Mortality and morbidity rise in hot weather and elderly people are particularly vulnerable (Kunst AE 1993). Increases in death rates during heat waves are associated with underlying cardiovascular, cerebrovascular and respiratory disease. A proportion of those dying may have experienced a death hastened by only days or weeks due to severe illness and there may also be an interaction between temperature and concurrent episodes of air pollution (Sartor F 1995). Heat-related deaths begin to occur when mean daily temperatures rise above the minimum mortality band of 15.6 – 18.6 C. Currently, approximately 800 heat-related deaths occur in the U.K each year with 80 thousand extra hospital admissions (Department of Health 2001). A comparison of excess mortality during the 1995 and 1976 heat waves (Rooney C 1998, McMichael AJ & Kovats RS 1998) showed that excess deaths for all ages for England and Wales was 9.7% in 1976 and 8.9% in 1995. The impact of heat waves is higher in Greater London with excess deaths for all ages of 15.4% in 1976 and 16.1% in 1995. In the 1995 heat wave, those aged over 85 in Greater London had an excess mortality of 20.1%. There is also some indication that excess mortality was proportionately higher in more deprived populations (McMichael AJ & Megens T 1998). A study of heat-related deaths during a 1995 heat wave in Chicago showed that risk was increased for people with known medical problems who were confined to bed, those who did not leave home each day or who lived on the top floor of a building (Semenza JC 1996). All urban areas generate an urban heat island effect where night-time temperatures are higher compared to rural areas. London can be up to 8% warmer than rural areas and night temperatures in the city can remain above 19 C (Greater London Authority 2007). Measures can be incorporated into the layout of a development to reduce the heat island effect (Land Use Consultants 2006). A set of widely accepted climate change scenarios for the U.K have been developed under the U.K Climate Impacts Programme (UKCIP). The impact of climate change on temperature related mortality under a medium-high climate change scenario would result in an estimated 2800 heat-related deaths per year in the U.K in the 2050's compared to 800 currently (DOH 2001).

The Eurowinter study found that mortality increased for outdoor temperatures below 18oC but that variations in mortality were independently associated with both outdoor and indoor temperature. (Eurowinter Group 1997; Healy J.D. 2003). In England approximately 90% of excess winter deaths are in those over 65 years of age and approximately a third of excess deaths are related to indoor temperatures yielding 18 excess deaths per 100,000 adults (Kingman S 2001; Wilkinson P 2001). This seasonal excess, although it has declined (Donaldson GC 1997), is still high compared to other European countries (Keatinge WR 1997). In the U.K, fuel poverty and poor home insulation contribute and are being addressed through the Government's Warm Front Programme. Climate change will result in less excess winter deaths in the future.

APPENDIX 3.5: Detailed Winter (cold) and Summer (heat) mortality Evidence Base

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APPENDIX 3.6: Detailed Evidence Base for Injuries

INJURIES AND RISK FACTORS WHICH MAY BE MODIFIED THROUGH SPATIAL PLANNING

Synopsis of the Evidence

- Injuries account for 3% of annual deaths in the UK. Injury is the greatest threat to life in children and young people and road traffic accidents are the leading cause of death whereas falls cause 4.1% of injury deaths in older age groups. Increased vehicle speeds resulting from decreased traffic congestion (to address air pollution issues) may increase RTA injuries.
- RTAs show substantial inequalities between groups of differing social class.
- Annually, injuries lead to 720,000 admissions to hospital and 6 million emergency department visits.
- There is good evidence that area wide traffic calming reduces child pedestrian injury rates and also reduces the differential in rates based on inequalities in social groups.
- There is evidence that bypasses decrease accident rates but the evidence for new major urban roads and their effect on local road networks and accidents is less strong.

◆ **Spatial planning can address area traffic calming.**

- Injuries in the home are common but the evidence of effects of environmental adaptation in the home is weak.
- Injury rates associated with flooding are of the order of 0.4%.

◆ **Spatial planning can prevent flood risk.**

INJURIES

Public Health Burden of Injuries

The Centre for Health and Environment Research has reported on the burden of injuries in the UK. (Jones S and Parry S 2005 www.hpa.org.uk/publications/2005/burden_disease/10_supporting_doc.pdf) Injuries account for 3% of annual deaths in the UK and are ranked 14th leading cause of death in 2004. In the UK, injury is the greatest threat to life in children and young people. Between the ages of 15 and 24 years, 57% of all deaths are the result of injuries. The risks to older people are also substantial as around 20,000 deaths each year are due to injury, 4600 of which are over 75 year olds. In the UK, road traffic accidents and falls are the leading causes of unintentional injury death. RTA deaths are highest amongst young adult males, with falls predominantly affecting older females. Injury deaths in the UK have fallen by around 8% during the last decade, as a result of factors such as better medical treatment, improved safety practices and changing lifestyles (BMA, 2001).

Most injury deaths result from unintentional incidents, particularly amongst children and young adults; 76% of fatal injuries to 1-4 year olds, 83% to 5-14 year olds and 59% to 15-24 year olds are classified as 'unintentional'. Unintentional injury deaths can be divided into a number of groups, but it is road traffic accidents (RTAs) and falls, both accounting for 27% of all deaths, that are of greatest concern. However, while the overall burden of these groups of incidents is similar, age related patterns are very different. RTAs tend to affect children and younger adults, peaking in the 15-24 year age group at 76% of all unintentional injury deaths, while falls affect older age groups, causing up to 41% of unintentional injury deaths.

Child pedestrian death rates have decreased during recent years but this is thought by many to be due to decreases in exposures of children as pedestrians, rather than as a result of roads being safer. As government targets for increasing physical activity and decreasing obesity are addressed, it is likely that pedestrian exposure will increase, with the possible effect of increasing pedestrian injury and death rates again. Furthermore, increased vehicle speeds resulting from decreased traffic congestion (to address congestion and pollution issues) is likely to compound this problem still further, increasing the severity of injuries and the likelihood of death.

ONS (2004) data presented here do not allow for deprivation based analysis. Previous analysis of trends in injury deaths, in England and Wales, by social class, has shown that the risk to the poorest is considerably greater than that to richer members of society (BMA, 2001).

APPENDIX 3.6: Detailed Evidence Base for Injuries

Motor vehicle accidents are a leading cause of death amongst children and adolescents and also show substantial inequalities between different social class groups. However, while the actual rates and inequalities are of concern, it is also of note that the inequalities gap widened throughout the 1980s. This was due to a drop in rates amongst the most affluent, while rates for the most deprived showed no change. It is possible that the changes in driving habits and vehicle use that have occurred during the 1990s have lead to a further increase in inequalities. Pedestrian deaths account for a substantial proportion of all RTA related deaths in this age group and given the inequalities that exist for all RTAs, it is of little surprise that pedestrian incidents also show variation between the most affluent and most deprived. The more recent data indicate that the most deprived are more than 5 times more likely to be killed in pedestrian incidents than their more affluent counterparts. Again, changes in exposure that have occurred in recent years are unlikely to be equitable – affluent families have greater access to cars, meaning that there is greater potential for these children to walk less. Therefore, it is possible that inequalities in child pedestrian death rates have increased further during recent years.

Inequalities in injury related deaths are substantial and the gap between the most deprived and most affluent may be increasing. Prioritising the reduction of inequalities would have a substantial effect on the overall burden of injuries.

Only a very small proportion of injury episodes result in death. It is estimated that for every injury death there are 45 hospital episodes (HEs), 630 doctor consultations and 5000-6000 minor injuries (BMA, 2001). Annually, injuries lead to 720,000 admissions to hospital and 6 million emergency department visits (DTI, 2000). Twice are many pre-retirement life years are lost to injury as to coronary heart disease and 5% of health service expenditure is on the treatment of injuries (NHS Executive, 1996).

Any analysis of hospital admissions data and the burden of injuries on inpatient resources must be mindful of the fact that the likelihood of admission following an injury is not only affected by the severity, diagnosis and anatomical site of injury, but also by factors such as bed availability, seasonal variations, admission polices and procedure and treatment factors.

Almost two thirds of injury HEs are the result of unintentional incidents (61%). Falls and RTAs are the main causes of injuries, in terms of hospital episode data and deaths data.

Pedal cyclists account for the greatest proportion of HEs and emergency admissions for RTA incidents, but pedestrian injuries are associated with longer stays and a greater proportion of bed days.

Deprivation is an important risk factor for injury. However, when studying the relationship between hospital admission based injuries and deprivation, it needs to be remembered that deprivation influences the likelihood of admission. It has been shown, particularly for children, that admission is often dependent upon the perceived deprivation status, with judgements being made about the quality of care available at home and the likelihood of return for outpatient treatment. This leads to the most deprived being more readily admitted (Beattie et al, 1998; Kendrick, 1993).

Amongst 0-15 year olds, unintentional injury rates are considerably higher for the most deprived compared with the most affluent. Amongst males aged 20-64, unintentional injury rates were lower in all social classes than for the equivalent 0-15 year olds, and while rate ratios were similar in 1979-83, the inequalities gap was wider for 0-15 year olds by 1989-92. Analysis of emergency admissions data for Welsh residents treated at Welsh or English hospitals between 1997 and 1999 shows how deprivation based inequalities vary between age groups and cause of injury (Lyons et al, 2003).

There are substantial differences in the deprivation gradient for 0-14 year olds injured in pedestrian and non-pedestrian RTAs. For pedestrian RTAs, the SHR for the deprived is 2.5 times higher than that for the affluent. However, for non-pedestrian RTAs in the same age group, the gradient is minimal, with rates amongst the deprived just 1.3 times the affluent.

Amongst 15-75 year olds the pattern is very similar. For pedestrian RTAs the deprived are at 2.1 times greater risk than the affluent, while for non-pedestrian incidents, the difference is just 1.1 times.

Child pedestrian deaths and injuries are a particular concern for a number of reasons. In the UK, children pedestrian death rates are higher than those of many other western nations, particularly Scandinavian countries (Belin et al, 1997).

Substantial inequalities in child pedestrian injury risk also exist, with the most deprived at up to 5 times greater risk of death or injury than the most affluent.

Falls are a particular problem amongst older people. Although people of any age may fall, the outcomes for older people are poorer, often including substantial disability or death. Osteoporosis significantly affects fall outcomes, in some cases causing the fall, but in most cases influencing the likelihood of suffering a fracture. Hip and wrist fractures are common fall outcomes amongst older people and hip fractures, in particular, have poor recovery and survival rates.

As the older population is healthier and more mobile, the numbers of falls is likely to increase, increasing the burden of fall related injuries. Identifying strategies by which to tackle the problem of falls before the burden increases substantially is an important task for health promotion and protection professionals.

The burden of injuries on hospital admissions is in the long lengths of stay required following injury. Compared with all other disease and condition diagnoses, injury diagnoses, particularly fractures and specifically femur fractures, are ranked in the leading causes of burden of finished consultant episodes, emergency admissions and bed days.

Falls account for more finished consultant episodes than any other injury causation group, with RTAs accounting for a relatively small proportion. Falls place a substantial burden on hospital in-patient resources, accounting for a substantial proportion of emergency admissions and injury related bed days. Those who have fallen are often older people who suffer a substantial impact upon their quality of life as a result. Although the in-patient burden of RTAs is considerably lower than that of falls, the concern with these cases is the potential for long term effects on health and quality of life amongst younger people.

Child pedestrian RTAs show significant deprivation related inequalities, with the most deprived around 3 times more likely to be injured and admitted to hospital than the most affluent. Falls amongst older people, however, show little variations according to deprivation.

APPENDIX 3.6: Detailed Evidence Base for Injuries

Tackling road traffic injuries, particularly child pedestrian injuries, the deprivation based inequalities in these injuries, and fall related injuries is essential to reducing the numbers of deaths and the burden upon the NHS in the UK.

Injuries and the Built Environment

The Safe Communities concept was introduced to the world during the First World Conference on Accident and Injury Prevention held in Stockholm, Sweden in September 1989. It arose as the celebrated response to a successful community approach to the problem of injury which had been implemented as a pilot project in the Swedish municipality of Falkoping in 1974 (WHO 1999).

Since then, the Safe Communities approach has been embraced around the world as a model for co-ordinating community-oriented effort to enhance safety and reduce injury. The official WHO Safe Communities Web site is available at http://www.phs.ki.se/csp/default.htm and describes the Safe Communities model in detail.

Most of the road deaths in developing countries involve vulnerable road users such as pedestrians and cyclists. Pedestrian injuries account for 84% of all road traffic fatalities compared with 32%. Pedestrians account for a large proportion of road deaths involving children.

Falun a Swedish municipality with 55,000 residents introduced an injury prevention programme in 1989 with interventions which included a focus on cycling and pedestrian injuries. The Safe Community intervention may have prevented an increase in injuries which was observed to have occurred in a control area. (Bjerre B et al 2000). In Harstad, a Norwegian municipality of 22,000 residents a traffic injury prevention campaign and a cyclist and prevention injury campaign resulted in a 26% decrease in traffic injury rates following intervention. (Ytterstad B 1995) In Motala, Sweden interventions including a "Safe way to school" programme implemented at every primary school did not lead to a reduction in traffic injuries. (Lindquist K et al 2001).

Reported studies make it difficult to assess the effectiveness of interventions as the information is limited concerning differences in outcome compared to control communities.

The identification of effective strategies for the prevention of traffic related injuries is of global health importance. Area-wide traffic calming schemes that discourage through traffic on residential roads is one such strategy. Area-wide traffic calming measures are designed to discourage the use of residential streets for through travel and to create an environment where residential streets are safe. Eligible schemes included those that involved a number of specific named changes to the road layout, road hierarchy, or road environment, such as:

- Vertical and horizontal shifts in traffic (e.g. road humps, speed cushions, raised crosswalks, raised sections of road, chicanes, mini-roundabouts, road narrowing, channelized slip lanes, etc.)

- Optical measures (chevron road sings, road surface treatment (colour, texture), reduced horizontal visibility (shortened sightlines); audible measures (rumble areas, jiggle bars), alterations to road lighting

- Redistribution of traffic or alteration to road hierarchy, (e.g. permanent or temporary blocking of road, diagonal blocks, gateways, creation of one-way streets, re-introduction of two-way streets, four-way stops)

- Changes to road environment (increased vegetation (trees, shrubs) along road, introduction of street furniture).

A meta-analysis found that area-wide traffic calming schemes on average reduce the number of injury accidents by about 15% (Elvik 2001). However, this study included uncontrolled before-after studies in which the effect of traffic calming could be confounded by the effect of other concurrent changes in road traffic injury rates. For example, in many high income countries pedestrian injury rates have fallen because nowadays fewer people walk. In this case, the inclusion of uncontrolled studies could exaggerate the apparent effect of traffic calming.

Sixteen non-randomized before and after studies (i.e. contemporaneous data collection before and after the intervention and an appropriate control site) of area wide traffic calming schemes have been reviewed (Bunn F. et al Cochrane Review).

The results of each study are expressed as rate ratios. The rate ratio is the ratio of event rates post and pre intervention in the intervention area divided by the corresponding post to pre intervention event ratio in the control area. Provided that any changes in the population at risk are the same in both control and intervention areas, the rate ratio gives the reduction in the accident rate in the intervention area compared to that in the control area. For example, a rate ratio of 0.8 corresponds to a 20% reduction in events compared to that predicted from the rates in the control area.

Eight trials reported the number of road traffic crashes resulting in deaths. The pooled rate ratio was 0.63 (0.14, 2.59 95% CI). Sixteen studies reported the number of road traffic crashes resulting in injuries (fatal and non fatal). The pooled rate ratio was 0.89 (0.80, 1.00 95% CI). Nine studies reported the total number of road traffic crashes. The pooled rate ratio was 0.95 (0.81, 1.11 95% CI). Thirteen trials reported the number of pedestrian-motor vehicle collisions . The pooled rate ratio was 1.00 (0.84, 1.18). There was significant heterogeneity for the total number of crashes and deaths and injuries.

The results from this review suggest that area-wide traffic calming in towns and cities may be a promising intervention for reducing the number of road traffic injuries, and deaths. English studies identified included Swindon (Dalby E 1981), Bristol, Reading and Sheffield (Mackie AM 1988). In the Stockton cycle route after study (Dean D 1986) the number of accidents to cyclists increased in both a national catchment area for the cycle route and in a control area elsewhere in the town.

In a report which examined Urban street activity in 20 mph zones in London (Babtie Group 2001) the mean annual number of accidents decreased in all zones by between 32% and 100%.

APPENDIX 3.6: Detailed Evidence Base for Injuries

The effects of area wide traffic in calming on reductions in child pedestrian injury rates and reduction in relative inequalities in these rates in two UK cities, 45 miles apart with similar 4-16 year old populations were examined (S.J.Jones et al 2005). The most deprived fourth of city a had 4.8 times (95% CI 3.72 to 6.22) the number of traffic calming features per 1000 population compared with the most affluent fourth. Injury rates among the most deprived dropped from 9.42 to 5.07 from 1992-94 to 1998-2000 (95% CI for change 2.82 to 5.91) in city B, the traffic calming ratio of the most to least deprived fourth was 1.88 (95% CI 1.46 to 2.42); injury rates in the deprived areas dropped from 8.92 to 7.46 (95% CI for change 0.84 to 3.77). Similar proportions of 9-12 year olds walked to school in both cities. Area wide traffic calming is associated with absolute reduction in child pedestrian injury rates and reductions in relative inequalities in child pedestrian injury rates. The importance of local political support to ensure the most appropriate spatial distribution of area traffic calming with respect to inequalities has also been highlighted. (Lyons RA et al 2006).

A systematic review has been undertaken (Egan M et al 2003) of studies assessing effects of new roads on injury prevalence rates. Four studies considered major urban roads which take traffic through urban areas and considered the effects of new roads on the wider local network. (Judaan KS. Et al 1988; Levine DW, Golob TF. 1988). Two of these showed small decreases 4% and 1% in the incidence of accidents including injuries and two showed larger increases 8% and 19% respectively. 5 by pass studies showed a general decline in the incidence of injury accidents after the opening of new by-passes. (Elvik R et al 2001) Three studies of major connecting roads joining two urban areas showed a 25% reduction in injury accidents in one study. Overall there was little evidence that new major urban roads significantly reduce the incidence of injury accidents.

In a study of the effects of Bypasses around English towns (Social Research Associates 1999, Barrell J 1995) the mean annual number of accidents decreased in all six towns. The annual number of accidents to pedestrians and cyclists decreased in five towns and increased in one town.

Injuries in the home are very common. Most of the injuries of older people and children under five occur at home. Many people are encouraged to alter their home to try to reduce such injuries. Common alterations include improvement of lighting in halls and stairways and the removal of falls hazards. A review has been conducted of 5 randomised trails involving children and 14 involving older people. (Lyons RA, Cochrane ref). None of the studies demonstrated a reduction in injuries that might have been due to environmental adaptation in the home.

FLOODING

Much of the literature is based on opportunist retrospective studies of flooding (sometimes conducted a considerable time after the event), cases studies or anecdotal information.

Research into the health effects associated with flooding and the number of health reviews conducted (e.g. Hajat et al., 2003; Tapsell and Tunstall, 2001; Ohl and Tapsell, 2000) seems to have increased relatively recently, perhaps driven by the increase in flooding. The health effects of flooding are generally split into those associated with the immediate event (with drowning being the most obvious) and those arising after the flood has resolved (i.e. post-onset, which may be related to exposure to flood waters, the clear up process or stress and anxiety).

1. MORTALITY

Examination of the EM-DAT database (on the occurrence and immediate effects of all reported mass disasters), which was established in 1988, reveals that the UK has suffered from 17 flooding events since 1900 that warrant an entry[1]. A total of 51 people were reported killed and eight injured in these events, with over 4000 people affected by the events (EM-DAT, 2005). This, however, does not seem to be comprehensive as it does not include the 1953 storm surge affecting coastal areas of several North Sea countries, including the UK. Although reported death tolls vary according to which source is examined, it would seem that over 300 were killed on land, during the event, with a further 200+ killed at sea (Kelman, 2003a). In addition, 20 people were killed in eastern England in floods on January 11th, 1978, and five people were killed during the April flooding in 1998 (Kelman 2003b). Analysis of events surrounding the autumn 2000 floods suggests that four drownings may have been related to the flood and the fact that there weren't many directly attributable to the event seems to be more the result of luck than judgement (Kelman 2003b), as many people are, perhaps not surprisingly, ignorant of appropriate behaviour during flooding.

Duclos and Isaccson (1987) report on 24 deaths related to flooding events in the USA, only nine of which had drowning as the primary cause. Another nine were due to heart attacks while people were involved with unusual flood-related stress or activities (including moving furniture and clean up processes). The other two deaths relevant to the flood event were asphyxiation while using a gas generator to pump water out of a basement and electrocution while connecting a pump in a flooded basement. In flash floods affecting Georgia, 28 deaths were classified as flood-related (CDC, 1994a), 27 of these deaths were due to drowning (cause of death was unknown in one case), with 20 being motor-vehicle related (i.e. victims drove into low-lying areas, across washed out bridges or off the road into deep water).

In France, Duclos et al. (1991) reported details of a flash flood that occurred in the region of Nîmes. Despite extensive flooding and a great deal of damage only nine deaths were reported (all due to drowning) and three severe injuries. The low impact in terms of mortality and serious injuries was attributed to the time of flooding (most people were still at home).

2. INJURIES

Injuries may occur during the flooding (e.g. from impact with flood-related debris or being knocked over by the floodwater) and also from the subsequent clean up process. During surveillance of emergency departments and enhanced surveillance (including contact with emergency shelters) following the Midwest flood in Missouri, USA, in 1993, 524 flood-related conditions were reported, 250 (47.7%) of which were injuries, with the most common being sprains, strains and lacerations (CDC, 1993). It is estimated that 60,000 people were displaced during these floods – giving a reported injury rate of 0.4%.

In France, Duclos et al. (1991) reported three serious injuries as a result of flooding (arm and face burns, a broken leg, broken arms) and found that 6% of occupants in households surveyed following the flooding in Nîmes reported mild injuries (such as bruises, cuts and sprains).

1 For entry at least one of the following criteria must be satisfied: 10 or more people reported killed, 100 people reported affected, a call for international assistance or declaration of a state of emergency. It should be noted, however, that not all of the UK flood examples in this database seem to fall into one of these categories.

APPENDIX 3.6: Detailed Evidence Base for Injuries

Daley et al. (2001) reported an 'outbreak' of carbon monoxide poisoning that resulted from the use of petrol-powered pressure washers for the cleaning of flooded basements. There were 18 separate incidents, involving 33 cases. Thirty of the cases reported that the basement was ventilated while the pressure washer was in use. The most common symptoms were dizziness, headache, nausea, and fatigue. With the exception of a patient who lost consciousness, all the cases were released from hospital after receiving oxygen.

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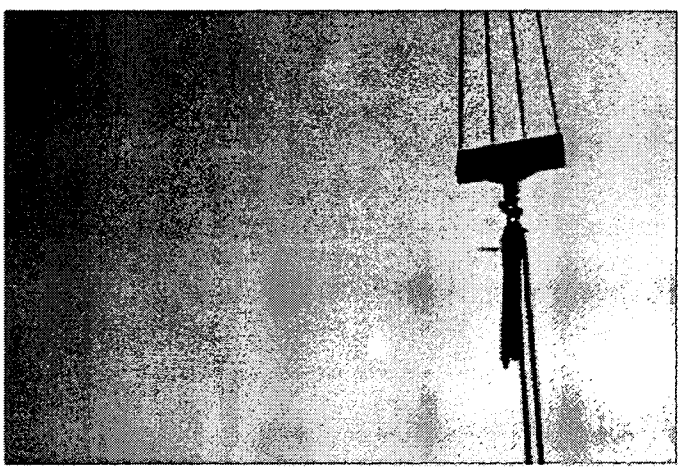
Health and wellbeing

health improvement, health services and health inequalities
papers from the SA/SEA of the
draft further alterations to the London Plan



prepared for the Greater London Authority and the London Health Commission

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1. Executive summary

1.1 The projected growth in population and the associated need for housing, employment, transport infrastructure and social infrastructure in and around London offer a massive opportunity to create bold new places that blend into, and knit together, the built and the social fabric of the capital. History shows us two clear opportunities when London has had the chance to rebuild and to rethink itself: after the Fire of London in 1666 and after the Second World War. On each occasion Central or Metropolitan London was rebuilt but not rethought and London's urban fabric stagnated (1).

1.2 The London Plan (2), which sets the strategic framework for all development in London, is currently being updated (3). As with all spatial plans in England it is subject to a joint Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA).

- SA is a requirement of the Planning & Compulsory Purchase Act 2004 (4); and
- SEA is required by European Directive 2001/42/EC (5).

1.3 Figure 1 shows the headline findings from the SA/SEA.

1.4 The SEA Directive is very important for health as it explicitly requires the consideration of the likely *significant* effects on *population* and *human health* (5). Health issues arising from the alterations to the London Plan were looked at as part of this wider SA/SEA process. There is also a discrete objective on health and wellbeing. We did not conduct an autonomous Health Impact Assessment (HIA) of the draft further alterations to the London Plan.

1.5 This report provides an account of the health input to the Sustainability Appraisal and Strategic Environmental Assessment (SA/SEA). This health input was funded by the Greater London Authority. The London Health Commission funded the evidence review in section 3 and 4.

1.6 Ben Cave Associates provided the specialist health input. Forum for the Future (FfF) conducted and managed the wider SA/SEA. FfF and Ben Cave Associates worked as a single team for the GLA.

1.7 The full SA report is available on www.london.gov.uk and, like the draft further alterations, is open to consultation until 22nd December 2006.

Figure 1

In the face of the predicted development for London over the timeframe of the Plan, the GLA is presented with both a huge challenge and a real opportunity to transform Greater London into *an exemplary, sustainable world city.* History, and contemporary experience, shows us that development places enormous pressure on the environmental and social fabric of London. The London Plan sets a framework for London to develop in a way that not only maintains, but increases, quality of life for *all* Londoners.

The Sustainability Appraisal concluded that the alterations will help avoid many of the adverse impacts on carbon dioxide emissions, biodiversity, health and wellbeing, equality and diversity, and waste recycling and disposal.

The draft Further Alterations to the London Plan refines the London Plan. It ensures that the spatial development strategy sets the framework within which London's economic, social and environmental conditions continue to move in the right direction.

The Sustainability Appraisal concludes that the greatest improvements will be felt in transport and accessibility, the legacy of the 2012 Olympic and Paralympic Games, improved safety and security, the built environment, mitigating climate change, and the way in which the Plan is delivered across the sub-regions.

From the Non-Technical Summary to the SA of the draft alterations to the London Plan (6)

1.8 It is important to note that this report is, in many respects, a historical document. We refer the reader at all times to the full SA report submitted to the GLA (6;7) and accompanying