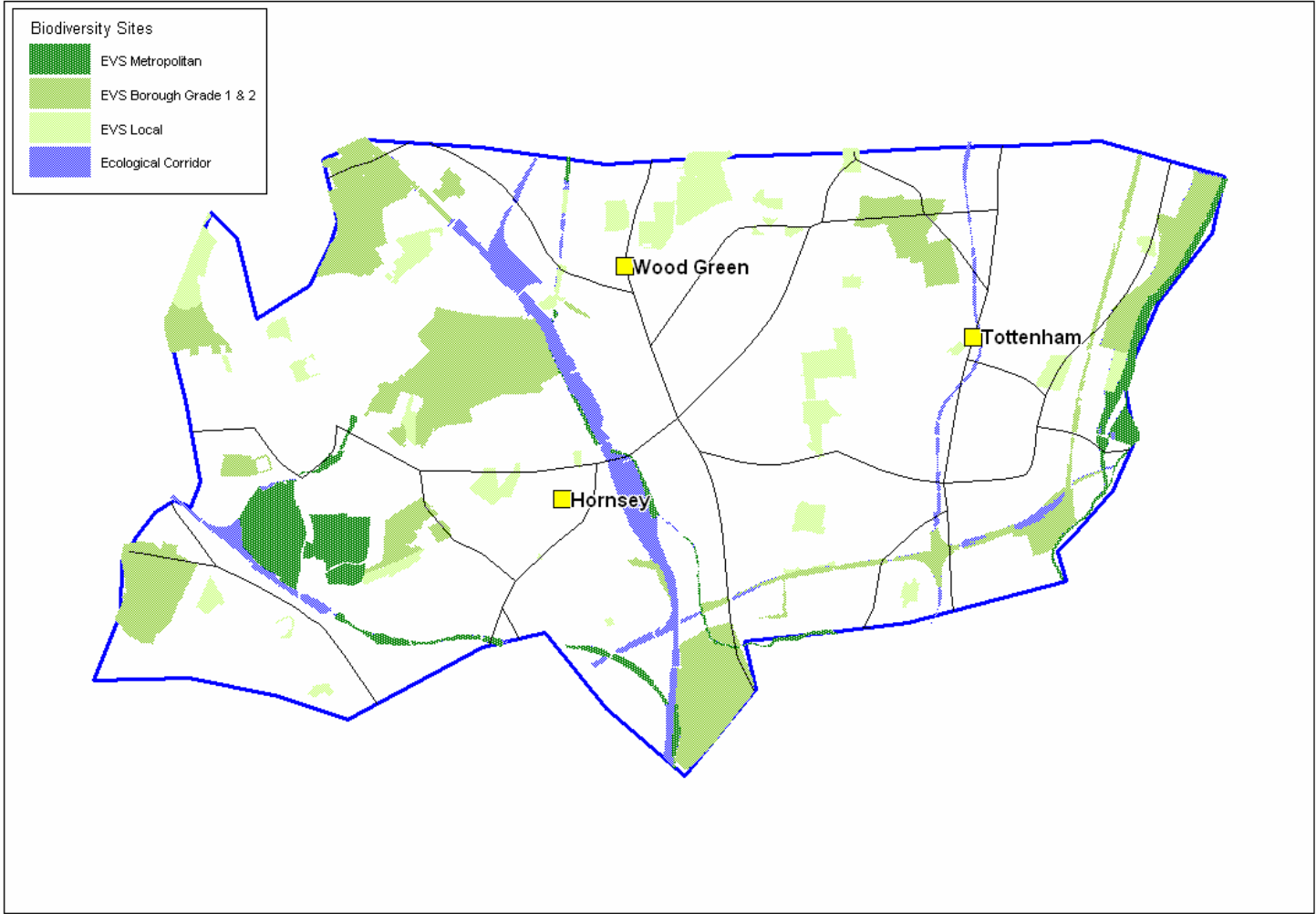
There are three tiers of sites. The top tier, Sites of Metropolitan Importance, includes the best sites for nature conservation in London. These include the nationally and internationally designated sites mentioned above. The second tier comprises the Sites of Borough Importance. These are further divided into two grades on the basis of their quality, but all are important in the borough context. The third tier comprises the Sites of Local Importance, which provide people with access to nature close to home.

Queen's Wood, Highgate Wood and the Parkland Walk are considered to be of Metropolitan Importance for Nature Conservation. Further sites of Metropolitan Importance are found in the Lee Valley Regional Park.

Sites of Borough Importance include areas such as Alexandra Park, Muswell Hill Golf Course, Highgate Golf Course, Coldfall Wood and Finsbury Park.

Sites of Local Importance include areas such as Muswell Hill Sports Ground, Priory Park, Lordship Recreation Ground and Downhills Park.

Figure 4.6: Protected sites of nature conservation interest within Haringey



Source: London Borough of Haringey

Protected species

The Wildlife and Countryside Act 1981, as amended, gives legal protection to a number of species, such as most birds, all bats, reptiles, water voles and certain plants. The Protection of Badgers Act 1992 gives legal protection to badgers.

Many of these species are not necessarily found on protected sites and as a result may be impacted by development proposals or maintenance work elsewhere.

Invasive species

Section 14 Part II of the Wildlife and Countryside Act 1981, as amended, prevents the release or spread of non-native plant species as listed under Schedule 9. This includes species such as Japanese knotweed and giant hogweed, both of which are present within the borough.

Trees

Trees are attractive features that provide variety and colour, as well as contrast to the buildings of the urban landscape. They have practical benefits, such as screening from noise, dust and wind and from unsightly uses generally. Trees themselves also form an important habitat for wildlife, particularly for birds.

The Council is in the process of compiling and implementing a detailed Tree Policy. Tree Preservation Orders can be used to protect individual trees and groups of trees.

Green Belt and open spaces

Open space is an important resource in terms of sporting, social, nature conservation and cultural provision, particularly in a highly urbanised borough. At the strategic level open space defines the edge of the urban area and separates and protects the character of individual communities.

Haringey has a wide variety of open spaces from the Lee Valley to public parks, playing fields, allotments, natural grasslands, woodlands, river corridors and other urban spaces which meet recreational and non-recreational needs within the urban area. Parks and other urban open spaces are attractive in their own right and provide considerable amenity value.

Two categories of open spaces exist within the borough - Green Belt and Metropolitan Open Land.

The Strategic Planning Guidance for London summarises the main purposes of the Green Belt as:

- To check the unrestricted sprawl of the built-up area;
- To prevent the surrounding countryside from further encroachment;
- To prevent London from merging with neighbouring towns;
- To assist in urban regeneration

The boundary of the Green Belt is shown on **Figure 4.8**.

Metropolitan Open Land may:

- Contribute to the physical structure or character of London by providing attractive breaks in the built up area; and/or
- Include open air facilities for the people of the whole or part of London; and/or
- Contain features or landscapes of historic, recreational, nature conservation or scientific interest, worthy of protection on account of their value nationally or to the whole or part of London.

The Council has identified eighteen areas of Metropolitan Open Land:

- Highgate School Sports Ground;
- Muswell Hill Golf Course;
- Coldfall Wood and Coppetts Road Sports;
- Highgate Golf Course;
- Finsbury Park;
- Former railway land - adjacent to Finsbury Park;
- Highgate Wood, Queen's Wood, Shepherd's Hill Allotments and Crouch End Playing Fields;
- Lordship Lane Recreation Ground and Downhills Park;
- Tottenham Cemetery and Bruce Castle Park;
- Parkland Walk (Section from Muswell Hill Road to Muswell Hill);
- Alexandra Park;
- New River Sports Ground, White Hart lane Recreation Ground;
- Former track bed - adjacent Highgate Wood;
- Highgate School Playing Fields;
- Highgate Station Cutting;
- Coldfall School and Fortismere School Playing Field & 79 Creighton Avenue;
- Parkland Walk (Section from Highgate Underground Station to Finsbury Park); and
- Hornsey Waterworks

Green corridors

Green Corridors provide wildlife habitats and retreats and act as valuable conduits for the movement of plants and animals between the different habitats which they require for their survival.

The Lee Valley to the west of the borough is a good example of a Green Corridor, extending from the countryside in the north to the heart of London.

Several smaller packages of open land can function as Green Corridors or act as stepping stones between other areas of nature conservation interest. Within Haringey the Green Corridors are based on the railway network and New River, see **Figure 4.8**.

Trends and future changes

The main trends are:

- Recent changes in legislation in relation to species and habitats which extend protection;
- Many species and habitats already in decline nationally;
- Ongoing improvements to water quality leading to improvements in aquatic habitats;
- Increase in local involvement and action for wildlife – Biodiversity Partnerships etc.;
- Air pollution continuing to affect plants and lichens etc.;
- An increasing focus on redeveloping brownfield sites;
- Increases in invasive species, for example Japanese knotweed.

4.10.3. Who or what is affected?

The following are potentially affected:

- Habitats severed or encroached on by new developments;
- Reduction in the effectiveness of green corridors through severance;
- Species directly affected by noise, dust, pollution; and
- People affected by lack of green spaces and a connection with the surrounding landscape/wildlife.

4.10.4. Nature of the problems and scope for mitigation

Key problems are that:

- Air quality, water quality and soil quality all impact on biodiversity;
- Habitat loss/severance has a disproportionate effect on species;
- Invasive species are both detrimental to the environment and costly to control; and
- The management of railway linesides are not optimised for biodiversity.

Sympathetic management can increase wildlife value of railway linesides including embankments and grass verges as indicated in *Maintaining the Track Environment*, LUL 1995.

4.10.5. Cumulative effects

Adverse impacts on biodiversity may combine with other adverse impacts, for example health, to make Haringey a less pleasant place in which to live.

4.10.6. The relevance of biodiversity in terms of SEA of the LIP

Biodiversity is considered to be a potential issue in terms of SEA of the LIP proposals. Transport has a very direct impact on biodiversity in terms of road kill and indirect impacts in terms of air quality, noise and disturbance of habitats.

4.11. Archaeology and cultural heritage

4.11.1. Overview

The main environmental concerns in regard to archaeology and cultural heritage are related to development of infrastructure and the resulting adverse effects that this can have on:

- Listed buildings;
- Areas of conservation;
- Areas of local historic value; and
- Sense of community.

The extent of adverse effects depends on a number of factors including:

- The extent of the proposed development (land take);
- The style of the proposed development, for example, whether it is in context with the local environment; and
- The extent of access to a site or area.

Archaeological and areas of cultural heritage may be affected by transportation schemes directly through land take, or indirectly as a result of changes to the context, the surrounding townscape or landscape.

Haringey Contaminated Land Strategy gives a good historical description of Haringey:

“Historically the development of Haringey has been influenced by the radial pattern of communications from the City of London. Originally the natural vegetation was dense forest which discouraged settlement, except along natural lines of communication. By the time of the Norman Conquest there were settlements in Tottenham and the Hornsey High Street area. In Tudor times when London grew in population and size, villages in the surrounding countryside were favoured by the rich as country resorts, among these were Tottenham (accessible to the city) and Highgate (“high and healthy”). However the present suburban and light industrial development patterns date from the nineteenth century population explosion and the suburban railways developed during that period.”

Any disturbance or development along these radial routes would result in the potential loss of archaeological interest.

The Borough has a large number of sites of cultural heritage importance including conservation areas, listed buildings and other areas of local historic value. These sites are protected by national legislation or by local policies.

4.11.2. Existing archaeology and cultural heritage

Listed Buildings

Buildings considered to be of special architectural or historic interest are 'Listed' by the Department of National Heritage in one of three categories in recognition of their importance: Grades I, II and II*.

The Borough has 221 Listed Buildings, including Alexandra Palace and five Grade I buildings, including Bruce Castle, which are of outstanding national significance. There are 207 Grade II Listed buildings or structures, of which 15 are classified Grade II* and are of particular importance.

Archaeological priority zones

The Greater London Archaeological Advisory Service has defined a number of Archaeological Priority Zones (APZs) that indicates particular archaeological interest. Extensive APZs within the Borough include:

- The Lee Valley;
- Highgate Wood and Queen's Wood
- Areas around the Anglo-Saxon settlements of Tottenham, Hornsey and Highgate.

Heritage land

Heritage Land is open land of strategic importance to London of significance for its landscape, open character, historical and nature conservation interest. The Council will take account of the values identified in "Heritage Land" published by the Countryside Commission in determining applications to develop on or in proximity to such land.

Highgate Golf Course has been identified in *Strategic Guidance for Heritage Land in London* as Heritage Land. It forms part of a wider area, encompassing Hampstead Heath, which has a high inherent value to London due to its visual, historic and nature conservation qualities.

Conservation areas and industrial heritage areas

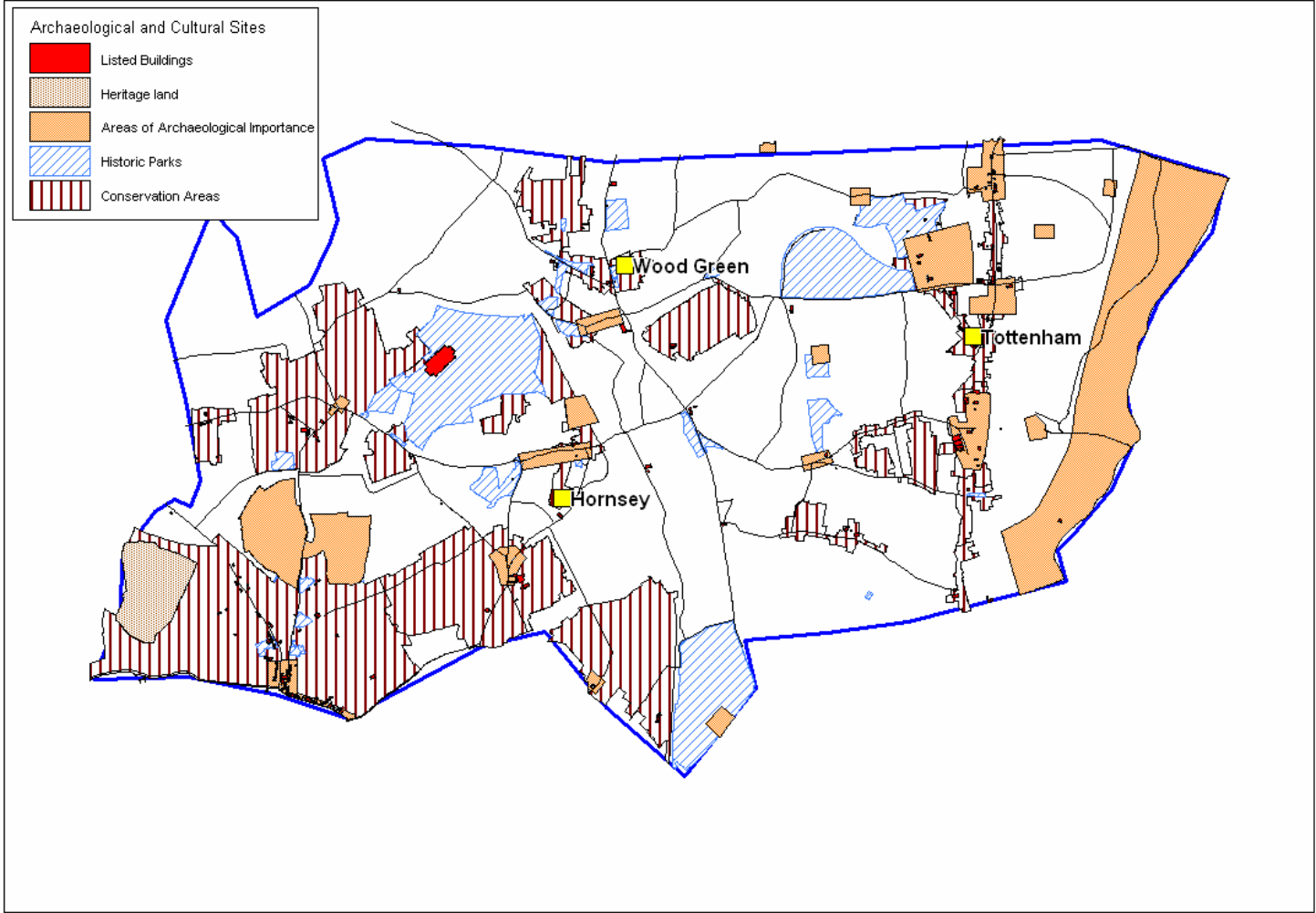
Haringey has 28 designated conservation areas, located throughout the borough. Conservation Areas are defined as those that have:

- A common architectural style/layout of buildings/spatial relationship;
- A particular scale or density of buildings;
- The presence of buildings of local architectural/historic importance.

Although located throughout the borough there are particular concentrations around the Highgate, Muswell Hill and older Wood Green and Tottenham Road areas

All designated conservation areas, areas of special character, and archaeological priority zones are indicated on **Figure 4.7** below.

Figure 4.7: Areas of archaeological and cultural heritage importance



Source: London Borough of Haringey

Historic parks

Finsbury Park and Alexandra Park are identified by English Heritage in their *Register of Parks and Gardens of Special Historic Interest in England*. A further 34 of Haringey's public parks, gardens, squares, cemeteries and churchyards are of local historic interest and are registered in *The London Parks and Garden Trust Inventory*.

Trends and future changes

Buildings and sites that are currently protected under statutory designations are likely to remain so and there may be an increase in protected sites. Any development proposals will have to address the potential impact on designated sites.

4.11.3. Who or what is affected

Impacts on archaeology and the cultural heritage will affect the ability of both present and future generations to enjoy the heritage resource.

4.11.4. Nature of the problem and scope for mitigation

Townscape provides the overall social context and setting for the cultural heritage and can be adversely affected by traffic flows. Transport schemes can have direct impacts on archaeology and the cultural heritage.

Reduction in traffic levels can benefit townscape and the setting for features of cultural interest. Archaeology can be protected or recorded during the implementation of transport schemes.

4.11.5. Cumulative effects

Adverse impacts on archaeology and the cultural heritage may combine with other adverse impacts, for example air quality, noise and biodiversity, to make Haringey a less pleasant place in which to live.

4.11.6. The relevance of archaeology and cultural heritage in terms of SEA of the LIP

Much of the archaeology and cultural heritage in Haringey adjoins roads and other transport infrastructure. The setting for archaeology and the cultural heritage is affected to a greater or lesser extent by the traffic using that infrastructure. Archaeology and the cultural heritage are therefore considered to be potential issues in terms of SEA of the LIP proposals although they can be considered as part of overall amenity, in particular of the street.

4.12. Landscape and townscape

4.12.1. Overview

The landscape includes the more open areas of the borough including:

- All Metropolitan Green Belt and Metropolitan Open Land; and
- The Lea Valley.

Open space is an important resource in terms of sporting, social, nature conservation and cultural provision, particularly in a highly urbanised borough. At the strategic level it defines the edge of the urban area and separates and protects the character of individual communities.

Landscape interests may be adversely affected by land-take from these landscape resources and by the visual impact of traffic on these resources.

Landscape resources may:

- Contribute to the physical structure or character of London by providing attractive breaks in the built up area;
- Include open air facilities for the people of London;
- Contain features of historic, recreational, national conservation or scientific interest, worthy of protection on account of their value nationally or locally.

Townscape is essentially the more urban street scene which may include both green elements, notably trees, gardens and parkland; hard elements, principally buildings, car parks, footways and roads; and traffic. Townscape quality is strongly affected by the presence of traffic and by how it is managed.

4.12.2. Existing landscape resources

Existing landscape resources include:

Metropolitan Open Land

- Highgate School Sports Ground;
- Muswell Hill Golf Course;
- Coldfall Wood and Coppetts Road Sports;
- Highgate Golf Course;
- Finsbury Park;
- Former railway land - adjacent to Finsbury Park;
- Highgate Wood, Queen's Wood, Shepherd's Hill Allotments and Crouch End Playing Fields;
- Lordship Lane Recreation Ground and Downhills Park;
- Tottenham Cemetery and Bruce Castle Park;
- Parkland Walk (Section from Muswell Hill Road to Muswell Hill);
- Alexandra Park;
- New River Sports Ground, White Hart lane Recreation Ground;
- Former track bed - adjacent Highgate Wood;
- Highgate School Playing Fields;
- Highgate Station Cutting;

- Coldfall School and Fortismere School Playing Field & 79 Creighton Avenue;
- Parkland Walk (Section from Highgate Underground Station to Finsbury Park); and
- Hornsey Waterworks

Other significant local open land

- Priory Park;
- Stationers Park; and
- Chestnuts Recreation Ground

Green Chains

The interlinking of open spaces, footpaths, rivers, canals, bridleways and disused railways is of structural, recreation and nature conservation importance. In some cases areas of open land link together across borough boundaries to form 'green chains'. These can play a useful part in the urban environment by providing extended pathways for public and wildlife corridors in natural surroundings.

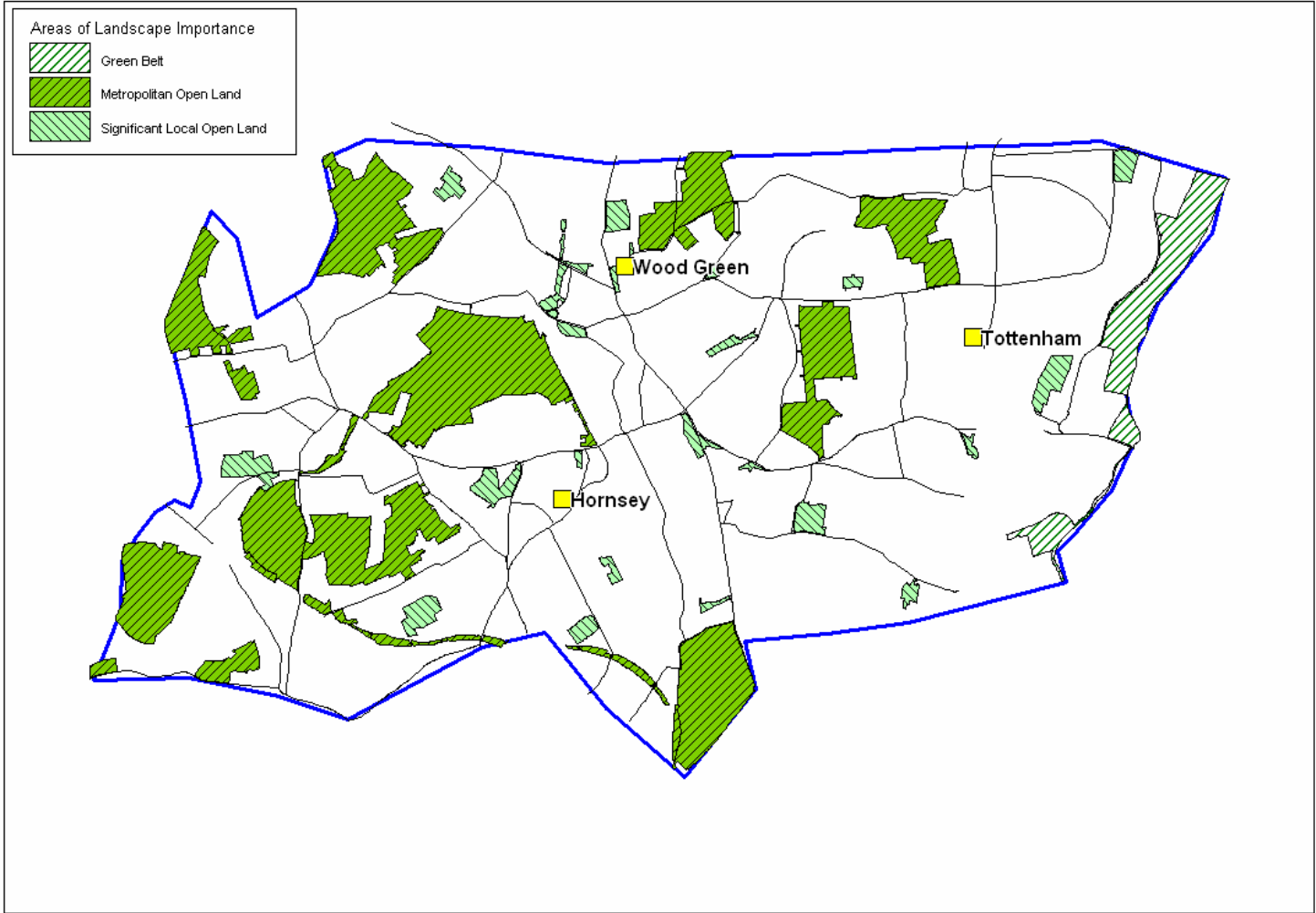
Haringey is currently consulting on the policy of Green Chains and as yet none have been identified within the borough.

These areas are indicated on **Figure 4.8**. Landscape defines the overall setting that open space has within a defined area. Open spaces are particularly important to the densely populated urbanised areas of London; it has been suggested that time spent in open space is highly effective in reducing stress levels.

Improving the environment develops the economy through influencing the location of business and amenity, and improves working conditions to employees in terms of physical and social health. Open environments also provide the opportunity to develop sport and recreational facilities which further promote regeneration within an area. However, all open areas are under pressure from/in the urban environments.

Establishing a balance between development, protection and enhancement is vital.

Figure 4.8: Areas of landscape importance



Source: London Borough of Haringey

Trends and future changes

The *Open Space and Indoor Sports Study (OSISS) 2003* confirms that current and projected population figures demonstrate that there will continue to be increased pressure on the existing open spaces in the future. It also confirms that Haringey's open space falls below the National Playing Field Association's 2.43 hectares per 1000 of the population standing at only 1.7hectares.

The *OSISS 2003* has identified an estimated requirement for up to 1552 plots of allotment land. The Allotment Strategy, to be undertaken by the Council's Recreation Department, will explore opportunities for meeting this demand especially in areas of deficiency.

Increasing traffic on major transport corridors has reduced the value of landscape over the years and led to a reduction in townscape quality as the street scene is increasingly dominated by traffic. However where traffic has been managed better than in the past improvements in townscape and landscape have occurred.

4.12.3. Who or what is affected?

Adverse effects are both to character of the landscape and townscape and to the views which people see in their daily lives.

4.12.4. Nature of the problem and scope for mitigation

While traffic generally adversely affects the landscape and townscape although it may be an integral part of that townscape and landscape. The relatively tranquil parts of the Lea Valley contrast with the activity of Tottenham town centre. Reductions in traffic will generally be beneficial in that traffic tends to dominate rather than contributing to landscape and townscape. However in some places mitigation may take the form of managing traffic rather than reducing it.

4.12.5. Cumulative effects

Adverse impacts on landscape and townscape may combine with other adverse impacts, for example air quality, noise and biodiversity, to make Haringey a less pleasant place in which to live.

4.12.6. The relevance of landscape and townscape in terms of SEA of the LIP

Much of the landscape and townscape in Haringey adjoins roads and other transport infrastructure. Traffic is an integral part of this landscape and townscape and the extent to which it is dominated by traffic is a significant. In terms of SEA of the LIP proposals landscape and townscape can be considered as part of overall amenity, in particular of the street.

4.13. Summary of environmental problems and opportunities

4.13.1. Significance of topic areas

Table 4.14 summarises the significance of topic areas for the SEA and why. It also includes problems and opportunities associated with each topic area.

Table 4.14: Significance of topic areas for SEA of Haringey LIP

<i>SEA Topics</i>	<i>Problems and opportunities</i>	<i>Potential impact of LIP measures</i>	<i>Likely significance for SEA</i>
Soil quality	Confined to specific sites which may be ripe for regeneration. Can redevelopment be used to reduce environmental effects of traffic?	Unless there are major infrastructure proposals that cross contaminated land no impacts are expected.	Not significant
Water resources	Water quality in urban water resources.	Changes in traffic may affect the quality of run-off to water resources but change will be very small.	Not significant
Air quality	Air quality throughout the borough is adversely affected by motor vehicle traffic. Any reduction in motor vehicle traffic will provide benefits.	Potential for perceptible change if overall motor vehicle traffic changes.	Significant although any changes attributable to LIP measures is likely to be small.
Climate change	Transport is a major contributor to greenhouse gases and hence climate change. Any reduction in motor vehicle traffic will provide benefits.	Potential for perceptible change if overall motor vehicle traffic changes.	Significant although any changes attributable to LIP measures is likely to be small.
Population and social exclusion	Transport accessibility for deprived areas is a major concern.	Potential for perceptible change if accessibility of deprived areas improves.	Significant although any changes attributable to LIP measures is likely to be small.
Human health	Air quality, road dangers, noise and general environmental quality all adversely affect human health. Opportunity to make walking and cycling easier and thus benefit fitness.	Potential for perceptible change if traffic reduces and measures taken to reduce road dangers and make walking and cycling easier.	Significant although any changes attributable to LIP measures is likely to be small.

<i>SEA Topics</i>	<i>Problems and opportunities</i>	<i>Potential impact of LIP measures</i>	<i>Likely significance for SEA</i>
Noise	Noise levels throughout the borough are dominated by motor vehicle traffic noise. Any reduction in motor vehicle traffic or avoidance of sensitive uses will provide benefits.	Potential for perceptible change if overall motor vehicle traffic changes.	Significant although any changes attributable to LIP measures is likely to be small.
Material assets	No significant material assets present.	Only relevant in terms of consumption of material assets, notably aggregates.	Significant although any changes attributable to LIP measures is likely to be small.
Biodiversity	Habitat presence is widespread through the borough. Any reduction in motor vehicle traffic or avoidance of sensitive habitats will provide benefits.	Potential for perceptible change if overall motor vehicle traffic changes or sensitive habitats avoided.	Significant although any changes attributable to LIP measures is likely to be small.
Archaeology and cultural heritage	Archaeology and cultural heritage presence is widespread through the borough. Any reduction in motor vehicle traffic or avoidance of sensitive settings will provide benefits.	Potential for perceptible change if overall motor vehicle traffic changes or sensitive settings avoided.	Significant although any changes attributable to LIP measures is likely to be small.
Landscape and townscape	Present throughout the borough although quality varies. Any reduction in motor vehicle traffic or avoidance of sensitive landscape/townscape will provide benefits.	Potential for perceptible change if overall motor vehicle traffic changes or sensitive landscape/townscape avoided.	Significant although any changes attributable to LIP measures is likely to be small.

In overall terms the impacts are likely to be at the core of the SEA boil down to the following:

- Changes to emissions to air from transport within the borough as a result of the LIP and consequent effects on human health, on climate change, on the health of flora and fauna and on amenity;
- Changes to noise levels from transport within the borough as a result of the LIP and consequent effects on human health, on the health of flora and fauna and on amenity;
- Land-take, if any, from resources of environmental value, including for example open land, habitats, footways, as a result of the LIP;
- Changes in demand for material assets because the construction and maintenance of transport infrastructure is a major user of aggregates;
- Effects on people as a result of changes which affect people's ability to use particular modes of travel. This will include for example effects on human health where walking and cycling are made easier.

This is not intended to be a comprehensive list of all impacts. There are other effects, for example:

- The quality of water run-off from highways to water resources may be affected slightly by changes in traffic flow and by the winter maintenance regime (in particular the balance between the use of rock salt and grit in the mix spread on roads to reduce skid and slip risks) but unless these changes are large the resultant effects are likely to be imperceptible;
- A small change in traffic flow is not likely to have perceptible effects on the views within a street seen by pedestrians.

These effects are considered likely to be small and not significant at a strategic level except to the extent that they may accumulate with the more significant impacts listed above. In particular there will be:

- Cumulative effects on the overall quality of the street environment.

There may be cumulative effects for people in their homes, people engaging in other activities outside their homes and not on streets, and for flora and fauna.

4.13.2. Environmental problems

The following key environmental problems have been identified for Haringey:

- The environment experienced by pedestrians and cyclists on many main roads in the borough, notably Tottenham High Road, Archway Road and Green Lanes, is poor particularly where footways are narrow, pedestrian flows are high, service activity is high and traffic flows are heavy. Motor vehicle traffic has adverse effects on the street environment through emissions to air, noise, accidents, severance and intimidation. This can often be exacerbated by the construction and repair activities of the highway authority and utilities;
- On minor roads and residential streets the adverse effects from motor vehicle traffic are less but the dominance of parked vehicles and the presence of an element of through traffic almost everywhere results in an

environment for residents, pedestrians and cyclists that is less than ideal particularly in higher density areas;

- The environmental value of open land, whether public parks and open spaces or in private ownership, is devalued by noise, emissions to air and visual intrusion from traffic on adjoining roads;
- The demands on the transport system from the least advantaged groups of people in the borough are less while these groups are often the receptors who are most affected by the adverse effects of traffic.

4.13.3. Environmental opportunities

The following key environmental opportunities have been identified:

- Motor vehicles are becoming cleaner in terms of their noise and emissions to air providing an opportunity to reduce the adverse environmental effects of traffic unless traffic continues to increase;
- Comprehensive regeneration areas provide an opportunity to address the adverse effects of traffic and make better provision for walking, cycling, public transport and servicing;
- The scope for managing streets more effectively to meet the needs of all street users and to minimise adverse effects on adjoining open land.