Rapid Health Impact Assessment of the Proposed London Olympic Games and Their Legacy

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The London Health Commission and the
London Development Agency

Rapid Health Impact Assessment of the Proposed London Olympic Games and Their Legacy

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Background and Objectives

This report has been prepared by Environmental Resources management Limited (ERM) for the London Health Commission and the London Sustainable Development Commission. It constitutes a rapid appraisal of the effects on health in the event of the London bid for the 2012 Olympic bid being successful, in comparison with the scenario of this bid being unsuccessful.

As part of the analysis, a contribution was made to the DCMS Multi Criteria Analysis submitted by PriceWaterhouseCoopers (PWC).

Providing a complete picture of the impact on health outcomes for a project of this magnitude and duration is always going to be a hard task and the limited time available for this study has added to the inherent constraints. What the study has been able to do is provide a comprehensive review of existing health in the population and the factors that influence health. Coupled with a knowledge of the project and its implementation, this information on the existing community can be used to examine the nature and extent of health impacts over the period 2006 – 2012 and beyond. The analysis is able to reveal a list of possible health indicators, which are both positive and negative. It is not possible, at this level of analysis, to be able to quantify health outcomes in terms of absolute numbers of people affected, only to provide an indication of the relative merits of hosting the Olympics, as compared with not doing so.

Health – What Matters?

The health and well being of a population is affected by a great many factors. A health impact assessment has to consider the influence of the project on all these factors. We use a broad socio economic model of health that encompasses conventional health impacts, such as the risk of accidents, along with the many indirect factors that determine health, such as:

- *Income;*
- *Employment;*
- *Education;*
- *Housing;*
- *Lifestyle; and*
- *Access to social networks and transport.*

A change to the socio economic structure of a locality on the scale of the Olympic Games and their legacy is bound to influence the factors listed above. It follows, therefore, that these in turn, must influence health.

Taking lifestyle as an example, it is perhaps obvious that regular physical activity is associated with better health. Expressed more rigorously, people who are defined as physically active reduce and prevent the onset of obesity, reduce risk of contracting diabetes by up to 50% and reduce the risk of premature death by 20-30%. The promotion of physical activity, be it through recreation, sport or as a means of transport, will improve the health of a community, as well as boosting social

interaction, with benefits for mental health. Conversely, if physical activity is discouraged, by taking away green space, recreational facilities or generally reducing opportunities, then the health of a community is diminished. It might be imagined that the hosting of the Olympic Games will improve the opportunities for physical activity, but this is not automatic and the extent to which members of a community make use of opportunities is almost impossible to quantify in advance.

Approach and Methodology

The study begins with a review of literature that we could find on previous Olympic Games and their experiences with regard to health and health determinants. This body of literature provides part of the evidence base on which our analysis is conducted.

The next phase of the study concerns the description of the project, the community and the consequences of not hosting the Games. This provides a base case, against which the Games and their effects can be judged. Once this has been done, the consequences of the Games for health is examined through a desk top analysis and also by hosting a workshop, with participants invited who have a stake in the Games and/or the local community.

The outcome is a semi-quantitative one that is able to distinguish between the net health benefits of the two possible paths, ie to host the Games or not to host them, but is not able to provide a statistical breakdown of health outcomes within the population.

The Community

The population within the Olympic 'footprint' resides in parts of the London Boroughs of Tower Hamlets, Waltham Forest, Newham and Hackney. A wider population in London and beyond will also experience impacts, but the health status of this population has not been analysed quantitatively here. By most measures relating directly and indirectly to health, the population within the footprint is currently disadvantaged. In comparison to the national average, incidence of diseases is higher, life expectancy is shorter, income and employment are lower and the housing statistics are less favourable. In summary, the community is more vulnerable than most and in need of measures to improve health.

The 'No Games Scenario'

In recognition of the relatively deprived status of this part of London, various development plans exist that will provide regeneration. Thus, the base against which the Olympic bid needs to be considered is not the current state, but the future one in the context of anticipated development.

An investment programme of £1.2 billion is projected for the period 2003 – 2020, in the areas of:

- *infrastructure, including transport links;*
- *environment and landscape;*
- *business development and training;*

- *community investment (including sport); and*
- *research.*

We anticipate that these improvements will influence a variety of health determinants, contributing to:

- *a reduction in depression and anxiety;*
- *improved psychological well being;*
- *improved social networks and social skills;*
- *reduced hospital admissions and reduced premature mortality from cancers, cardio vascular disease and respiratory disease;*
- *greater life expectancy;*
- *a reduction in health inequalities across London.*

These effects will be felt within the local area and will emerge over a relatively long time period, as the pace of investment will inevitably be slower than it will be in the absence of the Olympic Games.

The Olympics (2006 -2012 and their Legacy)

The Olympic project will have four distinct phases:

- *the pre Games construction period;*
- *the Games in 2012;*
- *the legacy construction phase;*
- *the post Olympic legacy.*

Each of these phases has been considered separately. The construction phases involve some environmental disturbance, with the potential for negative health impacts, such as those arising from noise emissions, increased emissions to atmosphere, community severance and loss of existing employment. These will be offset by new employment opportunities and some immediate gains for the environment and transport links in the period leading up to 2012.

On balance, we believe that the Games and their legacy will provide considerable improvements to the area, which in turn will benefit health. The positive factors leading to this improvement will be:

- *Additional areas of open and recreational space;*
- *Improved access throughout the area;*
- *The construction of 9,400 homes;*
- *Business, retail and industrial development providing 12,000 jobs;*
- *The construction of new health/family centres and schools;*
- *Access to remaining sports facilities;*
- *Opportunities to improve lifestyle and therefore health;*
- *Improved community cohesion.*

Many of these gains will also arise from the 'No Games' scenario of course, since a similar package of regeneration is planned, but the difference lies in the shorter

timescale and the additional benefit of the sporting facilities, allied to the more intangible boost to local pride and esteem.

The Workshop

An appraisal such as this one would be incomplete without a consideration of the views of local stakeholders. Accordingly, ERM organised a workshop at which 21 people participated, including representatives of local community bodies and London wide bodies, such as the GLA.

The views of the workshop attendees are set out in the report. Amongst the concerns were the displacement of communities and industries and the impacts arising from construction activities. Another concern articulated related to the future demographic profile of the community, expressed in the word 'gentrification'. This feeling may, in part, be based on the experiences of nearby change in the Docklands area.

Set against these concerns was the consensus view that the Games would also bring benefits and opportunities to the community beyond the Games. A strong desire for community involvement in the project was expressed, along with a plea for transparency. Effective communication of proposals is essential to avoid false perceptions arising.

Benefits and Impacts

We consider that there is a greater net benefit to health in hosting the Games than with the alternative scenario of proceeding with the current regeneration plans. Both scenarios cause similar impacts in the construction phases, but with the Olympics, there will be greater benefits to the local communities arising from increased employment and income opportunities, greater physical activity and enhanced community cohesion.

The Games have the potential also to spread economic and sporting benefits to a wider population, across London and nationally. These benefits, in turn, will produce health benefits, albeit of a magnitude that is difficult to quantify.

Finally, the hosting of the Games has some potential to raise sporting activity across the country, by inspiring individuals. This effect is difficult to capture and also to maintain, based on the experience of previous sporting events, but there is no doubt that some kind of effect is possible.

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1 INTRODUCTION

1.1 BACKGROUND

Environmental Resources Management (ERM) has been commissioned by the London Health Commission (LHC) and London Development Agency (LDA) to undertake a rapid Health Impact Assessment (HIA) of 2012 London Olympic Bid and legacy plan.

The objectives of the HIA are to:

- identify the potential health impacts and benefits likely to arise throughout the lifecycle of the London Olympic Games, in contrast to a counterfactual 'No Games' Scenario;
- to support the development of health indicators to be applied within the Department of Culture Media and Sport (DCMS) Multi Criteria Analysis; and;
- to identify potential means to mitigate health impacts and maximise health benefits.

The scope and timeline of the assessment were set to meet the requirements of the project to support the DCMS Multi Criteria Analysis. The work began in August and was completed in time for submission of the London Bid to the IOC on the 15th of November 2004.

The following report documents the methodology applied within the HIA , presents a summary of available literature review to support the assessment, and investigates the potential health impacts and benefits likely to arise during the construction the operation and the legacy of the London 2012 Olympic Games, in contrast to the 'No Games' scenario.

1.1.1 *Health Impact Assessment*

It is now recognised that the improvement of the health of a population is not solely the responsibility of its health services, but is also associated with preventative measures that include more health conscious development policies, programmes, plans and projects that have been subjected to HIA. Analysis and management of the health impacts associated with the success of infrastructure projects has therefore become as important as the management of environmental issues.

HIA is a multidisciplinary process designed to investigate the potential health outcomes of a proposal. It delivers evidence-based recommendations that

inform decision-makers as to practical ways to maximise health gains and reduce or remove negative impacts or inequalities.

Though a relatively new feature in the UK planning system, HIA is achieving increasing prominence and raising significant awareness in relation to achieving the goals of well-being, sustainable development, and health for all. The benefit of HIA as a method to inform and enhance the health outcome of projects is evident through a number of HIAs performed over the last 6 years. The increasing use of HIA is evidence of a more 'joined up' approach, which recognises a variety of factors, including health, as key ingredients in successful regeneration and for achieving social inclusion.

The relevance and advantages of using HIA are clear. Not only will HIA identify and prioritise potential negative and positive outcomes, but it also encourages and actively promotes public consultation and participation, facilitating the adoption of appropriate measures to address adequately potential risks during project preparation, implementation and beyond. HIA is therefore an effective method for integrating health concerns into projects, aiding the final decision making stage, and acting as a conduit to continuing community participation, and a key to promoting sustainable development and community well-being.

1.2 HIA: THE INTERNATIONAL CONTEXT

HIA is supported internationally. For example, Article 152 of the Amsterdam Treaty calls on the European Union (EU) to see that a high level of health protection is ensured in all community policies and activities. The European Health 21 targets establish the requirement of HIA in that all members are to implement policies for health for all; to provide a safer physical living environment and that all sectors should recognise and accept their responsibilities for health.

HIA has since been applied through the application of Article 8 of the Human Rights Act and through the European Union EIA Directive 97/11 including the requirement of humans in Environmental Impact Assessment.

Furthermore, interest in HIA is likely to increase, as the European Union requires mechanisms to be established to ensure a high level of human health protection in the definition and implementation of all Community policies and activities (Article 152 of the Treaty of Rome). In addition, human health protection has been included within the remit of Strategic Environmental Assessment brought into effect by Regulation in 2004.

The outcome is that both the private and the public sector are required to account for health impacts of projects and proposals. The HIA requirement will therefore become increasingly key to the success of plans, policies and projects, and imperative to the goal of sustainable development. The management of health outcomes will become as important as the management of environmental impacts.

1.3 HIA: THE NATIONAL CONTEXT

Interest in the UK led to a number of research initiatives, such as The Acheson Report [(1)], which recommends, '*that all public policies and projects, not only those in the health sector, should be assessed for their impact on health*'. A second document, 'Saving Lives' recommends that local agencies undertake health impact assessments when making planning decisions[(2)]. These in turn lead to greater emphasis on HIA in government consultative documents on public health strategy.

1.4 HIA: THE LONDON CONTEXT

Nowhere else in the UK are the benefits and practice of HIA more recognised than in London, where a formal structure exists. Firstly, the Greater London Authority Act 1999 [(3)] was passed requiring London wide strategies to account for and to promote improvements in health. Secondly, the London Health Commission has been established (in October 2000) to advise on health related issues and to support the assessment of health on Mayoral strategies, thereby driving efforts across London and beyond to reduce inequalities and to improve health.

Four years after its inception, the London Health Commission continues its lead in the promotion and application of HIA, supporting the development of effective policy and practice in London, as demonstrated through a catalogue of completed health assessments on all of the Mayoral draft strategies, including:

- Air Quality;
- Biodiversity;
- Children and Young People;
- Culture;
- Economic Development;
- Energy;
- Noise;
- Transport;
- Waste and
- Health.

The development and recent launch of the London Plan follows this philosophy, where, as per a requirement of the GLA Act, focus is placed upon the three cross-cutting themes of:

- the health of Londoners;
- equality of opportunity; and
- the contribution to sustainable development in the UK.

(1) Acheson D, 1998. Independent Inquiry into Inequalities in Health, Report of the Scientific Advisory Group. London: The Stationery Office.
(2) Secretary of State for Health, 1999a. saving lives: our healthier nation. London: Department of Health.
(3) HMSO. (1999). Greater London Authority Act. http://www.hmso.gov.uk/acts/acts1999/19990029.htm.

The London Plan emphasises the links between spatial development and public health and includes an extensive range of policies on transport, housing, employment and the environment. The London Plan replaces existing strategic guidance, setting out the statutory context for the Mayor and the London boroughs in making planning decisions. Input from HIA will therefore indirectly influence future planning, support sustainable development initiatives and enhance the health and well-being of Londoners well into the next decade.

The application of HIA within London is set to continue, as the Mayor and the London Health Commission endeavour to integrate HIA further into decision-making throughout the public and private sector.

> *'Improving the health of Londoners is a fundamental objective of all mayoral strategies, and the London Health Commission's ground-breaking programme of health impact assessments has been a vital tool in achieving this. I am keen to see its use extended in the future'.*
>
> Ken Livingstone, 17th July 2003

1.5 THE OLYMPIC AND PARALYMPIC CONTEXT

The Olympic and Paralympic Games represents the pinnacle of sporting achievement, inspiring current and future athletes to strive for sporting excellence. However, the ethos and influence of the Games extends beyond that of the "three pillars" of sport, culture and environment, influencing international health during the Games, and the health of host nations from the initial bidding process through to long term Olympic legacies.

The extent of the Olympic Games influence is noted in the sheer number of participating nations. Since the 1896 revival of the Olympic Games in Athens, where only 14 nations took part, there has been a steady and significant increase in international interest. On the recent return to Athens in 2004 there were 136 participating countries.

The duration of the Olympic Games influence extends beyond and between summer and winter Olympic and Paralympic events, with preparation by potential future candidates well underway before the end of the current Games.

The international magnitude and near perpetual nature of the Olympic Games makes them very suitable for Health Impact Assessment. The benefits and legacies are sometimes recognised, but they are not fully understood at the local, national or international level.

There is no doubt that the Games have improved international health and wellbeing by creating a stimulus to promote healthier lifestyles, develop national sports programmes, sports facilities and training. It is also often the

case that both that bidding and successful host nations benefit from regeneration, cultural, environmental and socio economic renewal.

However, community susceptibilities and the inequalities within host nations, along with the potential impacts and benefits to the wider determinants of health, are not always considered prior to planning Olympic events. As a result, mitigation, health maximisation options and subsequent health legacy opportunities are missed.

A health impact assessment is therefore a logical progression for the Olympic movement, identifying potential impacts to host nations, removing or reducing negative impacts, and maximising health benefits and legacy.

In the case of the London Olympic Games, health impact assessment is implied in the Greater London Authority's duty to promote the health of Londoners, to reduce inequalities and to take into account the effect of its policies on the health of Londoners. This includes the Mayor's pledge to develop environment, health and sustainability awareness programmes for those involved in delivering the Games.

The health assessment of the proposed London Olympic Games provides an effective method for identifying, preventing and integrating health concerns into the Games, maximising local and regional legacy benefits, displaying an attitude consistent with the Olympic ethos, and promoting the London bid as being the first Organising Committee to provide a "Fourth Olympic Pillar" of Health.

In the instance that the London bid is unsuccessful, the HIA will inform regional regeneration programmes as to community needs, health benefits and areas requiring further assessment, to enable the select committee to arrive at a positive decision, and identify health maximisation options.

The addition of a fourth pillar by the International Olympic Committee in all future bids will provide a stimulus to ensuring health and sports for all, where even unsuccessful candidates may result in Olympic health legacies.

1.6 HEALTH IMPACT ASSESSMENT

1.6.1 Introduction

The following section sets out the basis of HIA, describes the methods used and data applied to assess the potential health outcomes of the proposed 2012 London Olympic Games.

1.7 HEALTH ASSESSMENT BASIS

1.7.1 Background

Health, or more importantly what constitutes good health, is difficult to define and measure, not least because perceptions about health and expectations of good health vary. It is therefore naturally the case that any definition of health applied in HIA will influence its overall content and focus.

The health assessment of the proposed London Olympic Games follows the guidance set by the London Health Commission and the UK Health Development Agency (HDA) and is based upon the World Health Organisation's (WHO) definition stating health to be 'a state of complete physical, mental and social well being and not merely the absence of disease or infirmity'(1).

The basis of the HIA is therefore set on a broad socio-economic model of health that encompasses conventional health impacts such as communicable disease, accidents and risk along with wider determinants of health outside of the influence of health services yet vital to achieving good health and well-being, including:

- income;
- employment;
- education;
- housing;
- lifestyle; and
- access to social networks and support.

The benefit of applying a socio-economic model of health lies in its flexibility, supporting a broad definition of health. Listing health determinants, whilst allowing room for manoeuvre within its headings to identify potential health pathways.

A health pathway can be described as any activity that influences a known determinant of health including:

- environment;
- employment and income;
- education;
- housing;
- lifestyle;
- physical activity;
- access to service, amenities and social networks;
- community severance; and
- transport.

(1) World Health Organisation, 1948, Preamble to the Constitution of the World Health Organisation as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organisation, no. 2, p. 100) entered into force on 7 April 1948).

1.7.2 Environment

The quality of the environment is a key determinant on health and well being, defining the level, type and mode of exposure to pollutants, the availability of open and green space and how people perceive their local environment, thereby influencing physical, social and mental health. Research suggests that there are clear causal links between poor environmental quality and poor health/stress, higher rates of crime and anti-social behaviour, and lower aspirations for individuals and communities as a whole.

There are also strong correlations between other aspects of environmental quality/access to 'environmental goods' and key socio-economic conditions in urban areas. According to the Sustainable Development Commission report *Vision for Sustainable Regeneration: Environment and Poverty – the Missing Link* (2002), not only is lower environmental quality usually found affecting the most socially and/or economically deprived communities, but that environmental inequalities exacerbate social and economic inequalities.

Research supports the idea that significant increases in air pollution are associated with quantifiable adverse health outcomes. The extent of any such health impacts is clearly dependent upon the magnitude of changes and length of exposure experienced. In this instance, construction of the scheme will generate emissions from plant machinery, resource consumption, and dust generation from earth works. However, the principal source of harmful pollutants is more likely to be associated with an increase in construction road traffic located near to residential areas.

Consensus on the level and duration of noise required to instigate potential health impacts is not clearly defined, although there is sufficient evidence to establish that environmental noise levels:

- above 55 dBA L_{eq} can lead to significant annoyance;
- of 65-70 dBA L_{eq} may be a risk factor for diminished school performance and ischaemic heart disease; and
- of 40 – 60 dBA L_{eq} outdoors may disturb sleep (1)

The main emphasis of noise standards and regulations is therefore placed on annoyance and sleep deprivation, as they are the most immediate consequences of noise impacts, and applicable to everyone. The thresholds for such impacts are in keeping with Planning Policy Guidance 24, where noise exposure categories (NEC) indicate that when noise increases above 55 $L_{aeq\ T}$ dB, planning consideration is required to remove, reduce or mitigate noise likely to be of significant annoyance.

1.7.3 Employment, Income and Health

Employment and income influence a range of factors including access to housing, education, diet, lifestyle, coping skills, services and social networks.

(1) Noise and Health making the link. The London Health Commission 2004. www.londonshealth.gov.uk/allpubs.htm

These are in turn key determinants for a range of physical and mental health impacts and ultimately health and well-being. Unemployment, poverty and inequality are strongly associated with illness and premature death, demonstrated by the Black Report [(1)] and more recently by the Acheson Report[(2)].

Poor economic circumstances affect health throughout life; those that are further down the social ladder are more likely to suffer from morbidity, injury, poisoning, suffer from mental anxiety, depression, self harm and suicide[(3)], and tend to be at least twice as likely to suffer from premature death than those near the top.

Risk factors for heart disease and cancer such as smoking and excessive drinking are also more common among the socio-economically disadvantaged, exacerbating the prevalence and reducing survival and recovery rates for a variety of diseases. There is a continuous gradient of health between these two[(4)]. Individuals who are employed and have higher incomes will reduce their risk of disease over the long term, especially if having a higher income is associated with an improvement in lifestyle.

In contrast, those who have higher incomes tend to suffer less and have a higher recovery and survival rates from a range of diseases. This is in part due to a heightened ability to access specialised medical care, but is also associated with preventative measures, including access to a higher quality of housing and environment, education, lifestyle (nutrition, risk taking behaviour and physical activity), and general coping skills.

Providing long term, stable employment with opportunities for promotion and advancement through training and experience will contribute to improving health and wellbeing of socio economically deprived communities.

However, it is important to note that increasing employment and income opportunities alone will not maximise health benefits, requiring increased support, training and community involvement in order to link and develop skills to employment.

1.7.4 Education

Levels of education influence a range of additional determinants of health including employment opportunities, levels of income, housing, lifestyle and coping skills. Any activity that improves access to, or provides options of, training education and personal development will improve the ability of individuals to make better health and life decisions and contribute to improving control and quality of life.

(1) Report of the Working Group on Inequalities in Health, Sir Douglas Black, 1980
(2) Independent Inquiry into Inequalities in Health, Sir Donald Acheson, 1998
(3) London health report 2004
(4) Social determinants of health. WHO

The significance of education during childhood and its links to health throughout life, influencing employment, income, quality of housing and lifestyle, are well known. However, the subsequent effect on offspring and childhood development are only now being investigated. The National Healthy School Standard (NHSS) supports the view that healthier children perform better academically, and education plays an important role in promoting health, particularly among those who are socially and economically disadvantaged.

Disadvantaged communities exhibit a higher level of still birth rates and low birth weights, which in turn have been shown to influence childhood development and future health. Evidence from the youth cohort study 2004(1) shows that 36% of children aged 15 with health problems or disabilities achieved 5 or more GCSE's A*-C compared to 52% without.

There is therefore a relationship between poor health at a young age and poor educational achievements. Individuals who receive a poor education due to poor health are subsequently more likely to remain disadvantaged in the job market and to continue to suffer socio economic and subsequent health impacts then their healthy peers.

This vicious circle is further compounded as social class is closely related to educational attainment, 77% of children with professional parents achieved 5 or more GCSE's compared to 32% of children from routine occupational backgrounds (2).

Although access to education and training at later stages in life is possible, it may be hindered by responsibilities and child care. Disadvantaged communities are therefore not only more likely to suffer lower academic achievements, influencing future socio economic opportunities and health, but also more likely to pass on such disadvantages to their offspring.

Any activity that breaks this cycle improving access to education, training and employment opportunities will play a significant role in reducing inequality and improving the health and wellbeing of deprived communities.

Activities that reduce the availability, affordability and quality of housing will influence a range of health determinants including expendable income, employment and the quality of urban and indoor environment. While ownership is suggested to act as a socio-economic buffer, influencing both mental and physical health outcomes including childhood / adult mortality rates, physical health, depression and stress related illness.

The report 'Home Sweet Home: The Impact of Poor Housing on Health', stated that those who experience poor housing conditions including overcrowding, a lack of heating, dampness, mould and general exposure to

(1) DFEE (2004) 'Youth Cohort Study : the activities and experiences of 16 year olds : England and Wales' Department for Education and Employment Statistical Bulletin, issue no. 8/97, June, London: The Stationery Office.
(2) DfES. 2003

the elements have a higher likelihood of developing respiratory disease including wheeze and asthma, infectious diseases such as tuberculosis and higher incidents of depression and poor mental health. Although symptoms associated with poor quality housing will develop regardless of age, children and the elderly are often first to exhibit health impacts (1) and are less likely to completely recover(2)..

A low availability of housing not only increases demand, influencing both the cost of rental and freehold markets and thereby reducing levels of expendable income that might be used for healthy living, but also it increases pressure to utilise low quality and temporary housing associated with a number of similar health risks including(3):

- respiratory and gastrointestinal infections;
- poorer perinatal outcomes; and
- increased mental health problems linked to stress.

Although there have been few longitudinal studies exploring the effects of housing improvements on health, research indicates that children's health improves, with diarrhoea, wheezing and persistent cough being significantly worse in unimproved housing(4).

Any activity that improves the quality and availability of affordable housing will have positive influence on physical, economic and mental health.

1.7.5 Physical Activity

Physical inactivity is a serious nationwide problem, posing a public health challenge for reducing the national burden of unnecessary illness and premature death. Research has shown that a third of coronary heart disease cases and a quarter of strokes could be prevented by regular physical activity. People who are physically active reduce and prevent the onset of obesity and decrease the risk of major chronic diseases such as diabetes by up to 50% and reduce the risk of premature death by about 20-30%.

The Government pledge to cut levels of obesity, promoting communities to be more active is now evident in a number of government targets, including improved access to exercise, physical activity standards in schools and exercise for cardiac rehabilitation, in a bid to decrease community risk to:

- coronary heart disease;
- high blood pressure;
- developing diabetes;
- depression, anxiety and mental illness; and

(1) London Health observatory
(2) Wilkinson. 1999. Poor Housing and Ill Health: A summary of Research evidence. The Scottish Office, Central Research Unit.
(3) London Health Observatory
(4) Wilkinson. 1999. Poor Housing and Ill Health: A summary of Research evidence. The Scottish Office, Central Research Unit.

- weak bones, osteoporosis and arthritis.

The benefits from physical activity are transient; therefore exercise is needed throughout life in order to minimise the risk of developing these diseases. Even the elderly need to be active in order to remain mobile and improve muscle strength, thereby reducing illness and injury and remaining independent.

Activities that promote physical activity either through recreation, sport or as a means of transport, will improve the health and well-being of communities, encouraging social interactions, contributing to improved physical and mental health. Alternatively, activities that result in a loss or reduction of green space and recreational facilities, reducing opportunities of physical activity will have a negative impact on health.

1.7.6 Access to Services, Amenities and Social Networks

The availability of services and amenities to treat, maintain and promote everyday life, range from services for health treatment and care, through to daily retail requirements and social networks. Disruption may be as a result of construction activities reducing or removing such facilities, blocking routes, reducing transport options or reducing accessibility to specific individuals or communities.

Although a reduction in, or disruptions to, the availability of such services are normally reflected as annoyance, prolonged disruption can have a detrimental effect on physical, social and mental health. Susceptible communities, including the elderly, disabled and socio economically deprived, are often less able to access alternative options and solutions, resulting in a reduction in access to health care and treatment, social support, increases stress and leads to community severance and social isolation.

1.7.7 Community Severance

Severance of communities relates to physical, social or economic barriers that prevent or restrict community interaction. The impacts on health are usually at a community level, where a lack of social integration and cohesion can reduce access to a range of amenities and social networks. This can result in the development of inequalities, unrest and provide a barrier to the sustainable development of communities.

Social isolation and exclusion is associated with increased rates of premature death and reduced survival rates(1). Social isolation also increases the risk of depression, pregnancy complications and disability from chronic diseases.

Migrants, ethnic minorities and refugees are particularly vulnerable to social exclusion and work opportunities. They may also be less willing to access health and social services due to language, religious and social barriers.

(1) The Solid facts WHO report on the social determinants of health

Societies where there are income inequalities tend to have less social cohesion, more violent crime and higher death rates. Alternatively, communities where there is good social cohesion have been shown to have lower rates of coronary heart disease and that these rates increase as cohesion decreases.

1.7.8 Transport

Although not technically a determinant of health, transport plays a vital role in the health and well-being of communities by providing access to a range of services and amenities required to treat, manage and promote healthy living.

However, certain modes of transport, including road traffic, pose significant risks to health through increased exposure to air pollution, risk from accident and injury and are commonly associated with community severance. In London alone road traffic accidents in 2002 accounted for 5,650 persons killed or seriously injured, with a further 35,729 indicated to be injured based on police report figures.

Susceptible groups include children, the elderly and the socio economically deprived, where child pedestrian casualty rates are indicated to be four times higher in the lowest socio-economic group compared to the highest(1).

Any activity that promotes a modal shift to public or green transport will contribute to a healthier lifestyle and environment, reducing the reliance on the use of non-renewable fuels, reduce emissions to air, risk from accident and injury, and promote physical activity.

None of these health pathways can be taken in isolation; each interacts with the others to determine an individuals health at all stages. Some factors may have a greater impact then others on health but all have a role to play.

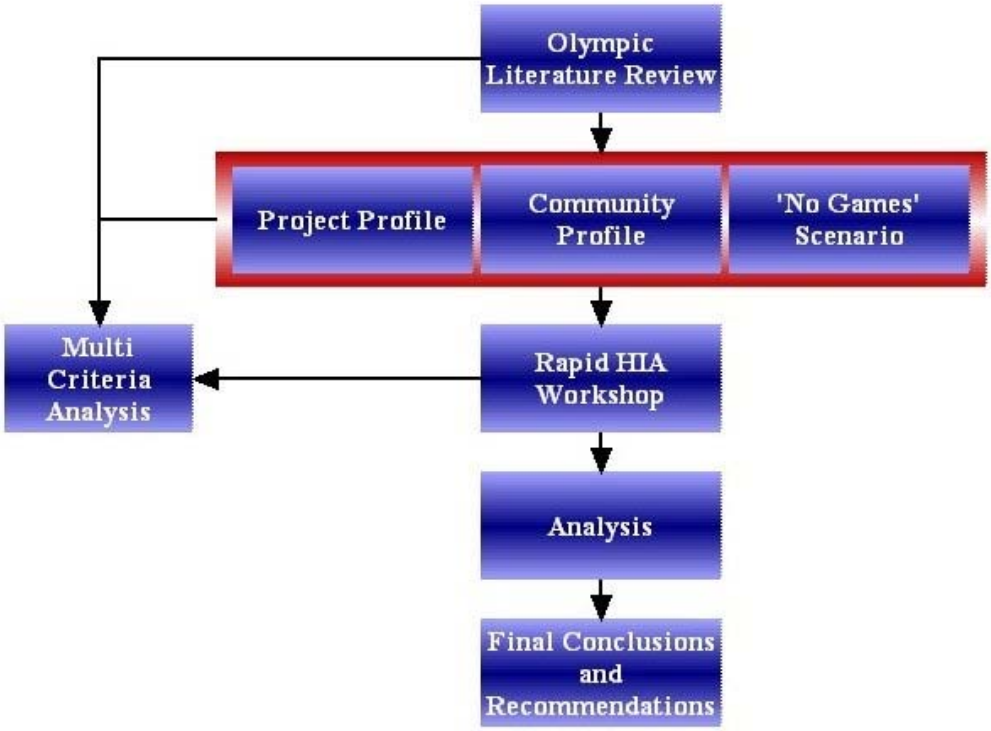
1.8 RAPID HEALTH IMPACT ASSESSMENT METHODOLOGY

A rapid HIA, as defined by the UK Health Development Agency, includes a brief investigation of the main health impacts of a proposal, involving an exchange of existing knowledge, expertise, and research from previous HIAs. In this instance, there is a wealth of environmental and health information that can be accessed for the rapid assessment and a catalogue of HIA literature available through the London Health Commission, London Health Observatory, the International Health Assessment Consortium (IMPACT) and NHS Health Development Agency.

The overarching methodologies applied to meet the objectives of the assessment are presented in *Figure 2.1.*

(1) DETR 2001

Figure.2.1 Rapid HIA methodology



1.8.1 Olympic and Commonwealth Games Health Legacies: Literature Review

A literature review of Olympic, Commonwealth and major sporting events has been provided in order to ascertain the scope, duration and sustainability of subsequent health impacts and benefits.

The review includes materials from Olympic affiliated organisations, local government, academic organisations and the press, to aid in the identification of the wider health benefits of the Games, and the development of legacy lessons learned to be applied within the London Olympic context.

1.8.2 Profile and Baseline Information

In order to develop a clear indication as to potential health outcomes a series of profiles are required on the Olympic Games, on communities within the area of influence and the development of a moving baseline to offer a fair comparison as to how the area will develop in the absence of the Games and subsequent comparison of health pathways.

No Games Regeneration Profile

In order to offer a fair comparison of the Olympic Games against a 'No Games' scenario, it is necessary not only to profile the current baseline, but also provide an approximate prediction of community and environmental conditions based on existing and proposed regeneration programs.

In the absence of the No Olympic Games master plan the following profile has been compiled utilising:

- The London Plan;
- Local Unitary Development Plans;
- The Lower Lea Valley Olympic and Legacy Masterplan;
- The Lower Lea Valley Reference Case;
- The Draft lower Lea Arc Area Development Framework; and
- The Draft Lower Lea Valley Regeneration Strategy: Issues and Principles.

Although a comparison of qualitative results will be useful to determine the more intangible factors associated with health and well being, it is the quantitative aspects of income, employment, housing and levels of land remediation and use that will provide a comparison between the two scenarios, delivering more tangible health pathways.

Shortcomings of this approach relate to the fact that all the proposed programmes and developments are subject to change, dependent on market forces, government initiatives, investment, rate of regeneration and commitment for over two decades.

Project Profile

The project profile investigates the various stages and processes involved within construction, operation and the legacy activities of the Games, defining the project footprint, the extent of activities that may result in potential health outcomes, and the influence they may have upon a range of determinants of health. In this way the project profile identifies potential health pathways associated with both scenarios.

Once activities and associated impacts have been defined they can be applied to the community profile to determine how such pathways might act on the relative susceptibilities of communities, using the HIA evidence base to identify a range of possible social, physical, mental and community health outcomes.

The Olympic project profile was in part developed through a review of technical assessments materials and Olympic master plans supplemented through consultation with the London Development Agency, PriceWaterhouseCoopers (PWC) and the London Development Agency.

Community Profile

The community profile has been developed through the application of national statistics such as the National Census 2001, the Indices of Multiple Deprivation 2004 and key health statistics available through the Public Health Observatory (mapped out to represent London wide community susceptibilities and spatial sensitivity as a basis for community level comparisons). The community profile is supplemented by regional and

London Borough information including local and regional health, education and lifestyles surveys.

The combination of statistics and available survey information provides a means to triangulate both quantitative and qualitative information developing a more rounded image of community susceptibilities, concern, inequality, potential health benefits and maximisation options.

1.8.3 Rapid HIA Workshop

A rapid HIA Olympic Workshop was performed on the 18th of October including local regional and national perspectives from community groups and primary care trusts as shown in *Table 1.1*. Participants had been sent summary evidence summaries before arriving at the day.

The purpose of the workshop is to build upon the initial findings of the health assessment sent out prior to the event and identify potential concerns, impacts and benefits to health at the local, regional and national level.

Table 1.1 Workshop Participants

Name	Details
Alick Mackenzie	Enabled London
Poppy Hasted	Greater London Action on Disability (GLAD)
Marietta Campbell	Voluntary Action Waltham Forest
Geoff Thornton	Voluntary Action Waltham Forest
Catherine Max	Programme manager for London works for better health, London Health Commission
Sheila Ahmed	London Development Agency
Jane Connor	Head of Improving Health Partnership, London Borough of Newham / Newham Primary Care Trust
Dr John Hayward	Director of Public Health, Newham Primary Care Trust
Becky Porter	Public health advisor, Tower Hamlets Primary Care Trust
Richard Reddie	Minet
Anna Boltong	Health Impact Assessment & Network Facilitation Manager, London Health Commission
Rachel Turner	Public health strategist, city and Hackney Primary Care trust
Murad Ruf	Public health advisor, Tower Hamlets Primary Care Trust
Tony Weight	Department of Health
Grant Pettitt	Greater London Authority
Callie Phillips	UCL / Environmental Resources Management
Sam McCrea	Environmental Resources Management
Andrew Buroni	Environmental Resources Management
Sheena Dunbar	Age Concern (did not attend, but supplied input)
Freda Bourne and Shirley Morgan	Stratford Community Forum (did not attend, but supplied input)

The initial workshop task required participants to reflect upon the determinants of health likely to be influenced during construction, hosting and legacy stage of the Games, and the consideration of health outcomes in the "No Games" scenario.

The core tasks covered in the workshop involved:

- presentation of the Olympic bid and summary evidence;
- assessment of the risks and benefits to health;
- consideration of the 'No Games' scenario;
- prioritisation of the most important risks and benefits to address: and
- Development of 'minimisers' and 'maximisers' of risk / benefits.

1.8.4 Analysis

The analysis stage investigates and appraises potential outcomes and benefits, incorporating environmental and health data to identify populations at risk and assesses the maximum theoretical impacts with a view to developing measures to reduce or avoid negative impacts and inequalities, and enhance opportunities to improve health. This has been achieved by identifying project activities with known health pathways and outcomes, and applying them to the community profile to express exposure, sensitivity and provide a qualitative judgment as to the likelihood, magnitude and significance of potential health outcomes.

2 SOCIO ECONOMIC AND SPORTING DIMENSION OF HEALTH

2.1 INTRODUCTION

The following section presents a literature review summary of Olympic, Commonwealth and major sporting events shown in *Table 2.1* and available in *Annex A*.

In 2002 a joint symposium presented reports on broad Olympic legacies (1). The outcomes were not case specific or relating to the Games in general, but the findings indicated that tangible outcomes include the effect on:

- the economy;
- regeneration;
- environmental renewal;
- the tourist industry; and
- the development of sports infrastructure.

Research into the impacts, benefits and legacy of major sporting events have to date focused on tangible socio-economic impacts during construction, operation and the subsequent effect on tourism. This is in part due to known and readily available economic indicators that are measurable pre, during and post Games. However, such measures are not a comprehensive guide as to the success of a major sporting event. The potential benefits of the Games are extensive, influencing:

- lifestyle;
- increased play, sports and physical activity;
- education training and transferable skills;
- increased sports practitioners;
- career opportunities;
- employment and income;
- environmental renewal;
- regeneration and improved infra-structure; and
- housing:
- social networks;
- enhanced or revitalized cultural values;
- coping skills;
- life changing experiences; and
- wellbeing.

Measuring or attributing such benefits to health are difficult, requiring an extended time period before benefits are manifest, and further compounded by population movements and behaviour.

(1) IOC Joint Symposium. 2002. IOC Olympic Studies Centre. Olympic Studies Centre. Autonomous University of Barcelona

Table 2.1 Legacy Literature Review Material

Title	Source	Date	Summary
International Symposium on Legacy of the Olympic Games, 1984-2000	Joint Symposium, IOC Olympic Studies Centre Olympic Studies Centre (Autonomous University of Barcelona), November 2002	14th – 16th November 2002	Legacy benefits of bidding and hosting the Olympic Games
International symposium on Olympic Villages. Hundred years of planning and shared experiences.	Joint Symposium, IOC Olympic Studies Centre Olympic Studies Centre (Autonomous University of Barcelona)	November 1996	Role of the Olympic Village to athletes and the long term needs of the city.
Manchester – One year on after the Games	Manchester City Council	23 July 2003	Summary of the positive impact of the Commonwealth Games one year on.
The Sporting Legacy	Manchester Commonwealth Games group	2003	Sporting benefits of hosting the Olympic Games in terms of venues and their ongoing use
Literature Review: The impact of major sporting events	UK Sport Manchester Institute for popular culture. Manchester Metropolitan University	June 2001	Literature review of major sporting events, focusing on sports participation and development, social and economic impacts, legacies, tourism and urban regeneration
Barcelona and Sydney: the hosts who got the most.	The Observer	8 December 2002	Cultural and economic benefits of hosting the Olympics
British Olympic Education Association Pack	British Olympic Foundation (online)	First published January 1996	Education materials about the Olympic movements and ideals
The Role of Sport in Regenerating Deprived Areas	The Scottish Executive Central Research Unit	2000	Review of the evidence base surrounding sport health and wider socio economic and community benefits
Health: the Fourth Pillar of the Olympic Movement	Scott D. Williams, M.D. New South Wales Department of Health. Centre for Disease Control and Prevention	Unpublished	Review of health system requirements to host the Olympic Games, and potential health legacies.

2.1.1 Employment and Income

The socio-economic benefits created pre, during and post major sporting events are well documented. During the Sydney Games, tourism (accounting for nearly 5 % of Australia's economy), rose to 11 % during 2000, generating an additional $US 320 million in foreign exchange earnings relative to the previous year.

There are, however, longer term benefits if purpose built stadiums can be used regularly to host other events, or if raising the profile and image of the city attracts more tourists. Barcelona managed to become a major tourist destination after it hosted the Olympics by improving its image through extensive environmental renewal and urban regeneration. Barcelona's airport handled 2.9 million passengers in 1991; by 2002 that figure had risen to 21 million. Tourism, which accounted for less than 2% of the city's pre-Olympic GDP, is now worth 12.5%, with the increase in hotel accommodation dictated by the Games generating 12,500 new jobs.

However, in the past, the Olympics have not always brought economic gain and, in the cases of both Munich (1972) and Montreal (1976), made losses(1). And as in the case of Australia, employment and income gains have proved difficult to maintain. The Australian Bureau of Statistics now sees tourism levelling off to just above the pre-2000 levels.

2.1.2 Education, Training and Transferable Skills

Major sporting events such as the Olympic Games have a profound impact on a range of education and training issues to host nations and globally. Each bid, and every Games, extends the knowledge base and interest in sports sciences, nutrition, training, health care, equipment and facilities design.

Education legacies often focus on the development of permanent sporting fixtures linked to academic areas of excellence, with ties to local schools utilising the facilities as part of the curriculum, developing the next generation of athletes, trainers and sports medicine practitioners. The Games education legacy extends beyond the provision, promotion and access to education facilities.

In preparation of the Games a number of roles and responsibilities require additional training of both staff and volunteers ranging from public relations through to project management as shown in *Table 2.2.*

(1) Brown. A, J. Massey. 2001. Literature Review: The Impact of Major Sporting Events. Manchester Institute of Popular Culture Manchester Metropolitan University.

Table 2.2 Olympic Games Job Opportunities

Volunteering Jobs	Direct Operational Jobs
Sports	Communications / promotion/ public relations/ copyrighters
Translation / interpretation services	Financial and accounting services
Environmental services	Graphic design
Administration	Human resources
Information Technology	International relations
Public relations	Logistics
Spectator services	Maintenance / building /licensing
Olympic family transportation	Secretarial support / office support
Communication	Security
Telecommunications	Sports / education / health services
Energy management	Technology / information systems/ telecommunications
Medical /health services	Tourism/ hospitality/ catering
Hospitality / tourism	Translating / interpreting
International relations	Works / transportation /environment
Press operations	Other

The Games therefore provide a learning experience with a wide range of transferable skills and internationally accepted work experience, influencing and leading to both higher education and career options.

2.1.3 Social Networks

The very nature of the Olympic Games brings together global communities, thereby improving social networks between nations, participants, visitors and host communities. During the Sydney Olympics community participation and reliance on a high level of voluntary participation played a significant role in hosting a successful, memorable Olympic event, while aiding in the removal of social and cultural barriers.

The social legacy of the Games is that, if encouraged, the networks created will endure and provide community support well after the Games, thereby reducing and removing social barriers and improving community health.

Potential social impacts of the Games are less clear, but could include:

- resentment at the local level if not consulted, informed or involved, which could lead to heightened sensitivity to annoyance and stress from disruption during construction and hosting of the event;
- a potential risk of Olympic facilities becoming a burden on small communities unable to maintain them physically or financially without external support; and
- a potential risk of 'gentrification' as the area becomes more appealing.

2.1.4 Culture, Lifestyle and Behaviour

Major sporting events such as the Olympic Games provide a powerful platform to positively influence lifestyle, behaviour and culture. The IOC has a number of programmes promoting international physical fitness through sports for all, better nutrition, anti doping / zero drugs policy and no smoking venues.

The strength of such messages and their ability to influence and secure healthier living during the Olympics is dependent upon the action taken by host nations to promote and nurture such benefit, and also to take a more responsible attitude to international sponsorship. In the past, opportunities to promote healthier lifestyles have been missed, while potentially inappropriate sponsorship promoting potentially unhealthy products has been subject to criticism.

The effect of the Olympics on culture is dependent on the action taken by host nations, and may (as in the case of Sydney) result in rekindling of cultural heritage; reconciliation of communities, reduction and removal of social inequality.

The Olympic Games can therefore offer a stimulus to enthuse and promote healthy living, revive cultural heritage and improve cultural divides. However, the level of health benefits will be dependent upon the level of action taken by host nations and communities to take up such opportunities and maximise legacies.

2.1.5 Regeneration and Infrastructure

Major sporting events venues are normally planned for and associated with areas requiring regeneration, as hosting such event can increase infrastructure and speed up urban regeneration.

Barcelona used the Games to implement an imaginative, wide-ranging urban renewal plan that transformed its decaying industrial fabric into a seaside city for tourists. Barcelona estimated it had built 50 years' worth of infrastructure over eight years, investing $8billion in a ring road, a new airport and telecommunications system and an improved sewage system. The run-down harbour and port area were transformed by a $2.4billion waterfront development, with the two tallest towers in Spain, one a luxurious hotel, the other an office building. The regeneration of the waterfront area has not only been beneficial in attracting tourists but also improved the life of the local residents.

In Atlanta, infrastructure improvements allowed for inward investment even in the poorest areas. The desire to make the Olympics a success created jobs and lead to road improvements and a better standard of living.

2.1.6 *Play, Sports and Physical Activity*

One of the greatest global legacies of the Games, is the internationalisation of competitive sport. As shown in *Table 2.3* the 20th century witnessed the globalisation of sporting excellence. Whereas fewer than 20 countries competed in the 1900 Olympic Games, 136 countries were represented at the 2004 Olympic Games in Athens.

Table 2.3 ***National Participation in the Olympic Games***

Year	Country	Host	Year	Country	Host
1896	13	Athens	1952	69	Helsinki
1900	19	Paris	1956	57	Melbourne
1904	12	St. Louis	1960	83	Rome
1906	20	Athens ("Unofficial")	1964	93	Tokyo
1908	22	London	1968	112	Mexico City
1912	28	Stocholm	1972	122	Munich
1916	0	Not held	1976	88	Montreal
1920	29	Antwerp	1980	80	Moscow
1924	44	Paris	1984	140	Los Angeles
1932	37	Los Angeles	1988	159	Seoul
1936	49	Berlin	1992	169	Barcelona
1940	0	Not held	1996	197	Atlanta
1944	0	Not held	2000	199	Sydney
1948	59	London	2004	136	Athens

Source: http://www.olympic.org/uk/games/index_uk.asp
http://geography.about.com/library/weekly/aa081800a.htm

Olympic participants are selected from a larger population of athletes aspiring to be the best they can be. In theory the Olympics may be responsible for widespread health improvements, significantly reducing risk from cardio vascular and respiratory disease, contributing to improved physical and mental health. There is, however, currently little research or evidence that attributes increased sports uptake and physical activity to the Olympics or any other major sporting event (1). Longitudinal analyses of the rates of participation before and after major sporting events have not been carried out to see if there is a direct correlation.

Following the Sydney Olympics there was no significant sustained increase in interest or participation in sports, despite the fact that during the Games there was anecdotal evidence of an increase in Olympic sports interest. The only change that could be attributed to the Olympics was through increased television viewing figures of those sports in which Australia had succeeded.

2.2 *SUMMARY*

A common theme raised in all the literature reviewed is the lack of evidence supporting the health benefits of major sporting events, and the realisation that longitudinal assessment is required to assess the impact of the Games on host nations and internationally.

(1) Noakes TD. 2000 Improving performance and promoting health by sports participation . Orthopade. 2000 Nov;29(11):972-80. German

From the material reviewed, it appears that the key health benefit of hosting a major sporting event is in the ability to stimulate and secure regeneration, delivering rapid improvements to infrastructure, the quality of the environment and generation of sustainable education and employment opportunities.

There is no doubt that the Olympic Games improve short term socio-economic gains at a local and national level(1). While long term local and national level benefits as experienced in the Barcelona Olympics are dependent on:

- combined Olympic event and legacy master plans to ensure the short term needs of the event do not compromise the long term requirements of host communities;
- early consultation with potential legacy investors to secure rapid economic benefits and identify training programmes to support local and regional employment opportunities;
- feasibility studies to determine the requirement, use and future demand of Olympic sports facilities, preventing future burden on host communities;
- post event support to ensure the suitability and sustainability of facilities and socio economic legacies;
- development and regeneration to support inward investment and sustained benefits;
- publicity and media to showcase the Olympic event and area, attracting visits, inward investment and additional socio economic opportunities;
- the level of socio-economic deprivation and opportunities to be made by host communities; and
- the influence of world events.

Potential impacts to health include risk from communicable disease, exposure to increased pollution and risk from construction activities and traffic. However, such impacts have been shown to be temporary, of a low risk and low likelihood of occurrence.

The review indicates that the most significant impact to health relates to the opportunity cost of the event, in that direct investment in regeneration may have more of a pronounced improvement on health. A lack of legacy planning and uses for sports facilities may result in underused or unused facilities, haemorrhaging local financial resources.

In the past, either expensive temporary facilities were built, or no thought was given as to how to maintain expensive facilities, as with the stadium built for the Kuala Lumpur Commonwealth Games, which now remains empty.

(1) Chalkt, B, Essex. S. 1999. Urban Development through Housing International Events: A History of the Olympic Games, Planning Perspectives. 14.369-394.

3 COMMUNITY PROFILE

3.1 INTRODUCTION

The community profile has been developed through the application of national statistics such as the National Census 2001, the Indices of Multiple Deprivation 2004 and key health statistics available through the Public Health Observatory mapped out to visually represent London wide community susceptibilities and spatial sensitivity as a basis for community level comparisons.

The community profile is supplemented by regional and London Borough information including local and regional health, education and lifestyles surveys shown in *Table 3.1* below.

Table 3.1 Community Profile Resources

Title	Source	Date
Health in London: Review of the London Health Strategy high level indicators	London Health Commission	April 2004
The Newham Household Panel Survey: A Health Profile of Newham	London Borough of Newham	2003
Tower Hamlets Public Health Profile	Tower Hamlets Primary Care Trust	2002
Health Inequalities in Waltham Forest: Waltham Forest Public Health Report	Waltham Forest Primary Care Trust	2003/2004
Health Inequalities in Newham: Annual public health report	Newham Primary Care Trust	2004
City and Hackney health improvement and modernisation programme: the annual report of the director of public health- part one 2003-2006	City and Hackney Teaching Primary Care Trust	2003
Hackney Sports and physical activity strategy 2004-2009		2004

Although the physical footprint of the proposed Games is concentrated within the four London Boroughs of Newham, Waltham Forest, Tower Hamlets and Hackney the area of influence is extensive with both direct and indirect health benefits extending throughout and beyond London.

The following section offers a community profile of the proposed Games exploring activities that may cause or influence health outcomes at a local, London and regional level.

3.2 LOCAL LEVEL

The physical footprint for the proposed Games shown in *Figure 3.1*, resides within the lower Lea Valley covering one of London's key Opportunity Areas for regeneration within the London Boroughs of Hackney, Newham, Tower Hamlets and Waltham Forest. Locating the Olympic site within this area was in part influenced by the need for a compact Olympic precinct, but also to achieve the objective for regeneration in the valley and the legacy that the Games would leave to relatively deprived areas and communities.

3.2.1 *Local Authority demographics*

The London boroughs of Hackney, Newham and Tower Hamlets have shown a significant growth in resident populations between the 1991 census and the 2001 mid year estimates. The largest growth is noted within Tower Hamlets; in contrast Waltham Forest has one of the lowest population growths in London.

Table 3.2 Population Growth 1991-2001

Local Authority	Resident Population 1991	Resident Population 2001	Percentage change
Hackney	184,956	207,246	+12
Newham	216,251	249,411	+15
Tower Hamlets	166,326	201,090	+21
Waltham Forest	215,893	222,015	+3

Source Office of National Statistics 2001 and 1991 Census

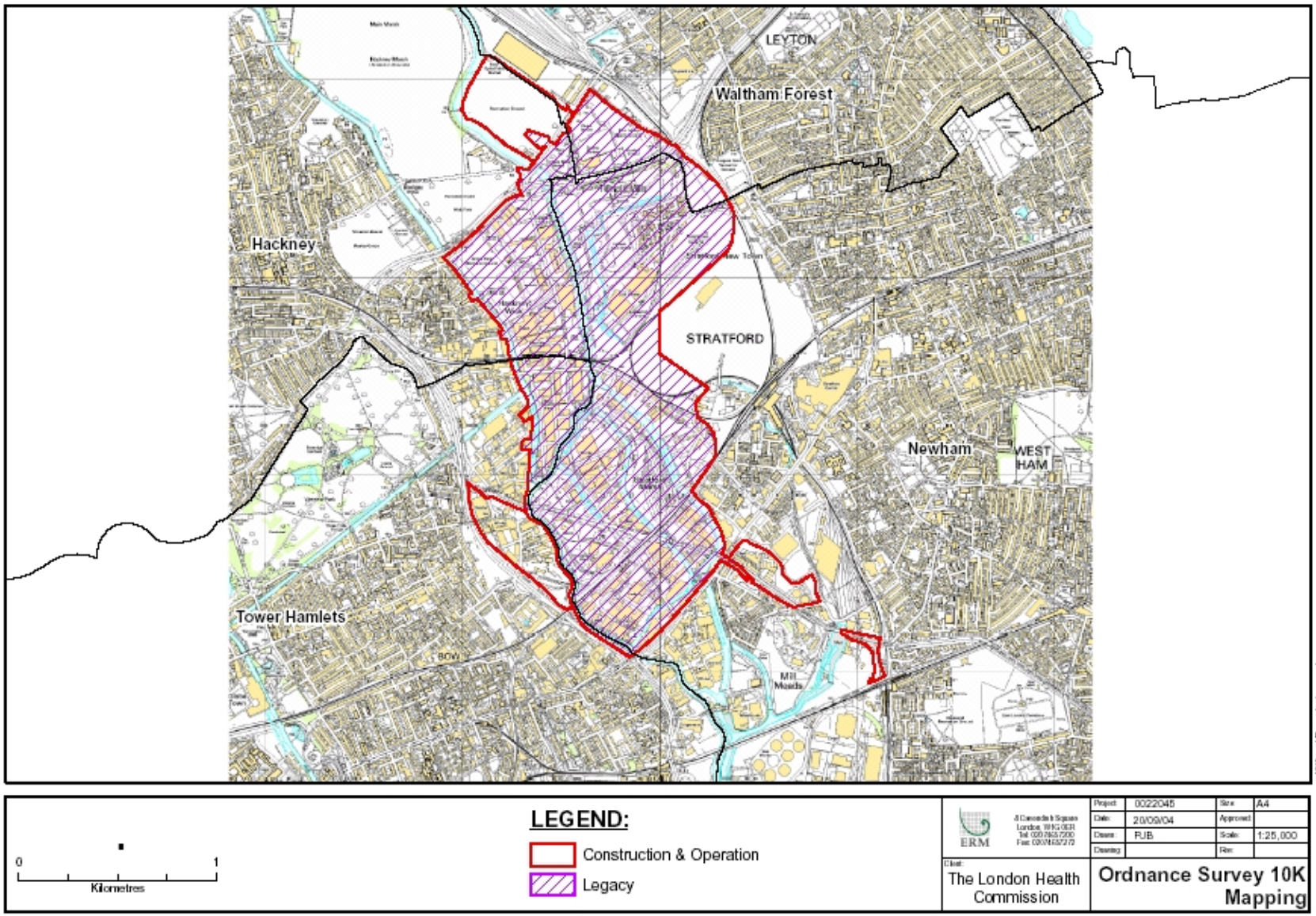
The age distribution between the London Boroughs is indicative of a young population, with all age groups up to the age of 30, at or above the national average. Following the age of 30 there is a similar correlation between the boroughs with a significant decline in all age categories below the national average.

Table 3.3 Age Structure as a Borough Percentage

	Hackney	Newham	Waltham Forest	Tower Hamlets	England and Wales
Under 16	23.4	26.2	21.5	22.9	20.2
16 to 19	5	6.2	4.9	5.5	4.9
20 to 29	18	17.7	17.1	24.1	12.6
30 to 59	41	37.6	41	34.9	41.5
60 to 74	8.4	8.2	9.8	8.6	13.3
75 and over	4.2	4	5.7	4	7.6
Average age	32.9	31.8	35.1	31.8	38.6

Source: 2001 Census. Office of National Statistics

Figure 3.1 Olympic Construction and Regeneration Footprint



The age structure of a population indicates both the current and strategic requirements of an area, where a younger population may require additional access to schools, safe recreational play facilities, development of future employment opportunities and a focus on removing road traffic away from this known sensitive group. Populations made up of young adults require a focus on affordable housing, training, employment opportunities, support networks, access to recreational and social facilities, while ageing populations require more focus on health care, support, accessibility and social networks.

The application of age structure to ascertain community susceptibilities and local requirements is useful when developing an overall profile, but must be considered in regard to activities that will affect the current age structure, and activities that may disproportionately affect future population age structures. This is due to the fact that such data are a snapshot of a population subject to constant flux, affected by progression, migration and development. Project activities therefore need to be placed into an immediate and long-term context.

Immediate concerns are those that may affect specific age groups from the outset. In this instance the higher than national average of children and young adults indicates an increased susceptibility to activities that may reduce access to schools, safe recreational play facilities, future employment opportunities and risk from increase road traffic levels.

Long-term outcomes relate to potential activities that may discriminate against certain age groups. In this instance, long-term outcomes relate to the benefits of the enhanced environment, legacy development and changes to lifestyle and behaviour with equal accessibility and opportunity to all.

3.2.2 Ethnic Composition

As shown in *Table 3.4* there is a diverse ethnic composition in all the targeted London Boroughs. All ethnic groups are above the national average, with the exception of Indian residents in Tower Hamlets and Pakistani residents in Hackney.

Table 3.4 Ethnic Composition

Percentage of residents population in ethnic groups	Hackney	Newham	Waltham Forest	Tower Hamlets	England
White	59.4	39.4	64.5	51.4	90.9
Mixed	4.2	3.4	3.6	2.5	1.3
Asian of Asian British	8.6	32.5	14.8	36.6	4.6
Indian	3.8	12.1	3.5	1.5	2.1
Pakistani	1.1	8.5	7.9	0.8	1.4
Bangladeshi	2.9	8.58.8	1	33.4	0.6
Other Asian	0.8	8.83.1	2.3	0.9	0.5
Black or Black British	24.7	21.6	15.4	6.5	2.1
Caribbean	10.3	7.4	8.2	2.7	1.1
African	12	13.1	5.8	3.4	1
Other black	2.4	1.1	1.5	0.5	0.2
Chinese or other ethnic group	3.2	3.1	1.8	3	0.9

Source: 2001 Census. Office of National Statistics

Epidemiological evidence suggests that minority groups often experience fewer socio-economic and physical health benefits; this may be a result of discrimination, levels of education or even language barriers preventing or reducing access to employment, health care and social support networks, thereby leading to higher levels of poor physical and mental health (1). In this instance, the majority of ethnicities are above national averages although this does not reduce their status as sensitive receptors.

Although the concept of a minority group normally relates to ethnicity, it may also reflect religion. This can provide a social focus and the subsequent development of community. As can be seen in *Table 3.5* there is an equally diverse religious make up, with a lower then national average for Christian in all of the target London boroughs and a lower then national average of Hindu residents in Hackney.

(1) Samje C (1995) Heath, Race and Ethnicity: Making Sense of the Evidence. King's Fund Institute: London.

Table 3.5 Religion

	Hackney	Newham	Waltham Forest	Tower Hamlets	England and Wales
Christian	46.6	46.8	56.8	38.6	71.8
Buddhist	1.1	0.6	0.4	1	0.3
Hindu	0.8	6.9	1.8	0.8	1.1
Jewish	5.3	0.2	0.7	0.9	0.5
Muslim	13.8	24.3	15.1	36.4	3
Sikh	0.8	2.8	0.6	0.4	0.6
Other religions	0.6	0.3	0.4	0.3	0.3
No religion	19	9	15.4	14.2	14.8
Religion not stated	12	9	8.9	7.4	7.7

Source: 2001 Census. Office of National Statistics

3.2.3 Education

The quality of education available and the level of attainment achieved by an individual is an important determinant of health and influences almost every aspect of health including lifestyle, coping skills, future employment prospects and subsequent income, quality of housing and healthcare. Improving the quality and level of education is therefore a national imperative.

In this instance, as shown in *Table 3.6* the education profile indicates that all the target London boroughs have higher than average levels of full time students and a higher education attainment than for the national resident population average.

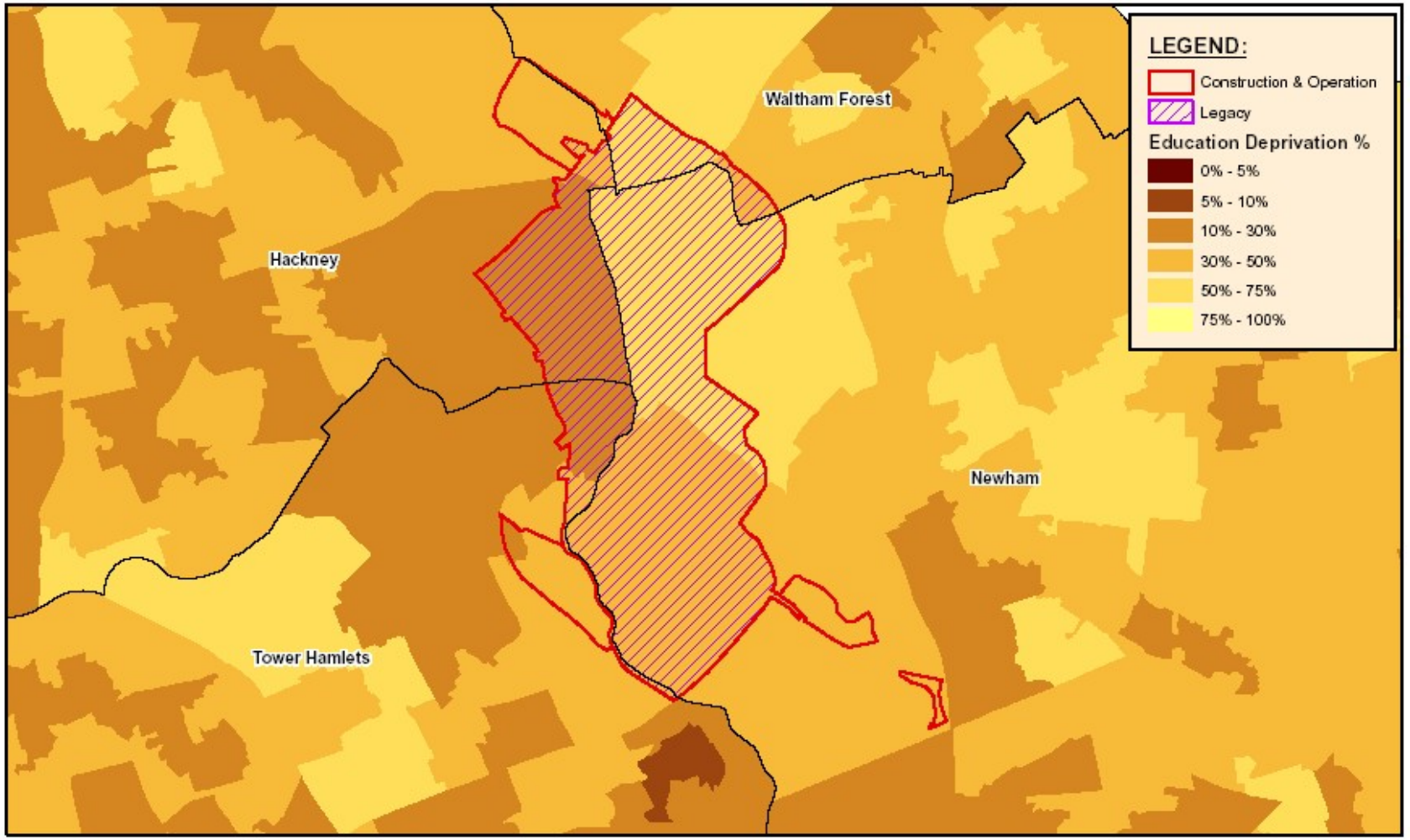
Table 3.6 Students and Qualifications

	Hackney	Newham	Waltham Forest	Tower Hamlets	England & Wales
Full time students aged 16-74	17,147	21,861	13,832	16,850	2,648,922
Percentage of total resident population	8.5	9	6.3	8.6	5.1
Total number aged 16-74	4,436	6,595	4,366	4,361	1,014,284
Total number aged 18-74	12,711	15,266	9,466	12,489	1,634,708
Percentage that had no qualifications	29	33.6	28.5	34.3	29.1
Percentage qualified to degree level or higher	32.9	21.3	24	29.6	19.8

Source: 2001 Census, Office of National Statistics

The percentage of residents with no qualifications within Newham and Tower Hamlets is above the national average. This trend is further reflected through the education domain of the 2004 Indices of Multiple Deprivation (IMD). As shown in *Figure 3.2*, the Games footprint will extend on to areas of Hackney and Tower Hamlets indicated to include Super Output Areas amongst the 10-30 % most educationally deprived in England.

Figure 3.2 Education Deprivation



3.2.4 Income and Employment

Income and employment influence a range of factors including access to housing, education, diet, lifestyle, coping skills, services and social networks. These in turn are key determinants of a range of physical and mental health impacts and ultimately health and well-being.

Unemployment and poverty are strongly associated with illness and premature death. This has been demonstrated notably by the Black Report(1) (Townsend 1988) and more recently by the Acheson Report(2).

Both these reports conclude that the life circumstances experienced by the materially and socially deprived give rise to significantly greater levels of morbidity and mortality. Amongst some of these factors are poor housing, pollution, hazardous occupations, unemployment, lack of strong community and family networks, and the psycho-social stress caused by the multiple pressures of poverty and lack of self-worth, which have all been linked with poorer physical and mental health.

As shown in *Table 3.7,* there are similar economic trends between the boroughs, with all of the economic activity profiles less favourable than average.

Table 3.7 Economic Activity of Residents Aged 16-74

	Hackney	Newham	Waltham Forest	Tower Hamlets	England and Wales
Employed	51.4	47.7	58.9	49.1	60.6
Unemployed	6.9	6.7	4.9	6.6	3.4
Economically active full time students	3.5	4.3	3.2	3.4	2.6
Retired	7.5	7.8	9.4	7.7	13.6
Economically inactive students	9.2	9.4	6	8.9	4.7
Looking after home/family	7.9	10.4	7.6	10.3	6.5
Permanently sick or disabled	7	6.8	5	6.4	5.5
Economically inactive	6.5	7	4.8	7.6	3.1

Source: 2001 Census, ONS

(1) Report of the Working Group on Inequalities in Health, Sir Douglas Black, 1980.
(2) Independent Inquiry into Inequalities in Health, Sir Donald Acheson, 1998.

A more detailed breakdown of the unemployment figures, shown in *Table 3.8,* indicates a similar trend between the London boroughs with comparable long-term unemployment levels and residents collecting Job seekers allowance and child dependent job seekers allowance.

Table 3.8 Unemployment Breakdown

	Hackney	Newham	Waltham Forest	Tower Hamlets
Percentage of unemployed aged over 50	13	11	14	11
Percentage of never worked	17	21	13	14
Percentage of long term unemployed	33	31	33	33
Percentage of residents on Job seekers allowance total	26	33	28	40
Percentage of residents on job seekers on Child dependent Job seekers allowance	30	48	44	85

Source: Department for Work and Pensions, 2000
Census 2001

The only exception is that of Tower Hamlets indicating that of the 40 percentile of residents claiming job seekers allowance, there was almost twice as many residents claiming child dependence allowance then Hackney, Newham and Waltham Forest, indicative of the higher growth rate and age composition.

The employment and income domains of the 2004 IMD shown in *Figure 3.3* and *Figure 3.4* indicate a similar pattern of areas with involuntary unemployment and individuals reliant on income support. The figures show uniform level of employment deprivation ranked amongst the 10-30% most national deprived, with pockets of deprivation in Tower Hamlets, Hackney and Newham ranked within the top 5% most deprived.

The level of income deprivation based upon claimant counts and social support indicates a higher level of susceptibility within Tower Hamlets, Newham and Hackney, with areas amongst the top 5% nationally deprived sensitive to both health benefits and impacts.

Figure 3.3 Employment Deprivation

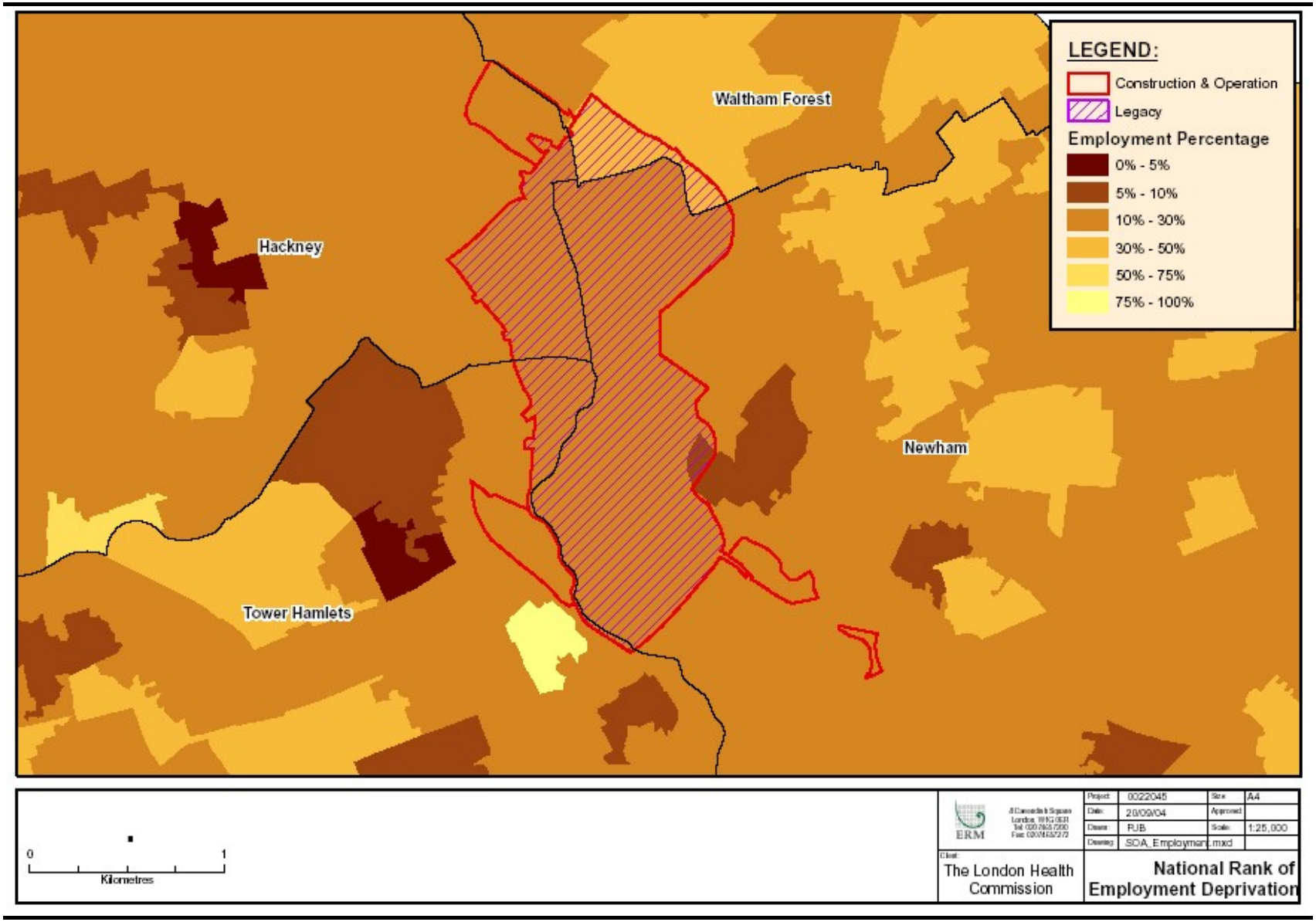
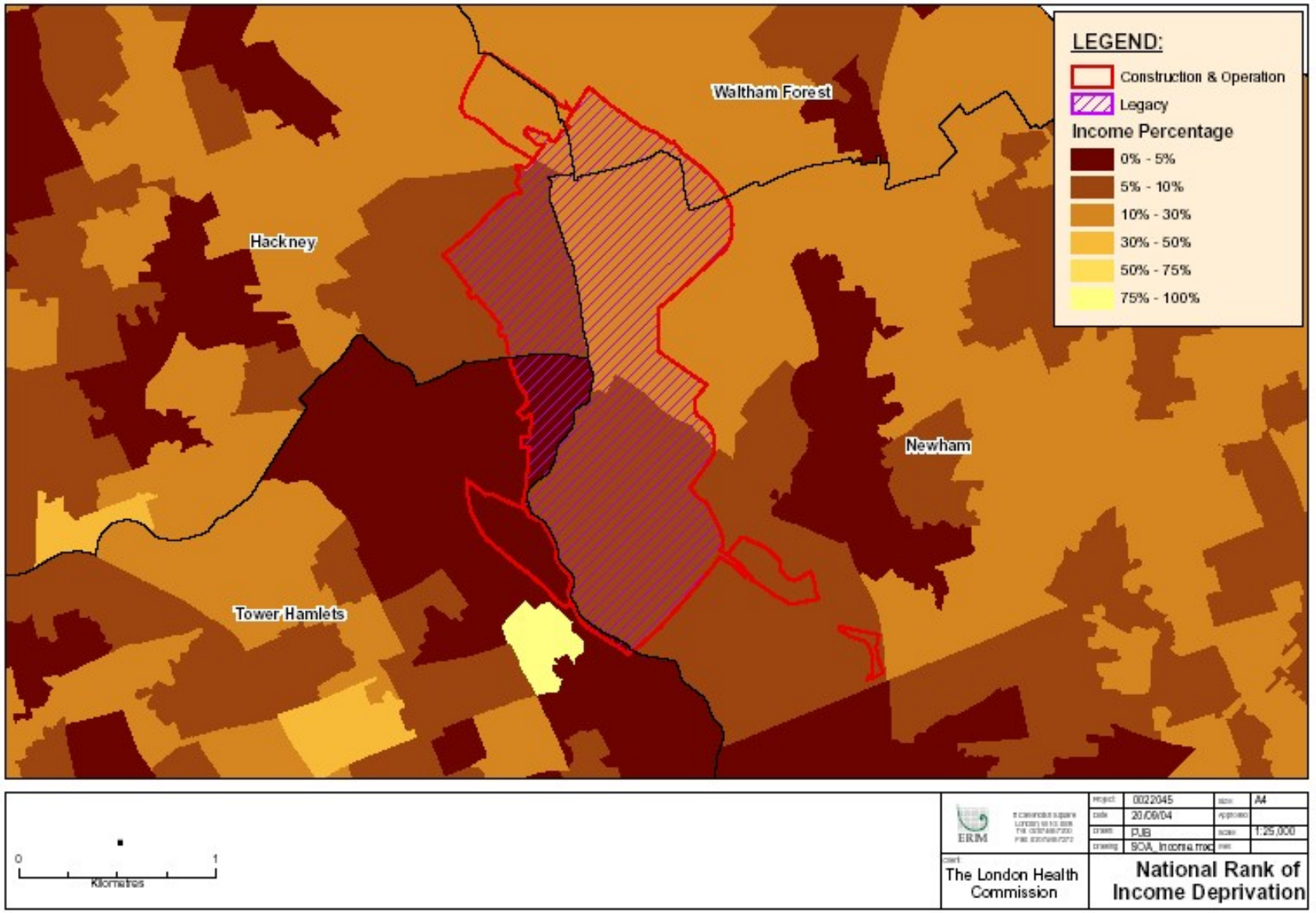


Figure 3.4 Income Deprivation



3.2.5 Housing

Housing is often an underrated determinant of health. It is not only required to provide shelter, security and a family base, but the quality of housing is also associated with economic, social, mental and physical well-being (1).

Health impacts associated with poor housing can include a range of physical illness brought on from poor shelter and subsequent exposure to cold, damp or pollutants (2). Communicable disease can be brought about through overcrowding, while stress related and mental illness can be brought about through a lack of affordable housing or high rent (3). As a result, deprived communities, children and the elderly (4) are particularly sensitive to health outcomes associated with poor housing.

Factors influencing housing and subsequent health outcomes therefore reflect the quality, distribution, overcrowding, affordability and ownership of homes. As indicated in *Table 3.9* the majority of housing within the target London boroughs has higher then national averages for one-person and lone parent households.

Housing in the area comprises a blend of residential properties ranging in age and style from remnant Victorian terraces dotted in and around contemporary housing estates and isolated high-rise tower blocks. All of the targeted London boroughs are indicated to constitute a lower than national average of owner occupation, and higher levels for all types of rental households. The quality of housing within the proposed Olympic footprint is relatively low, with all boroughs indicating a significant number of households without central heating, higher occupancy densities and a higher number of residencies with shared use of bathrooms and toilet facilities.

(1) Journal of Social Issues, Vol 59/3, 03.The Residential Context of Health. The European Network for Housing Research.
(2) Platt S., Martin C., Hunt S. and Lewis C. (1989). Damp housing, mould growth and symptomatic health state. British Medical Journal, 298:1673-8.
(3) Shaw M., Darling D., Gordon D. and Davey Smith G. (1999). The Widening Gap: Health Inequalities and Policy in Britain. Bristol: The Policy Press.
(4) Savage A. (1988). Warmth in Winter: Evaluation of an Information Pack for Elderly People. Cardiff: Cardiff University of Wales College of Medicine Research Team for the Care of the Elderly.

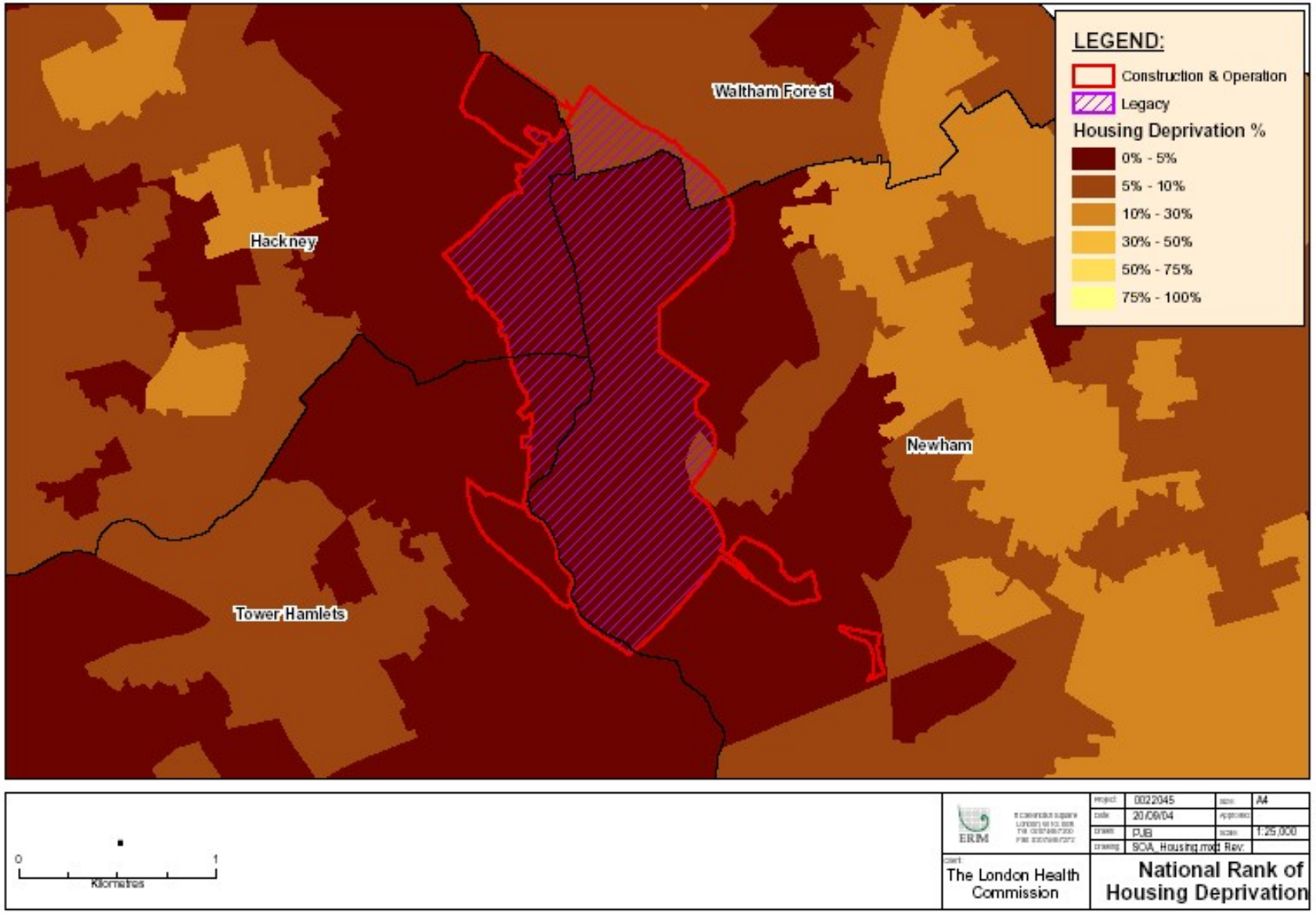
Table 3.9 Borough Level Housing Statistics (as a Percentage)

	Hackney	Newham	Waltham Forest	Tower Hamlets	England & Wales
One person households	40.4	34	33.1	38.9	30.0
Pensioners living alone	12	11	12.3	11.0	14.4
Other All Pensioner households	2.7	3.5	5.4	3.3	9.4
Contained dependent children	30	37.5	31.3	27.8	29.5
Lone parent households with dependent children	10	11.9	9.5	7.0	6.5
Owner occupied	32.1	43.6	58.9	29.0	68.9
Rented from Council	30.7	25.4	15.5	37.4	13.2
Rented from Housing Association or Registered Social Landlord	20.1	11	8.3	15.1	6.0
Private rented or lived rent free	17.2	19.9	17.2	18.5	11.9
Without central heating	9.6	9	12.3	5.1	8.5
Without sole use of bath, shower or toilet	1.8	1	1.1	0.6	0.5
Average household size (number)	2.3	2.6	2.4	2.5	2.4
Average number of rooms per household	4.1	4.4	4.7	4	5.3

Source: 2001 Census, ONS2.32.6

The 'barriers to housing domain' of the 2004 IMD shown in *Figure 3.5* offers both an indication as to the accessibility of key local services including road distance to GPs supermarkets , primary schools and post offices with wider barriers relating to over crowding, difficulty of access to owner occupation and local authority housing assistance applications. All of the target London boroughs are indicated to include areas amongst the 0-5% most nationally deprived.

Figure 3.5 Housing Deprivation



3.2.6 House Price

As noted, the affordability of housing will influence a range of health determinants, affecting levels of disposable income that may be spent on products amenities and social / recreational activities necessary for good health and well-being.

In this instance, as shown in *Table 3.11* and *Figure 3.6,* the London boroughs of Hackney and Tower Hamlets show a higher then Greater London average, while the average cost of housing in Newham and Waltham Forest are significantly lower.

The significant differences in price between relatively local areas are a measure of desirability but also potential inequality reflecting environmental quality, access to services amenities and employment.

3.2.7 Crime

As noted in *Table 3.10****Error! Reference source not found.****,* all recorded crime offences within the London boroughs targeted are consistently higher than the national averages.

Although the Games will not directly affect such incidents, it indicates the type of offences that may occur during construction and operation, and subsequent requirements to ensure the safety of workers, visitors and local communities.

Table 3.10 Notable Crime Offences

	Hackney Rate per 1,000 population	**Newham Rate per 1,000 population**	**Waltham Forest Rate per 1,000 population**	**Tower Hamlets Rate per 1,000 population**	**England and Wales Rate per 1,000 population**
Violence against the person	31.8	31.2	21.9	32.2	11.4
Sexual offences	1.9	1.4	1.1	2.1	0.7
Robbery	11.4	8.9	5.8	9.5	1.8
Burglary from a dwelling	15.7	7.8	8.1	10.2	7.6
Theft of a motor vehicle	15	16.3	9.3	13.3	6.4
Theft from a motor vehicle	25.7	22	12.5	23.6	11.9

Notable offences recorded by the police. April 2000 - March 2001.
Source: Home Office

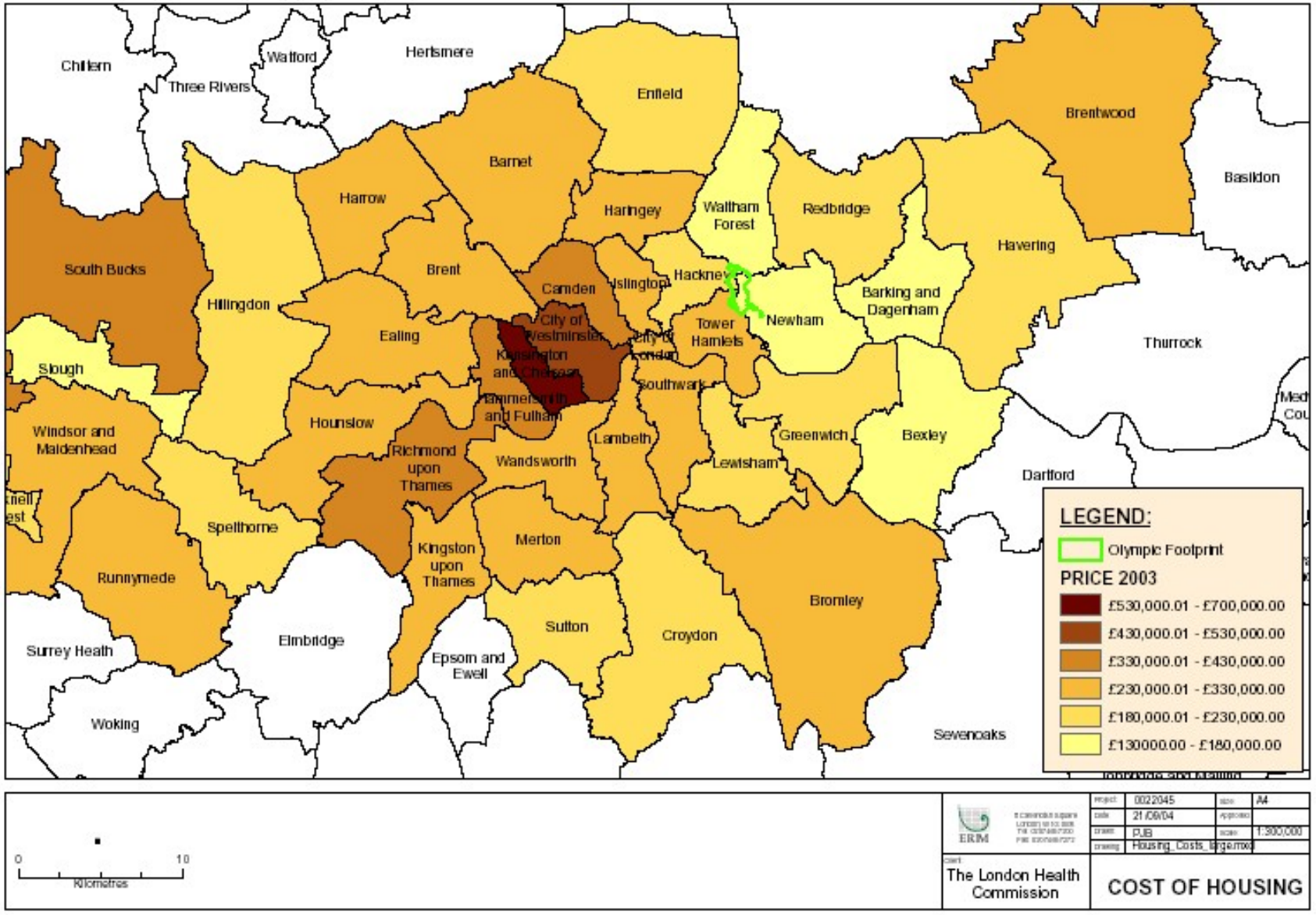
The sustainability of legacy activities will also be dependent on measures to reduce actual crime and to reduce perceptions of crime in the area.

Table 3.11 Average House Price

	Hackney		Newham		Waltham Forest		Tower Hamlets		Greater London	
	Average price £ (June 2004)	**Percentage of households living in this property type**	**Average price £ (June 2004)**	**Percentage of households living in this property type**	**Average price £ (June 2004)**	**Percentage of households living in this property type**	**Average price £ (June 2004)**	**Percentage of households living in this property type**	**Average price £ (June 2004)**	**Percentage of households living in this property type**
Detached	585,250	1.6	303,333	4.3	435,500	3.4	660,333	1.0	552,636	22.8
Semi detached	428,840	3.9	243,072	8.6	251,240	16.3	362,000	2.2	299,762	31.6
Terraced	293,357	18.8	190,121	45.5	205,192	41.6	298,700	13.0	279,683	26.0
Flat	207,225	75.6	163,046	41.5	142,431	38.7	261,241	83.6	233,082	19.2
All property types	234,419		182,713		188,066		266,516		270,453	

Sources: 2001 Census, ONS & The Land Registry, 2004

Figure 3.6 Cost of Housing in London



3.2.8 Health

The health of the London Boroughs within the Olympic footprint is generally poor and contains 5-10% of the most deprived areas of greater London. A high death rate from all causes in younger age bands, especially in the first five years, reflects poor health in a community. For all four of the boroughs death from all causes shown in *Table 3.12* accounts for a higher percentage of deaths then it does for London as a whole. Higher death rates in these sections are also a reflection of the socio-economic status of these communities.

Table 3.12 All Cause Mortality; age ranges expressed as a percentage of all cause mortality.

Area	Gender	Total All Ages	0-4	5-29	30-49	50-69	70+
Hackney	Male	713	2.7	3.5	10.5	27.5	55.8
	Female	645	1.4	1.7	5.27	18.3	73.3
Tower Hamlets	Male	750	2	3.3	10	25.7	58.9
	Female	606	1.3	1.8	4.29	19.8	72.8
Newham	Male	867	2.8	2.7	9.7	27.5	57.4
	Female	846	1.7	1.2	4.4	18.7	74.1
Waltham Forest	Male	913	2.2	2.5	5.0	23.8	66.5
	Female	1040	0.9	0.6	4.3	21.8	80.3
London	Male	28888	1.4	2.0	7.0	24.8	64.8
	Female	30826	0.8	0.9	4.0	14.8	79.5

Source: Department of National Statistics

As expected, death rates from all causes increase across age bands. This is true for all the boroughs, although the lower age bands account for higher percentages of the deaths from all causes than those in all of London as can be seen in Newham males. Death rates within Newham between 1993 and 2001 have been falling at about the same rate as those for London; however, death rates in this period were significantly higher in Newham than in London as a whole. In 2001 the age standardised death rates per 100,000 were over 800 whilst London's was under 700(1).

Coronary heart disease accounts for about 20% of all deaths and is a significant burden of ill health within the population. However, the majority of cases are potentially preventable. CHD tends to affect mostly males in the most deprived groups. The most deprived groups tend to take less exercise and smoke and drink more then those with a higher socio-economic status. This is shown in the breakdown of deaths from coronary heart disease within the Newham area, where unskilled workers have the highest standardised mortality ratio (SMR) at 182 while professionals in the area have an SMR of 63.

Deaths from CHD under 75 years are a quality of life indicator. The key risk factors for both ischaemic heart disease and myocardial infarction are cholesterol, diet and exercise, smoking, alcohol and stress. Individuals who

(1) Source: Compendium of clinical and health indicators, 2002.

have ongoing heart disease also benefit from improved diet and increased exercise and less stress.

Table 3.13 ***Mortality from Ischaemic Heart Disease; age bands are expressed as a percentage of all ages***

Area	Gender	All Ages	0-39	40-54	55-64	65-74	75+
Hackney	Male	156	0.6	9.6	17.3	32.1	41.7
	Female	87	0	5.0	11.5	17.2	66.7
Tower Hamlets	Male	174	1.7	5.7	18.9	27.6	46.0
	Female	91	0	2.2	5.5	18.7	73.6
Newham	Male	222	2.3	5.0	22.1	29.3	41.4
	Female	164	0	1.8	6.1	20.7	71.3
Waltham Forest	Male	226	0.4	5.3	12.8	23	58.4
	Female	215	0	1.9	7.0	12.1	79
London	Male	6341	0.68	6.8	14.1	27.6	50.7
	Female	4991	0.2	2.1	5.1	15.9	76.7

Source: Department of National Statistics

As shown in *Table 3.13,* the percentage of deaths attributable to ischaemic heart disease for 55-64 in London is 14.1 % of the total deaths in the city. However for all of the boroughs these percentages are generally higher in the younger age bands. This suggests that men in the boroughs are dying at a younger age. This trend is particularly noticeable in Hackney in the age ranges; 40-54, 55-64 and the 65-74. Death from heart disease does not reflect the full burden on health.

Myocardial infarcation has many of the same lifestyle risk factors as ischaemic heart disease. Further important risk factors are diabetes and hypertension, it should be noted that risk factors for hypertension are the same as for CVD.

Table 3.14 ***Mortality from Myocardial Infarction; age bands are expressed as a percentage of all ages***

Area	Gender	All Ages	0-39	40-54	55-64	65-74	75+
Hackney	Male	68	0	10.3	13.2	28.0	48.5
	Female	47	0	2.1	8.5	19.1	70.2
Tower Hamlets	Male	73	1.4	6.8	19.2	24.7	48.0
	Female	43	0	4.7	2.3	21.0	72.1
Newham	Male	80	2.5	8.75	26.3	25	37.5
	Female	47	0	4.3	6.4	19.1	70.2
Waltham Forest	Male	84	1.2	2.4	16.7	27.4	52.4
	Female	84	0	3.6	6.0	13.1	77.4
London	Male	2615	0.6	6.9	13.8	28.2	50.4
	Female	2070	0.3	2.4	5.1	17.1	75.1

Source: Department of National Statistics

Death from myocardial infarction has broadly similar distributions for London as a whole and across the boroughs, although it can be seen that the rates are higher in both Hackney and Newham in the 40-54 age band (*Table 3.14*). As shown in *Table 3.15* the age standardised admission rates are higher in the boroughs than in London as a whole. Tower Hamlets has a particularly high rate compared to the London rate. These levels reflect the health burden of all circulatory diseases involving the blood and heart.

Table 3.15 Standardised Admission Ratio for Circulatory Disease Admissions to Hospital 2002/03, all ages

Area	Observed	Expected	ASR	LL	UL	Significant difference
Hackney	2654	2400	111	106	115	high
Tower Hamlets	3170	2229	142	137	147	high
Newham	3079	2771	111	107	115	high
Waltham Forest	3211	3001	107	103	111	High
London	101192	102901	98	98	99	High

Source: London Health Observatory

Diabetes is increasing in prevalence within the UK and it is predicted that in the next ten years the number of people suffering from diabetes will double. Those who are over weight and unfit have a greater risk of developing diabetes, over 80 per cent of people with Type 2 diabetes are overweight. There are other risk factors such as ethnic group, family history and age that cannot be avoided. Symptoms of diabetes can also be helped by regular exercise and weight loss.

Table 3.16 Estimated prevalence of Type I and Type II Diabetes

Area	Person (%)	Male (%)	Female (%)	30-59 (%)	60+ (%)
Hackney	4.02	3.32	4.66	4.16	17.08
Newham	4.47	4.12	4.82	5.49	18
Tower Hamlets	4.04	3.84	4.25	4.45	17.83
Waltham Forest	4.37	3.66	5.04	4.27	15.79
London	4.37	3.72	4.98	4.02	15.49

Source: YPHO Database prevalence model

The estimated prevalence of diabetes in the targeted boroughs exhibit similar trends (*Table 3.16*). They are also similar to the London trends. Newham has higher rates then the average in four out of the five groups (only women have a lower level) particularly in the over 60's group who tend to be the most inactive and often have poorer diets.

Life expectancy between the targeted London Boroughs exhibits similar trends. The average life expectancy in the UK is 76 years for men and 80.6 years for women. London as a whole has very similar rates with 80.7 for

women and 75.7 for men [1]. The average life expectancy in all of the boroughs is lower then this, reflecting an important health inequality.

Survival from cancer is better in areas that are affluent compared to those that are deprived; for breast cancer the difference in percentage points is 8%.[2] As shown in *Table 3.17*, Tower Hamlets is ranked as the worst London Borough for mortality from cancer, and the 4th worst local authority within England. There are nearly 400 local authorities within England; therefore none of the boroughs score highly in this regard.

Table 3.17 ***Comparison with Corresponding London Boroughs on Cancer and Life Expectancy During 2000-2002***

Local Authority	London Rank of Age Standardised Mortality rates for Cancer (1995-7)	England Rank of Age Standardised Mortality rates for Cancer (1995-7)	Life expectancy in years (1999-2001)
Hackney	9	56	74.1
Newham	3	28	73.3
Waltham Forest	24	180	74.3
Tower Hamlets	1	4	72.7

Source: London Health observatory health forecast

Malignant neoplasms include all forms of cancerous growths such as breast, skin and throat cancers. The distributions of deaths from malignant neoplasms follow similar trends across the boroughs and London as a whole (*Table 3.18*). The chance of surviving cancer differs by the affluence or poverty of the area where a person lives[3].

Table 3.18 ***Mortality from Malignant Neoplasms; age bands are expressed as a percentage of all ages.***

Region	Gender	All ages	0-25	25-40	40-55	55-70	70+
Hackney	Male	165	2.4	0	7.9	34.5	55.2
	Female	152	0.7	2.0	11.8	23.0	62.5
Tower Hamlets	Male	194	0	3.6	8.2	29.4	58.8
	Female	169	0	1.2	10.1	29.6	59.2
Newham	Male	193	1.0	3.1	10.4	30.1	55.4
	Female	177	0	1.7	11.3	28.8	58.2
Waltham Forest	Male	221	0.5	2.3	9.5	28.5	59.3
	Female	231	0.4	2.2	10.8	25.5	61.0
London	Male	7336	0.5	1.7	7.8	27.9	62.1
	Female	7165	0.4	2.1	10.1	24.4	62.9

Source: Department of National Statistics

(1) Source: London Health Observatory: 2000-2002 data

(2) Source: ONS (age standardised) from the Newham Annual Public Health Report.

(3) Newham Annual Public Health Report 2004

The 2001 census offers the inclusion of self-perceived health, although subjective, and normally an indication to general health, rather then recorded health events, is a useful tool in obtaining local community perceptions of health. In this instance, as indicated in *Table 3.19,* all the targeted London Boroughs indicate good and fair health to be around the national average, while poor health is indicated to be marginally higher than the national average in Hackney, Newham and Tower Hamlets.

Table 3.19 Health and Provision of Care

	Hackney percentage of residents	Newham percentage of residents	Waltham Forest percentage of residents	Tower Hamlets percentage of residents	England and Wales percentage of residents
Good	68.4	68	68.6	67.9	68.6
Fairly Good	21	21.9	22.4	21.8	22.2
Not Good	10.6	10.1	9	10.3	9.2
Had a long term illness	18.1	17.3	16.5	17.2	18.2

Source: 2001 Census. Office of National Statistics

There are two main health benefits systems that are paid to people needing help with personal care, the Disability Living Allowance (DLL) and the Attendance Allowance (AA). The Disability Living Allowance is a benefit paid to people under 65, who are disabled, and need help with personal care, and/or getting around, while the Attendance Allowance is paid to people over the age of 65, who are so severely disabled, physically or mentally, that they need supervision or a great deal of help with personal care. Both are an indication of poor health and sensitive groups.

As noted in *Table 3.20* all the London boroughs targeted indicate a low percentage of the total population claiming DLL or AA health benefits.

Table 3.20 Provision of Health Benefits

	Hackney	Newham	Waltham Forest	Tower Hamlets
Total percentage of Resident on DLL in August 2000	7,595	10,155	7,215	3.6
Total percentage of Resident on AA in May 2000	3,500	4,240	4,425	1.6

Source: Department for Work and Pensions, 2000. Census 2001

As noted above, Tower Hamlets and the City of London indicate a significant proportion of the community aged 60 and above, that require supervision or a great deal of help with personal care.

This correlates with the health domain of the 2004 IMD that indicates areas with relatively high rates of morbidity, mortality and impaired quality of

living. As shown in *Figure 3.7,* Tower Hamlets, Newham and Greenwich include areas amongst the highest levels of health deprivation in England.

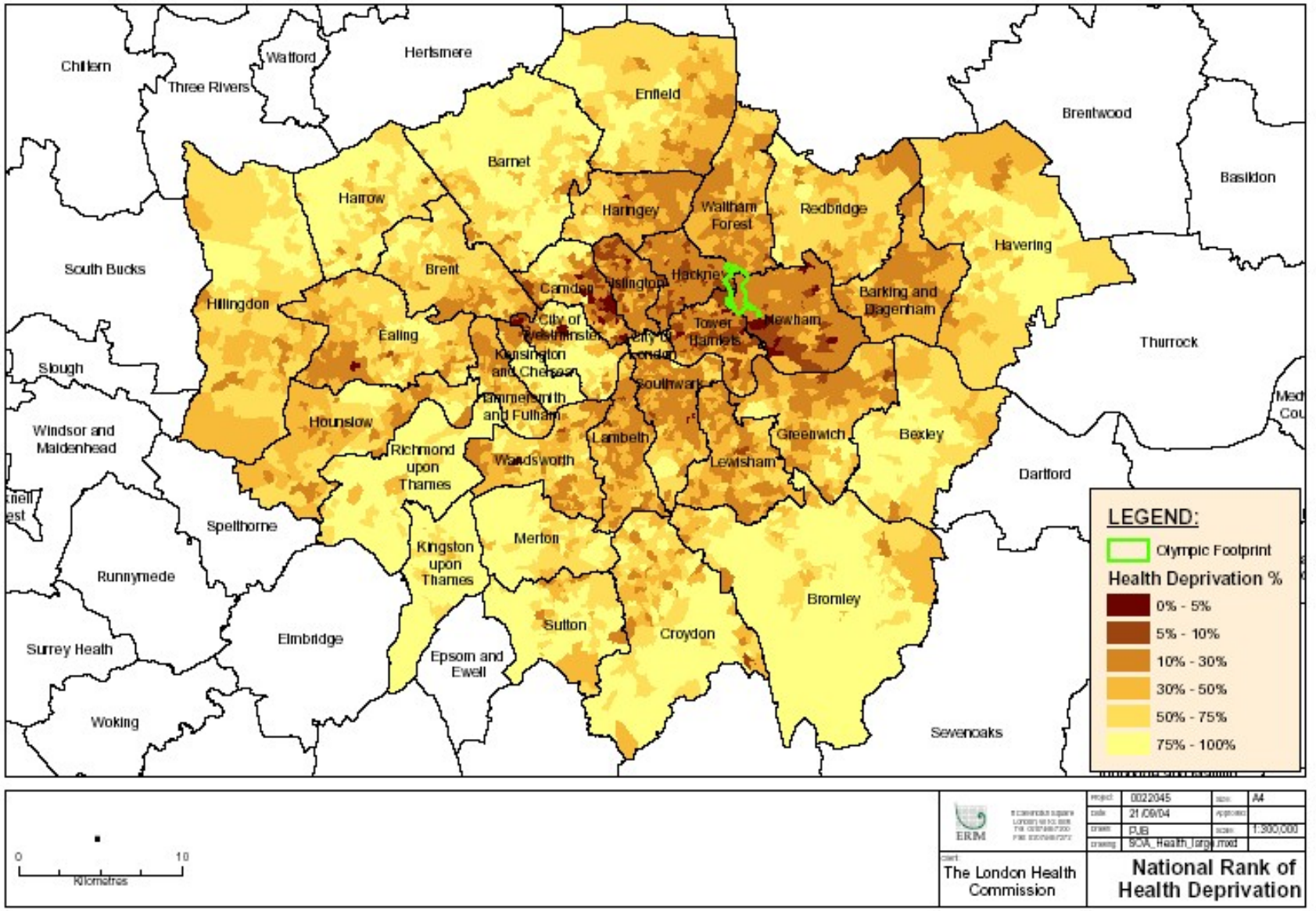
Key lifestyle risks factors for poor health are eating and physical activity that will impact on weight and smoking. The following data is drawn from the Newham annual Public Health Report 2004. Newham is the key target area as much of the Olympic footprint lies within this area.

In Newham 43% of young children achieve the recommended consumption of five or more portions of fruit and vegetable each day. However, 3% of young people do not consume any fruit or vegetables. The majority of young people also exercise regularly with 24% exercising daily. The numbers who do little or no exercise increase between years seven and nine, this increase is more marked in boys then girls.

The proportion of young people in Newham who are overweight or obese is 38% this is higher then the national average which is 12%. A slightly higher proportion of girls then boys are overweight. The proportion of obese adults in London is about 14% this is lower then the level in inner London which is 16%. This survey was carried out from 1994-1996. Since this time the number of people who are markedly over weight (BMI> 30) has increased.

The proportion of male adults who smoke is about 30% which is higher then the national average and for women the proportion is about 20%, lower then the national average. White, Pakistani and Bangladeshi men have the highest smoking rates in Newham, for women it is Whites and Black Caribbeans that have the highest rates.

Figure 3.7 Health Deprivation



3.3 *ENVIRONMENT*

The environment, as a health determinant, has an enormous impact on human health, determining level and type of exposure to harmful substances contributing to environmental health impacts, the availability and quality of open and green space encouraging healthier lifestyles and behaviour contributing to good health and well-being and wider less tangible implications associated with the perception of environment, linked to fear of crime, stress and mental health.

The master plan section of the Lower Lea valley is characterised by a high degree of urbanisation, with large areas of open and green space limited to the Hackney Marshes, areas along the Lea, and by Victoria Park in Tower Hamlets. Additional areas of open spaces include West Ham Park and Plaistow Memorial recreation ground and the East London cemetery and Hermit Road recreation ground.

There is very little woodland cover anywhere within the area and the main vegetation is comprised of a mix of scattered young, semi mature and mature trees interspersed with low quality scrub, and informal grassland areas (*Figure 3.8*).

Figure 3.8 Current view of the Lower Lea Valley

The majority of the area has a history of industrial usage, with a mix of contamination from landfill, sewage works, electricity generation and acid

works. Current usage is dominated by low intensity industrial activities in the form of old works, cold storage facilities, waste storage facilities, car compounds and warehouses/distribution centres. Dereliction in the area is high yet fragmented comprised of both redundant industrial warehouses and transport corridors reducing the overall quality of the urban environment and increasing the likelihood of crime and fear of crime in local communities.

The highly urbanised area coupled with limited areas of accessible open green space, areas of contaminated land, dereliction and high levels of local deprivation equates to an area of poor urban quality impinging on the quality of health and well-being of locals.

Although the quality of the urban environment is low, it must be stated that there are also some pockets of good quality industrial buildings supporting viable business.

4 NO OLYMPIC GAMES SCENARIO

4.1 INTRODUCTION

The purpose of the 'No Games' scenario is to offer a moving baseline against which the construction, operation and legacy phases can be fairly compared. The Lower Lea Valley is noted in the London spatial development plan as a key opportunity area for London and targeted for significant environmental renewal, mixed residential and commercial development and transformation into a desirable 'Water City'.

The health assessment of the Games is therefore required to compare the health outcomes of the legacy stage against potential and planned regeneration in the area. In the absence of a 'No Olympic Games' master plan the following profile has been compiled utilising:

- The London Plan;
- Local Unitary Development Plans;
- The Lower Lea Valley Olympic and Legacy Masterplan;
- The Lower Lea Valley Reference Case;
- The Draft Lower Lea Arc Area Development Framework; and
- The Draft Lower Lea Valley Regeneration Strategy: Issues and Principles.

A more detailed breakdown of each of the information sources is available in *Annex B*.

Shortcomings of this approach include the difficulty in predicting the deliverability of what is proposed, its dependence on draft strategies and plans, market forces, government initiatives, investment, rate of regeneration and commitment for over 20 years.

The detail of regeneration activities varies amongst the sources, although a recurring objective in all the sources is the transformation of the Lower Lea Valley area into a unique high quality environment that will meet the housing, employment and social needs of both local communities and the region.

4.2 'NO GAMES' SCENARIO

In the absence of a 'No Games' master plan the review of available planning and policy material has provided an overview as to potential and planned regeneration in the area.

As previously stated, shortcomings of this approach revolve around the difficulty to predict the final decision as to regeneration investment, scope,

scale and distribution of facilities, infrastructure and as to the final level of deliverability and completion for over a 20 year period.

However, there is sufficient information within the local UDP and existing master plans to suggest the distribution of planned and proposed improvements and developments as shown in *Figure 4.1*, and modelling from the Draft Lower Lea Arc Area Development Framework to predict regional housing and employment outputs.

4.2.1 'No Games' Infrastructure and Transport Development

Infrastructure within the Lower Lea Valley is predicted to be significantly improved with the addition of the new A11-A13 spine road running south from Pudding Mill Lane to Canning Town, intersecting with new east-west cycle networks and strategic riverside walkways proposed around the east India dock area, linking major opportunity areas to potential residential areas, and a network of green routes running along the waterways from Hackney Wick to the River Thames.

Rail networks will be significantly improved with a potential additional station on the Docklands Light Railway at Langdon Park, and through the construction of Crossrail, delivering a new East to West link beyond Greater London connecting Heathrow, Maidenhead through to Stratford and the Channel Tunnel rail link.

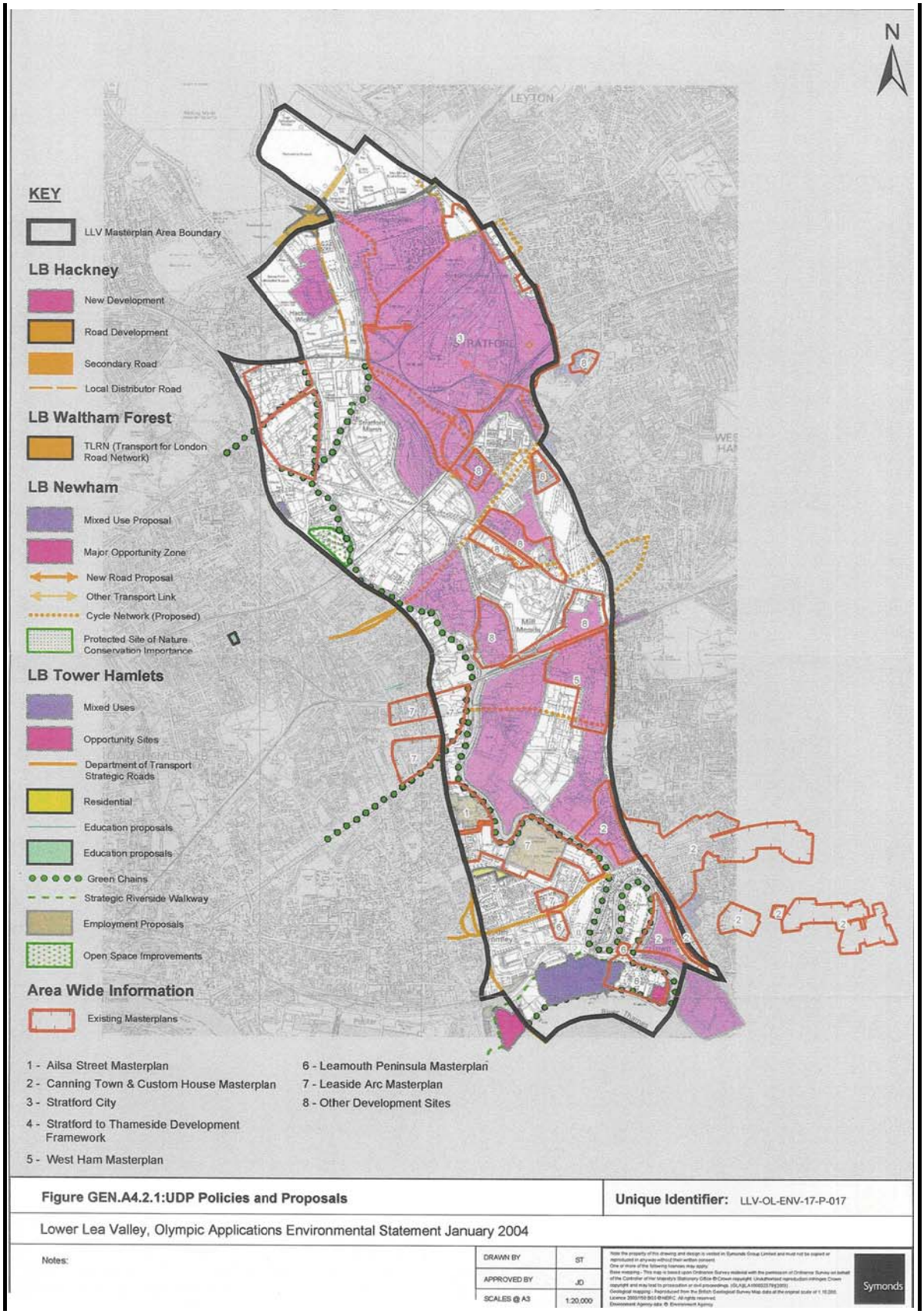
Additional improvements may include three new road river crossing schemes in the Stratford City area and a total of nine footbridges across the Lea to improve local accessibility and form a unified network of locals. Additional links under the A11 and A13 with surface crossing points over the A12 are also proposed to ensure the sustainability of redevelopment in the area.

Communication facilities will also be enhanced, with the extension of the broadband data service laid during the grounding of power lines where possible.

4.2.2 Sporting Facilities

It is made apparent in the Newham and Hackney London Borough UDP that regeneration of the Lea Valley is to include and to promote regional leisure and sporting activities. The UDP indicate that leisure and sports facilities are to be provided through the redevelopment of existing sites and reuse of buildings at the Lea Valley sports centre and Hackney stadium, while sites and facilities at the Lea Valley cycle circuit are to be improved.

Figure 4.1 ***UDP Policies and Proposals Within the Lower Lea Valley***



Furthermore, the Draft Lower Lea Valley Regeneration strategy states that, in the event that the London Olympic Bid is unsuccessful, there remains a necessity to deliver a number of the legacy facilities including a smaller aquatic centre. Sporting facilities within the area are therefore likely to be improved, with additional development of green space.

4.2.3 Environment

Environmental renewal is high on the agenda where the level and quality of remediation and renewal will be key to the success of regeneration in the area, influencing the strategic use of land and providing the stimulus for both health improvements and economic growth.

There is currently no remediation strategy for the Lower Lea Valley, yet indications from the London plan and the Draft Lower Lea Arc Area Development Framework indicate that investment for environmental and landsacape programmes will be in the region of £60 million (2003 prices) from 2004 to 2018.

The result is a clear commitment to transform the area into a high quality environment, with the extension of the Lea Valley Regional Park to the Thames and creation of accessible areas of green and recreational space around mixed residential and commercial sites.

4.2.4 Finance

The Draft Lower Lea Arc Area Development Framework provides a breakdown of proposed spending within the Lower Lea Valley from 2003 to 2020. As shown in *Table 4.1* the area is expected to see significant investment, ensuring the success of regeneration in the area, and the maximisation of health benefits by connecting community requirements to social, economic and environmental opportunities.

Table 4.1 Proposed Overall Investment Programme

Field	Total (2003-2020 at 2003 prices)
Infrastructure	£ 167 million
Environment and landscape	£ 60 million
Business development and training	£ 64 million
Community Investment	£ 114.5 million
Transport	£ 56.2 million
Research	£ 1.5 million
Supporting Investment programme	£ 25 million
Total	**£ 1.2 billion**

Look of London

East London and the Thames Gateway will be significantly improved, complementing London as a whole with an enhanced regional park, river city,

and development of appealing residential and commercial areas promoting visitation and inward investment.

4.3 SUMMARY

Communities within the London Boroughs of Newham, Hackney, Tower Hamlets and Waltham Forest currently experience some of the poorest levels of health and lowest life expectancy within London, and throughout England and Wales.

Attributing direct health impacts is complex, yet the health profile within the five London boroughs is indicative of the high level of income, employment, and housing deprivation coupled with an environment of poor quality exacerbated by sedentary lifestyles.

All sources acknowledge that successful regeneration must tackle the multidisciplinary nature of health through improving the quality of the local environment, while increasing access to housing, employment, social interactions and with planning preference in some areas for recreational and sports facilities.

As shown in *Table 4.2* the material suggests that a wide range of health determinants vital to health and wellbeing will be significantly improved, contributing to:

- a reduction in depression and anxiety;
- improved psychological well-being;
- improved social networks and coping skills;
- reduced admissions and premature mortality from cancer, circulatory and respiratory disease;
- improved life expectancies; and
- diminish distinct health inequalities in mortality, health and wellbeing within London.

However, the issue of lifestyle remains. The 'No Games' scenario will make provision for sports facilities, develop areas of open space and has even made reference to developing some of the Olympic legacies including the Aquatic Centre. These efforts will, though, be on a less grand scale and not benefit from the extensive promotion of the Games, or through local involvement through voluntary or employment routes.

The key health outcomes of reduced morbidity and mortality from cancer and respiratory disease will be slow to emerge, typically in ten years following the completion of regeneration around 2030. However, indicators of self perceived health and wellbeing will be more immediate and readily available through Primary Care Trusts, Household Surveys, national census and emerging national statistics.

Table 4.2 'No Games' Scenario Summary of Anticipated Health Determinants

	Construction	Operation
Environment (land quality)	××	✓✓✓
Air Quality	××	✓✓
Noise	×	×
Employment and Income	✓✓	✓✓
Education and training	✓✓	✓✓✓
Physical activity	×	✓✓
Access to services and amenities	×	✓✓
Traffic and transport	×	✓✓✓
Community Severance	×	✓✓
Housing	×	✓✓✓
Total (impact / benefit)	**- 6**	**+ 21**

Key:		
	×××	Strongly negative influence (-3)
	××	Moderately negative influence (-2)
	×	Mildly negative influence (-1)
	-	Neutral influence (0)
	✓	Mildly positive influence (+1)
	✓✓	Moderately positive influence (+2)
	✓✓✓	Strongly positive influence (+3)

The result is that the 'No Games' scenario will undoubtedly reduce levels of poor health and reduce health inequalities, but it will be of only local and regional benefit, and will not be as effective in promoting immediate healthier lifestyles and long-term health benefits, or in creating as high a demand for visitation and participation to sports facilities and activities.

5 OLYMPIC PROJECT PROFILE

' ..as well as being a wonderful sporting and cultural festival, the Games would also deliver practical benefits for the capital and the country. They would drive the environmentally-friendly regeneration and rejuvenation of East London, give a huge boost for tourism across the UK and provide thousands of new opportunities for work and volunteering.' Rt Hon Tony Blair MP

5.1 INTRODUCTION

The aim of the project profile is to establish the key impacts and benefits of the London Games, and to define the project footprint in terms of the extent of its influence and interactions with local communities and sensitive groups. This has been accomplished through a review of available information, including the initial specialist assessment material prepared for the Lower Lea Valley Olympic and legacy master plan shown in *Table 5.1*, Environmental Impact Assessment, relevant case studies and consultation with experts.

Table 5.1 ERM London 2012 Olympic Library

Documents held at ERM
• Design Statement: Olympic Precinct and Legacy, Context Documentation for the Lower Lea Valley Olympic and Legacy Planning Applications • Statement of participation: Context Documentation for the Lower Lea Valley Olympic and legal planning applications • Sustainability Statement: Context Documentation for the Lower Lea Valley Olympic and legal planning applications • Volume 01 Introduction: Lower Lea Valley Olympic and Legacy Planning Applications • Volume 02 Amendments to planning applications documents and drawings. Annex: revised application forms and schedules Lower Lea Valley Olympic Legacy planning applications. • Volume 02a Annex: amended and additional Drawings • Volume 02b Annex: amended and additional Drawings • Volume 02c Annex: amended and additional Drawings • Volume 03 Regulation 19 further information: Lower Lea Valley Olympic and legacy planning application • Volume 03a Annex regulation 19 further information: Lower Lea Valley Olympic and legacy planning application • Volume 03b Annex regulation 19 further information: Lower Lea Valley Olympic and legacy planning application • Volume 04 Request for evidence to verify the submitted information: Lower Lea Valley Olympic and legacy planning application • Volume 05 Consultation Responses: Lower Lea Valley Olympic and legacy planning application • Volume 06 Appendices to Volume 3 Regulation 19 Further Information: Lower Lea Valley Olympic and legacy planning application • Volume 07 Appendices to Volume 3 Regulation 19 Further Information: Transport Assessment (revised) and Non-technical summary • Lower Lea Valley Olympic and legacy planning application • Volume 08 Development Specification Framework (revised): Lower Lea Valley Olympic and legacy planning application

Documents held at ERM
• Volume 08 Environmental Statement and non-technical summary. Lower Lea Valley Olympic Masterplan and Lower Lea Valley Legacy Masterplan • Volume 10 Environmental Statement: Annex 3 of 4 • Lower Lea Valley Olympic and legacy planning application • Volume 11 Environmental Statement: Annex 3 of 4 Lower Lea Valley Olympic and legacy planning application • Volume 19 Photographic Survey and Construction Programme and Code of Construction practice: Lower Lea Valley Olympic Master plan and Lower Lea Valley Legacy Master plan • Design Statement: Context Document for the Lower Lea Valley Olympic and Legacy Planning Applications. CD • Sustainability statement: Context Document for the Lower Lea Valley Olympic and Legacy Planning Applications. CD

It is not the purpose of the project profile to analyse the potential health outcomes, but to identify health pathways associated with construction, operation and legacy. Once the activities and associated impacts have been defined, they can be applied through the community profile to determine how such pathways may act on the relative susceptibilities of communities, leading to a range of social, physical, mental and community health outcomes.

5.2 2012 LONDON OLYMPIC GAMES PROJECT PROFILE

It is proposed to hold the Olympic Games within four London Boroughs (12 Wards); Waltham Forest, Newham, Tower Hamlets and Hackney, all in the Lower Lee Valley area, occupying approximately 7 km^2. These 4 boroughs are highly urbanised with small areas of green space. The area, although densely populated, is also comprised of old industrial zones, derelict wastelands and redundant waterways.

A 15 year programme of redevelopment has been developed outlining 4 key phases as follows:

1. Pre-Olympic construction;
2. Olympic Games;
3. Legacy construction; and
4. Post-Olympic legacy.

In the event of the London Bid being successful, development is planned to commence next year, 2005 and complete in 2020.

5.3 PRE-OLYMPIC CONSTRUCTION

The bulk of construction for the Games will occur in this phase over the period of 2006 to 2012. A draft programme has been created outlining the construction schedule:

- Main infrastructure, 2006 – 2011;
- Main Olympic utilities, 2007 – 2011;
- Aquatics Centre, 2005/6 - 2006/8;
- Olympic Site enabling works, 2007 – 2009;
- Main Stadium, 2008 – 2011;
- Volleyball/Basketball/Handball, 2009 – 2011;
- Hockey/Tennis, 2009 – 2011;
- Velodrome/BMX/Baseball, 2009 – 2012;
- MPC/IBC, 2009 – 2012; and
- Marketing and support facilities, 2011 – 2012.

With such a busy construction schedule it is important to consider all areas that may be impacted (positively and negatively) by this huge scope of work. This section outlines the main potential impacts during the Pre-Olympic construction phase, as set out by the Environmental Impact Assessment.

Environment (air quality noise and land quality)

Although planning decisions will optimise environmental protection via efficient use of natural resources, promotion of low-carbon and other environmentally-preferred technologies etc, it will be impossible to avoid impact to the local environment.

A number of potential impacts will be noticeable in the local area. Noise, dust and vibration will be generated from the demolition and construction activities that are due to take place. There will also be negative visual impacts due to the construction such as cranes blocking residential views and unsightly security fences.

The construction stage will produce huge amounts of waste, requiring the transportation of approximately 1,850,000 m^3 of spoil and materials (1).

Construction will have a noticeable temporary (and in some cases permanent) impact on the area. *Box 5.2* outlines the three areas that will be heavily impacted on by this initial phase of construction.

(1) Lower Lea Valley Olympic Legacy Planning Applications Main Committee Report. 9th September 2004.

Box 5.2 Environmental Impacts of the Pre-Olympic Construction

Surface Water

The plans to redevelop the area include changes in land use mainly from industrial to residential, commercial and mixed. This will unavoidably alter the surface runoff volume; in addition surface water quality will also be affected. However the implementation of the Water Quality Directive in 2009 should prevent any deterioration in surface water quality.

With the new developments, surface and drainage water systems are proposed on a small scale, existing flood defences are expected to be constructed and existing ones maintained. Road run-off may increase as a result of the new Lower Lea spine road and the increased population.

Ecology and nature conservation

Direct and indirect impacts (temporary and permanent) on the local ecology and nature conservation are inevitable with any variations in land use and cover. It should be noted that these are highly dependent on numerous factors including proximity to habitats and impact management. For instance, altering the land from derelict to residential/industrial will result in a loss of habitat and associated species. Construction and human disturbance will also play roles in negative impacts. However, with careful management and the use of best practice systems these negative impacts can be reduced.

New policies, directives and action plans etc are also in play, which will protect the ecology in the local area, for example the EU Strategic Environmental Assessment Directive which ensures environmental consequences are considered at the earliest possible stage in development planning.

Landscape and townscape

The majority of changes until 2012 will be in the form of housing, open spaces and removal if industrial sites. The overall aesthetic look will be vastly improved as derelict abandoned land and industrial sites are regenerated and new modern buildings are developed. This improvement will be very disjointed, as improvements will not have occurred in the entire area.

The level of lighting in the area will also intensify due to the increased housing etc therefore an increase in the intensity of sky glow will be visible from the surrounding area.

Employment and Income

Local employment rates are expected to increase significantly during the construction stage. For local skilled workers there will be job opportunities in this phase, in particular for those in the construction business.

However, due to the large scale construction process there may be premature job losses due to the relocation of several local businesses and industries, while reduced access to businesses may also affect local trading levels.

Education

During this phase of the Games, an integrated and streamlined approach will be taken towards education, with centres providing the social provisions required for all ages in the local communities.

The aim would be for higher and further education providers to deliver training and local skill development programmes, in addition to co-ordinating placements for local residents in sectors such as construction and hospitality.

Housing

The construction activities will require old residential buildings to be demolished, causing human displacement, although this will be kept to a minimum.

Physical Exercise

Redevelopment of the Lower Lea Valley has commenced, with the new Olympic-sized swimming pool to be developed shortly. Once complete, the pool with be open for public access.

As the Games 'process' begins, it is hoped that local morale will be high and that locals will start to participate in local sporting events, with an aim to have an altogether healthier lifestyle.

One aspect that may impede physical exercise in this phase is the lack of access to particular facilities (due to construction works).

Access to Services and Amenities

As mentioned above, the construction and demolition activities will most likely reduce public access and connectivity to certain areas. The increased amount of traffic on the roads may also cause an inconvenience when accessing local services and amenities.

However, due to the growth of the Internet, electronic communication etc will enhance the delivery of service provision providing an alternative, quicker method of accessing services.

Box 5.3 discusses the impacts construction may have on waste management and urban infrastructure services.

Box 5.3 Construction Impacts on Waste Management and Urban Infrastructure Services

Waste Management

Due to the physical changes in land use, along with the changes in human population (it is expected that the population will grow from 6,000 to 20,000), it is inevitable that there will be variations in the type and amount of waste produced in the future. The policies surrounding managing this waste will also change.

The Lower Lea Valley area is gradually shifting its land use from industrial to residential therefore resulting in a reduction of industrial wastes, which are thought to be more polluting, and an increase in household and office type waste. However, as there will be a large-scale focus on redevelopment there will be an obvious increase in construction and demolition waste.

This surge in redeveloping areas of the Valley will most definitely have a huge impact on many waste management facilities forcing them to be displaced. The local authorities will be expected to provide sufficient waste management facilities to cope with this increase in waste however they will most likely be located further away.

Urban infrastructure Services

It is expected that minor changes will occur concerning the occupation of premises mainly due to the change in demand of urban services. These will include small- scale residential and commercial developments are expected. One service area that potentially will go through significant change will be telecommunications, as households swap cable for radio signals. Also Thames Water has major plans in place for screening sewer discharges in addition to other programmes aimed at improving local surface water quality.

Traffic and Transport

Construction of the Games will result in an increase in heavy vehicle movement on local roads. However, such increases will be offset against the reduction of similar heavy vehicles used by local industries.
Routes will be tightly controlled, to reduce risk to sensitive receptors and scheduled to avoid school runs.

As the construction activities are carried out, the public will also lose access to certain roads and stations etc, limiting their travel or at least prolonging the journey.

Stratford City will be the most affected area in terms of improved transport facilities, with highway proposals and link roads planned, such as the Lower Lea spine road. In addition, pedestrian and cycle facilities are to be created and improved. Another major focus will be on bus accessibility within the area, with a 40% increase in bus service provision, including the construction of a new bus station. Rail improvements will also occur, although on a smaller scale as the largest development, the development of Stratford International Station for to the Channel Tunnel link, is planned. Work will also take place on the tube network with signal upgrade on the Jubilee line (resulting in 45 % more capacity), and capacity increases on the Central and District lines. These infrastructure projects are planned with or without the Games, although it is clear that the timetables of completion will be put forward in order to deliver in time for the 2012 Games.

5.4 *HOSTING OF THE OLYMPIC GAMES*

One of the aims of the London Games is to ensure easy access to all the sporting locations. With this in mind, 17 of the 28 Olympic sports are planned to be staged within 15 minutes walk of the Olympic village, either in new facilities constructed in the Pre-Olympic phase or in existing venues.

The core of the Games will be the 500-acre Olympic Park shown in *Figure 5.1* which will contain:

- Olympic Stadium (will stage the athletics, the opening and closing ceremonies for the Olympic Games and Paralympic Games);
- Aquatics Centre (swimming, synchronised swimming, diving and the finals of the water polo);
- Velodrome and BMX Track;
- Three sports halls (basketball, fencing, volleyball and handball);
- Hockey Centre;
- Media facilities; and
- Olympic Village (accommodating up to 17,800 athletes and officials).

Figure 5.1 *Olympic Master Plan Reality and Concept*

In addition to events taking place in the Olympic Park events will occur all over London and the UK as outlined in *Table 5.4* below.

Table 5.4 Additional Olympic Events and Location

Sport	Location
Canoeing	Broxbourne
Rowing and Canoe/Kayak – Flatwater	Eton/Dorney
Boxing, judo/taekwondo, weightlifting and wrestling	ExCeL
Equestrian and Modern Pentathlon	Greenwich Park
Football	Hampden Park (Glasgow), Millennium Stadium (Cardiff), Old Trafford (Manchester), St James' Park (Newcastle), Villa Park (Birmingham), Wembley Stadium (London), Windsor Park (N.Ireland)
Beach Volleyball	Horse Guards Parade
Triathlon and Road Cycling	Hyde Park
Archery	Lord's cricket ground
Softball and Baseball	Regent's Park
Gymnastics (artistic/trampolining), Basketball (finals)	The Dome
Sailing	Weymouth-Portland
Tennis	Wimbledon
Water Polo	University of East London (UEL)
Shooting	Royal Artillery Barracks, Woolwich
Mountain Biking	Weald Country Park

The London 2012 Paralympic Games are intending to use the Ludwig Guttmann Stadium in Aylesbury as a training facility before the main action. In its 12 days of action, with approximately 4,000 competitors, the athletes would compete in the same venues in the Olympic Park as well as in the new Paralympic Olympic Park tennis centre.

As in the Pre-Olympic construction phase, this section outlines the main potential impacts during the Olympic Games phase.

Environment (air quality, noise and land quality)

As in the construction phase, the benefits of opening out the waterways and rivers and establishing sustainable urban drainage solutions (SUDS), etc will be felt in the local area. Also, the general water quality in the area will have improved, diversifying the ecology in the local area by creating new habitats.

The local area will be cleared and hence activities such as; controlling weeds, improving the sewers and remediating local contamination will have taken place, widely benefiting the local area.

Due to all the remediation work the local area will have an improved outer appearance in addition to providing better views.

However, the negative impacts, mainly due to the large numbers of spectators/traffic visiting the area each day still remain:

- The security fence (this may cause a flood risk at river crossings);
- Loss of habitats;
- Disturbance to ecology;
- Loss of allotments; and
- Potential damage to built heritage/archaeological sites.

Employment and Income

The Olympic Games will create additional jobs in the local area and also boost the income for the shops in the local area. A survey by the engineering consultants, Ove Arup, predicts that 9,000 full time jobs would be created through the staging of the Games, of which 3,000 would be in the local East End economy.

In addition, thousands of people will have the opportunity to work as volunteers and be part of one of the world's most exciting events.

Another perceived advantage of hosting the Olympics is the boost it can deliver to the city's tourism industry. The worldwide attention (approximately 3.5 billion people worldwide watched the opening ceremony of the last competition) provides the opportunity to showcase London and the wider region, as experienced in previous Games. The London Business Board has estimated that the gain for the capital would be approximately £1.5 billion. This may, however, be at the cost to other tourism areas of the country.

Physical Exercise

During the Olympic Games, it is anticipated that the local community will be influenced and encouraged to participate in local sporting events by the Games, with the aim of developing a healthier lifestyle.

Access to Services and Amenities

The large volumes of spectators and traffic in the area may delay or cause problems accessing some local services. Roads within and close to the Olympic area will be temporarily closed to private vehicles during the Games. However, Overall access however, should be greatly improved in this phase.

Traffic and Transport

The newly constructed and existing public transport facilities should vastly improve travelling to, from and within the Lower Lea Valley, easing congestion and travel times. In addition, specific Olympic traffic control measures will be introduced, including Park and Ride schemes, to ensure that the entire transport system works effectively and efficiently.

5.5 *LEGACY CONSTRUCTION*

An Urban Design Framework has been developed with 3 core development aims to deliver regeneration across the Lower Lea Valley after the Games are complete (ie post 2012):

1. Integrate communities;
2. Build in flexibility; and
3. Exploit the area's positive aspects.

With these 3 aims in mind, the legacy development will centre on the following themes:

- *Routes and connections*: proposed interconnection of local roads and streets and waterways;
- *Water*: expansion of the existing waterways;
- *Urban park*: regenerating the existing green space and creating new ones running along the river and canals; and
- *Development of areas*: including West Stratford and Hackney Wick and the Bow Back Rivers.

Following the same theme as the previous 2 phases, the headline impacts are discussed in the following section.

The draft construction programme referred to in the Pre-Olympic construction phase also outlined the legacy construction schedule as follows:

- Removal of Temporary Olympic facilities 2012 – 2015;
- Main Civils Infrastructure 2013 – 2020;
- Utilities Infrastructure 2013 – 2020; and
- Legacy Construction and Landscaping 2013 – 2020.

Environment

As in the initial construction phase, development activities and a reduction in combined sewer overflows may cause a slight reduction in the quality of the surface water in places.

Employment and income

Again, as in the Pre-Olympic phase, those locally skilled workers will have job opportunities in this phase, in particular for those in the construction business.

Housing

The applications detail the building of many new residential blocks in this phase. The vision aims to redevelop the Olympic Village '…to help ease

London's accommodation crisis, especially among those who find themselves priced out of the London property market' (1).

Traffic

With all the new construction that will have taken place in the previous phases and also in this phase there will be an increased level of pollution from the increased traffic level, along with an augmented noise level, particularly from the construction traffic. There will also be increased levels of dust and emissions from the construction equipment. It is necessary to ensure that all these levels are kept to a minimum as and where possible. If pollution mitigation is factored in the infrastructure planning stage then once construction is complete the levels should reduce again.

In spite of this, the newly constructed and existing public transport facilities should vastly improve travelling to, from and within the Lower Lea Valley, easing congestion and travel times.

5.6 POST-OLYMPIC LEGACY

It is important to ensure the Games 'process' benefits the local area (and the wider region) by setting out a sustainable regeneration and development strategy. This section discusses the impacts of this 'process' that are likely to occur post Games in the final Legacy phase.

Environment (air quality, noise and land quality)

Overall, it is anticipated that the Games would speed up the rebirth of the Lower Lea Valley by around 6 years, remediating and reclaiming polluted areas. London would have one of the largest new urban parks in Europe, encompassing countless revitalised canals and rivers. The Games would create a legacy of long-term community assets within a rejuvenated, accessible valley of parkland, re-instated marshes and waterways. It will have many positive benefits on the local environment including:

- The opening out of waterways;
- The creation of new habitats;
- The remediation of contamination (land and water);
- Sewer improvements; and
- Improved waste management.

The rejuvenated Lea Valley would become an environmental attraction. In addition, the new eco-park would provide the first environmentally-sound solution to waste treatment in the area, providing renewable energy to local communities and improving water quality.

(1) Jowell, T (2002) 'An Olympic bid? It's a tough call', in The Observer; 29 December

Climate change issues will be addressed by optimising the most carbon-efficient choices: use of public transport, rail and river freight; specifying non-polluting official car fleets, buses and service vehicles

Box 5.5 below highlights the key environmental areas that will be impacted on by the Games 'Process'.

Box 5.5 Environmental Impacts of the Games of the Post-Olympic Legacy

Surface Water

The increase in development, in urbanisation, industry and commerce is expected to continue, although in strict accordance with PPG25, and with surface water runoff systems to be sustainably designed. Although watercourse structures will increase they will go through strict application processes.

As highlighted in previous phase sections, the development activities may initially cause a decline in the quality of surface water; overall it is expected to improve with the introduction of separate drainage systems, the reduction in heavy pollutant industries in the area and the implementation of the Water Framework Directive, which should be fully enforced by 2020.

Ecology and nature conservation

Only minor changes are expected during this period, specifically in around the Stratford City area – for example, due to the land change the local lizard population may suffer - however alternative receptor sites are being investigated. A new bridge to be built over the River Lea may potentially cause ecological disturbances and the increase in the Stratford population may disturb some of the sites. In spite of this, it is thought any disturbance will be counterbalanced by the habitats created through the new wetlands, nature conservations etc. Concerns have been expressed, for example by the London Wildlife Trust, as to whether valuable green space at Hackney Marshes and London Fields will be sacrificed for new developments.

Landscape and townscape

The aesthetic look will have improved again from 2012 in certain areas, although the change will only be slight. Also, lighting levels may have reduced with the introduction of metal halide lights.

Employment and Income

The London Development Agency (LDA) believes that a successful bid would make the private sector more likely to invest in the area by providing certainty over public sector strategy.

By developing local business, industrial, retail and recreation facilities, employment rates in the Lower Lee Valley area will increase dramatically, therefore leading to a higher standard of living and increased annual income. Higher employment rates are also known to lead to reduced crime levels and therefore a safer environment to live and work in. With further green spaces to be created and increased parking created, those who would not normally visit the area will do so, again benefiting the local area through tourism and increased local income.

A natural significant change in age structure is expected in this phase, leading to a younger, livelier area. This increase in young members of the population

will, together with the regeneration benefits, improve the economic viability of the area. Manufacturing businesses, which used to benefit the area, will be on the decline (not including the publishing and media components). In addition, due to the close proximity of the City, it is expected that City businesses will expand into the local area.

However, many still question the longevity of the anticipated employment benefits, highlighting that the council 'does not want to see lots of temporary jobs which leave many unemployed as soon as the Games are finished'(1).

Education

Education and training programmes are planned to run continuously throughout the Olympic 'process', focussing on certain sections of the community, such as the long-term unemployed. It is they who stand to reap the long-standing benefits.

The Applications detail the construction of educational facilities in the local area. By providing easy access to good affordable education the local population (young and old) will have the opportunity to be educated to the required level that will enable them to obtain their desired occupation. Training and personal development are known key factors in promoting a better standard of living.

Housing

As a mass of additional housing and residential areas will have been created through the Olympic Village and other new housing developments, the Legacy Masterplan aims to re-house the local population, increasing the availability of local affordable housing in the areas and massively improving their standard of living and quality of life.

Physical Exercise

It is hoped the Games will inspire young people to participate more in sport, with resultant health benefits. Within the main Olympic Stadium there are to be many various types of sports facilities including an Aquatics centre, hockey and tennis courts, and BMX venue, in addition to the Paralympic Olympic Park tennis centre. It is planned for these facilities to remain and be open to the public, hosting world-class facilities, with the provision of amenities for both elite and grass root sports.

With the creation of additional green spaces along with easy access, older generations will be able to enjoy a milder form of physical exercise. In addition, cycle paths will be developed to enable cyclist to travel safely around the area.

(1) Herman J, Newham Council Deputy Director of Regeneration

By hosting the Paralympics, the city would improve its infrastructure for all people with disabilities, for example the Paralympic Olympic Park tennis centre.

It is important to note that there could be potential concerns surrounding the cost of some of the facilities, as they may not be easy to adapt for general use and may be expensive to maintain. There is also the potential to place a long term financial burden on the local authority that takes over responsibility. This could lead to neglect or closure of other community sports facilities.

Access to Services and Amenities

Participation in sport has led to decline in youth crime and can provide a stimulus for education. Providing easy cheap access to such sports facilities may be the driving force for breaking down divisions in addition to promoting greater social inclusion of the deprived communities of East London.

The newly constructed infrastructure, such as the new roads and bridges and energy centre, will help to promote an easier lifestyle. Additionally there will be a huge benefit arising from the additional health, employment and education facilities in the area.

Community Severance

The promotion and regeneration of an area will lead to an influx of new communities and industry. In some cases this may cause upset due to a reduction in employment and housing opportunities. The development of barriers and inequalities may also arise in the local area leading to risk of gentrification.

Traffic and Transport

By hosting the Olympics, indirectly, it is hoped that businesses would be encouraged to relocate to the area through improved technological and transport links.

The area will benefit greatly from the newly constructed and existing public transport facilities which will increase the capacity and connectivity of East London, easing congestion and travel times.

5.7 SUMMARY

As shown in *Table 5.6* The Olympic Games provides a stimulus to regeneration coupled with an opportunity to promote and improve socio economic, physical and mental health.

During the construction of the Olympic Area there will be unavoidable disruption, increased risk from pollution, construction traffic, noise and

reduced access within the Olympic area. However, such disruption and risk will be temporary and not be experienced by communities surrounding the site for the entire 6 year construction period.

Olympic time constraints will result in rapid improvements including:

- environmental improvements;
    - decontamination of land;
    - removal of derelict buildings;
    - increased and more accessible parkland;
    - creation of a safer environment;
- enhanced public transport networks to deal with Olympic visitation;
- increased accessibility through improved foot and cycle paths;
- access to parkland and Olympic facilities as they are completed;
- increased community participation;
- increased training, education and voluntary work experience (catering – linguists);
- increased employment opportunities;
- promotion of healthier lifestyles;

Access will be reduced during construction, however, as facilities and transport networks are completed they are planned to be made available to the general public prior to 2012.

Hosting of the Games will see further urban and natural environmental enhancement of local, regional and national venues and attractions, including:

- increased employment and income to tourism, retail, leisure, accommodation, and linked industries;
- increased accessibility to regional, national and international services facilities and amenities (links to channel tunnel and London airports);
- increased access to social networks and support;
- increased disability awareness, and access;
- increased community involvement, pride and heightened focus on East End; and
- promotion of healthier lifestyles.

However, increased visitation may reduce actual and perceived levels of local access.

Table 5.6 Summary of Anticipated Health Determinants

	With Olympic Games Scenario		
	Pre-Olympics (2006-2012)	**During Games (2012)**	**Post Olympics (2012-2020)**
Environment (land quality)	××	✓✓✓	×/✓✓✓
Air Quality	××	✓✓✓	×/✓✓✓
Noise	×	××	×
Employment and Income	×/✓✓	✓✓✓	✓✓✓
Education and training	✓✓	✓✓✓	✓✓✓
Physical activity	×/✓	✓	✓✓✓
Access to services and amenities	×/✓	✓✓	✓✓✓
Traffic and transport	×	✓✓✓	✓✓✓
Community Severance	×/✓✓	✓✓	✓✓✓
Housing	×	✓	✓✓✓
Total	**- 3**	**+ 19**	**+ 24**
Key:	×××	Strongly negative influence (-3)	
	××	Moderately negative influence (-2)	
	×	Mildly negative influence (-1)	
	-	Neutral influence (0)	
	✓	Mildly positive influence (+1)	
	✓✓	Moderately positive influence (+2)	
	✓✓✓	Strongly positive influence (+3)	

Following the Games construction activities will continue, affecting local level air quality and noise levels. However, the overall improvement to the area will be strongly beneficial with:

- further environmental enhancement, additional areas of recreational, open space, and parking;
- improved access and accessibility throughout the area;
- construction of 9,400 homes;
- mixed business, industrial and retail development creating 12,035 jobs;
- construction of health /family centre and schools;
- increased appeal and international exposure promoting further inward investment and sustainable development;
- improved education and employment opportunities;
- non exclusive access to remaining Olympic sports facilities;
- promotion of healthier lifestyles;
- promotion of medical sports science, sports participation and future athletes;
- increased opportunity to improve lifestyle and health;
- improved community cohesion; and
- national pride.

Similar to the 'No Games' scenario, the event will result in a number of environmental and urban enhancements, improving the quality of life at the

local level. However, the Games will increase the rate, extent and quality of such improvements throughout London, at national venues and attractions. The increased opportunity to engage and involve communities through Olympic and legacy training programs will increase community cohesion, enhance socioeconomic health and improve coping skills.

The provision of non exclusive sports facilities and emphasis placed on sports and lifestyle will significantly contribute to improving local health inequalities, and promoting health at a national levels.

6 WORKSHOP SUMMARY

6.1 INTRODUCTION

This chapter examines the findings from the rapid HIA workshop addressing participant perceptions of potential health risks and benefits of the London Olympic Games, the consideration of a 'No Games' scenario and development of health mitigation and maximisation options.

A rapid HIA Olympic Workshop was performed on the 18th of October 2004 including local regional and national perspectives from community groups and primary care trusts as shown in *Table 6.1*.

It should be noted that outcomes of the workshop reported here are based on the views of the participants and do not necessarily reflect the opinions of ERM.

Table 6.1 Workshop Participant List

Name	Details
Alick Mackenzie	Enabled London
Poppy Hasted	Greater London Action on Disability (GLAD)
Marietta Campbell	Voluntary Action Waltham Forest
Geoff Thornton	Voluntary Action Waltham Forest
Catherine Max	Programme manager for London works for better health, London Health Commission
Sheila Ahmed	London Development Agency
Jane Connor	Head of Improving Health Partnership, London borough of Newham / Newham Primary Care Trust
Dr John Hayward	Director of Public Health, Newham Primary Care Trust
Becky Porter	Public health advisor, Tower hamlets Primary Care Trust
Richard Reddie	Minet
Anna Boltong	Health Impact Assessment & Network Facilitation Manager, London Health Commission
Rachel turner	Public health strategist, city and Hackney primary Care trust
Murad Ruf	Public health advisor, Tower hamlets Primary Care Trust
Tony Weight	Department of Health
Grant Pettitt	Greater London Authority
Callie Phillips	UCL / Environmental Resources Management
Sam McCrea	Environmental Resources Management
Andrew Buroni	Environmental Resources Management
Sheena Dunbar	Age Concern (did not attend, but supplied input)
Freda Bourne and Shirley Morgan	Stratford Community Forum (did not attend, but supplied input)

6.2 HEALTH IMPACTS OF HOSTING THE LONDON OLYMPIC GAMES

Health risks were identified throughout the lifecycle of the Games reflecting environmental risk from construction and potential social impacts from a lack of inclusion, thereby influencing physical, mental and socio-economic health. The distributions of such impacts were found to be largely confined within the

Olympic area footprint, with some spillage into London from construction traffic.

Socio economic impacts to health reflect the initial cost of constructing and hosting the Games, the opportunity cost of such an investment, and concerns relating to underestimation of the budget leading to additional investment and subsequent rises in London Council Tax. Following the Games there was concern for the availability of permanent Olympic facilities additional financing to support and maintain underused facilities.

Such concerns are understandable, based on the evidence from previous Games. Both the Sydney and Athens Olympics experienced spiralling costs, underused and unplanned legacy uses for such facilities, draining financial resources that may have been better used within local communities. Closer to home, the Millennium Dome in Greenwich is a visible reminder as to the cost of unused facilities, and the resentment that can be generated nationally and locally by deprived communities within the proposed Olympic footprint.

Secondary socio economic impacts reflect the relocation of industries within the Olympic Footprint. Although programmes will be implemented in order to aid in the relocation of such industries, employment is likely to be affected, as staff may be unable or unwilling to commute to new areas, resulting in increased unemployment and subsequent impacts to health.

Environmental risks to health reflect 6 years of intensive construction with a brief interlude to host the Games, followed by an additional 8 years of regeneration activities. Although construction activities will be confined within the Olympic area and is mitigation planned, there is an increased risk of exposing surrounding communities to noise, dust and air pollution for prolonged durations. Potential impacts to health are hard to quantify accurately and may extend from annoyance through to increasing stress and anxiety exacerbating current levels of poor health. The distributions of such impacts are indicated to be confined at the local level. *Table 6.2* shows how these impacts were evaluated.

Safety risks from construction activities were thought to be minimal, reduced by safe working practice, secure sites and a code of conduct. However, increased construction traffic on roads was considered to pose an increased risk from accident and injury to communities in proximity to sites and traffic routes.

Table 6.2 Potential Health Impacts During the Construction of the Games

Potential health risk	Participant confirmation		Distribution of risk		
	Yes	No	Local	London	National
Construction of the facilities may affect health and well-being through short term effects on air quality and noise.	11	0	9	1	0
Construction of Olympic facilities may increase risk from traffic and could lead to more accidents.	10	0	9	4	0
Some industry will be moved out of the area, harming the economic health and well-being of the workforce.	2	7	6	1	0
The London Games will displace some local and travelling communities; their health and well-being may be harmed.	8	1	7	2	0

Potential risks to health during the Games arise from the increased burden on facilities, services and transport networks over and above normal London visitation levels. Although such impacts will be limited to a period of two to four weeks and be more of an inconvenience than a health impact, disruption and an increased burden placed upon health and emergency services may result in reduced access to treatment facilities during the Olympic period.

Potential risk from communicable disease as shown in *Table 6.3* was noted as the only Olympic health risk to extend beyond London. However, such a risk currently exists with London's global tourist industry, and has a low likelihood of increasing in response to Olympic visitation.

Increased visitation is likely to contribute to congestion, disruption and subsequent stress and anxiety on some routes into and throughout London for the duration of the Games. Increased visitation and demand for transportation during the Games will also lead to an increased risk of accident and injury and may contribute to generation of air pollution, depending on the success of the Games' plan to minimise the use of high emitting road vehicles.

The London Games is planned to be a public and green transport event supported by new and enhanced public and green transport systems. Although increased congestion and disruption is likely for two to four weeks, health risks from accidents and emission will be minimised and offset by the provision of safe and efficient public transport systems.

Table 6.3 Potential Health Impacts During the Games

Potential health risk	Participant confirmation		Distribution of risk		
	Yes	No	Local	London	National
More people visiting the Games from around the world may increase health risk from communicable diseases.	7	4	3	5	2
During the Games people may find it harder to get to work, school and services increasing stress and anxiety.	7	3	7	4	0
Increased transport movements during the Games may reduce air quality and harm health and well-being.	7	1	5	3	0

Following the Games, there will be approximately 8 years of additional construction activity required to finish the legacy stage, with similar construction related health impacts to the pre-Games phase.

A key concern expressed for the legacy stage was the potential risk of 'gentrification', as a move from relatively low skilled employment opportunities to ones for high skilled and professional industries may limit the quality and sustainability of employment opportunities. When coupled with an uncertain provision of affordable housing driven by market demand, there was thought to be a potential risk of compounding socio economic inequalities, resulting in the further displacement of deprived communities.

The key health impacts of the Games identified by participants, therefore, related to construction activities compounding existing levels of poor health, and a potential risk of gentrification within the legacy stage exacerbating socio economic deprivation. The significance and distribution of such impacts will be dependent on the mitigation to be applied, and the level, type and duration of residual impact exposure experienced.

A lack of community involvement, however, was unanimously thought to pose the most significant risk to health throughout the lifecycle of the Games, compounding all impacts by:

- excluding communities;
- perpetuating perceived risks;
- increasing stress and anxiety;
- preventing health benefits to be explored; and
- reducing acceptance and ownership of the London Olympic Games.

A lack of meaningful community involvement may therefore exacerbate all risks to health, as well as impede the success of wining and hosting the Games, and the opportunity to develop Olympic health legacies.

6.3 *HEALTH BENEFITS OF HOSTING THE LONDON OLYMPIC GAMES*

The health benefit of hosting the London Olympic Games reflects the benefits of regeneration coupled with opportunities to improve lifestyle significantly, with a heightened national commitment and fixed timelines. Although regeneration of the Lower Lea Valley is planned in any event, heightened interest and the international focus of the Games is likely to increase Government support, supplemented by private investors and international sponsorship.

The Games are therefore likely to result in both a higher level of investment in remediation, regeneration and influence a London wide enhancement. They are likely to encourage a higher degree of interaction between Government, communities, the public and the private sector, thereby promoting a more joined up and strategic approach to the Olympic event and regeneration.

Environmental health risks are associated with intensive development required to meet Olympic specifications and timeline. However, the rapid rate of change was also identified as a positive benefit to local health, limiting the duration of disruption and exposure during construction, limiting exposure to existing pollution and contaminated land, improving access to open space, recreational areas and facilities prior to 2012 (*Table 6.4*).

The significance of potential health risks associated with intensive construction is therefore dependent on the level of mitigation to be applied, and must be considered against the rapid health benefits to be achieved through the provision of a cleaner, safer and a more accessible environment.

Table 6.4 Health Benefits of Constructing the Games (2006- 2012)

Potential health risk	Participant confirmation		Distribution of risk		
	Yes	No	Local	London	National
The removal of polluting industries from the local area will improve air quality and health and well-being.	10	1	9	2	0
The London Games will improve the quality of the local natural environment as a 'showcase', improving the quality of life leading to better health and well-being.	8	3	7	4	1
The London Games will improve health and well-being through increased open and green space.	8	2	6	7	0
New green transport routes will be provided reducing air pollution and promoting activity protect improving the environment, health and well-being.	9	2	6	5	0

As shown in *Table 6.5* environmental improvements spurred by the impetus of hosting the Games was thought likely to spread beyond the local level, as London wide improvements and enhancements will be required to meet Olympic tourism, providing a stimulus to increase accessibility to sports facilities, Olympic venues, hotels, parks, transport systems and historic sites throughout London. Wider improvements will also be required at Olympic training camps, improving the quality and accessibility of venues, transport networks and sports facilities throughout the UK.

Socio economic health benefits in the build up to the Games include heightened opportunities to support the development of new skills, training and transferable skills within the East End of London, generating an extensive mix of employment opportunities through Olympic voluntary work experience providing life changing experiences, for all of those involved.

A key health benefit of hosting the Games will be an opportunity to promote healthier living through the development of sports interest, encouraging physical activity through recreation, green transport, and through increased provision of Olympic sports facilities and training camps. The Games therefore provide an opportunity to improve the UK's current cultural health dilemma of inactivity, contributing to the reduction of and prevention of levels of obesity, diabetes, stress, systematic hypertension, coronary heart disease, respiratory disease and osteoporosis.

Table 6.5 *Health Benefits of Hosting the Games (2012)*

Potential health risk	Participant confirmation		Distribution of risk		
	Yes	No	Local	London	National
The London Games will offer life changing experiences, increasing training and Olympic voluntary work experience improving future academic, sport and career opportunities improving health and well-being.	8	1	2	3	6
The London Games will improve health and well-being by inspiring people to be more active and involved in exercise through more sports facilities.	9	2	3	4	7
The London Games will encourage people to live healthier lifestyles improve their health and well-being through better diet, less drug alcohol use and smoking.	4	5	1		6
The Para- Olympic Games will increase awareness of disability and disabled access to facilities, improving the health and well being of disabled people.	9	1	1	3	6
Once completed, public safety will be improved, leading to better health and well-being.	6	3	7	3	0
The London Games will improve the quality of the local natural environment as a 'showcase', improving the quality of life leading to better health and well-being.	8	3	7	4	1
The London Games will develop national and community pride, increasing self esteem, sense of control of their lives, involvement in their community, trust in the people they live near and sense of well being and health.	8	1	3	2	7
The Games will reduce economic and health inequalities	4	4	5	2	0

Following the Games in 2012, the Olympic Village is planned to be transformed into mixed residential homes generating 9100 residencies of which half are indicated within the master plan as affordable housing. Although near identical residential programs will proceed regardless of the London Olympic Games, a complete package of environmental renewal, enhanced public / green transport systems and regeneration will result in rapid change and improve overall quality of life and well being in the area.

Legacy planning material also indicates that the Olympic area will develop additional employment opportunities through mixed commercial, industrial and office work. Although such plans will occur regardless of the Olympic Games, the rate, and the quality of regeneration, coupled with increased community participation, skills development, exposure and showcase of the East End, is likely to increase interest, visitation and inward investment, improving the success and sustainability of socio economic health benefits.

Table 6.6 Legacy Health Benefits (Post 2012)

Potential health risk	Participant confirmation		Distribution of risk		
	Yes	No	Local	London	National
The London Games will bring a wider mix of people into the area to live and work, this may lead to reduced inequality, improved health, well-being and greater community integration.	4	5	5	2	0
The London Games will involve local and London wide communities, this will improve integration and therefore health and well being	5	2	2	8	0
The London Olympic Games will create more and a better mix of employment opportunities to people with varying levels of skills and qualifications, reducing unemployment and improving health and well-being.	9	0	6	4	1
The London Games will improve health and well-being by building better and more affordable housing.	8	1	6	2	0

The London Games will influence all aspects of health and wellbeing at a local, London and national level, by:

- rapidly improving the quality of the urban and natural environment;
- developing alternative education and employment opportunities;
- developing a wide range of skills;
- increasing sports interest, participation and physical activity;
- generating non exclusive Olympic standard sports facilities;
- bringing into being an Olympic sports medicines centre;

- positively influencing lifestyle and contribute to improving physical health nationally;
- developing national and community pride;
- increasing self esteem and control over life;
- increasing involvement and trust in the community;
- securing long term sustainable physical and socio economic health benefits;
- reducing health inequalities between East and West End of London; and
- supporting future major sports events within the Lower Lea Valley.

The key health benefit of the Olympic Games to act as a vehicle to drive regeneration and promote healthier lifestyles is dependent on the level of interaction and involvement with local communities. The Games are likely to inspire the next generation of athletes to lead healthier lifestyles, but will require additional initiatives to motivate the general public.

6.4 'NO GAMES' SCENARIO

The consideration of the 'No Games' scenario is required in order to compare potential impacts and benefits against a moving baseline. Workshop participants were asked to regard regeneration in the absence of the Games to be of the same quality of environmental remediation, the same quantity and quality of affordable housing, and equal provision of public and green transport networks. Key differences included a reduced level of enhancement of the Lower Lea Valley Parkland, reduced provision of sporting facilities (including a smaller aquatic centre and less likely provision of a sports medical centre), a regional level of focus and a slower rate of change.

The key benefit of not hosting the Games relates to a pure regeneration project, not requiring counterproductive construction of temporary facilities, requiring less expenditure, with less investment, lower intensity and extent of construction and potentially lower risks to health although over a longer duration.

The benefits to health are similar to those of hosting the Games, including:

- environmental improvements:
    - decontamination of land;
    - removal of derelict buildings;
    - increased and more accessible parkland;
    - creation of a safer environment;
- enhanced public transport networks;
- increased accessibility through improved foot and cycle paths;
- increased access to social networks and support;
- increased number and quality of affordable housing;
- development of mixed business, office, industrial and retail sites;
- increased employment opportunities;
- construction of some sports facilities, although of a less grand scale;
- an opportunity to engage communities within regeneration projects; and

- an opportunity to improve local health inequalities.

Although relocation of communities and industry is still required, the 'No Games' scenario is likely to provide more time for such programmes, providing business and individuals to develop alternative options within the allotted time.

Construction impacts including noise, air pollution and dust are still likely, but potentially of a lower magnitude because of lower level of intensity and with impacts spread out over a longer period of time.

Impacts associated with hosting the Games including increased disruption to services amenities and transport networks throughout London will be avoided. Risk from communicable disease will be reduced, and health and emergency services will not be subject to the burden of increased Olympic visitation. Legacy impacts associated with spiralling financial expenditure to meet Olympic demands and time line will also be prevented, as will the financial risks associated with maintaining underused or unused Olympic facilities.

In the 'No Games' scenario the of benefits are distributed largely at the local level, where communities within the Olympic footprint may be subject to less intensive construction activities, while disruption to services and amenities throughout London will be avoided.

6.5 DIS-BENEFITS OF NOT HOLDING THE OLYMPIC GAMES

In the 'No Games' scenario many of the health impacts associated with construction will remain, including:

- relocation and displacement of communities (Clays Lane and travellers);
- relocation of local industry;
- reduced environmental quality during demolition and construction;
- dust generation and emissions to air from soil movements and plant machinery;
- noise generation during heavy works and construction traffic;
- reduced access and intermittent disruption to services; and
- increased risk from construction traffic on roads;

The key dis-benefit of not hosting the London Olympic Games therefore derives from a reduced impetus and financial support to drive regeneration and the lost opportunity to combine regeneration with a vehicle promoting healthier lifestyles, resulting in:

- lower levels of investment and loss of sponsorship;
- less extensive environmental and urban renewal;
- a slower rate of change with less defined timelines;
- less certain development and pressure to ensure success;
- prolonged levels of exposure to both construction activities and existing contamination;

- reduced budgets within London Boroughs to support community consultation and training programmes;
- reduced consultation and interaction between community groups, public and private sector;
- reduced community participation, development and strengthening of community groups
- reduced opportunities to develop local skills base and internationally recognised Olympic work experience;
- lower and less immediate opportunities for deprived communities;
- less successful reduction in crime with slower rate of regeneration, less community buy in and lower focus on security to meet Olympic requirements;
- reduced impetus to increase disability access throughout London and awareness nationally;
- reduced provision and quality of sporting facilities;
- a lost opportunity to develop Olympic training camps;
- reduced exposure of national sporting excellence;
- reduced appeal for future national and international sporting events within the area;
- a lost opportunities to enthuse children and young adults in sports uptake and Olympic ideals,
- reduced opportunity to develop sports sciences, medicine, training and the next generation of athletes;
- a lost opportunity to drive health improvement programs and healthier living beyond the local level through Olympic promotion;
- reduced levels of exposure, and a lost opportunity to showcase the East End of London internationally;
- less rapid and lower levels of interest from inward investment; and
- a less joined up approach to regeneration.

The health risks of not holding the Olympic Games were judged to be potentially greater than if London is successful in winning. This is partly because many of the health risks associated with the construction and legacy stage of the Games will occur regardless. The key difference will be less disruption during a two to four week period that would be required to host the event.

A risk from construction activities will persist, and may be more significant in the 'No Games' scenario with a more prolonged duration of similar activities and health risks, with potentially lower levels of community consultation and participation. The less demanding timeline may be beneficial in extending the relocation of local industries and communities; however such postponement in essence is delaying the inevitable, not necessarily reducing the impact to health, and slowing the rate of improvements to the area.

There are three key health impacts of not hosting the Games associated with lost opportunities to:

- improve lifestyle and health;
- engage local and national communities; and

- ensure regeneration success.

The 'No Games' scenario will develop areas of open space, green transport networks and some sporting facilities. However, such facilities will be of a lower scale, and not subject to international exposure. If such facilities are non exclusive, and programmes are initiated to encourage physical activity, health is likely to be improved at a local level.

In contrast, the Games will provide a vehicle for encouraging national sports awareness with access to Olympic level facilities throughout London, and national training camps, contributing to a more extensive and significant levels of improvements in reducing and preventing levels of obesity, diabetes, stress, systematic hypertension, coronary heart disease, respiratory disease and osteoporosis.

Community consultation is likely to occur in the 'No Games' scenario. However, the level of engagement may be reduced with fewer opportunities to involve children and young adults and reduced opportunities to develop the local skills base. It was suggested that a similar volunteer programme be developed to involve communities and to develop transferable skills and experience. Such programmes will be less well funded, be of a lower profile, and not generate as much interest in participation.

The 'No Games' scenario may therefore result in fewer local socioeconomic health benefits associated with education and training. A reduction in such benefits may in turn reduce local prospects of employment as the area is regenerated and lead to an increased risk of gentrification.

The planned regeneration of the Lower Lea Valley will significantly improve the quality of the environment; provide employment opportunities and affordable housing. However, the Games will offer a more complete package of environmental renewal coupled with international exposure increasing the likelihood of future major sporting events and stimulate inward investment.

In the absence of the Games, regeneration will proceed, but within a less demanding time frame, lower levels of community participation, lower levels of skills development and potentially slower rate of inward investment.

Failure to secure the Games may in itself result in potential health risks, as local communities may experience a sense of failure, lost hope and lost opportunities to improve levels of deprivation for themselves and their children.

6.6 RANK OF IMPACTS AND BENEFITS

Following the identification of potential impacts and benefits, participants were required to shortlist the five key impacts and benefits of the Olympic Games and rank the most important health outcome.

Limiting participants to one vote between both impacts and benefits acts as a means to weigh and to prioritise potential health outcomes. As shown in *Table 6.7*, the most significant outcome is a potential lack of community involvement.

Table 6.7 Workshop Ranking of Impact and Benefits

Health impact of the Games	Votes	Rank
No real meaningful community involvement 'done to, not with'	8	1
Employment impacts, risk of unhealthy short/part time service in menial roles	0	5
Housing – false promises of affordable houses	0	5
Building site for next 10 years (5 construction/transport, re-building) huge increase in transport, light/pollution.	0	5
Fragmentation of existing communities/business, 'regeneration not gentrification'	0	5
Health benefit of the Games		
There is a level of guarantee and certainty about generation and its benefits happening and the pace at which this would happen	4	2
Opportunity for employment for those living in the areas	1	4
Housing: more of it, more affordable		5
Better environment – more + safer green spaces and lower pollution	2	3
Better facilities with better access	0	5

The workshop identified that such involvement will be essential to ensure the success of winning and hosting the Games, maximising potential health benefits and to secure long term socio economic health benefits during regeneration. A lack of such involvement will reduce the level of local and national acceptance, ownership of the Games and result in a subsequent decrease in tolerance and resilience to disruption.

Such is the significance of community involvement, that a lack of such consultation was unanimously identified as posing the greatest risk to health, ahead of the risks from construction, disruption, traffic and gentrification.

The second most significant outcome is the degree of certainty the Games will bring with national backing, an immovable time line and set deliverables outside of market forces, perceived as guaranteeing the success of the Games, regeneration and legacy benefits.

The third most significant outcome is the rapid regeneration of the area. Although similar regeneration is planned in the Games' absence, the Games will instigate a more rapid rate of improvement, at a global showcase standard supplemented by more opportunities for sports and physical activity.

A risk to health from construction activities, employment impacts and gentrification was perceived by workshop participants as significant. However, such risks are thought to present themselves regardless of the Games, while the opportunities and benefits of Games will not. For this reason many of the impacts are regarded less significant then the benefits.

A lack of public consultation was regarded as the most significant impact, in that such consultation is perceived as a mechanism to reducing the inevitable risks of construction activities, but also in maximising any health benefits.

Participants acknowledged that the Games will offer more incentive to public consultation and increased opportunities to protect and improve health.

6.7 HEALTH MITIGATION AND MAXIMISATION OPTIONS.

Workshop participants were reconfigured into small groups to address the impacts and benefits raised in the initial tasks. Each group prepared a five point plan to address the risks and benefits of hosting the Olympics and how these can be maximised or minimised as appropriate. Each participant received one vote with which to identify the most important area to mitigate.

6.7.1 Community Involvement

Meaningful community consultation and involvement is required throughout the lifecycle of the Games to aid in securing the London Olympics, to mitigate risk and to maximise sustainable health benefits. Currently most of the community engagement has been within Stratford. Further away from this location then there are less people involved in the process. A lot of the activity has also been centred around Newham rather then incorporating all the London Boroughs involved.

The extent of community involvement is currently focussed at the local level. However, this limited scope will reduce the health benefits to be achieved. The influence of the Olympics will not be confined to London, with events planned in Manchester, Newcastle, Birmingham and Northern Ireland, and national Olympic training camps as yet to be ascertained.

Early involvement is required to inform nationwide communities as to the pros and cons of the Games. A better description needs to be disseminated thereby increasing transparency alleviating concern, and increasing participation. Suggested information to be relayed may include:

- a non technical construction summary and mitigation measures to be implemented;
- a national Olympic plan, indicating the location of events, training camps and Olympic programmes;
- a clear 'No Games' scenario will allow people to judge for themselves what the benefits of the London Games will actually bring;

- Olympic involvement information is required to indicate how individuals may participate, what training they might receive and what opportunities this will bring; and
- the benefit of holding the Games at the local, London and national level.

Suggested national level engagement programmes include:

- Olympic education programmes, highlighting sports science, medicines and the benefits of healthier lifestyles;
- sports awareness programs, offering children and young adults the opportunity to experience Olympic sports, facilities and training camps prior to 2012;
- Olympic volunteer programs extended to training camps, and local urban improvement programmes increasing the development of local skills, experience, future opportunities and quality of the environment; and
- Olympic voluntary apprenticeship partnerships involved in community and urban renewal projects, developing work experience and transferable skills in young adults.
- Olympic lifestyle programmes encouraging increased physical activity through recreation, as a means of transport and as a means to improve health.

Participants identified the requirement of a national health legacy organisation team to coordinate such programs, and ensure official Olympic work experience accreditation, and sustained health benefits following 2012.

Workshop participants acknowledged that wider consultation is required to ensure additional opportunities to involve children, and hard to reach groups are not missed. The need for follow up consultations was also identified as necessary; this will allow for feedback so the community are aware of why decisions were taken and ensure that they do not feel ignored. This will also ensure that there will be a build up of trust and lines of communication will be kept open.

There is a need to have information disseminated on the benefits of hosting the Olympics on health in time for the site visit. This should be part of a wider health promotion process.

Such consultation and involvement will:

- reduce the perception of the Olympics being 'done to the community 'as opposed to 'with the community';
- increase public interest, support and participation in the Games;
- contribute in improving community cohesion;
- increase awareness and change to healthier lifestyles;
- support regeneration success by viewing the Olympics as a long term process and not a one off event.

Mitigation proposed within the workshop included:

- maximum levels of protection from construction impacts and disruption, community liaison, and monitoring;
- it was suggested that Londoners 'be given discount rates on tickets in that they have helped to pay for the Olympics and subject to disruption and risk';
- 'early bird transport discounts 'for individuals willing to commute to London before predicted peak times, reducing congestion and disruption; and
- free/concession Olympic and Para Olympic tickets for school children in London.

Although such mitigation may seem appropriate, it must be noted that discounts and concessions may in fact exacerbate London level impacts by reducing the financial success of the Games and may lead to subsequent increases in London Tax. Programmes should therefore be targeted at increasing the availability of tickets to Londoners rather than simply offering discounts.

6.7.2 Beyond 2012: Legacy Groups

The Games needs to be sustainable with a legacy that lasts beyond 2012 and setting up a '2012 Legacy Group' should help with this process. The group would need to have an 'enforcement role' to ensure that promises are kept and that there is coordination across the boroughs involved including Greenwich. The main aim of the group would be to ensure that there is sustainability, accountability and coordination.

The group should have funding and be able to offer funding to other groups in turn. This will create employment opportunities and community development. This group could liaise with other key groups and report directly to the decision makers. Existing community structures such as the Local Strategic Partnerships could be utilised in this process.

6.7.3 Employment Risk

Participants expressed the need to highlight the employment and training opportunities available in both the hosting of the Games 2012, and post Games opportunities. This will allow individuals time to develop appropriate skills that they need in order to access job opportunities. This could be achieved through publicising employment opportunities available, and development of training programs. Offering training will ensure that even those in short term employment during the Olympics will gain transferable skills.

The volunteer program will also be essential in improving skills and encouraging people to reassess working in central London, ie, travelling into the city. The numbers of new jobs may not be huge but they need to be placed in the context of increased training and regeneration of the whole area.

There is a need to publicise the opportunities in simple terms; "these are the jobs"…. "these are the benefits"…. "disabled group will benefit in these ways".

6.7.4 Affordable Houses

A need to protect the promise of affordable housing and to inform people of the housing that will be constructed is wanted. The process by which decisions on the percentage of affordable houses that will be constructed needs to be transparent to safeguard the interests of the community and risk of gentrification.

6.7.5 Construction Impacts

More public information is required in regard to construction activities. Construction is likely to be intensive but not constant throughout the Olympic Footprint.

There needs to be a promise for green spaces included in the proposal and the amount should be based on projected population needs. Vague promises about the amount of green space should be avoided in favour of concrete targets. The minimum specification of the construction should be the Para-Olympics.

Concerns relating to the area becoming a building site for the next 14 years could be alleviated through pan-London publicity to improve awareness of the Games and the benefits that they will bring. Mechanisms for involvement should also be set up so Londoners can get involved.

6.8 PRIORITISATION OF MITIGATION AND MAXIMISATION MEASURES

The mechanisms to minimise harm and maximise health benefits were voted on by participants to prioritise -importance. Participants were allowed only one vote for each category.

As shown in *Table 6.8,* community involvement is thought to be key to ensuring that both the benefits are maximised and the risks are minimised.

Table 6.8 Risk Mitigation and Health Maximisation

Mitigation	Votes	Rank
Community Involved in all projects	6	1
Need to highlight employment and training opportunities and build skills	2	2
Increased publicity	1	3
Mechanisms for involvement e.g. post Games committee.	1	4
Protect promise of affordable housing	0	5
Maximisation	**Votes**	**Rank**
Ensure early community involvement	3	1
Affordable housing targets safeguarded	1	2
Safeguard regeneration potential even if no Olympics	1	3
Employment and training	0	4
Beyond 2012 implementation group	0	5

The workshop believed that involving the community at all stages would lead to the most successful Olympics in terms of health. The need to highlight employment opportunities and training skills was considered the next most likely way to minimise health risks.

6.9 WORKSHOP SUMMARY

A common theme amongst the points raised by the workshop participants is concern for displacement of communities and industry, construction impacts and disruption impinging on the quality of life and ultimately health. However, such disruptions are perceived as having likely to occur regardless of the Games and necessary to regenerate the area providing long-term health benefits.

The Games are therefore perceived as an opportunity to not only increase the extent and rate of regeneration, but also ensure a higher level of investment in community consultation and involvement ensuring local socio economic and health benefits. The London 2012 group has proposed the development of a construction academy to develop local skills to meet future job requirements, while money has been set aside for more general skills-training across the capital. Similar programmes are likely to be developed regardless of the Games, however, funding, publicity and interest will be of a lower level.

Physical health benefits of hosting the Olympic Games reflect significantly improved urban and natural environments in the East End of London with enhancement of local environments and improved accessibility throughout London and Olympic venue cities. The 'No Games' scenario is unlikely to influence the quality of environment and life beyond the local level.

A key point raised is the opportunity to utilise the Olympics as a vehicle to promote national improvements in health, education, employment pride and wellbeing, including:

- Healthier lifestyles
    - increased sports awareness and interest;
    - increased access to sports facilities
    - increased physical activity;
    - reduced risk taking behaviour (anti smoking policy, zero drugs tolerance);
- Education
    - increased promotion of sport science, training and medicine;
    - development of skills base and work experience;
- Employment
    - increased provision of wide range of employment opportunities to facilitate Olympic construction, visitation, and tourism;
- Wellbeing and pride
    - increased community involvement and cohesion;
    - revitalisation of local heritage and culture; and
    - enhanced environments and increased accessibility.

The extent of such influences is dependent on how the Games are promoted and sponsored and the level of early communication and coordination of programmes to tie into development and hosting of venues.

The key point raised during the workshop was the need for greater transparency, publicity and community involvement, where problems are explained and potential mitigations are laid out for the local environment.

The rest of London also needs to be considered. There will be disruption during the Olympics and these needs to be put in context of long term benefits. There is also a need to communicate a message that other areas of London will receive such elements as training camps across London, improved transport across the city, a boost to income through tourism, which will include more high spending tourists.

The analysis stage investigates and appraises potential outcomes and benefits, incorporating environmental and health data to identify populations at risk and assesses the maximum theoretical impacts with a view to developing measures to reduce or avoid negative impacts and inequalities, and enhance opportunities to improve health. This has been achieved by identifying project activities with known health pathways and outcomes, and applying them to the community profile to express exposure, sensitivity and provides a qualitative judgment as to the likelihood, magnitude and significance of potential health outcomes.

7.1 ASSESSMENT OF THE IMPACTS OF REDUCED LEVELS OF UNEMPLOYMENT ON HEALTH OUTCOMES

7.1.1 Employment Estimates

The total number of jobs created is projected to be 12,035 if the Olympic Games go ahead(1).

Table 7.1 Employment Projection by 2012

	Number of Jobs
'No Games' scenario baseline	5690
Olympic Legacy scheme	6345
Total	**12,035**

Source: EIA, Chapter 62 pg 14

The Legacy proposals will create a total of 12,035 jobs across the Outer Impact Zone(2). In terms of the no-scheme baseline it is assumed that the land identified for redevelopment by the planning applications has a 2003 baseline capacity of roughly 5,500 jobs and by 2012 it has been assumed that this would rise to 6,000 jobs. The figures in *Table 7.1* show the number of jobs when displacement and the multiplier effect are accounted for(3).

In order to estimate the number of these new jobs that will go to the unemployed an analysis of the current unemployment rates in the Boroughs affected (Tower Hamlets, Newham, Hackney and Waltham Forest) has been done, with respect to the unemployment rate in Outer London.

The unemployment rate in Inner London is approximately 5.6% and three of the Boroughs are inner London (Tower Hamlets, Newham, Hackney). The unemployment rate for Outer London is 3.6%, which is taken as a reasonable assumption for the estimated number of unemployed that could be employed

(2) The Outer Impact Zone is the four London Borough directly affected – Tower Hamlets, Newham, Hackney and Waltham Forest.
(3) These calculations are from the EIA and have not been further investigated.

in new jobs in the Outer Impact Zone. Since all four Boroughs have a higher unemployment rate than Outer London it is estimated that about 20,079 people could be employed in new jobs.

However, as can be seen from the number of jobs that are projected to be available there are more available and unemployed people than jobs, thus the health effect has been estimated on the number of jobs under the assumption that the four Boroughs would have enough unemployed with the necessary skills to fill all the projected jobs.

7.1.2 Implications for London

A literature review done by ERM(1) previously identified studies that have found a correlation between unemployment and health. The studies suggest that mortality rates of the unemployed are 21 to 111 % higher than amongst the employed individuals, and even higher if suicide is considered alone.

Data from National Statistics indicate that the annual number of male deaths for all ages in London is 30,057 for 2001 and for females is 28,526, meaning that the total number of deaths annually in London was 58,583. Using these figures and the Census population for 2001 a mortality rate can be estimated of about 8.17 deaths per 1,000 population for London.

To indicate what this might mean for the outer impact zone, this figure must be divided by 1,000, multiplied by the decrease in the average number of unemployed(2) and then increased by the estimated percent increase attributable to unemployment. The results are presented in *Table 7.2* and it can be seen that with the Olympic Games the health effects of additional employment could reduce the number of deaths by a factor of 2 in the outer impact zone.

Table 7.2 Possible Range of Reductions on Mortality (based on total deaths from 2003-2012)

Scenario	**Impact of a 21 % Increase in Mortality**		**Impact of a 111 % Increase in Mortality**	
	No-scheme scenario	*With Games scenario*	*No-scheme scenario*	*With Games scenario*
Average Impact of Additional Employment Creation Projects per annum (based on average number of jobs)	4.9	10.3	25.8	54.6
Total Impact of Additional Employment Creation Projects	43.9	92.9	232.2	491.0

Source: ERM analysis

(1) Please see Annex C for more details of the literature review.
(2) In this case the number of project jobs divided by 2, which is the average number of jobs in each year. This is estimated because we do not have the breakdown of the number of jobs per year.

Although many of the studies reviewed did find a correlation between unemployment and mortality, other studies have argued that the correlation is not proven. Therefore, these results should be viewed with caution and treated as indications of possible scales of impacts rather than reliable forecasts.

7.2 *NOISE*

Literature indicates that there are a number of potential effects of noise on health. Support for the actual effects is unclear, and dependent on a range of contributing factors. The main emphasis of noise standards and regulations is therefore placed on annoyance and sleep deprivation due to the fact that they are the most immediate consequences of noise impacts, and applicable to everyone.

As part of the Environmental Assessment, a baseline noise survey has been undertaken at twenty one measurement locations. High levels of road traffic and rail were recorded at the majority of noise sensitive locations including schools and residential areas. At the majority of these locations the noise and vibration impact from the Olympic applications is not considered to be significant, as dominant noise sources from construction and operation are located at large distances from noise and vibration sensitive receptor (1) .

7.2.1 *Construction of the Games (2006-2012)*

Noise generated during construction will be largely confined to the Olympic area, with limited exposure to surrounding communities. In some cases, especially at receptors close to the A12, the noise levels due to road and rail traffic are high, and noise sources from construction and operational activities are predicated to be well below the existing ambient noise levels.

Only the construction of the Aquatic Centre and Combined Heat and Power plant are considered to be of slight significance, resulting in a noise increase of approximately 0.1 to 2.9 (dB) at the nearest residential properties and Gainsborough Primary School located to the south of the site(2).

However, mitigation measures at the site boundary are proposed and will protect both residential amenity and the normal operation of the Primary School. A strict construction code limiting work between the hours of 08:00-18:00 on weekdays, and 08:00 to 13:00 on the weekends will further limit exposure to noise and prevent impacts associated with sleep deprivation.

(1) Environmental Statement & Non Technical Summary. Lower Lea Valle Olympic Master plan & Lower Lea Valley Legacy Master plan
(2) Environmental Statement & Non Technical Summary. Lower Lea Valle Olympic Master plan & Lower Lea Valley Legacy Master plan

7.2.2 Hosting of the Games (2012)

Operational noise impacts reflect changes due to the large number of people visiting the Olympic Precinct, Public Announcement (PA) systems, increased transport and machinery including the CHP plant. However, such increases will be short term and following mitigation not thought to impinge significantly on the surrounding communities. Temporary closure of roads during the Games period may result in noise reductions.

7.2.3 Olympic Legacy Stage (2012-2020)

Following the Games construction noise impacts are not expected to be of a significant level, with the key impact reflecting the population of new industry and the Stratford City development(1) .

7.2.4 Construction of the 'No Games' Scenario (2006-2012)

Similar outcomes are expected during the construction of the 'No Games' scenario, as noise impacts are generally considered not to be significant, with many of the proposed residential and industrial developments located away from noise sensitive receptors. However, relocation of industry and communities will be delayed, and may be subject to increased noise exposure.

7.2.5 Operation of the 'No Games' Scenario (2012-2020)

Operational noise impacts of the 'No Games' scenario are unclear, dependent upon on the type of industrial use. However, the Environmental Statement expects that there are few locations where noise impacts from the new industrial developments may be of slight significance to existing communities. The industrial and community population of the area is likely to rise in parallel to development, exposing new communities to construction noise.

By 2020 noise impacts will be similar to the Games scenario reflecting the population of The Stratford City Development (2).

7.2.6 Summary

Following mitigation, noise impacts and subsequent impacts to health are thought to be negligible, during the construction and operation of the Games and 'No Games' scenario, limited to short term annoyance.

7.3 AIR QUALITY

Activities likely to influence local air quality are similar for both the Games and 'No Games' scenario, including:

(1) Environmental Statement & Non Technical Summary. Lower Lea Valle Olympic Master plan & Lower Lea Valley Legacy Master plan
(2) Environmental Statement & Non Technical Summary. Lower Lea Valle Olympic Master plan & Lower Lea Valley Legacy Master plan

- emissions to air from construction and demolition process;
- the relocation of industrial or light industrial uses; and
- changes in traffic flows from construction and displacement of industry and communities.

7.3.1 Emissions to air

Emissions to air will arise from increased combustion of fuels from plant machinery and construction traffic. However, such emissions are not thought to pose a significant risk to health, being of low concentrations, intermittent and generally over 200m from known receptors, providing more then sufficient distance to disperse will no effect upon local air quality.

As noted within the Environmental Statement, the key emission to air will be the generation of dust from demolition, earthworks and construction activities throughout the Olympic Area. There is potential for significant dust nuisance to arise during the construction and demolition phases, with the greatest risk associated with the Pre-Olympic Construction phase when earth works and demolition are expected to be at their peak(1).

However, the distance between on site construction and demolition activities and known receptors is greater then 200m, and as stated in the Environmental Statement the level of any potential significance from these sources of air pollution can be mitigated to a level of no significance by adopting appropriate mitigation measures including:

- Control of dust and fine particulate matter emissions through local containment (sheeting buildings etc) use of demolition and recycling activities which limit dust generation, site cleanliness (road sweeping, dust suppression sprays and wheel washing etc), sheeted storage of materials; and

- Minimising engine emissions through proper maintenance of plant and vehicles and the use of more modern engines.

7.3.2 Relocation of Industrial or Light Industrial Uses

Both the Games and 'No Games' scenario will result in the removal of 'Bad Neighbour' industries improving local air quality. The key difference between the scenarios is the rate of change, in that the Olympics will require a more rapid relocation of industries and environmental improvements before 2012.

7.3.3 Change to traffic

Increased flows of construction traffic may contribute towards reducing air quality along roads within Air Quality Management Areas. However, such a

(1) Environmental Statement & Non Technical Summary. Lower Lea Valle Olympic Master plan & Lower Lea Valley Legacy Master plan

contribution is dependent upon the transport strategy employed (discussed in *Section 7.4)*, and the level of traffic displaced from roads due to relocation of existing industries and communities.

7.3.4 Summary

Although the Games require a more intensive period of construction prior to 2012, emission levels, type and exposure are similar between the two scenarios. With the key outcome associated with increased dust generation in the local area. Although the Environmental Statement indicates that, post mitigation, residual impacts will not be of a significant level to result in nuisance; prolonged exposure may increase risk of aggravating existing levels of poor respiratory health in both scenarios.

7.4 TRAFFIC

The risk of traffic to health is associated with:

- risk from accident and injury;
- increased exposure to air pollution; and
- commonly associated with community severance.

7.4.1 Construction of Olympic Games (2006-2012)

The Olympic Legacy Planning Application Report (1) indicates that during the anticipated busiest period of construction, the "worst case" peak HGV traffic flows are considered to be approximately 200 movements per hour (100 in each direction). However, it is anticipated that this figure is unlikely as existing railhead facilities in Bow Midland West and East would be used in combination with navigational waterways to transport materials and spoil. In the "best case" scenario, implementation of rail and barge is expected to reduce peak HGV trips to approximately 30 HGVs per hour (15 in each direction).

When considering risk of accident and injury it is important to note that the relocation of local industry and communities will reduce private and HGV vehicle movement in the area, further reducing risk of road traffic accidents by reducing the number of receptors in the area and vehicles on roads.

Mitigation measures set out in the Construction Programme and Code of Construction Practice will further reduce exposure to traffic risk, through tightly controlled routes, planned and scheduled to avoid sensitive receptors and school runs.

The Environmental Statement indicates that even assuming the "worst case" scenario for the Pre Olympic Construction Phase significant impacts are not likely. The same is true for the Legacy construction Phase.

(1) Lower Lea Valley Olympics & Legacy Planning Applications Main Committeee Reoprt. 9th September 2004.

Local connectivity, particularly within the valley south of the A11, is poor, with substandard roads and footpaths, interrupted by a number of waterways and rail routes and poor land quality acting as barriers. Increased road traffic flows into the area are unlikely to further reduce levels of accessibility between local communities. However, rapid environmental improvements, enhanced foot and cycle paths and provision of new river crossings will greatly improve local accessibility.

7.4.2 Hosting the Games (2012)

The Games are planned to be a public and green transport event. However, changes to road traffic will result from the closure of a number of roads within or close to the Olympic area for at least 6 months to facilitate the introduction and removal of infrastructure.

Key changes to road traffic are thought to include:

- a decrease in strategic traffic flows in both directions on the A12;
- an increase of traffic on the A13 and A406 to travel north diverting around the Olympic Precinct instead of using the A12;
- an increase in traffic flows North South in the Lower Lea Valley, with local traffic re-routing away from the Core Olympic movement corridors; and
- a decrease in traffic from southbound in the Blackwall Tunnel and no change to northbound traffic.

The impacts to health reflect disruption, reduced accessibility and increased traffic movements to accommodate such closures. However, such impacts are thought to be reduced through public transport strategies, increased foot and cycle paths and provision of disability access.

7.4.3 Post Games (2012-2020)

Following the Games and removal of temporary facilities, roads will be reopened increasing accessibility throughout the area. Construction of the legacy stage will result in some disruption, but is not considered of a level sufficient to not pose a significant risk.

7.4.4 The 'No Games' scenario

In the absence of a 'No Games' master plan the extent of traffic risk to health is unclear. However, construction activities are likely to be similar and may also utilise rail and barge to transport materials and spoil, reducing disruption and risk from increased HGVs on roads.

7.4.5 Summary

In the fully engaged scenario the risk of accident and injury in the area may not change, or may even be reduced. Traffic displaced will be replaced, while relocation of local industry and communities will reduce levels of exposure and subsequent risk to health.

The predicted changes in traffic flows are not generally regarded to be significant [1], as alternative public transport strategies have been proposed, and enhanced public foot and cycle paths will reduce temporary local level disruptions.

7.5 *COMMUNITY SEVERANCE*

Severance of communities relates to physical, social or economic barriers that prevent or restrict community interaction. The impacts on health are usually at a community level, where a lack of social integration and cohesion can reduce access to a range of amenities and social networks. This can result in the development of inequalities, unrest and provide a barrier to the sustainable development of communities.

Communities within and surrounding the Lower Lea Valley are currently experiencing a number of barriers in the area including:

- low quality environments;
- perceived levels of crime;
- poor provision of safe foot and cycle paths;
- low disability access; and
- lack of crossings over waterways and rail lines.

Both scenarios will result in temporary disruption during construction, with significant improvements to be attained.

7.5.1 *Construction of the Games*

The Games will require the relocation of industry and displacement of communities within the planned Olympic Area, securing the site for intensive construction activities further reducing access between local communities. As infrastructure and facilities are completed, access will increase to utilise such amenities prior to hosting the Games [2].

7.5.2 *Hosting the Games (2012)*

Community barriers during the Games will be temporary and largely effect private road vehicle movements within the area, as priority will be placed on public and green transport modes. Some road closures will be required for at least 6 months to facilitate the final stages of construction and secure the Olympic area for visitation.

However, public transport systems and green transport will be increased throughout the area to meet Olympic visitation demand.

(1) Lower Lea Valley Olympics & Legacy Planning Applications Main Committee Report. 9th September 2004.
(2) Design Statement: Olympic Precinct & Legacy Context Document for the Lower Lea Valley Olympic & Legacy Planning Applications. May 2004

7.5.3 Post Games (2012-2020)

Following the Games some roads will remain closed until temporary structures can be removed and local infrastructure realigned. Limited construction barriers may persist during the legacy stage, and are thought to be concentrated around the development of Stratford City.

New and enhanced transport links between surrounding London boroughs will remain, reducing and removing previous barriers.

7.5.4 'No Games' scenario

New and enhanced transport networks are planned regardless of the Games, with the addition of the new A11-A13 spine road running south from Pudding Mill Lane to Canning Town, intersecting with new east-west cycle networks and strategic riverside walkways proposed around the east India dock area linking major opportunity areas to potential residential areas(1).

Rail networks will be significantly improved with a potential additional station on the Docklands Light Railway at Langdon Park, and through the construction of Crossrail, delivering a new East to West link beyond Greater London connecting Heathrow, Maidenhead through to Stratford and the Channel Tunnel rail link.

Additional improvements may include three new road river crossing schemes in the Stratford City area and a total of nine footbridges across the Lea to improve local accessibility.

The 'No Games' scenario is therefore expected to gradually improve accessibility in the area, providing a means to reduce social exclusion and improve access to employment, education and recreation.

(1) Environmental Statement & Non Technical Summary. Lower Lea Valle Olympic Master plan & Lower Lea Valley Legacy Master plan

8 CONCLUSION AND RECOMMENDATIONS

8.1 INTRODUCTION

The following section summarises the likely health impacts and benefits of hosting the London Olympic Games, delivering recommendations to mitigate risk and maximise health benefits.

8.2 HEALTH BENEFITS

In essence both the Games and 'No Games' scenario can be regarded as regeneration projects, with similar activities and opportunities to significantly improve all aspects of health and wellbeing, including:

- the quality of the local urban and natural environment;
- removal of 'bad neighbour' industries;
- creation of a safer environment;
- education and training opportunities;
- employment opportunities;
- increased and enhanced provision of facilities, amenities and services;
- enhanced public transport networks;
- improved access and accessibility through improved foot and cycle paths;
- opportunity to increase physical activity;
- increased access to social networks and support; and
- increased provision of affordable housing.

Both scenarios are therefore indicated to improve health through a combination of health determinants contributing to:

- preventing the onset and improving survival rates from cardio vascular and respiratory disease locally;
- preventing and reducing local levels of obesity;
- preventing the prevalence of local levels of diabetes;
- reducing long term local levels of depression, anxiety and mental illness; and
- improving the quality of life and wellbeing.

The key difference between the scenarios is in that hosting the Games is thought to:

- increase the rate, extent and quality of regeneration (to meet Olympic showcase standards);
- increase levels of sponsorship and investment;
- increase the level of private, public and community buy in;
- increase the level of community participation, development and strengthening of community groups;
- develop Olympic and legacy training, experience and transferable skills;
- develop immediate employment and income benefits;

- provide greater opportunities for deprived communities;
- result in a more successful reduction in crime to meet Olympic requirements;
- provide a global showcase of the East End, London and national venues and attractions;
- act as a springboard to inward investment and future regeneration success
- increase pressure to deliver;
- increase the level of emphasis placed on the promotion of healthier lifestyles and physical activity (national benefit);
- offer heightened improvements to local physical health;
- offer health benefits at a national level through increased sports interest and regeneration to meet Olympic visitation; and
- provide Olympic grade sports facilities stimulating sports sciences, medicine, training and the next generation of athletes.

Associated health benefits therefore reflect heightened and more immediate environmental improvements, education and employment opportunities, increased health promotion and provision of sports facilities.

In a fully engaged scenario the Games will :
- stimulate regeneration throughout London, at national venues, training camps and attractions;
- provide greater opportunities and health improvements at the local level;
- provide a vehicle to promote national lifestyle and health improvements; and
- provide a spring board to further regeneration.

In contrast to the 'No Games' scenario, the health benefits of the Games extend throughout England and Wales, limited only by London Olympic programmes to engage and involve communities.

Hosting the Games is also likely to attract future major sporting events to the area, develop a medical sports centre and stimulate inward investment contributing to a legacy of physical, social, economic and mental health improvements.

8.3 HEALTH RISKS

Health risks were identified throughout the lifecycle of the Games reflecting environmental risk during construction and potential social impacts from a lack of inclusion, thereby influencing physical, mental and socio-economic health determinants.

Table 8.1 Potential Health Risks of the London Games

Construction (2006-2012)
Reduced environmental quality during demolition and construction
Dust generation and emissions to air from soil movements and plant machinery
Noise generation during heavy works and construction traffic
Reduced access and disruption to services during some construction activities
Increased risk from construction traffic on roads
Relocation and displacement of communities (Clays Lane and travellers)
Relocation of local businesses, and risk to employment
Hosting of the Games (2012)
Increased pollution
Increased risk from communicable disease
Increased demand on public services (health and emergency services)
Disruption, crowding and delays to transport services
Increased journey time
Reduced access to open space, sport facilities and recreation
Post Games (2012-2020)
Reduced environmental quality during the removal of temporary facilities and further regeneration of the area
Dust generation and emissions to air from soil movement and plant machinery
Noise generation during heavy works and construction traffic
Increased risk from construction traffic on roads
Displacement of communities as the area becomes

Construction risks will occur in both scenarios. The relocation of industry and communities within the site, however, will limit exposure to the periphery. Potential health impacts reflect local low level exposure to noise, dust and poor air quality for up to 6 years. The Environmental Statement acknowledges that communities and a primary school close to the southern border of the Olympic site may experience a slight significant increase in noise, while dust is not thought to be of a level sufficient to be a widespread annoyance.

Health outcomes may therefore potentially reflect increased levels of local annoyance, anxiety and stress, disruption to early learning through to exacerbation of existing respiratory ailments. However, following the mitigation proposed in the Environmental Statement, these factors are not thought to pose a significant risk to local communities (1).

Hosting of the Games will result in temporary local level disruption and an increased environmental burden. Health outcomes are likely to include increased stress and anxiety, and a potential increase in risk from accident and injury due to increased visitation.

Risk from an increase in communicable disease is not significant (2).

(1) Environmental Statement & Non Technical Summary. Lower Lea Valle Olympic Master plan & Lower Lea Valley Legacy Master plan

(2) Jorm L R, Thackway SV, Churches TR, Hills MW. Watching the Games: Public Health Surveillance for the Sydney 2000 Olympic Games. J Epidemiol Community Health. 2003. Feb; 57(2):102-8

Following the Games there are similar health risks to the initial construction stage, concentrated around the Stratford City development.

Table 8.2 Comparison of Health Determinants for Both Scenarios

	With Olympic Games Scenario			'No Games' Scenario	
	Construction (2006-2012)	**Hosting (2012)**	**Post Olympics (2012-2020)**	**Construction**	**Operation**
Environment (land quality)	××	✓✓✓	×/✓✓✓	××	✓✓✓
Air Quality	××	✓✓✓	×/✓✓✓	××	✓✓
Noise	×	××	×	×	×
Employment and Income	×/✓✓	✓✓✓	✓✓✓	✓✓	✓✓
Education and training	✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓
Physical activity	×/✓	✓	✓✓✓	×	✓✓
Access to services and amenities	×/✓	✓✓	✓✓✓	×	✓✓
Traffic and transport	×	✓✓✓	✓✓✓	×	✓✓✓
Community Severance	×/✓✓	✓✓	✓✓✓	×	✓✓
Housing	×	✓	✓✓✓	×	✓✓✓
Stage Total	**- 3**	**+ 19**	**+ 24**	**- 6**	**+21**

Key:		
	×××	Strongly negative influence (-3)
	××	Moderately negative influence (-2)
	×	Mildly negative influence (-17
	-	Neutral influence (0)
	✓	Mildly positive influence (+1)
	✓✓	Moderately positive influence (+2)
	✓✓✓	Strongly positive influence (+3)

8.4 WORKSHOP PRIORITISATION OF IMPACTS AND BENEFITS

Following the identification of potential impacts and benefits, workshop participants were required to shortlist the five key impacts and benefits of the Olympic Games and rank the most important health outcome.

As shown in *Table 8.3* participants considered that risk to health from construction activities, employment impacts and gentrification as being significant. However, the most significant influence on health raised was a potential lack of community involvement.

Table 8.3 Rank of impact and benefits Impact

Health impact of the Games	Votes	Rank
No real meaningful community involvement 'done to, not with'	8	1
Employment impacts, risk of unhealthy short/part time service in menial roles	0	5
Housing – false promises of affordable houses	0	5
Building site for next 10 years (5 construction/transport, re-building) huge increase in transport, light/pollution.	0	5
Fragmentation of existing communities/business, 'regeneration not gentrification'	0	5
Health benefit of the Games		
There is a level of guarantee and certainty about generation and its benefits happening and the pace at which this would happen	4	2
Opportunity for employment for those living in the areas	1	4
Housing: more of it, more affordable		5
Better environment – more + safer green spaces and lower pollution	2	3
Better facilities with better access	0	5

The Games are perceived as an opportunity to not only increase the extent and rate of regeneration, but also ensure a higher level of investment in community consultation and involvement ensuring local socio economic and health benefits.

The workshop identified that such involvement will be essential to ensure the success of winning and hosting the Games, minimising risk from construction and maximising potential health benefit, securing long term socio economic health benefits during regeneration.

Such is the significance of community involvement, that a lack of such consultation was unanimously identified as posing the greatest risk to health, ahead of the risks from construction, disruption, traffic and gentrification.

8.5 RECOMMENDATIONS

ERM recommends a series of measures to reduce perceived and actual health impacts, and to promote health improvements at the local, regional and national level.

8.5.1 Local level

Considering the sensitivity of local communities, which experience some of the lowest life expectancies in London, it is vital that all the mitigation measures suggested in the Environmental Statement and are implemented and monitored, alongside a programme of regular public consultation.

Noise monitoring along the perimeter of the Olympic area has been recommended for the construction period, in order to identify unexpected emissions and levels of community exposure.

Maximum dust suppression measures have been recommended during construction, in order to prevent a risk to susceptible local communities. The monitoring of particle deposition has also been recommended, so that the effectiveness of the measures can be demonstrated.

Transport of construction materials, spoil and staff via rail heads, navigational water ways (where possible) is recommended, to reduce exposure to road traffic emissions and to prevent the risk of accident and injury to wider communities.

Public information and community consultation campaigns are recommended, to inform local people. Effective communication will assist in removing the perception of impacts and will afford the opportunity of minimising impacts and maximising benefits for the community.

Recommended information programmes include:

- a non technical construction summary and mitigation measures to be implemented;
- a national Olympic plan, indicating the location of events, training camps and Olympic programmes;
- a clear 'No Games' scenario, allowing people to judge for themselves what the benefits of the London Games will actually bring;
- Olympic involvement information is required, showing how individuals may participate, what training they might receive and what opportunities the Games will bring for them; and

- a fixed number of affordable housing and accompanying guarantee is recommended, so as to safeguard the interests of the community and avoid the risk of 'gentrification'.

There is currently little research or evidence that attributes increased sports uptake and physical activity to the Olympics or any other major sporting event. The London Games presents an opportunity to perform longitudinal analyses of the rates of participation before and after the games and subsequent health Benefits of hosting the event. ERM recommends that such analysis is performed in order to attribute health benefits, and support future Olympic Games.

ERM recommends establishing a community board or network comprised of local schools, community groups and primary care trusts in order to provide a means to continued local consultation and an Olympic update.

8.5.2 London – National level

The influence of the Olympics will not be confined to the Lower Lea Valley, with events planned throughout London, in Manchester, Newcastle, Birmingham and Northern Ireland, and national Olympic training camps at venues yet to be ascertained.

ERM recommends national level information and engagement programmes to develop Olympic interest and improvements to a range of health determinants. Recommended programmes include:

- Olympic education programmes, highlighting sports science, medicines and the benefits of healthier lifestyles;

- sports awareness programs, offering children and young adults the opportunity to experience Olympic sports, facilities and training camps prior to 2012;

- Olympic volunteer programs extended to training camps, and local urban improvement programmes increasing the development of local skills, experience, future opportunities and quality of the environment;

- Olympic voluntary apprenticeship partnerships involved in community and urban renewal projects, developing work experience and transferable skills in young adults; and

- Olympic lifestyle programmes encouraging increased physical activity through recreation, as a means of transport and as a means to improve health.

ERM recommends the development of a national health legacy organisation team to coordinate such programs, and ensure official Olympic work experience accreditation, and sustained health benefits following 2012.

The matter of access to the Games and their events requires some thought. The esteem and well being of the local community will be enhanced if priority is given to local people, as well as financial discounts, but the financial impact of staging the Games will also have wider economic consequences across London. These consequences in turn could have health related impacts for the larger community.

Annex A

Olympic and Commonwealth Health Legacies Literature Review

The socio-economic benefits created pre, during and post major sporting events are well documented. In the past, the Olympics have not always brought economic gain and, in the cases of both Munich (1972) and Montreal (1976), made losses(1). During the Sydney Games tourism, accounting for nearly 5 % of Australia's economy, rose to 11 % during 2000, generating an additional $US 320 million in foreign exchange earnings than the previous year. However, many of the employment and income gains have proved difficult to maintain. The Australian Bureau of Statistics now sees tourism levelling off to just above the pre-2000 levels, although some of this is attributed to of the impacts of September 11 and the collapse of Ansett, Australia's second international airline.

The major beneficiaries of the Sydney Games were the convention and construction industries. The latter remains one of the most powerful sectors of the New South Wales economy, but there are doubts about whether a post-Olympics upturn in convention bookings will be able to overcome the long-term problem of Sydney's relative isolation from the rest of the world. Barcelona managed to become a major tourist destination after it hosted the Olympics by improving its image through extensive environmental renewal and urban regeneration. Barcelona's airport handled 2.9 million passengers in 1991; by 2002 that figure had risen to 21 million. Tourism, which accounted for less than 2% of the city's pre-Olympic GDP, is now worth 12.5%, with the increase in hotel accommodation dictated by the Games generating 12,500 new jobs.

In contrast, the European football tournament Euro96 attracted 280,000 overseas visitors who spent £120 million in the eight host cities. The tournament also made a £69 million profit for UEFA. However such gains were a one-off and not sustainable (although this may be because the games required no significant investments in improved infrastructure, being based on existing, already improved stadiums).

There are, however, longer term benefits if purpose built stadiums can be used regularly to host other events, or if raising the profile and image of the city attracts more tourists. However the need to attract tourists needs to be balanced against the need to provide community use.

The Commonwealth Games provided an additional 6,300 employment opportunities, 2,320 of which were in East Manchester, with the rest spread across Manchester the North West and the UK. The Manchester Games generated £ 22 million through new business opportunities. Tourism also increased, with an estimated 300,000 extra tourists each year spending £18

(1) Brown. A, J. Massey. 2001. Literature Review: The Impact of Major Sporting Events. Manchester Institute of Popular Culture Manchester Metropolitan University.

million in the city. Key institutions in the city such as Manchester University have also seen a significant rise in applications.

The most recent Olympic Games, in Greece are now showing signs of a potential negative financial legacy where the latest figures show the initial budget of 4.6 billion euros spiralling to approximately 6 billion euros (£ 3.9 billion) equivalent to 3% of the Gross Domestic Product [(1)].

Part of the spiralling costs are associated with increased spending on security. However, a lack of legacy planning may prove the undoing of the Athens Games, where the government hopes to arrange with investors long-term leases and equity sales for nearly 40 Olympic venues following the event rather than considering potential after uses during initial master planning. If such venues cannot become self sufficient, maintenance costs estimated at approximately 100 million euros a year will likely be passed on to tax payers[(2)].

There is no doubt that the Games improve short term socio-economic gains at a local and national level[(3)]. While long term local and national level benefits as experienced in the Barcelona Olympics are dependent on:

- combined Olympic event and legacy master plans to ensure the short term needs of the event do not compromise the long term requirements of host communities;
- early consultation with potential legacy investors to secure rapid economic benefits and identify training programmes to support local and regional employment opportunities;
- feasibility studies to determine the requirement, use and future demand of Olympic sports facilities, preventing future burden on host communities;
- post event support to ensure the suitability and sustainability of facilities and socio economic legacies;
- development and regeneration to support inward investment and sustained benefits;
- publicity and media to showcase the Olympic event and area, attracting visits, inward investment and additional socio economic opportunities;
- the level of socio-economic deprivation and opportunities to be made by host communities; and
- the influence of world events.

With this in mind, the proposed London Olympics shows a striking resemblance to the Barcelona example, providing significant environmental renewal, urban regeneration and legacy master planning in order to deliver the Games and resulting in socioeconomic benefits at a local, regional and national level.

(1) BBC http://news.bbc.co.uk/1/hi/world/europe/3815247.stm
(2) Sport news. The Cost of the Olympics. Http//sport.news.desighnerz.com/Greece-to-deal-with-olympic-cost-of-olympic-proportions-after-Games-html
(3) Chalkt, B, Essex. S. 1999. Urban Development through Housing International Events: A History of the Olympic Games, Planning Perspectives. 14.369-394.

A1.1.1 Education, Training and Transferable Skills

Major sporting events such as the Olympic Games have a profound impact on a range of education and training issues to both host nations and globally. Each bid and every Games extend the knowledge base and interest in sports sciences, nutrition, training, health care, equipment and facilities design.

The Olympic federation has a collection of educational materials that can be utilised by schools, which are designed to promote knowledge of all aspects of the Games. The British Olympic federation also has educational packs on the Olympic movement and ideals aimed to motivate and develop interest.

Education legacies often focus on the development of permanent sporting fixtures linked to academic areas of excellence, with ties to local schools utilising the facilities as part of the curriculum, developing the next generation of athletes, trainers and sports medicine practitioners. The Games education legacy extends beyond the provision, promotion and access to education facilities.

In preparation of the Games a number of roles and responsibilities require additional training of both staff and volunteers ranging from public relations through to project management as shown in *Table A1.1.*

Table A1.1 Olympic Games Job Opportunities

Volunteering Jobs	Direct Operational Jobs
Sports	Communications / promotion/ public relations/ copyrighters
Translation / interpretation services	Financial and accounting services
Environmental services	Graphic design
Administration	Human resources
Information Technology	International relations
Public relations	Logistics
Spectator services	Maintenance / building /licensing
Olympic family transportation	Secretarial support / office support
Communication	Security
Telecommunications	Sports / education / health services
Energy management	Technology / information systems/ telecommunications
Medical /health services	Tourism/ hospitality/ catering
Hospitality / tourism	Translating / interpreting
International relations	Works / transportation /environment
Press operations	Other

The Games therefore provide a learning experience with a wide range of transferable skills and internationally accepted work experience, influencing and leading to both higher education and career options.

Recognition of education as a key health determinant influencing future employment and lifestyle is now widely accepted. The year 2004 has been declared as European Year of Education Through Sport, with two major sporting events, Euro2004 and the Athens Olympics which aim to use sport

and international sport activity as a medium to improve skills, motivation, future goals and healthier lifestyles.

A1.1.2 Social Networks

The very nature of the Olympic Games brings together global communities, thereby improving social networks between nations, participants, visitors and host communities. During the Sydney Olympics community participation and reliance on a high level of voluntary participation played a significant role in hosting a successful, memorable Olympic event, while aiding in removing social and cultural barriers.

Potential social legacies occur at a number of levels throughout the lifecycle of the Games, and reflect the level of participation, community acceptance, and significance of potential impacts from onset. Potential routes to increased community participation are shown in *Table A1.2.*

Table A1.2 Development of Olympic Social Networks

Stage	Description
Pre Games	Development of community involvement and volunteer programmes enable and promote interaction, fostering a shared sense of belonging, community pride and the development of links within and between local and regional communities. New and enhanced transportation systems required to deliver the Games, reduce or remove social barriers, increase the opportunity to expand or enhance existing networks with friends and family. Development of safe, attractive and accessible (wheelchair friendly) pedestrian transport routes to facilities, amenities and communal areas. Enhanced green space and development of social capital increases opportunities for social interaction and recreation. Promotion and build up to the multi cultural Olympic and Paralympic Games contributes to breaking social barriers while promoting disability awareness and community inclusion at a local, regional and international level.
Olympic and Paralympics Games	Public involvement and voluntary work with local, regional and international communities develops social interactions, and fosters recognition and relationships between different social and cultural backgrounds. Community groups and social networks created and developed in the build up and during the Games can provide a means to future community involvement, enabling individuals to contribute to public life and the development of their communities. Transport networks enhanced to meet Olympic demand, and Paralympic standards of accessibility will increase access to social networks, recreation and community support.

Stage	Description
	Enhanced pedestrian and community links through areas of open space, recreation and entertainment reduce perceived and actual social barriers, promoting community cohesion.

The social legacy of the Games is that, if encouraged, the networks created will endure and provide community support well after the Games, thereby reducing and removing social barriers and improving community health.

The extent, quality and duration of such networks is dependent on a range of factors, however early community involvement and participation has been found to increase ownership and acceptance of the Games, providing a shared goal and experience outside of normal interactions, fostering new and strengthened networks.

Potential social impacts of the Games are less clear, but could include:

- resentment at the local level if not consulted, informed or involved, which could lead to heightened sensitivity to annoyance and stress from disruption during construction and hosting of the event;
- a potential risk of Olympic facilities becoming a burden on small communities unable to physically or financially maintain them without external support; and
- a potential risk of gentrification as the area becomes more appealing.

Researchers investigating the social impact of hosting the 1988 Winter Olympics in Calgary polled local residents before and after the Games to discover if it was perceived to be a good idea to host the event. Following the event, the majority of people indicated that in the short term the residents appeared happy with the social impact on the region and therefore the Games were seen as having a positive social impact.

A1.1.3 Culture, Lifestyle and Behaviour

Major sporting events such as the Olympic Games provide a powerful platform to promote products and services, but also positively influence lifestyle, behaviour and culture. The IOC has a number of programmes promoting international physical fitness through sports for all, better nutrition, anti doping / zero drugs policy and no smoking venues.

The strength of such messages and their ability to influence and secure healthier living during the Olympics is dependent upon the action taken by host nations to promote and nurture such benefit, and also to take a more responsible attitude to international sponsorship. In the past, opportunities to promote healthier lifestyles have been missed, while potentially inappropriate sponsorship promoting potentially unhealthy products has been subject to criticism.

The effect of the Olympics on culture is dependent on the action taken by host nations, and may as in the case of Sydney result in rekindling of cultural heritage; reconciliation of communities reduction and removal of social inequality.

The Olympic Games can therefore offer a stimulus to enthuse and promote healthy living, revive cultural heritage and improve cultural divides. However, the level of health benefits will be dependent upon the level of action taken by host nations and communities to take up such opportunities and maximise legacies.

A1.1.4 Play, Sports and Physical Activity

One of the greatest global legacies of the Games, is the internationalisation of competitive sport. As shown in *Table A1.3* the 20th century witnessed the globalisation of sporting excellence. Whereas fewer than 20 countries competed in the 1900 Olympic Games, 136 countries were represented at the 2004 Olympic Games in Athens.

Table A1.3 National participation in the Olympic Games

Year	Country	Host	Year	Country	Host
1896	13	Athens	1952	69	Helsinki
1900	19	Paris	1956	57	Melbourne
1904	12	St. Louis	1960	83	Rome
1906	20	Athens ("Unofficial")	1964	93	Tokyo
1908	22	London	1968	112	Mexico City
1912	28	Stocholm	1972	122	Munich
1916	0	Not held	1976	88	Montreal
1920	29	Antwerp	1980	80	Moscow
1924	44	Paris	1984	140	Los Angeles
1932	37	Los Angeles	1988	159	Seoul
1936	49	Berlin	1992	169	Barcelona
1940	0	Not held	1996	197	Atlanta
1944	0	Not held	2000	199	Sydney
1948	59	London	2004	136	Athens

Source: http://geography.about.com/library/weekly/aa081800a.htm
http://geography.about.com/library/weekly/aa081800a.htm

As Olympic participants are a tiny fraction of total athletes aspiring to be the best they can be, in theory the Olympics may be responsible for global health improvements, significantly reducing risk from cardio vascular and respiratory disease, contributing to improved physical and mental health. Although this is the case there is currently little research or evidence that attributes increased sports uptake and physical activity to the Olympics or any other major sporting event (1). Longitudinal analyses of the rates of participation before and after major sporting events have not been carried out to see if there is a direct correlation.

(1) Noakes TD. 2000 Improving performance and promoting health by sports participation . Orthopade. 2000 Nov;29(11):972-80. German

However, the Rugby Football Union attributed England's success at the 1991 rugby world cup as the catalyst for the creation of junior sections in approximately 50% of RFU registered clubs. Likewise, the England and Wales Cricket Board claim that the 1999 Cricket World Cup have a positive effect, encouraging young people to play cricket, especially among children from ethnic minority backgrounds.

Following the Sydney Olympics there was no significant sustained increase in interest or participation in sports, despite the fact that during the Games there was anecdotal evidence of an increase in Olympic sports interest. The only change that could be attributed to the Olympics was through increased television viewing figures of sports in which Australia had succeeded.

Conversely the same can be said for attributing an increase in sports related injuries though increased sport interest and participation. The Games do however bring a number of health opportunities including:

- increased sports awareness;
- increased provision of sporting facilities;
- increased and enhanced medical services and amenities to cater to Olympic demands;
- increased provision of sports medicines; and
- enhanced or updated communicable disease monitoring system.

A1.1.5 Regeneration and Infrastructure

Major sporting events venues are normally planned and associated in areas requiring regeneration, as hosting such event can increase infrastructure and speed up urban regeneration.

Barcelona used the Games to implement an imaginative, wide-ranging urban renewal plan that transformed its decaying industrial fabric into a seaside city for tourists. Barcelona estimated it had built 50 years' worth of infrastructure over eight years, investing $8billion in a ring road, a new airport and telecommunications system and an improved sewage system. The run-down harbour and port area were transformed by a $2.4billion waterfront development, with the two tallest towers in Spain, one a luxurious hotel, the other an office building. The regeneration of the waterfront area has not only been beneficial in attracting tourists but also improved the life of the local residents.

The Olympic Games in Sydney allowed for the regeneration of a poor and partly contaminated area; Homebush Bay close to the geographic centre of Sydney. However, unlike Barcelona, there are concerns that the sporting venues may now become a 'white elephant' with no sustainable use.
In Atlanta infrastructure improvements allowed for inward investment even in the poorest areas. The desire to make the Olympics a success created jobs and lead to road improvements and a better standard of living.

Once the Games are over it is important that plans are in place to maintain the facilities built. In the past either expensive temporary facilities were built or no thought was given as to how to maintain expensive facilities, as with the stadium built for the Kuala Lumpur Commonwealth Games which now remains empty. Sydney faces problems with accessibility to its stadiums and facilities both nationally and internationally.

Atlanta addressed this issue by handing over the stadiums to other organisations after the Games. The shooting range went to the Atlanta shooting club; the aquatic centre, hockey stadium, equestrian venue and basketball gym was handed over to local authorities and educational facilities; and the main stadium became the home of their baseball team. The centennial park is a gathering place for local residents.

The Barcelona Games had a similar strategy; the main stadium is now the home of the city's American football team as well as hosting pop concerts and athletics events. However as it is on the tourist route it probably attracts more tourists per annum then spectators to events. To ensure that there is sustainability avoiding duplication of stadiums is also important. This also avoids closing down pre- existing facilities that may be important to the community.

The 2002 Manchester Commonwealth Games allowed for the regeneration of East Manchester approximately 60ha of land, creating 72,000m^2 of employment floorspace in East Manchester. Manchester City Council and its partners attempted to integrate the Games into a wider regeneration process using the Games as a mechanism to engage peoples' interest. The Games brought forward a number of major transport schemes costing nearly £800 million, with additional public investment in transport infrastructure being another £125 million.

The venues for the 2002 Manchester Commonwealth Games were designed to ensure that they had a viable after use; Sportcity stadium has been transformed into the home of Manchester City Football Club and some ½ million swimming sessions have been sold at the Aquatics Centre, exceeding the anticipated target by approximately 10% and is the regional high performance centre for elite swimmers. The new venues have paved the way to bring more sporting events to Manchester. Additional take-up of new and existing sports facilities is estimated to be around 250,000 visits, made up of some new users and greater use by existing users. This has been achieved through improved access and high quality facilities for use by both athletes and the local and regional community.

As part of the NW Commonwealth Games Opportunities and Legacy partnerships a NW Healthier Communities programme was set up to provide capacity building support and address health inequalities in the North West region. The aim of the scheme is to secure positive health and social benefits and reduce health inequalities, contributing to the regional legacy of the Games.

For the Manchester 2002 commonwealth Games a curriculum pack for primary and secondary schools sent to 33,000 schools based on the Commonwealth Games and linked to an educational website was established. The sports venues can also be accessed by local primary schools and for holiday programmes to introduce children to new sports and compete in events.

Annex B

‘No Olympic Games’ Scenario

B1 INTRODUCTION

The purpose of the No Olympic Games scenario is to offer a moving baseline to which the construction operation and legacy phases can be fairly compared. This is the case as the Lower Lea Valley is noted in the London spatial development plan as a key opportunity area for London and targeted for significant environmental renewal, mixed residential and commercial development and transformation into a desirable 'Water City'.

The health assessment of the Games is therefore required to compare the health outcomes of the legacy stage against potential and planned regeneration in the area. In the absence of the No Olympic Games master plan the following profile has been compiled utilising:

- The London Plan;
- Local Unitary Development Plans;
- The Lower Lea Valley Olympic and Legacy Masterplan;
- The Lower Lea Valley Reference Case;
- The Draft Lower Lea Arc Area Development Framework; and
- The Draft Lower Lea Valley Regeneration Strategy: Issues and Principles.

Shortcomings of this approach include the difficulty in predicting the deliverability of what is proposed, its dependence on draft strategies and plans, market forces, government initiatives, investment, rate of regeneration and commitment for over 20 years.

The detail of regeneration activities varies amongst the sources, although, a recurring objective of all sources indicate the transformation of the Lower Lea Valley area into a unique high quality environment that will meet the housing, employment and social needs of both local communities and the region.

B1.1 THE LONDON PLAN- EAST LONDON AND THE THAMES GATEWAY SUMMARY

The London Plan delivers the strategic plan setting out an integrated social, economic and environmental framework for the future development of London, providing the London wide context within which individual boroughs must set their local planning policies.

Within the London plan the Lower Lea Valley is highlighted as both a key opportunity area and strategic employment location, requiring a significant environmental upgrade, promoting the release of surplus and inefficient industrial land for mixed-use development in order to improve the image and sustainable development of the Thames Gateway, delivering approximately 8,500 new jobs and 6,000 new houses within the 250 ha area by 2016.

The plan indicates that the area will undergo significant renewal with improvements in the quality of services, the environment, education and training, health services and public facilities with improved access to jobs and

new employment opportunities through the extension of Docklands Light Railway and through the construction of Crossrail. The improved transport links to Stratford, including the Channel Tunnel rail link, extension of the East London lines and three new river crossing schemes in the area, will help ensure the sustainability of redevelopment in the area.

The area has the potential to attract modern business facilities, new housing and leisure facilities and enhanced public space through improvements in the quality of the environment around the network of watercourses.

B1.2 LOCAL UNITARY DEVELOPMENT PLANS

The Unitary Development Plan (UDP) is a land use plan. It provides the statutory planning framework for the local planning authority setting out the objectives, policies and proposals for the use of land and buildings in the area for the next 10 years

In the absence of the No Games Master plan a review of adopted and committed UDP proposals applicable to the Master plan area, including the London boroughs of Waltham Forest, Newham, Tower Hamlets, Hackney and relevant Lea Valley Regional Park proposals, will contribute to a realistic future 'No Games' scenario.

B1.3 LEA VALLEY REGIONAL PARK

Areas of the Lea Valley Regional Park lie within the boroughs of Waltham Forest, Newham, Tower Hamlets and Hackney. The Lea Valley Regional Park is defined by a Parliamentary Act as an area for recreation, leisure, sport, games, nature conservation and entertainments of any kind. Park plans are produced showing proposals for the future use and development of the Regional Park.

The UDPs for Waltham Forest, Newham, Tower Hamlets and Hackney all include relevant park plan proposals and park boundaries as well as policies that support the Regional Park.

LB Waltham Forest (January 1996)

The area within the masterplan is Temple Mills; the key policy consideration is that relating to the Metropolitan Open Land (MOL). There are no policies to amend this designation and therefore no development is proposed. A planning application has been received in relation to the Stratford Rail Lands application in the Temple Mills area but is likely to remain undetermined until the principal application has been approved in Newham.

LB Newham (June 2001)

Newham comprises the largest section of the Olympic master plan with a considerable number of relevant UDP policies and mixed use proposals.

The polices and proposals within the UDP shown in *Table B1.1* and located in *Figure B1.1* are indicative of environmental and urban renewal with significant employment generation, enhanced quality of the parks, increased accessibility, improved public transportation, green transport networks and improved recreational and sports facilities increasing visitation and sustainable development of the area.

Table B1.1 Newham London Borough UDP proposals

Title	Location	Planned developments
Mixed Use Proposals	Proposal M5, Burford Road	The UDP states that a bingo hall has been completed and planning permission granted for an industrial or live/ work development on the east of the site. Redevelopment should complement future commercial development on the southern part of the site.
Major Opportunity Zones (MOZs)	Stratford Rail Lands	Employment generating uses including major retail and mixed use developments incorporating improved rail and bus links.
	Union Street	A mixed use development including a hotel and a range of high quality B1 and B2 uses and residential accommodation.
	West Ham Mills	High quality mixed development including B1 and B2 media studios, heritage, leisure, recreation including small offices and workshops within B1 and open space. Proposals enhancing the river frontages andA11 gateway to Stratford are required.
	West Ham Mills	Mixed high quality development including a local centre relating to west ham station, a range of business uses and including B1, B2 and residential use. A priority development node closely related to the important public transport interchange at west ham.
	British Gas	High quality mixed use employment generating development including business use (B1, B2, B8) with supporting service uses. Leisure and tourism related uses are permitted if they are complementary to the nature conservation and heritage use of the area.
Lee Valley Regional Park Authority	Eastway sports centre and cycle circuit, arena field and Hackney stadium	Lea valley is an area for leisure and sporting activities with enhanced green links and open spaces for recreation and nature conservation. The proposals incorporate regional leisure and sports facilities to be provided through the redevelopment of existing sites and reuse of buildings at the Lea Valley sports centre and Hackney stadium sites and facilities at the Lea valley cycle circuit to be improved.
	Bully Point,	Management of the wildlife habitat especially the wet woodland resource. Defined public access.
	Bidder Street (within the Canning Town Centre Priority Development node)	High quality flagship development including employment, residential and leisure uses with supporting services.

Title	Location	Planned developments
	Thames Wharf / Limmo. A priority development node	High quality mixed development of B1 and B2 leisure uses incorporating residential use on the Thames wharf section of the river frontage, which safeguard the use of the wharf where appropriate for river related uses. Part of the site has been identified as the route for a proposed DLR extension and station construction which is due for completion in 2007.
Cycle Network Proposal	Lower Lea Valley	Development of new cycle networks across the borough incorporating the London cycle network and the Newham cycle network where appropriate. Cycle routes and recreational footpaths will follow the same route as appropriate
New Road Proposals		New roads will bring net economic or environmental benefit to the area and likely adverse effects will be minimised they are therefore supported by the borough.
	High street/Warton Road area	The preferred alignment for this road access relates to the south-western part of the rail lands.
	Cam Road/ High street	Junction improvements and a new road to access the proposed Burford road development.
	Nature Conservation Sites	Nature conservation sites exist within the area with a proposal for the creation of a new green chain to be implemented over the plan period.
Principal Employment areas	Emp 1 Cody Road Emp 2 Leyton Road Emp 3 Bridgewater Road Emp 4 Marshgate lane area Emp 5 Tidal Basin area	These areas are not expected to change there built form although there may be some in – situ redevelopment or change of use/ occupier. Developments on these areas for other uses will be resisted to ensure the continued provision of premises for industrial use. Proposals for new employment uses that will contribute positively to the diversification and the strengthening of the local economy will be encouraged.

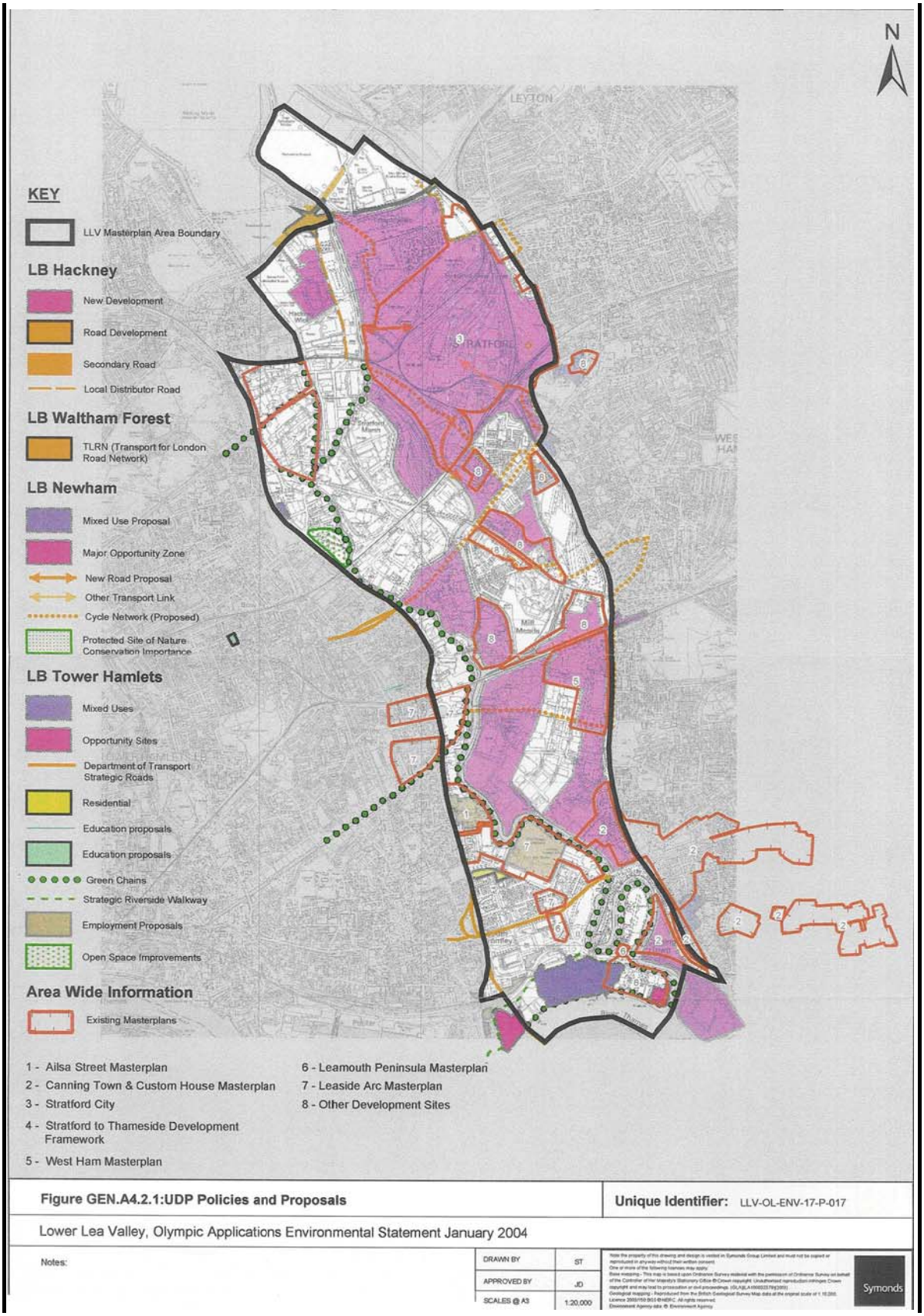


Figure B1.1 Lower Lea Valley Unitary Development Plan Policies and Proposals

LB Tower Hamlets (December 1998)

The Olympic master plan area contains a section of the London Borough of Tower Hamlets. The UDP in this area is coming to completion with the majority of policies and proposals within the area already implemented. The proposals within the UDP shown in *Table B1.2* indicate that the majority of the land within the master plan area is designated as an industrial employment area, and assumes that overall change will be limited with some smaller scale redevelopment and change of use.

Table B1.2 Tower Hamlets London Borough UDP Proposals

Title	Location	Planned developments
Industrial Employment Areas.	The majority of land within the masterplan area and tower hamlets is designated as industrial employment areas.	The council will normally permit development to provide for the retention expansion and growth in employment provided that it is designed to meet the needs of these uses and does not conflict with other proposals and developments and will not cause a serious nuisance by way of traffic generation, noise vibrations or pollution and the surrounding area. Developments of low employment density will be resisted. Residential development will not be permitted unless the loss of the industrial land can be justified. The overall built form of these areas will remain although there will be some smaller scale in situ redevelopment.
	Poplar gas works Leven Road	Business use, general use and warehouse use including a new link road.
	Sites adjoining Ailsa Street	Business use, general industry and warehouse uses.
Walkway and Green Chains	Strategic Riverside	The walkway is proposed around the east India dock area and there is a green chain running along the waterways through the masterplan areas from Hackney Wick to the River Thames.

LB Hackney (June 1995)

The only area of the London Borough of Hackney within the Olympic Games Master plan is that of Hackney Wick. The relevant UDP proposals shown in *Table B1.3* indicate that Hackney Wick is to be safeguarded for mixed use with preference for employment generation, light commercial and recreational developments in keeping with local community requirements.

Table B1.3 Hackney London Borough UDP proposals

Title	Location	Planned developments
New Developments	Hackney Stadium	Demolished but no planning applications. The site is safeguarded for employment generating developments. However the council prefers, and therefore will support, intensive leisure use of the Hackney stadium in light of its important role in the regional park.
Defined Employment Areas	Waterden road area (adjacent to Hackney stadium)	The council will give favourable consideration to proposals that generate employment as long as they do not have visual disturbances, noise, vibration, air pollution or traffic generation in the surrounding area. Residential development will not be permitted in this area normally. A number of planning consents within the Waterden area exist for small scale industrial units. It is therefore assumed that this area will maintain its current mix of uses and that only change of use and limited redevelopment will occur. A retail development of a major food store would be permitted if it would provide significant employment benefits and subject to planning considerations and impacts on town centres.

All of the policies and proposals within the UDP's indicate significant regeneration with an emphasis placed on the quality of the environment, diverse employment, mixed housing and development of sports and recreational facilities to improve visitation and future inward investment.

B1.4 EXISTING MASTERPLANS

Within the Lower Lea Valley the following master plan and development framework documents shown in *Table B1.4* and located in *Figure B1.2* indicate significant provision for mixed densities of residential and commercial developments with improvements to the quality and accessibility of the urban and natural environment.

Table B1.4 Existing Masterplans

Title	Location	Planned developments
Stratford City Masterplan -	LB Newham	Proposal is for a high density mixed use urban centre of 55ha including residential, commercial, hotel and leisure complexes along with open space two schools and primary and health care centres. A new road link to the west is planned involving a river crossing, duelling Waterden road and upgrading the A12 junction.
Stratford to Thameside Development Framework	LB Newham	A Major Opportunities Zone of 491 ha supporting a mixed use employment scheme in accordance with the UDP, including B1, B2 and affordable residential units of mixed tenure, improved links to the city and environmental improvements including a woodland public area.
Canning Town area action plan	LB Newham	Adopted as SPG 2001 and expected to be incorporated into the Canning town and Custom house masterplan in July 2004 when this masterplan is adopted as SPG.
	Stratford Rail Lands	Link with town centre proposed.
	Carpenters Road	Mixed use employment
	Thornton Fields.	Residential and open land
	Chobham Farm.	South section will be integrated in to the new Stratford rail lands development and have town centre uses (leisure, retail, office, residential). The north section will have residential, B1 and B2 uses and have extensive landscaping along the western ridge.
	Angel Lane:	Mixed use building opportunity complementing future rail land development.
	Burford Road:	High density mixed use development (B1, B2 and Live/work) also possible B8 and leisure. Sites will need links to any new DLR station and green networks.
	Blaker Road:	High quality residential (multi-storey) apartments of mixed tenure within new open space (riverside).
	Island Road:	High quality residential development in new open space.
	Warton Road	Gateway to rail lands with opportunity for landmark building at junction with High street. Riverside area will be public space with high quality commercial offices and refurbishment of existing residential units.

Title	Location	Planned developments
	Stratford High Street –	Access to Stratford area with the western end having a new landscaped entrance and open spaces. Mixture of uses along the high street, linked to Stratford development area.
	Marshgate Area:	Principal employment area incorporating new landscape with development.
	Rick Roberts Way:	'Link' site between Stratford and West Ham. Northern side of the road will be mixed use development and hotel and mixed use development frontage to the high street. Southern side will have new urban environment.
	Sugar House Lane – Included within the MOZ3 and MOZ4 of the UDP	South–Commercial use (B1, B2&B8) building on media link to three mills studio to the south. Western edge- new open space corridor along river front incorporating residential live /work units
	Three Mills Island- Included within the MOZ3 and cross referenced in MOZ4 of the UDP	Preserve and enhance historic context of the site building upon existing studios with cafes, educational facilities etc.
	Mills Meads	Retained as a strategic area of open space
	Rio Tinto Zinc (RTZ) site	Land within MOZ4, north of the district line
	Parcelforce and London Underground Site(MOZ4)	High Quality mixed use development. New road and canal linking Stratford and Canning town will pass through this site. Northeast - Canal side residential and district centre development South/ southwaest – Employment facilities
	Cody Road area (MOZ5)	Employment area (B1, B2 &B8). Western Side – Open space/ green chain created
	Bromley Gas works (MOZ5)	Employment uses in proposed water side area. Pedestrian and cycle links through site and along river. Redevelopment to leisure and tourism when gas holders are surplus to requirement.
	Bidder Street (MOZ6)	Development to support existing town centre (B1, B2 community /leisure /cultural uses retail and residential. Northern side –Employment led including B8, total floor space 116, 000m^2

Title	Location	Planned developments
	Silvertown way and tidal basin (MOZ7)	High density mixed use development. Northern section – Retail, B1employment, residential and hotels Southern Section – B1, B2 and B8 and other employment activities. Higher buildings to be promoted in this area. Total floor space of development 40,000m^2
	Limmo Site (MOZ7)	B1 and B2 within high quality landscape setting. High quality mixed employment/ residential development. Total floor space 74,000 m^2
Ailsa Street Masterplan	Tower Hamlets	Adopted as SPG for development control purposes in October 2003. The vision is Ailsa Street will become a mixed- use area combining residential, business and community facilities. Key elements include housing, live/work units, light industrial business and offices. The implementation programme is scheduled to extend over 7 years but actual dates are not stated.

B1.5 THE DRAFT LOWER LEA ARC AREA DEVELOPMENT FRAMEWORK

The purpose of the draft Area Development Framework (ADF) is to reflect upon the overall physical, economic and social regeneration aims of the area in order to visualise what the Lower Lea Valley will be like in twenty years, identify the key drivers, make provision to linkages between needs and opportunities, to assess the benefits and investigate means to securing deliverability.

The ADF draws together a range of inputs including:

- Consultation - with a wide range of organisations active in the lower Lea and beyond
- Review of the area – detailed assessments have been drawn together to offer a baseline of the physical , infrastructure and environmental characteristics of the area
- Review of existing policies, masterplans, programmes and projects - regional, sub regional and local plans and policies have been reviewed, along with academic and professional studies and reports.
- Review of secondary data
- Market assessment – a review of the market potential of the area
- Development, investment and economic modelling – a model has been created to test alternative investment and development scenarios
- Strategy workshop – a workshop was held to discus and debate the key priorities and the emerging strategies.

The ADF therefore offers a pure regeneration overview within the lower Lea Valley, through the five interlinked frameworks set out in *Table B1.5.*

Table B1.5 Draft Lower Lea Arc Area Development Framework Summary

ADF Framework	Summary	Investment (2003 prices)
Infrastructure	Additional rail stations, new A11-A13 spine road, new east-west pedestrian and cycle links to improve local accessibility and form a unified network of locals, under grounding of power lines where possible and extension to broadband data service.	£ 167 million
Environment and landscape	The extension of the Lea Valley Regional Park to the River Thames, improvement and linking of areas of open space, wildlife habitats and using the river and a new canal as a focus for development, with restoration of the Bow Backs being a particular priority. Biodiversity will be promoted, along with the green 'grid concept'.	£ 60 million

ADF Framework	Summary	Investment (2003 prices)
Physical development	The creation of a new pattern of mixed land use, incorporating new high density residential development adjacent to Canning Town together with a number of residential towers, more intensive commercial development in appropriate locations, and the provision of new community facilities linked in places of exchange between existing and new. Mixed land use should include the creation of new open spaces, parkland riverside and canal side open areas of waterside parks. It is intended that the ADF will be supported by a programme of land acquisition and assembly (which is likely to require comprehensive compulsory purchase) in order to enable the proper planning and regeneration area	£ 727 million
Business development	Establishing a package of measures to support the growth of existing business to attract new businesses and investment, inward investment development, and to tackle the problem of bad neighbourhood industries .	£ 64 million
Community and neighbourhood renewal	A complementary programme is proposed that will enhance existing community structures, improve co-ordination, encouraging local employment and skills matching, and improve local accessibility to employment opportunities.	£ 114.5 million
Additional investment programmes		
Transport investment programme	A supplementary investment programme to the strategic transport infrastructure of the area including in roads, pedestrian and cycle way improvements and upgrading of some transport nodes to improve local accessibility.	£ 56 million
Area research programme	Investment in to further research and studies into the proposals for the Lower Lea ADF	£ 1.5 million

Although the ADF is in the preliminary stages, the framework and investment indicates a high level, quality and linkage of regeneration activities developing approximately 35,000 residential units and 1,705,000 Sq m of mixed commercial floor space as shown in *Table B1.6.*

Table B1.6 Commercial Floor Space by Use

Use	Sq m
Office	845,000
Industrial (B1(b), B2 and B8)	460,000
Retail / lesure	260,000
Other (community, hotels)	140,000
Total	**1,705,000**

B1.6 THE DRAFT LOWER LEA VALLEY REGENERATION STRATEGY: ISSUES AND PRINCIPLES

The Draft Lower Lea Valley Regeneration Strategy is intended as a discussion document setting out initial issues and recommendations towards the process of establishing a regeneration, planning and land use strategy to transform the Lower Lea Valley into a thriving, successful and sustainable new city district.

The document utilises similar materials and sources as the draft Area Development Framework including the London plan, existing master plans and the local UDP to examine the extent and context of regeneration for the lower lea valley, discussing the key issues, components, barriers, opportunities and deliverability of regeneration. However, the document is not intended to offer a regeneration master plan overview, but aid in its development.

The result is an indication as to the current situation and future needs of the area, but it provides no clear definition as to specific plans. The strategy includes a discussion of the consequences of London Olympic Bid being unsuccessful; there remains a necessity to deliver a number of the legacy facilities including the Aquatic centre, if not on a less grand scale.

A key issue raised is that the precise nature, extent and severity of land contamination in the area is unknown, and may preclude some area from being used for non industrial uses, especially residential private gardens and park areas. This will be tackled by a proposed remediation strategy aiming to remove most contaminated soils on site, with 10-15% of material taken off site, and clean cover material of a minimum of 600mm imported for open space and gardens. However, the strategy requires coordination across the valley and is reliant on significant investment.

B1.7 NO GAMES SCENARIO PROFILE

In the absence of a 'No Games' master plan the review of available planning and policy material has provided an overview as to potential and planned regeneration in the area.

As previously stated, shortcomings of this approach revolve around the difficulty to predict the final decision as to regeneration investment, scope, scale and distribution of facilities, infrastructure and as to the final level of deliverability and completion for over a 20 year period.

There is sufficient information within the local UDP and existing master plans to suggest the distribution of planned and proposed improvements and developments as shown in *Figure B1.1* and modelling from the Draft Lower Lea Arc Area Development Framework to predict regional housing and employment outputs.

'No Games' Infrastructure and Transport Development

Infrastructure within the Lower Lea Valley is predicted to be significantly improved with the addition of the new A11-A13 spine road running south from Pudding Mill Lane to Canning Town, intersected with new east-west cycle networks and strategic riverside walkways proposed around the east India dock area linking major opportunity areas to potential residential areas, and a of network green routes running along the waterways from Hackney Wick to the River Thames.

Rail networks will be significantly improved with a potential additional station on the Docklands Light Railway at Langdon Park, and through the construction of Crossrail, delivering a new East to West link beyond Greater London connecting Heathrow, Maidenhead through to Stratford and the Channel Tunnel rail link.

Additional improvements may include three new road river crossing schemes in the Stratford City area and a total of nine footbridges across the Lea to improve local accessibility and form a unified network of locals. Additional links under the A11 and A13 with surface crossing points over the A12 are also proposed to ensure the sustainability of redevelopment in the area.

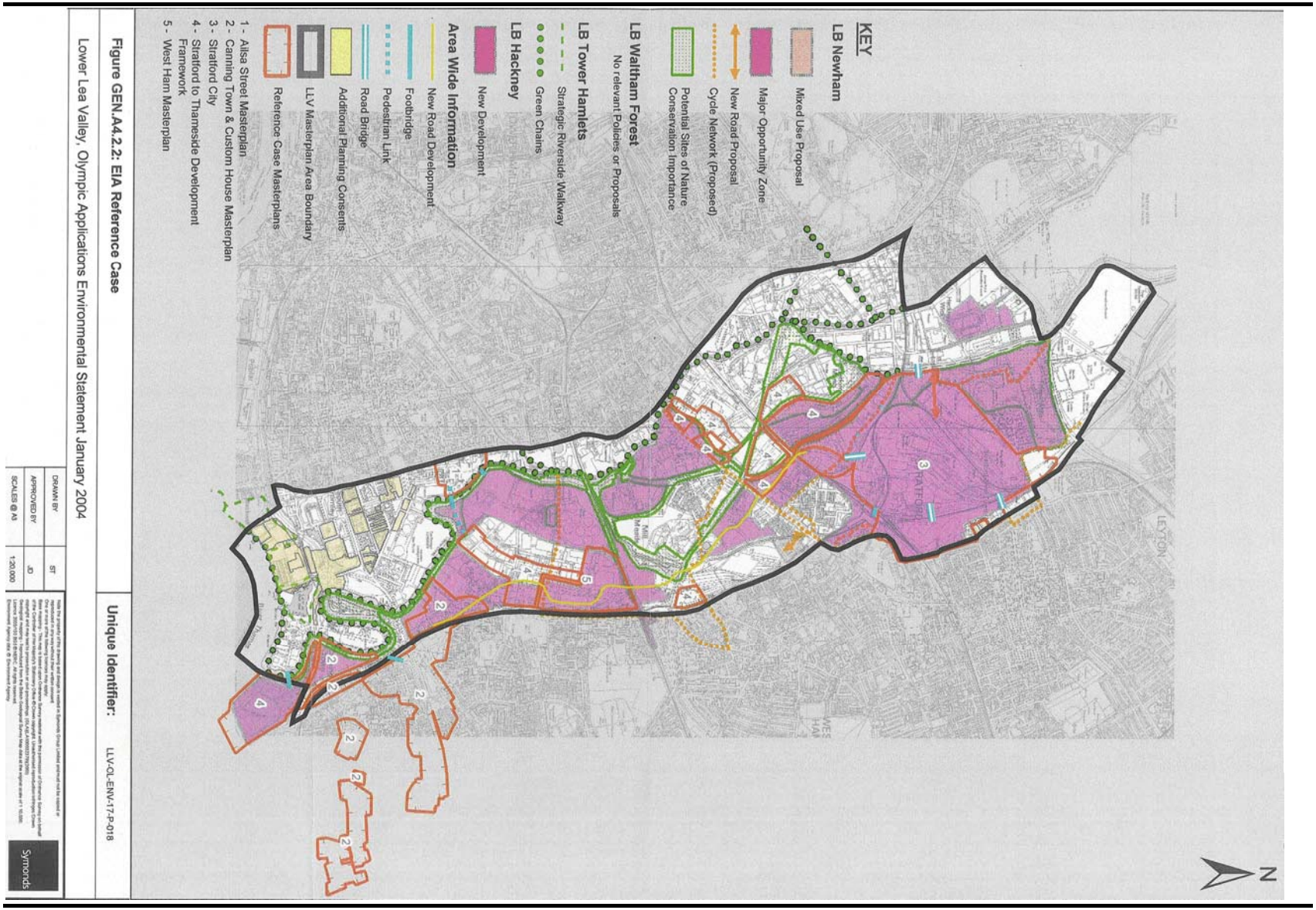
Communication facilities will also be enhanced, with the extension of the broadband data service laid during the grounding of power lines where possible.

Sporting Facilities

It is made apparent in the Newham and Hackney London Borough UDP that regeneration of the Lea Valley is to include and to promote regional leisure and sporting activities. The UDP indicate that leisure and sports facilities are to be provided through the redevelopment of existing sites and reuse of buildings at the Lea Valley sports centre and Hackney stadium, while sites and facilities at the Lea valley cycle circuit are to be improved.

Furthermore the Draft Lower Lea Valley Regeneration strategy states that, in the event that the London Olympic Bid is unsuccessful, there remains a necessity to deliver a number of the legacy facilities including a smaller aquatic centre. Sporting facilities within the area are therefore likely to be improved, with additional development of green space.

Figure B1.2 The Lower Lea Valley Reference Case



Environment

Environmental renewal is high on the agenda where the level and quality of remediation and renewal will be key to the success of regeneration in the area, influencing the strategic use of land and providing the stimulus for both health improvements and economic growth.

There is currently no remediation strategy for the Lower Lea Valley, yet indications from the London plan and the Draft Lower Lea Arc Area Development Framework indicate that investment for environmental and landscape programmes will be in the region of £60 million (2003 prices) from 2004 to 2018.

The result is a clear commitment to transform the area in to a high quality environment, with the extension of the Lea Valley Regional Park to the Thames and creation of accessible areas of green and recreational space around mixed residential and commercial sites.

Finance

The Draft Lower Lea Arc Area Development Framework provides a breakdown of proposed spending within the Lower Lea Valley from 2003 to 2020. As shown in *Figure B1.2* the area is expected to see significant investment, ensuring the success of regeneration in the area, and the maximisation of health benefits by connecting community requirements to social, economic and environmental opportunities.

Table B1.7 Proposed overall investment programme

Field	Total (2003-2020 at 2003 prices)
Infrastructure	£ 167 million
Environment and landscape	£ 60 million
Business development and training	£ 64 million
Community Investment	£ 114.5 million
Transport	£ 56.2 million
Research	£ 1.5 million
Supporting Investment programme	£ 25 million
Total	**£ 1.2 billion**

Look of London

East London and the Thames Gateway will be significantly improved, complementing London as a whole with an enhanced regional park, river city, and development of appealing residential and commercial areas promoting visitation and inward investment.

Health

Communities within the London Boroughs of Newham, Hackney, Tower Hamlets and Waltham Forest currently experience some of poorest levels of

health and lowest life expectancy within London, and throughout England and Wales.

Attributing direct health impacts is complex, yet the health profile within the five London boroughs is indicative of the high level of income, employment, and housing deprivation coupled with an environment of poor quality exacerbated by sedentary lifestyles.

All sources acknowledge that successful regeneration must tackle the multidisciplinary nature of health through improving the quality of the local environment, while increasing access to housing, employment, social interactions and with planning preference in some areas for recreational and sports facilities.

The material suggests that a wide range of health determinants vital to health and wellbeing will be significantly improved, contributing to:

- a reduction in depression and anxiety;
- improved psychological well-being;
- improved social networks and coping skills;
- reduced admissions and premature mortality from cancer, circulatory and respiratory disease;
- improved life expectancies; and
- diminish distinct health inequalities in mortality, health and wellbeing within London.

However, the issue of lifestyle remains. The 'No Games' scenario will make provision for sports facilities, develop areas of open space and has even made reference to developing some of the Olympic legacies including the Aquatic centre. These efforts will, though, be on a less grand scale and not benefit from the extensive promotion of the Games, or through local involvement through voluntary or employment routes.

The key health outcomes of reduced morbidity and mortality from cancer and respiratory disease will be slow to emerge, typically in ten years following the completion of regeneration around 2030. However, indicators of self perceived health and wellbeing will be more immediate and readily available through Primary Care Trusts, Household Surveys, national census and emerging national statistics.

The result is that the 'No Games' scenario will undoubtedly reduce levels of poor health and reduce health inequalities, but it will be of only local and regional benefit, and will not be as effective in promoting immediate healthier lifestyles and long-term health benefits, or in creating as high a demand for visitation and participation to sports facilities and activities.

Annex C

Unemployment & Health

C1 UNEMPLOYMENT AND HEALTH

C1.1 BACKGROUND

Income and employment influence a range of factors including access to housing, education, diet, lifestyle, coping skills, services and social networks. These are in turn key determinants of a range of physical and mental health impacts and ultimately health well-being.

The Aire Valley regeneration project's potential to increase both the number and quality of employment opportunities will therefore have an impact on a multitude of health determinants that will result in improved physical and mental health and community well-being.

The importance of employment in terms of well-being is difficult to assess. It may serve to define an individual's role in society and thus form a set of social relationships which provide a structure in life. A job loss may therefore lead to exclusion of an individual from the rest of society and have several adverse effects. Set out below are the findings of a literature review on the implications of such effects on health.

C1.2 LITERATURE REVIEW: THE IMPACTS OF UNEMPLOYMENT ON HEALTH

C1.2.1 *Socio-economic Circumstances*

Unemployment and poverty are strongly associated with illness and premature death. This has been demonstrated notably by the Black Report(1) (Townsend 1988) and more recently by the Acheson Report(2).

Both these reports conclude that the life circumstances experienced by the materially and socially deprived give rise to significantly greater levels of morbidity and mortality. Amongst some of these factors are poor housing, pollution, hazardous occupations, unemployment, lack of strong community and family networks, and the psycho-social stress caused by the multiple pressures of poverty and lack of self-worth have all been linked with poorer physical and mental health. In adult life, people from deprived areas experience higher levels of morbidity and mortality from coronary heart disease, cancer, respiratory diseases and other illnesses. As a result average life expectancy is lower among people from deprived communities. The report by the Information and Statistics Division of the NHSiS Common Services Agency, Deprivation and Health in Scotland, provides an extensive review of the links between deprivation and a wide range of morbidity and mortality measures within Scotland.

(1) Report of the Working Group on Inequalities in Health, Sir Douglas Black, 1980.
(2) Independent Inquiry into Inequalities in Health, Sir Donald Acheson, 1998.

Working close to home can confer both physical and mental health benefits (Halpern 1995), giving people more time for recreational activities. To achieve health benefits, jobs should be of good quality: minimum wage jobs may create pressure to work long hours, which could be health damaging.

C1.2.2 Unemployment and Mortality

Lewis and Sloggett (1998) assess the linkage between suicide, deprivation and unemployment. Although they find an insignificant and relatively low correlation between low social class and suicide, they identify a strong link with unemployment and permanent sickness, with the unemployed and permanently sick 2.79 times more likely than the employed to commit suicide (adjusted for bias from other socio-economic variables), as shown in *Table C1.1*. In addition, they suggest that *insecure* employment is linked with suicide.

Morrell et al. (1998) conclude that youth unemployment and youth suicide are strongly associated. They argue also that unemployment is associated with psychological symptoms, such as depression and loss of confidence. In particular, Morell et al. (1994) showed that unemployment amongst youth aged 16-25 was causally linked to a 50 percent increase in risk of psychological disturbance (see *Table C1.1*).

Bethune (National Statistics, 1999) finds that unemployment carries a risk of premature mortality, and that this risk is higher for men than women. She also states that women's own economic activity is of great importance as mortality was found to be lower than average even if their husbands were unemployed, and higher than average even if their husbands were in employment. Mortality from all major causes was found to be consistently higher than average amongst unemployed men. Bethune states that factors such as pre-existing ill-health, social class, or marital status cannot account for the raised mortality amongst unemployed, and therefore concludes that unemployment has an independent causal effect on mortality (see *Table C1.1* for more detailed results).

*Table C1.1 Health Effects of Unemployment - A Summary of Studies**

	Type of health effect			
	Death (all causes) SMR+	**Suicide SMR+**	**Physical Illness**	**Mental Illness**
Morrell et al. (1994)[a]				150
Moser et al. (1987) & (1990)[b]	137			
Iversen et al. (1987)[b]	140-150			
Martikainen (1996)[b]	135-211 (M) 130-161 (F)		160-180[c] 200[d]	
Mathers (1994)[b]			200[c] 130-140[d]	
Junankar (1991)	124-139			
Bethune (1999)	125 (M) 121 (F)	187 (M) 312 (F)		
Lewis & Sloggett (1998)		279[e]		

Notes:

* Interpretation of table: Numbers are given as SMR (Standardised Mortality Ratio) ratios, eg 279 implies that an unemployed individual is 2.79 times more likely to be subject to the health effect than an individual in employment.

\+ SMR is a measure of how much more or less likely a person is to die in the study population than someone of the same age and sex in the standard population.

(a) Source: Morrell et al. (1997)

(b) Source: Mathers & Schofield (1998)

(c) Likelihood to report poor health

(d) Likelihood to report chronic illness

(e) Odds-ratio rather than SMR

(M) Male

(F) Female

C1.2.3 Mortality and Unemployment

Junankar (1991) finds a positive association between unemployment and mortality, also when adjusting for social class and region of residence within the UK. He notes the difficulty in disentangling the direction of causation, but suggests the link to be from unemployment to morbidity to mortality, with a long lag between the first and the last.

Isacsson (1999) warns, however, that there may be a bias in estimates such as those of Lewis and Sloggett (1998). He states that mental disorder rather than unemployment itself is likely to be the explanation, pointing at evidence of a fivefold increase in the unemployment rates in Sweden between 1990 and 1994 accompanied by a 14 percent fall in suicide rates.

Also Crombie (1989) is cautious in establishing a link between unemployment and health effects. He assesses the correlation between unemployment and suicide trends in Scotland between 1976 and 1986 and though he finds an

association between the trends nationally, no such association is found when trends are analysed by health board areas or aggregates of local government districts. Crombie therefore concludes that the data do not support the hypothesis that the rise in unemployment is a direct cause of the rise in suicide rates among men.

C1.2.4 Obesity

Obesity contributes to the onset of disease and premature mortality, as well as serious implication for the NHS and the economy. People in lower socio-economic groups particularly women have an increased risk of obesity.

Box C1.1 Obesity and Poverty

"Education, social class and prosperity have an important influence on the risk of becoming obese. In general, obesity tends to be more prevalent in the lower socio-economic and lower income groups".

Source: Tackling Obesity in England, Report by the Comptroller and Auditor General HC 220 Session 2000-2001: 15 February 2001

A study by Experian (2001) looking at obesity levels in deprived areas, showed that there is a link between obesity and class. The research showed that lower-fat and organic foods were bought by better educated and more affluent people.

An Experian spokesman said: "The research suggests a strong correlation between obesity and class, with higher instances of obesity occurring in welfare-borderline and welfare-dependent social types. It would also therefore suggest a link between obesity and self-esteem. People who are actually struggling socially in life do tend to have low self-esteem which in turn is reflected in their diet and trends in obesity."(1)

Although these studies do not directly look at the link between unemployment and diet it is clear that class does affect the propensity of people to become unhealthy and obese. Therefore it would not be unreasonable to assume that the unemployed are affected by the link between class and diet.

C1.2.5 Concluding Remarks

Attributing ill-health, mortality and morbidity to unemployment is complex. The literature points more generally to socio-economic standards and their relationship with health, however an important factor in determining socio-economic standards and social groups is employment. There is evidence that unemployment has some impact on suicide rates as well as physical and mental illness. (2) Studies have estimated that mortality rates for the

(1) Source: Guardian Newspaper, 'Research reveals poverty link to obesity.' March 1, 2001.
(2) This is not biased by the transfer of unemployment benefit claimants to sickness benefit claimants.

unemployed are 21 to 111 percent higher than amongst the employed individuals, and even higher suicide rates. There is also evidence that physical and mental illness is greater for unemployed individuals.

Encouraging local recruitment for the additional jobs should contribute to environmental sustainability and health in the long-term.

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