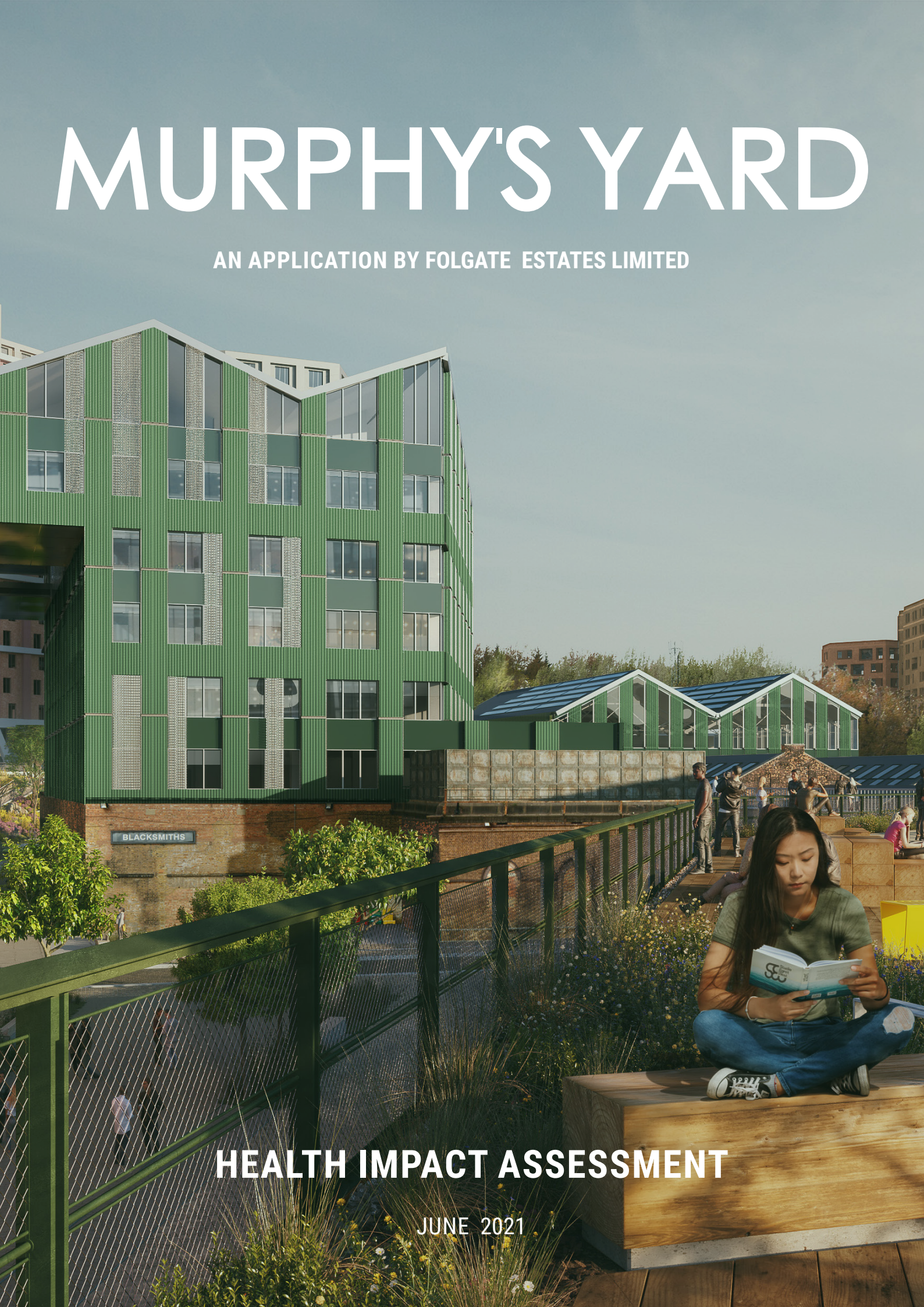
MURPHY'S YARD

AN APPLICATION BY FOLGATE ESTATES LIMITED



HEALTH IMPACT ASSESSMENT

JUNE 2021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Murphy's Yard

Health Impact Assessment

Folgate Estates Ltd

A report by Volterra Partners, June 2021

1 EXECUTIVE SUMMARY

1.1 This Health Impact Assessment (HIA) has been prepared by Volterra Partners on behalf of Folgate Estates Ltd ('the Applicant') in support of an outline planning application for a mixed-use development at Murphy's Yard ('the Proposed Development') in the London Borough of Camden (LBC).

1.2 The Proposed Development comprises the comprehensive redevelopment of the site to provide industrial, commercial, and community floorspace along with up to 825 residential dwellings, residential institution floorspace and other ancillary uses. The Proposed Development will also provide significant, high quality open space, the creation of a 'Heathline', public realm and associated works.

1.3 Preparation of an HIA is required by Policy C1 Health and Wellbeing of the LBC Local Plan,[1] in order to ensure that development contributes towards a healthy built environment. An HIA seeks to identify those health effects arising from a development (whether during the construction or the operational phases) which are likely to be significant. The assessment includes a review of medical and social-scientific literature in order to identify connections between the built environment and health outcomes. This results in a thorough assessment of the likely health effects of the Proposed Development.

1.4 The following significant potential health effects are identified:

Construction and operational effect

Access to work and training

1.5 Employment and income are strongly related to an individual's health. Parental unemployment can also have detrimental effects on children. The effects manifest themselves in physical (lack of physical activity, coronary heart disease) and mental health (anxiety, stress, other disorders).

1.6 The Proposed Development would support employment for LBC residents during both the construction and operational phases, reducing unemployment. The supporting Employment and Training Strategy prepared by the Applicant sets out the framework for the delivery of bespoke strategies and initiatives which aim to secure a range of quality employment and training opportunities for the local community, which will be secured through the S106 agreement.

1.7 The Proposed Development is expected to have a **moderate beneficial** effect on residents during construction and a **moderate beneficial** effect on residents during the operational phase.

Operational effects

Housing provision

1.8 There are strong links between housing design and quality, and conditions related to the respiratory system, nervous system, cardiovascular diseases. Poor quality housing and indoor environments cause or contribute to many types of preventable diseases and injuries. Due to the large volume of time spent within the home setting, residents have a high exposure to health risks associated with housing and housing design.

1.9 The Proposed Development would provide between 750 and 825 new high quality homes to meet identified local need. It will offer a range of affordable housing products and a mix of units sizes at a range of price points for people of different incomes and needs. The

1 LBC, 2017. Local Plan

Proposed Development is expected to result in a **moderate beneficial** effect for residents in the operational phase.

Accessibility and active travel

1.10 Active travel directly and indirectly induces higher levels of physical activity which contribute to improved health outcomes, including improved cardiovascular and mental health. The Proposed Development would open up new pedestrian and cycle paths through the site, leading to **moderate beneficial** effects on local sensitive community receptors.

Access to primary healthcare

1.11 Good accessibility and availability are important determinants in primary healthcare systems, with adverse health outcomes typically associated with longer wait times. In general, barriers to accessing primary healthcare can result in unmet health needs and delays in receiving appropriate healthcare.

1.12 The Proposed Development would introduce a large number of new residents to the area, who could place additional demands on local healthcare. The effects of this could be **moderate adverse** for residents and workers during the operational phase.

1.13 This is a worst-case assessment of the impact on local healthcare facilities as it does not account for the potential for new health facilities to be provided on site to support the needs of the community. The assessment in this HIA considers this in more detail and shows that serious consideration is being given to the potential healthcare facility which could provide health services to the wider community and the new residents on site.

Access to open space, nature, and amenity space

1.14 The evidence base shows that access to open space is associated with improved health outcomes. These benefits are linked to physical activity and mental health improvements.

1.15 The Proposed Development provides a large quantum of high quality open space (exceeding LBC's policy requirements) and a new greened route, the Healthline, which represents a significant public realm offering informed by the ecology and character of Hampstead Heath. The Proposed Development would result in a **moderate beneficial** health effect for residents during the operational phase.

Access to play space

1.16 Access to children's play space has been routinely linked to positive health outcomes, particularly through the mechanism of increasing physical activity. It can also result in increased energy, positive community engagement, and reduced tension, anger and depression.

1.17 The Proposed Development would provide a large amount of high quality children's play space. More than double the overall requirement can be accommodated within the future landscaping, meeting the needs of all age categories.[2] There will be a variety of different play spaces embedded throughout the scheme. The Proposed Development would lead to **moderate beneficial** effects for residents during the operational phase.

2 To be finalised through the RMA process. The provision for the 12+ age category is marginally under the target, but there would also be a large amount of all ages play space on site, more than fulfilling the needs of this age group too.

2 INTRODUCTION

Health impact assessments

2.1 The economic, physical and social environment has a significant impact on our health. This is particularly important when it comes to health inequalities – people who are economically, environmentally and socially disadvantaged experience poorer health outcomes. Planning can influence these factors and in doing so affect health outcomes. Health is therefore an important consideration in planning.

2.2 This HIA outlines the methodology, baseline conditions and likely health effects resulting from the construction and operation of the Proposed Development.

The site and the Proposed Development

2.3 The Applicant is proposing to redevelop Murphy's Yard, located in the Kentish Town and Highgate wards of LBC. The site is in the north of LBC, one kilometre from London's Central Activity Zone and the King's Cross Knowledge Quarter around King's Cross and Euston stations.

2.4 Murphy's Yard is a designated industry area in the LBC Local Plan. The site is covered largely by low intensity industrial uses, surface parking and yard space with a number of workshops and sheds.

2.5 The Proposed Development comprises the comprehensive redevelopment of the site to provide industrial, commercial, and community floorspace along with up to 825 residential dwellings, residential institution floorspace and other ancillary uses. The Proposed Development will also provide significant, high quality open space, the creation of a 'Heathline', public realm and associated works.

2.6 The development description is as follows:

"Outline planning permission with all matters reserved for the demolition of existing buildings and structures and redevelopment to be carried out in phases (with each phase being an independent act of development) comprising the following mix of uses: residential (Use Class C3), residential institution (Use Class C2), industrial (Use Class B2 and/or B8), commercial floorspace (Class E), flexible commercial and Sui Generis floorspace (Use Class E and/or Sui Generis Use), Community (F1 and/or F2), Sui Generis, and cycle and vehicle parking, refuse and recycling storage, plant, highway and access improvements, amenity space, landscape and public realm improvements, and all associated works."

Health impact assessment

2.7 This report comprises the HIA and is appended to the ***ES in Volume 3 (ES Volume 3, Appendix Socio-Economics: Annex 2)***. The conclusions of this report are summarised in ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing***.

2.8 The remainder of this report is structured as follows:

- Section 3 outlines the impact assessment methodology;
- Section 4 outlines the methodology for defining effects;
- Section 5 summarises the local health and demographic baseline. The full baseline is contained in Appendix A;
- Section 6 assesses the potential effects of the Proposed Development;
- Section 7 summarises any health mitigation;
- Section 8 presents the residual effects and cumulative effects;
- Appendix A contains the detailed baseline data; and

- Appendix B reviews the literature on the links between health determinants and effects on individuals' health.

3 IMPACT ASSESSMENT METHODOLOGY

Baseline data

3.1 The baseline data identifies the key health issues in the relevant areas and how they differ across the population. The analysis underpins the identified sensitivity of the population to changes which could arise from the Proposed Development. The baseline conditions have been established through interpretation of nationally recognised research, data and survey information. The full baseline is presented in **Appendix A**.

Relationship with the EIA

3.2 This HIA seeks to understand whether effects identified in other, relevant technical assessments would result in health effects on the population, including vulnerable groups. The health assessment considers the residual effects of other EIA technical assessments – i.e. it only considers the effects post mitigation. This assumes that committed mitigation measures will be delivered.

Spatial scope

3.3 Study areas for the baseline and potential effects are considered at varying spatial levels, according to the nature of the effect and the aspect of the Proposed Development that gives rise to the effect. **Table 1** shows the study areas used.

Table 1 Spatial scope

Study Area Level	Definition	Notes
Local Area	2016 electoral wards[3] of Kentish Town, Highgate and Gospel Oak	The Local Area has been defined as the combination of the wards in which the site sits (Highgate and Kentish Town) and, given its proximity to the ward boundary, the neighbouring ward of Gospel Oak.
District	LBC	The borough in which the site sits.
Regional	London	The region in which the site sits.
National	England, Great Britain or the UK	This is used as a comparator. Different datasets present national data at different geographies – England, Great Britain and/or the UK. The national study area therefore varies by data source.

Scope

3.4 The London Healthy Urban Development Unit Planning for Health Rapid Heath Impact Assessment (HUDU Rapid HIA) tool and checklist have been used as a guide to identify the relevant health determinants for the Proposed Development, in addition to guidance provided by the Welsh Health Impact Assessment Support Unit (2015),[4] Cave et al. (2009) *A Review Package for Health Impact Assessment Reports of Development Projects*,[5] and the Department for Health and Social Care (2010).[6]

3.5 This report assesses the potential health effects resulting from impacts on the determinants of health due to the Proposed Development. A review of the health baseline and the literature on the links between health determinants and effects on an individual's

3 Electoral wards/divisions in the United Kingdom as at 31st December 2016 (ONS, 2019. Wards (December 2016) Names and Codes in the United Kingdom)
4 Wales Health Impact Assessment Support Unit, 2015, Health Impact Assessment: A Practical Guide.
5 B. Cave., A. Bond., and M. Jakobsen, 2009, A Review Package for Health Impact Assessment Reports of Development Projects.
6 Department for Health and Social Care, 2010, Health Impact Assessment Tools.

health has been undertaken in order to identify sensitive receptors, including likely vulnerable groups. The review of the literature on the links between health determinants and effects on an individual's health is detailed in **Appendix B**.

Receptors

3.6 The receptors that could experience likely significant health effects are outlined in the following table. Receptor groups include the general population and vulnerable groups, as described in the section below. The receptor population reflects the make-up of the relevant study area.

Table 2 Definitions of receptor groups

Receptor group	Receptor population
General population	Existing residents
	Future residents on-site
	Existing workers in the area and on-site
	Future workers on-site
	Existing users of community assets in the area
	Future users of community assets in the area
Vulnerable groups	Children and young people (aged under 18)
	Older people (aged over 65)
	Low-income groups and unemployed
	Ethnic minority groups
	People with disability and long-term illness (including mental health issues and dementia, autism and epilepsy)

Identifying relevant receptor populations

3.7 Other technical EIA chapters that inform this HIA consider effects at specific receptor locations which are identified in the respective assessments. For the purposes of the HIA, it is not the physical receptor locations themselves which are relevant, but the receptor populations who live, work in and visit these receptors. This HIA considers the results from the relevant technical assessments in determining the health impact for the relevant receptor population(s) in the study area.

Identifying the relevant determinants of health

3.8 This assessment assesses the following determinants which are relevant to the Proposed Development:

- Housing quality and design;
- Access to healthcare services and social infrastructure;
- Access to play/open space and nature;
- Air quality, noise and neighbourhood amenity;
- Accessibility and active travel;
- Crime reduction and community safety;
- Access to healthy food;
- Access to work and training;
- Social cohesion and lifetime neighbourhoods;

3.9 This assessment scopes out two health determinants and associated effects from assessment: minimising use of resources and climate change. The rationale for scoping these out of this HIA is outlined in the EIA Scoping Report. The draft EIA Scoping Opinion received made no objection to scoping out these two effects from the assessment.

3.10 Potential effects on receptors are summarised in the table below.

Table 3 Health determinants, receptors and potential significant effects

Health determinant	Potential for significant effect	Receptor population(s)
Construction		
Access to work and training	Health effects relating to changes in employment and skills during construction	Residents
Accessibility and active travel	Health effects associated with changes in accessibility and active travel as a result of the construction activity	Residents, workers, users of community assets
Access to primary healthcare	Health effects of changes to demand for primary care provision	Residents, workers
A&E provision	Health effects of changes to demand for A&E services	Residents, workers
Crime, community safety, and social cohesion	Health effects associated with changes in crime, community safety and social cohesion, including anti-social behaviour	Residents, workers
Air quality	Air quality health effects during construction	Residents, workers, users of community assets
Noise and vibration	Noise and vibration health effects as a result of construction activities	Residents, users of community assets
Neighbourhood amenity	Health effects related to changes to neighbourhood amenity during construction	Residents, workers, users of community assets
Completed Development		
Access to work and training	Health effects relating to changes in employment and skills	Residents
Housing provision	Health effects relating to improved housing conditions	Residents
Accessibility and active travel	Health effects associated with changes in accessibility and active travel	Residents, workers, users of community assets
Access to primary healthcare	Health effects of changes to demand for primary care provision	Residents, workers
A&E provision	Health effects of changes to demand for A&E services	Residents, workers
Crime, community safety and social cohesion	Health effects associated with changes in crime, community safety and social cohesion, including anti-social behaviour	Residents, workers
Access to open space, nature and amenity space	Health effects associated with open space provision and amenity space	Residents
Access to play space	Health effect associated with play space provision and changes to demand	Residents
Access to healthy food	Health effects associated with access to healthy and unhealthy foodstuffs	Residents
Air quality	Health effects associated with changes in air quality	Residents, workers, users of community assets
Noise and vibration	Health effects associated with changes in noise and vibration	Residents, users of community assets

Health determinant	Potential for significant effect	Receptor population(s)
Neighbourhood amenity	Health effects related to changes to neighbourhood amenity during the operational phase	Residents, workers, users of community assets

Consultation and Scoping

3.11 An EIA Scoping Report was submitted to LBC. The EIA Scoping Report set out the proposed health assessment methodologies, the potential scope of the HIA, the data sources to be used in the compilation of baseline and other information. The table below sets out the informal comments received from LBC on the EIA Scoping Report.

Table 4 Scoping comments and responses

Comment from the EIA Scoping Opinion	Response
With regard to social Infrastructure, Table 1 identifies 3 GP practices within 500m of the site. It is unclear why such a small catchment area has been identified given the scale of the development and the likely impact, and why only GP services have been identified. Paragraph 102 of the report refers to the baseline analysis including primary and secondary healthcare provision.	The Scoping Report was meant to illustrate the type of assessment the HIA would include. GPs typically register patients living within a defined area called the 'inner catchment'. During consultation, HUDU explained that the relevant study area should be the inner catchment of the GPs the site falls into and the HIA therefore follows that approach. The assessment is not limited to impacts on GP services, with primary and secondary healthcare both considered, as well as community health centres.
The proposed development comprises approximately 750-825 homes and commercial, retail and community uses. The description refers to uses within Class E, but not use class E(e) 'provision of medical or health services'. However, paragraph 4 refers to the provision of Class E floorspace including healthcare space. Please could the applicant clarify whether healthcare space is to be provided.	The healthcare facility is considered in this assessment.
We note in Table 5 that construction worker health is scoped out of the assessment on the basis that the effect is likely to be insignificant. Reference is made to construction management measures to reduce the risk of accidents. However, without this mitigation measure the effect could be significant. In addition, reference could be made to the Mayor of London's workplace wellbeing programme and Good Work Standard. Minimising the risk of accidents and preventing physical and mental ill health will reduce the impact on healthcare services.	Health effects related to the construction phase of the Proposed Development including construction worker health have been scoped into the HIA in response to this comment. The scheme will be signed up to the Considerate Constructors scheme (see ***ES Volume 1, Chapter 16: Environmental Management, Mitigation and Monitoring Schedule***)

Comment from the EIA Scoping Opinion	Response
We also note that operational A&E impact is considered to be insignificant and as such will be scoped out of the assessment. This contradicts paragraph 102 which refers to the baseline analysis including all primary and secondary healthcare provision, including the 'performance of the nearest A&E'. It is unclear why the impact on A&E provision has been singled out as being insignificant. We suggest that the assessment considers the effect on all primary, community and secondary healthcare services.	Health effects related to access to A&E services during the construction and operational phases of the Proposed Development have been scoped into the HIA in response to this comment.
We welcome the statement in paragraph 118 that consultation will be undertaken with the CCG to understand the likely impact of the proposed development. However, it only refers to the 'GP baseline'. We would welcome the opportunity to discuss the approach to assess the GP and wider healthcare baseline position, the impact of the proposed development and possible mitigation. Paragraph 116 refers to the use of the GLA population yield calculator. In addition to the GLA population yield calculator, which is designed for education purposes, the HUDU Planning Contributions Tool (HUDU Model) should be used to estimate the population yield, the healthcare impact and necessary mitigation. The report does not mention how the healthcare baseline position will be assessed using available NHS data sources and capacity assumptions. The baseline position should also take into account changing models of healthcare, notably the creation of primary care networks and a shift towards integrated health and care services.	Consultation has been undertaken with the CCG and HUDU on the approach to assess both the GP and the wider healthcare baseline position, the impact of the Proposed Development and possible mitigation. HUDU ran the Planning Contributions Tool to estimate the population yield, healthcare impact and necessary mitigation. The baseline position has been assessed using available NHS data sources. It also takes into account changing models of healthcare such as the creation of primary care networks offering a wider range of services and a shift to digital consultations.
Whilst the assessment would focus on identifying and mitigating negative impacts, it is important that the HIA addresses positive impacts and maximises benefits from the proposed development. This could involve exceeding minimum standards and demonstrating how the design of the scheme would maximise health gains. It is suggested that the applicant consult with the Camden and Islington Public Health team for advice on the HIA.	Minimum standards are often exceeded by the Proposed Development, for instance in relation to open space and children's play space. The ambition for Murphy's Yard is to create a vibrant new neighbourhood in Kentish Town, where residents are not only offered good quality homes but access to good transport links, views and also a host of new communal facilities. Residents will have ample access to private and communal outdoor space. Access to high-quality homes in scenic environments and with good transport links have proven beneficial effects on health. The Applicant has consulted with the Camden and Islington Public Health team.

3.12 The Applicant has undertaken consultation with the Camden and Islington Public Health team for advice on the HIA and with NHS HUDU officers.

3.13 The Applicant discussed the scope and approach to HIA with an officer from the Camden and Islington Public Health team. The officer confirmed acceptability of the scope and was pleased to see the consultation was happening early in the work. The officer mentioned that there were a couple of large GP practices near the site and shared data on nearby GPs. They mentioned it is important to explore how people move about the area and consider the potential for areas for community cohesion. The officer explained that the Camden data site has lots of good information relating to health outcomes.

3.14 The NHS HUDU team reviewed an initial draft of the health infrastructure baseline and effects assessment, and ran the HUDU Planning Contributions Tool for the present HIA. NHS HUDU explained that a smaller catchment area would be more appropriate. They

explained that GP practices register patients living permanently within a defined catchment area – the inner catchment area, which is used for this HIA. HUDU also suggested that the assessment take into account a broader set of metrics. These recommendations have been followed and this HIA summarises relevant parts of the HUDU assessment where relevant.

3.15 A public consultation was undertaken virtually by the Applicant to inform the design of the Proposed Development. The objectives of the consultation process were to approach local stakeholders who may have an interest in the site, or who may be affected by the proposals, and to raise awareness among local residents and businesses about the development. Another purpose of consultation is to design the scheme with stakeholders' views in mind and respond to stakeholders' views with appropriate solutions where possible.

3.16 A summary of the consultation process is found in the Statement of Community Involvement. The following health themes were identified:

- There was broad support for the ambition to provide 35% affordable housing on the site, with some expressing a preference for social housing at Council rents.
- Questions were raised regarding the impact of the influx of new residents on local infrastructure and services such as GPs and schools.
- Several people expressed concerns regarding the taller element and thought that what was being proposed was too high for the area – they questioned the justification for height in the absence of a comparable reference point locally. The heights in the northern section of the site, closer to Gospel Oak have been reduced and stepped. This has resulted in an increase of one storey in the centre of the site but a careful rearrangement of the buildings in the north of the site has brought the overall heights in the north down.
- The proposed mix of commercial uses on the site was broadly welcomed. Several respondents questioned the need to retain industrial space on the site but many felt that some types of light industrial space might be acceptable as part of a mix of complementary uses, provided these minimised impacts on residents.
- There was widespread support for a multi-purpose community events space on site, which could be used a space to host meetings of local community groups.
- There was broad support for the incorporation of measures aimed at maximising the sustainability of the development.
- The creation of new access routes into and through the site and their interaction with the surrounding area were key priorities for several respondents. There was particular support for improved access to Kentish Town station; Gospel Oak station; and Kentish Town City Farm.
- There was widespread support among respondents for the Heathline, with feedback and suggestions revolving around its landscaping and route, as well as the level of greenery.

3.17 This HIA summarises information from the consultation in relevant sections throughout and describes how that has influenced both the assessment and design of the Proposed Development.

Assumptions and limitations

3.18 As with any data set, the baseline data will change over time. The most recent published data sources are used in this assessment, which is usually data from either 2020 or 2021, but where this has not been available, the next best alternative (i.e. the most up to date) is used as a proxy. The assessment is also limited by the geographic scale of data

available. Wherever relevant and possible, data has been presented at a suitably detailed level.

3.19 As a result of the COVID-19 pandemic, some recent data detailing health conditions, such as unemployment rates and attendances to A&E departments do not accurately reflect trends experienced prior to nationwide lockdowns. In these cases data from 2019 or earlier has been used. Where the impact of COVID-19 is relevant for the assessment of underlying conditions, data detailing the long-term trend and impact of the pandemic are presented in **Appendix A**.

4 METHODOLOGY FOR DEFINING EFFECTS

Receptors and receptor sensitivity

4.1 Sensitivity of receptors is defined as high, medium, low or very low. The receptor sensitivity is assessed on a case by case basis, using professional judgement. For health effects, the receptor sensitivity is determined by the number of people exposed to the health effect and the extent to which the exposed population experiences inequalities in health status or can access services and facilities.

4.2 For example, if the open space baseline found an existing deficiency in local open space, high numbers of children, and low levels of physical activity, the sensitivity of existing residents' health to changes in access to open spaces will be high.

4.3 **Appendix A** summarises the prevalence of the vulnerable groups in each study area. This is an indicative assessment because it is not always possible to know the extent to which vulnerable groups are prevalent in receptor populations due to data limitations. For example, it is not possible to know the number of people with mental health issues who might walk past or use the Proposed Development, but it is possible to collect data on self-reported mental health outcomes as recorded within the National Census.

4.4 The assessment applies a worst-case approach where there are uncertainties regarding the prevalence of vulnerable groups. Where data is not available, the assessment comments on whether vulnerable groups may be present in an area based on the characteristics of the area and sensitive receptors identified in other ES chapters.

4.5 The rationale for the sensitivity of each receptor is summarised in each baseline section.

Magnitude of impact

4.6 The assessment of the magnitude of impact has been undertaken based on expert judgement. Several factors are considered when assessing the magnitude of impact:

- The size of the change;
- Consultation responses;
- Whether health priorities or policy have been set for the relevant health determinant; and
- The strength of the evidence linking impacts to health outcomes.

4.7 The strength of the evidence linking impacts to health outcomes is assessed in Appendix B and is based on the rating-system presented in **Table 5**.

Table 5 Evaluation of the strength of evidence, ratings

Strength of evidence	Description
Strong	A wide range of peer-reviewed research has found an association between the determinant and health outcomes. There is consensus in the scientific community about the existence of the association.
Moderate	Several peer-reviewed studies have found an association between the determinant and health outcomes. There is wide agreement in the scientific community about the existence of the association, but there may be a number of dissenting voices about the particulars.
Weak	A few peer-reviewed or non-peer-reviewed research articles have found an association between the determinant and health outcomes. There is little consensus in the scientific community, or there are conflicting studies.

4.8 Magnitude of impact is assessed as high, medium, low or very low.

Effects – nature and scale

4.9 **Table 6** shows how the magnitude of impact and sensitivity of receptor combine to determine the scale of the effect. Effects can be either beneficial or adverse in nature; temporary or permanent; and direct or indirect.

Table 6 Scale of effect

Sensitivity of receptor	Magnitude of impact			
	High	Medium	Low	Very low
High	**Major**	**Major**	**Moderate**	Minor
Medium	**Major**	**Moderate**	Minor	Negligible
Low	**Moderate**	Minor	Negligible	Negligible
Very low	Minor	Negligible	Negligible	Negligible

4.10 Effects that are classified as moderate or major are significant.

5 BASELINE

Health profile of LBC

5.1 LBC's Joint Strategic Needs Assessment[7] describes the health of the borough's population in the following terms:

- The population of Camden is living longer, growing, and constantly changing. Although people are living longer, residents on average spend the last 20 years of their life in poor health
- A younger population profile presents a significant opportunity for prevention of conditions that are significant contributors to early death, disability, and poor quality of health in Camden.
- Cancer, cardiovascular disease (CVD), and respiratory disease remain the leading causes of death in Camden. Diabetes and high blood pressure are some other common conditions that significantly contribute to early death in Camden. Nevertheless, the under 75 mortality rate from all causes, from cardiovascular diseases, from respiratory diseases as well as from cancer in LBC is lower than in London or the nation.[8]
- Although the majority of children and young people in Camden live healthy lives, there are high levels of vulnerability and disadvantage. A significantly higher proportion of Camden children aged under 16 are estimated to be living in low income households compared to the regional and national average.
- The share of obese and overweight children in reception and in year 6 is broadly in line with the London and England levels. The proportion of adults who are overweight or obese is lower than in London or England, and rates of physical activity are higher.[9]
- Mental health disorders among children are estimated to have a similar prevalence to London and England. The proportion of children achieving a good level of development at the end of reception year has been increasing over the past 5 years in Camden although the rate is significantly lower than the England and London average. Among adults Camden has the 3rd highest rate of diagnosed serious mental health illness of London's boroughs. About 5,700 (3%) working age people in Camden are on sickness/disability benefits due to mental illness, meaning more than one-in-three out-of-work benefit claims are due to mental illness (41%).
- Smoking prevalence has decreased over recent years, but remains high in key population groups such as people in routine or manual occupations, or among those with severe mental health conditions. Alcohol-related hospital admissions were at significantly higher than the London or England averages, and the rate of admissions is noted to have increased in the past 10 years. LBC sees more death from drug misuse than comparators.[10]

Life expectancy

5.2 LBC is generally healthy, but highly unequal. LBC residents typically live longer than is characteristic of London and England: males have a life expectancy 3.5 years higher than the England average and females have a life expectancy 3.7 years higher. However, the gap between the life expectancy of those born in the most deprived 10% of areas and those born in the least deprived 10% of areas in LBC is also considerably larger: for males

7 LBC, 2019. Joint Strategic Needs Assessment
8 Public Health England, 2021. Local Authority Fingertip Health Profiles
9 Public Health England, 2021. Local Authority Fingertip Health Profiles
10 Public Health England, 2021. Local Authority Fingertip Health Profiles

the gap is 12.9 years (compared with 7.2 years in London and 9.4 years in England) and for females the gap is 10.0 years (5.1 in London and 7.6 in England).

Table 7 Life expectancy at birth (years), 2017-19

	Camden	London	England
Life expectancy (male)	83.3	80.9	79.8
Life expectancy (female)	87.1	84.7	83.4
Inequality in life expectancy (male)	12.9	7.2	9.4
Inequality in life expectancy (female)	10.0	5.1	7.6

Source: Public Health England, 2021. Local Authority Fingertip Health Profiles

Socio-demographics

5.3 LBC's socio-demographics is summarised below:

- Population growth: the population of the LBC has grown faster than the London and England average.[11] The Local Area has also seen strong population growth, though not as strong as the rest of the borough.
- Age profile: LBC has a relatively young population. The median age is 33.0 years in the borough – compared to 35.6 years in London and 40.3 years in the UK as a whole.[12]
- Diversity:[13] LBC has a diverse population, with BME groups accounting for 34% of the whole population, lower than London's 40% but higher than the country's 14%. Ethnic diversity is expected to remain stable over the next decade.
- Deprivation: The borough ranks 132nd out of 317 English local authorities in terms of deprivation,[14] placing it in the most deprived 40%. No lower-layer super output area (LSOA)[15] in LBC ranks within the worst 10%. Looking at sub-domains of deprivation the borough as a whole ranks poorly (in the worst 10%) in terms of the quality of its living environment.

Vulnerable groups within the community

5.4 Addressing health inequalities is a key objective of local policy. Several groups have been identified as being particularly vulnerable to adverse health effects:

- Young people: children and adolescents are a vulnerable group due to their increased sensitivity to the physical environment. During the physical and mental development of the human body, environmental factors such as air pollution, noise, and stress have been shown to be associated with relatively worse health outcomes. Barriers to physical activity created by the removal of open space or heavy traffic have greater impacts on young people due to their greater reliance on outdoor and active spaces.
- Older people: older people are at risk of social exclusion, can find it difficult to access health and social services as well as shops and community facilities. Negative health effects from social exclusion can be amplified as a result of fear of crime. Older people are more vulnerable to negative health effects associated with changes in accessibility, air quality and noise.

11 ONS, 2020. Mid-Year Population Estimates 2019-based.
12 ONS, 2020. Mid-Year Population Estimates 2019-based
13 LBC, 2019. Joint Strategic Needs Assessment
14 MHCLG, 2019. English Indices of Deprivation
15 LSOAs are a geospatial statistical unit used in England and Wales to facilitate the reporting of small area statistics. They are designed to break down administrative areas into small geographies accounting for approximately 1,500 residents.

- Low-income groups and the unemployed: significant evidence exists that social grade and income are strongly associated with health outcomes. Often the poorest people experience worse health outcomes as they are exposed to poor quality outdoor environments and do not face the same access to nutrition and activity.
- Ethnic minority groups: there is evidence that the poorer socio-economic and spatial position of ethnic minorities is the main factor driving health inequalities for ethnic minorities.
- People with disability and long-term illness (including mental health issues): people with disabilities and mental health issues can struggle to gain and maintain employment; and are more vulnerable to a reduction in physical activity due to changes in accessibility.

Summary of vulnerable groups in the study areas

5.5 **Table 8** summarises the prevalence of the vulnerable groups included in this assessment in each study area. The following colour-scheme is applied:

- Red: the vulnerable population has a relatively larger presence than the regional and national averages;
- Amber: the vulnerable population has a relatively larger presence in the study area than in either the region or the nation; and
- Green: the vulnerable population has a relatively smaller presence in the study area than in the nation and the region.

Table 8 Summary table of vulnerable groups in each study area

Vulnerable group	Local Area	GPs' Inner Catchment	District	Region	Nation
Young people	21%	19%	19%	23%	21%
Older people	14%	12%	12%	12%	18%
Low income groups	29%	33%	32%	26%	21%
Ethnic minorities	26%	30%	34%	40%	14%
People with long-term illness or disability	16%	16%	14%	14%	18%

Source: ONS, 2019. Mid-year population estimates 2018-based; ONS, 2011 Census; ONS, 2017. Small area model-based households in poverty estimates, England and Wales: financial year ending 2014;

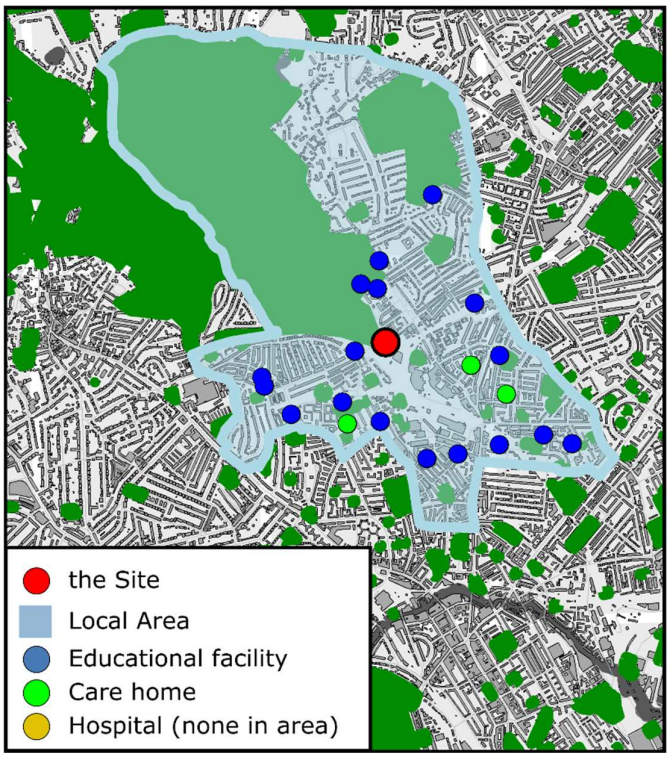
Community receptors

5.6 Community receptors are sensitive facilities whose users are predominantly members of vulnerable population groups. Within the Local Area there are:

- Three care homes;
- 17 schools or educational centres; and
- No hospitals

5.7 These community facilities are shown in **Figure 1**.

Figure 1 Community facilities in the Local Area



Source: Care Quality Commission, 2021. Care directory; Department for Education, 2020. Get information about schools service; GLA, 2020. Cultural Infrastructure Map;

5.8 Certain impacts of the Proposed Development could differentially affect users of these community receptors. The effect on these community receptors is considered separately.

LBC health priorities

5.9 This section summarises the health priorities identified in LBC's Joint Strategic Needs Assessment (JSNA)[16] and Joint Health and Wellbeing Strategy (JHWS)[17] for the relevant determinants.

16 LBC, 2019. Joint Strategic Needs Assessment, Focus on Air, 2019.
17 LBC, 2019. Camden's Joint Health and Wellbeing Strategy refresh: March 2019

Table 9 LBC health priorities summary table

Broad topic	Relevant determinants	Health priorities
Employment and training	Access to work and training	LBC's Joint Strategic Needs Assessment notes that the population of the borough is living longer, growing and constantly changing, and that it is dominated by people of a young working age – which gives opportunities for the prevention of conditions that are significant contributors to early death, disability and poor quality of health in the area. The JSNA recognises that employment is one of the key wider determinants of health, particularly noting the strong correlation between unemployment and poor health. The extent of childhood poverty is identified as the most important determinant affecting the current and future health of children and young people. Providing opportunities for skills development and sustaining good quality employment are identified as critical health interventions. The financial status of older people is also a concern, half of whom live in poverty. The JSNA notes that there are differences in child poverty within the borough. The LBC Joint Health and Wellbeing Strategy (JHWS) includes several targets to help people into employment. Some of the targets include: • To provide at least 550 residents in substance misuse treatment services (including alcohol and drugs) with specialist support to access education, training and employment each year; • To help at least 540 people with mental health conditions into employment, training or volunteering.
Healthy lifestyles	Access to open space, nature, and amenity space; play space Access to healthy food	Making LBC a place where everyone has the opportunity to maintain a healthy lifestyle is one of the key priorities in LBC's JHWS. One-in-five children in LBC start primary school overweight or obese. The council pledges to launch a large scale, long term, borough wide physical activity campaign under Camden Can,[18] which is a series of evolving projects to help and inspire people in the area to eat healthily and be more physically active every day.
Housing quality and design	Housing provision	LBC's JSNA notes that housing is a key wider determinant of health. Good quality housing can have positive impacts on the physical and mental health of the population. The previous JSNA (2015/16)[19] noted that homes in poor physical condition can put occupants' health and safety at risk, especially where vulnerable groups are living in such conditions. A particular focus of LBC's JHWS is widening access to care (including mental healthcare) among the homeless, and other disadvantaged groups.
Public services, facilities, and the community	Access to primary healthcare A&E provision Crime, community safety, and social cohesion	Building resilient families and communities is one of the five key priorities listed in LBC's JHWS. LBC hopes to achieve these through: • Working closely with partners to trial innovative community problem solving models, including Full Circle, a community-led problem-solving approach inspired by the values of Family Group Conference. • Community-led Resilient Families training. • Problem solving booths that promote mutual aid. • Earlier help in youth offending. • Family-led early help information and advice via parent champions. A focus area of the JSNA is developing a citizen-led approach, seeking to engage and empower citizens to improve their own health and wellbeing and that of their communities, and to reduce inequalities. Key to this are: • Engaging the community, organisations and partners living and working in a local area to think more deeply about opportunities and barriers to health and wellbeing, and to work together to find and test solutions. • Citizens co-designing what an integrated, place-based health and wellbeing system looks like at a neighbourhood level (e.g. primary care, community services, mental health, social care, Voluntary and Community Sector (VCS), leisure, arts, culture, employment support among others).

18 LBC, Camden Can [described at: https://www.camden.gov.uk/camden-can]
19 LBC, 2016. Joint Strategic Needs Assessment 2015/16

Broad topic	Relevant determinants	Health priorities
Environment	Accessibility and active travel Air quality Noise and vibration Neighbourhood amenity	The LBC JSNA notes that poor air quality is detrimental to human health. The assessment notes that exposure to outdoor air pollution has both short and long-term impacts on people's health, particularly putting at risk those with underlying health conditions. For example, fine particulate matter and oxides of nitrogen (particularly nitrogen dioxide) cause increased mortality and reduce life expectancy. The assessment suggests that there are 264 deaths per year attributable to poor air quality in LBC, whilst there are around 9,400 across all of London. One of the major contributors to the poor air quality in Camden that is mentioned by the council in the JSNA is traffic, which comes as a result of the borough's dense population. LBC's JHWS identifies creating a healthier place as one of its five priorities. The Council in particular aims to look at the environment immediately surrounding the schools. In addition to the JHWS, LBC also has an Air Quality Action Plan,[20] which cites evidence establishing the link between poor air quality and health in urban areas. This plan aims to meet the EU objectives with regards to pollution, and to drive compliance with WHO Guidelines by 2030. The LBC JHWS pledged to include active travel within the LBC 2019-2041 transport strategy. Within the transport strategy,[21] transport is noted to play a key role to improving population health, and that a good strategy can play a part in reducing health inequalities, which are noted to be high within the borough. Within the transport strategy, there is a walking and accessibility strategy (LBC WAS).[22] One of the targets of this strategy is to improve the accessibility of the transport network in Camden, acknowledging that this will increase opportunities for all users, and particularly for those people with physical and/or learning difficulties. Step-free access is often not available at local tube and rail stations, for instance.

Baseline data for health determinants

5.10 **Table 10** presents a summary of the baseline health conditions for each effect considered in the HIA. The information presented is a summary of the detailed baseline data in **Appendix A**.

5.11 The receptor population column presents information on the study area and the relevant receptor population for each effect. The vulnerable groups with the potential to be disproportionately impacted by each effect differ by effect, identified through a review of evidence presented in more detail in **Appendix B**.

5.12 The prevalence of vulnerable population groups in each study area is presented by highlighting the text within the receptor population column. Text is coloured according to the colour scheme in **Table 8**, but in summary red means a relatively large presence of vulnerable groups, while green means a relative absence, with amber indicating a medium presence.

20 LBC, 2019. Camden Clean Air Action Plan
21 LBC, 2019. Healthy Streets, Healthy Travel, Healthy Lives: Camden Transport Strategy 2019-2041
22 LBC, 2019. Walking & accessibility Action Plan - April 2019

Table 10 Receptors and receptor sensitivity

Health determinant	Relevant phase(s)	Baseline	Receptor population	Receptor sensitivity
Access to work and training	Construction Operation	While LBC residents tend to be very highly qualified, they also have an unemployment rate higher than that of London and the UK, as described in ***ES Volume 1, Chapter 6: Socio economics, Health and Wellbeing***. In terms of deprivation linked to income LBC can be considered average. There are relatively high levels of child poverty, a condition which has considerable importance for health.	Study area: District Receptors: residents Vulnerable groups: children and young people, low income groups and the unemployed, ethnic minorities	LBC has an unemployment rate considerably higher than that of regional and national comparators. An high proportion of children grow up in poor households in LBC, and vulnerable groups (low income groups and the unemployed, ethnic minorities) have a presence in the area. Sensitivity of receptor: **high**
Housing provision	Operation	The Ministry of Housing, Communities and Local Government (MHCLG) published their latest Housing Delivery Test results in January 2021. Camden was one of 19 LPAs in England which delivered between 75% and 85% (79%) of their target in between 2017 and 2020 and now must identify a 20% buffer on their housing land supply.[23] The delivery of affordable housing, however, has been only about 20% of the total, falling far short of the LBC target of 50%. Affordability is a significant concern in LBC, with average house prices reaching 22.8 times median earning in 2020, compared with 14.7 for London and 9.4 for England. Homelessness is less of a problem in LBC than across London as a whole. ***ES Volume 1, Chapter 6: Socio economics, Health and Wellbeing*** identifies that the number of LBC residents who are accepted as homeless and in priority need is 0.8 per 1,000 households, much lower than for London overall (4.0 per 1,000 households). Overcrowded households in LBC make up 12% of the total, slightly higher than London's 11%, but much worse than the 5% of overcrowded households in England and Wales.	Study area: District Receptors: residents Vulnerable groups: children and young people, older people, low income groups and the unemployed	The greatest housing-related health risk, homelessness, has been falling in LBC, despite rises in London overall in the past decade. Levels of overcrowding are slightly higher in LBC than the rest of London. Housing delivery has been mixed but in recent years LBC has under-delivered and now must add a buffer on their housing land supply. Few of the new homes have been affordable homes. High house prices are a cause for concern and vulnerable populations have some presence in the area. Sensitivity of receptor: **medium**

23 Ministry of Housing, Communities & Local Government (January 2021), Housing Delivery Test: 2020 measurement

Health determinant	Relevant phase(s)	Baseline	Receptor population	Receptor sensitivity
Accessibility and active travel	Construction Operation	The site is fairly accessible through public transport: it is located within Zone 2/3 and has a PTAL rating of 2-5. Redevelopment of the site and creation of new pedestrian routes will increase the PTAL level of the whole site to 5.[24] There are no delineated cycle routes in the immediate vicinity of the site, however advance cycle stop lines are present at some junctions. On-street markings along Gordon House Road identify that the road is a designated cycle route, however, no dedicated cycle lanes exist. LBC residents tend to be more physically active and a relatively lower proportion are overweight. In reception year only 19.8% of children are classified as overweight in LBC, which compares with 21.6% in London and 23.0% in England. Considering adults, the contrast is even stronger: 41.7% are overweight in LBC, while 55.9% in London and 62.3% in England are. The mortality rate (under 75) attributable to cardiovascular diseases is also much lower in LBC than London or England. Those killed or seriously injured (KSI) on the roads of LBC numbered 50.9 per 100,000, compared with 39.5 in London and 42.6 in England, meaning that LBC's roads are in general less safe than in comparator geographies.	Study area: Local Area Receptors: residents, workers, users of community assets Vulnerable groups: children and young people, older people, low income groups and the unemployed, people with long-term illness or disability	The Local Area is accessible, with excellent transport links. LBC residents are more active and less overweight than those in comparators. Vulnerable groups have some presence among the resident population, and a large share of workers in the area could also belong to these categories, and there are issues around road safety. Sensitivity of receptor: **low**
Access to primary healthcare	Construction Operation	Contractually, GP practices register patients living permanently within a defined catchment area. This is known as an inner catchment area. A GP practice may register patients living outside of this area, but may restrict services, such as home visits.There are five GP practices with inner catchments covering the site. The five practices have a relatively low number of patients per GP FTE (1,127), meeting the NHS benchmark target of below 1,800.[25] However, patient list growth has been 11.2% across the five practices in the five years to January 2021, and the ratio of patients to clinical rooms is above the LBC average for two of the five practices. The area also contains a number of health centres which in addition to GP practices accommodate community and mental health services. These include Kentish Town Health Centre (James Wigg Practice), Peckwater Health Centre (Caversham Group Practice), Gospel Oak Health Centre and the Brandon Centre. The strategy in North Central London is to ensure that infrastructure supports integrated health and care services. New and existing health centres will be expected to accommodate a wider range of services, including PCN enhanced services and out of hospital services. NHS North Central London Clinical Commissioning Group (CCG) is of the opinion that additional capacity will be required in the area to accommodate an increasing demand for services and the need to provide a wider range of services. LBC is actively considering and planning for expected population growth, in order to meet its challenges for healthcare provision. The schemes to be delivered in the future are discussed in more detail in **Appendix B**.	Study area: GPs' Inner Catchment Receptors: residents, workers Vulnerable groups: older people, ethnic minorities, people with long-term illness or disability	There is a good number of GPs relative to patients in the area, but demand is expected to increase, especially in anticipation of demand for a wider range of services being provided. Patient list growth has also been swift in the five years to January 2021, and two of the five practices have more patients per clinical room than the borough average. LBC is actively planning for expected population growth. Vulnerable populations have some presence in the area. Sensitivity of receptor: **medium**

24 PTAL is an assessment of a location's access to the public transport network, taking into account walk access time and service availability. Each area is graded between 0 and 6b, where 0 is very poor access and 6b is excellent access to public transport.
25 HUDU explained that the five GP practices have formed two primary care networks. These networks are providing services in with the NHS England Network Contract Directed Enhanced Service Contract. In the light of this, the GP per patient ratio is not considered to be an accurate measure of capacity on its own.

Health determinant	Relevant phase(s)	Baseline	Receptor population	Receptor sensitivity
A&E provision	Construction Operation	The closest Accident & Emergency (A&E) department to the site, Royal Free Hospital, is located 1.3km away. The A&E target is that 95% of patients who attend A&E departments are to be admitted to a hospital bed, discharged from the department, or transferred to another hospital within four hours of arrival. In 2018-2019 Royal Free London NHS Foundation Trust had a total of 281,680 A&E attendances. In total 87% of patients were admitted within the four-hour target time. Across London and England the same figure was 84%. The level of calls the London Ambulance Service (LAS) currently receives goes up on average 6% per year and the number of incidents increases at an average rate of 3%.	Study area: Local Area (nearest A&E hospital) Receptors: residents, workers Vulnerable groups: older people, ethnic minorities, people with long-term illness or disability	The A&E department closest to the site performs marginally better than London and England as a whole on meeting A&E admissions targets (though still below the NHS benchmark), and vulnerable groups could be present among its users in large numbers. Use of A&E services is growing steadily, creating new challenges. Sensitivity of receptor: **medium**
Crime, community safety and social cohesion	Construction Operation	As discussed in ***ES Volume 1, Chapter 6: Socio economics, Health and Wellbeing*** LBC is within the worst 30% of English local authorities in terms of crime deprivation. The Local Area, however, is broadly average for London, with 136 crimes committed in 2020 per 1,000 residents (127 in London). There seems to be an oversupply of community centres in the area, and these would benefit from population increases, lest they become unviable. As discussed in the detailed baseline, community feeling tends to be lower in London and other urban areas, although only slightly.	Study area: Local Area Receptors: residents, workers Vulnerable groups: children and young people, older people, ethnic minorities	Crime is a problem in LBC, but is less pronounced in the Local Area, and research has found that the community facilities in the area could benefit from additional residents to make them viable, and could improve community cohesion. Vulnerable populations are mostly absent from the area. Sensitivity of receptor: **medium**
Access to open space, nature and amenity space	Operation	The Local Area has abundant supply of open space, largely thanks to Hampstead Heath directly north of the site. The provision of open space in the Local Area is estimated to be 4.8ha per 1,000 residents, double the recommended level. All open space types are within the target distances set by the GLA from the site, except for the largest regional parks (greater than 400ha) of which London has only one: Richmond Park. All other open space types are readily accessible. Hampstead Heath is a large Metropolitan Park, and just on the doorstep of the Proposed Development. For a site in London, it has excellent accessibility to open space. As noted in the accessibility and active travel baseline, LBC residents tend to be more physically active, and less overweight than those of London or England.	Study area: Local Area Receptors: residents Vulnerable groups: children and young people, older people, low income groups and the unemployed, people with long-term illness or disability	There is a very good supply of accessible open space in the Local Area. LBC residents are more physically active and more likely to be of healthy weight than residents in comparator areas. Vulnerable groups have some presence in the area. Sensitivity of receptor: **low**
Access to play space	Operation	***ES Volume 1, Chapter 6: Socio economics, Health and Wellbeing*** shows that the site is in an area with good coverage of children's play spaces. There is also 42sqm of formal and informal play space per child in the Local Area, far above the target provision of 10sqm per child. Focusing on formal areas of play only, LBC identified that provision of 1,200sqm of dedicated play space could alleviate all deficiencies within the Local Area.	Study area: Local Area Receptors: residents Vulnerable groups: children and young people	There is plentiful provision of children's play space in the Local Area, although there are small local deficiencies in formal areas of play. Children, however, have a relatively smaller presence in the area. Sensitivity of receptor: **low**

Health determinant	Relevant phase(s)	Baseline	Receptor population	Receptor sensitivity
Access to healthy food	Operation	The Local Area has low fast-food density and ample access to healthier alternatives. As noted in the accessibility and active travel baseline, LBC residents are more physically active and much less overweight than residents of London and England.	Study area: Local Area Receptors: residents Vulnerable groups: children and young people, older people, ethnic minorities	Fast-food stores where primarily unhealthy foodstuffs are available are relatively absent from the Local Area (although they are readily available in LBC). A large number of food retailers are available in the Local Area providing access to a variety of food choices. Residents of the Local Area are more physically active and less overweight than residents of London or England. Vulnerable populations are relatively absent from the area. Sensitivity of receptor: **low**
Air quality	Construction Operation	The entire area of LBC has been declared an Air Quality Management Area (AQMA) for exceedances of the annual mean NO2 objective and the 24-hour mean PM10 objective. A clear downward trend is in evidence in measured annual mean concentrations where multi-year data is available in LBC, meaning that it is expected that air quality will improve around the site in the future. The mortality rate from respiratory diseases for those aged under 75 is 23.9 per 100,000 residents, far better than the regional (29.9 per 100,000 residents) or the national rate (34.2 per 100,000 residents). The mortality rate from lung cancer in LBC is lower than at regional and national level, with a rate of 45.6 per 100,000 LBC residents, compared to 48.0 for London and 53.0 for England.	Study area: Local Area Receptors: residents, workers, users of community assets Vulnerable groups: children and young people, older people, people with long-term illness or disability	Air quality in LBC is generally poor as evidenced by the declaration of an AQMA for the entire borough. However, air quality is improving, and mortality from respiratory diseases is much lower in LBC than in comparator areas. Vulnerable groups have some presence in the Local Area. Sensitivity of receptor: **medium**
Noise and vibration	Construction Operation	The noise climate around the site is mainly dominated by the various railway lines that are located to the south, west and north of the site. Road traffic from Highgate Road and Sanderson Close is dominant at parts of the eastern boundary to the site. Across there were 14.6 noise complaints per 1,000 residents in 2018/19, which is higher than the national average of 6.8, but lower than the London average of 17.0. While the National Sleep Foundation in the USA recommends between 7 and 9 hours of sleep for the average adult, the 2017 Great British Bedtime Report of the Sleep Council in the UK has revealed that almost three-quarters (74%) of Brits sleep less than 7 hours per night.	Study area: Local Area Receptors: residents, users of community assets Vulnerable groups: children and young people, older people, people with long-term illness or disability	The noise climate is an issue in LBC in general, with a high number of complaints registered annually. Britons tend to sleep less than the recommended amount. Vulnerable groups have some presence in the Local Area. Sensitivity of receptor: **medium**

Health determinant	Relevant phase(s)	Baseline	Receptor population	Receptor sensitivity
Neighbourhood amenity	Construction Operation	Neighbourhood amenity refers to the quality of private and public physical external space. It depends on several factors, but development is expected to impact on neighbourhood amenity through changes to traffic, air quality, noise and vibration, and therefore these baselines are relevant. LBC ranks 22nd worst out of England's 317 local authorities in terms of quality of living environment on the 2019 IMD, meaning that the quality of living environment is among the worst 10% in England. The site is highly accessible, although its air quality and noise environment are of relatively poor quality (though not out of step with the London average).	Study area: Local Area Receptors: residents, workers, users of community assets Vulnerable groups: children and young people, older people, people with long-term illness or disability	The amenity of LBC is ranked very low in terms of the quality of its living environment, and the Local Area performs only slightly better. Although the area is fairly accessible, its air quality and noise environment are of poor quality. Vulnerable groups have some presence in the Local Area. Sensitivity of receptor: **medium**

6 POTENTIAL EFFECTS (PRE-MITIGATION)

Construction phase

Access to work and training

6.1 Employment and income are strongly related to an individual's health. Parental unemployment can also have detrimental effects on children. The effects manifest themselves in physical health (lack of physical activity, coronary heart disease) and in mental health (anxiety, stress, other disorders).

6.2 ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing*** reports that the Proposed Development will generate 4,750 construction job years.[26] The Proposed Development could create 475 construction FTEs.

6.3 The Applicant is proposing to provide construction apprenticeships and work experience placements, engagement with local schools, local recruitment and a Local Procurement Strategy for the construction stage supply chain. Refer to the ***Local Employment and Training Strategy*** for more detail.

6.4 The access to work and training provided during the construction phase of the Proposed Development would result in a low magnitude impact. This combines with a high sensitivity receptor to create a temporary, beneficial effect of moderate (general population and vulnerable groups) scale at the District level. The **moderate beneficial** effect is **significant**.

Accessibility and active travel

6.5 Where accessibility relates to the transport alternatives available at a given location, active travel refers to types of transport that require physical activity during use. The two concepts are intrinsically linked for development in dense areas, such as inner London, with increased accessibility often requiring active travel improvements.

6.6 The evidence base shows that active travel directly and indirectly induces higher levels of physical activity which contribute to improved health outcomes, including improved cardiovascular and mental health. ***ES Volume 1, Chapter 7: Traffic and Transport*** identifies one significant effect during the construction phase, relating to severance. The percentage increase in vehicle numbers on Greenwood Place, Sanderson Close, Gordon House Road and Highgate Road is expected to result in a moderate adverse effect. All other effects are expected to be not significant, although effects on pedestrian and cyclist delay and amenity, fear and intimidation, and accidents and safety could be adverse.

6.7 No car parking will be available on site for construction staff as the assumption is that staff members will access the site via public transport. It is therefore expected that construction staff travel will therefore not contribute to local traffic.

6.8 The changes to access in certain aspects of the study area are expected to have an adverse effect. However, all the construction effects are temporary and localised. Across the study area, the overall impact on health is therefore expected to be low (for both the general population and vulnerable groups). This combines with a low sensitivity receptor to create a direct, temporary, effect of negligible scale in the Local Area. The **negligible** effect is **not significant**.

6.9 Four education facilities (Gospel Oak Primary School, William Ellis School, Parliament Hill School, and La Sainte Union Catholic Secondary School) lie directly adjacent to the possible route construction vehicles could take. Two of the care homes in the Local Area

26 One job year is the equivalent of one person working for one year

(Ash Court Care Centre and Lime Tree Gardens) lie on roads in close proximity to the route to be taken by construction vehicles. These six community receptors could see reduced accessibility and active travel, resulting in a medium magnitude impact. The overall effect at these receptors could be **minor adverse** (**not significant**).

Access to primary healthcare

6.10 As shown in **Appendix B**, good accessibility and availability are important determinants in primary healthcare systems, with adverse health outcomes typically associated with longer wait times. In general, barriers to accessing primary healthcare can result in unmet health needs and delays in receiving appropriate healthcare.

6.11 Since 2015 GPs have been allowed to register patients who live outside of their practice boundaries, opening up the possibility that workers register with a GP close to their place of work, and not their residence. In the very worst case, all the construction workers on-site would choose to register with the five GPs with the inner catchment covering the site. There will be an average of 610 construction workers on-site each year which could grow the local GP list size by 1%.

6.12 This is a relatively small increase and is very unlikely in reality. GPs are allowed to refuse registering potential patients who work in the area. Plus these construction workers would be temporary and tend to travel fairly long distances to work so are likely to stay registered near their home. Existing residents' access to healthcare is unlikely to suffer.

6.13 The potential impact of construction workers on primary healthcare in the GPs' Inner Catchment area would be very low (general population and vulnerable groups). Combined with medium receptor sensitivity, this results in a short-term effect of negligible scale (general population and vulnerable groups) on access to primary healthcare during the construction phase. The **negligible** effect is **not significant**.

A&E provision during construction

6.14 Similarly to the above, good and timely access to quality care is an important determinant of health. Its absence can lead to worse health outcomes and patients' conditions not receiving the care they need.

6.15 Construction workers on-site may sustain injuries in the course of their work and require A&E treatment. The average number of construction workers on-site each year is expected to be 610. Between 2017/18 and 2019/2020, on average 2.76% of construction workers suffered workplace injuries each year.[27] This means that an average of 17 annual A&E attendances could be generated by the construction phase of the Proposed Development. This would represent a less than 0.1% increase for the NHS Trust managing the closest hospital with an A&E department (Royal Free Hospital) over its present 281,680 annual A&E attendances.

6.16 The site would be managed in line with best practice and all efforts would be made to reduce the risks of accidents. It is suggested that the appointed Contractor will be a member of the Considerate Constructors Scheme (CSS) which plays a valuable role in improving health and safety standards and working practices across the construction industry.

6.17 The expected number of accidents each year would still lead to only marginal increases in local A&E attendances. The potential impact on A&E services in the area (at Royal Free Hospital) is expected to be very low for the general population and vulnerable groups. These combine with medium sensitivity receptors to create a temporary, short-term, adverse effect of negligible (general population and vulnerable groups) scale on the

[27] NHS, 2020. A&E Attendances and Emergency Admissions 2019-2020

provision of A&E services during the construction phase. The **negligible** effect is **not significant**.

Crime, community safety, and social cohesion

6.18 Crime and the fear of crime can lead to adverse health outcomes, including contributing to a reluctance of individuals to leave their homes. Increased fear of crime has been consistently linked to reduced physical activity across multiple age categories, indirectly resulting in reduced health outcomes.[28] Children and adolescents exposed to violence have been additionally shown to be at risk of poor long-term behavioural and mental health outcomes regardless of whether they are victims, direct witnesses, or hear about crime.

6.19 The site will be secured by onsite security, deterring crime and limiting the impact of the Proposed Development's construction phase. The construction period will be managed in accordance with the highest standards to minimise any adverse impacts, including crime. Approximately 2.4m high hoarding will secure each phase of the works.

6.20 The Proposed Development will have an impact of very low magnitude on crime, community safety and social cohesion in the Local Area during the construction phase, for both the general population and vulnerable groups. This combines with medium receptor sensitivity to create a direct, temporary effect of negligible scale in the Local Area for both the general population and vulnerable groups. The **negligible** effect is **not significant**.

Air quality

6.21 Air quality is defined through concentrations of a variety of different man-made particles within the atmosphere commonly regarded as having negative health impacts. The World Health Organisation recognises outdoor air pollution as a major health problem worldwide.[29] The principal diseases associated with rises in air pollution are child asthma, coronary heart disease, stroke and lung cancer.

6.22 ***ES Volume 1, Chapter 8: Air Quality*** considers the risk from all aspects of construction works. Demolition works' impact on air quality are rated medium risk on human health during all phases of construction; all other potential effects on human health are rated low risk during all phases of construction. Guidance from the Institute of Air Quality Management (IAQM) indicates that following mitigation the residual effect will normally be not significant.

6.23 ***ES Volume 1, Chapter 8: Air Quality*** concludes that following the adoption of recommended mitigation measures, the construction of the Proposed Development is not expected to result in any significant effects on the receptors.

6.24 Overall, the Proposed Development will have an impact of low magnitude across the Local Area on both the general population and vulnerable groups. This combines with a receptor of medium sensitivity, to create a direct, temporary, adverse effect of minor scale at the Local Area. The **minor adverse** effect is **not significant**.

6.25 The effects on community receptors in the Local Area are similarly expected to be **minor adverse** and **not significant**.

Noise and vibration

6.26 **Appendix B** establishes a negative relationship between noise and vibration levels and health outcomes with a moderate strength of evidence. The World Health Organisation's Noise Guidelines (2018) state that excessive noise interferes with people's daily activities,

28 Lorenc et al., 2013. Fear of crime and the environment: systematic review of UK qualitative evidence.
29 World Health Organisation, 2018. Air pollution and Child Health: Prescribing Clean Air.

disturbs sleep, causes cardiovascular and psychophysiological effects, and provokes changes in social behaviour.[30] A European Commission investigation into the impacts of noise on health outcomes concludes that "living in a quiet area has a positive impact on health", and that "those who lived in quiet locations – particularly in rural areas – had a better quality of life".

6.27 According to ***ES Volume 1, Chapter 9: Noise and Vibration***, most noise and vibration effects related to the construction phase would be mitigated and have negligible to minor adverse (not significant) effects. But the construction works would result in moderate adverse (significant) effects at several receptors due to noise and vibration: Sanderson Close, Carrol Close, Highgate Studios, Highgate Road Businesses, 2-12 Highgate Road, 1-7 Highgate Road, The Bull and Gate, 1-42 Hemmingway Close, 1-17 Meru Close, Building C and Building Q, and Plot L. The significant noise and vibration effects would be temporary in nature and geographically limited to these addresses. Many of the adverse health effects created by noise and vibration require long-term exposure to materialise; the noise effects identified in ***ES Volume 1, Chapter 9: Noise and Vibration*** would have a limited effect on human health due to their temporary nature.

6.28 There are significant adverse changes in the noise environment even after mitigation. But the adverse effects are temporary and limited in geographic scope, and for this reason they are not expected to lead to large changes in population health across the Local Area.

6.29 Overall, construction of the Proposed Development is expected to result in a low magnitude health impact in the worst case for the general population and for vulnerable groups. This combines with a medium sensitivity receptor to create a direct, temporary, adverse effect of minor scale (general population and vulnerable groups) in the Local Area. The **minor adverse** effect is **not significant**.

6.30 Of the sensitive community receptors identified in the baseline, none are expected to see significant effects related to noise and vibration according to ***ES Volume 1, Chapter 9: Noise and Vibration.*** At these sensitive community receptors similarly minor adverse health effects are expected. The **minor adverse** effects are **not significant**.

Neighbourhood amenity

6.31 Neighbourhood amenity refers to the quality of private and public physical external space. There is evidence of links between the quality of places and general health and wellbeing. Individuals resident in more scenic environments report better health across urban, rural, and suburban areas, even when taking socio-economic indicators of deprivation into account.

6.32 The construction of the Proposed Development will impact on neighbourhood amenity through changes in air quality, noise, visual amenity and construction traffic. This effect considers the in-combination health effect of the individual effects on traffic, noise and air quality considered previously as well as any visual impact. The combination of these effects upon neighbourhood amenity could impact mental wellbeing (factors such as poor road safety and noise could contribute to higher stress and anxiety) and result in changes in behaviour which could affect health, such as reductions in physical activity.

6.33 As discussed above, across the study area, there are expected to be negligible effects as a result of a reduction in accessibility and active travel (minor adverse for Gospel Oak Primary School, William Ellis School, Parliament Hill School, La Sainte Union Catholic Secondary School, Ash Court Care Centre, Lime Tree Gardens), minor adverse effects associated with air quality, and minor adverse (general population, vulnerable groups) or

30 World Health Organisation, 2018, Environmental Noise Guidelines for the European Region.

moderate adverse (Gospel Oak Primary School, Lime Tree Gardens) related to noise and vibration.

6.34 Construction sites are generally perceived to be detrimental to the attractiveness of an area. According to the ***Townscape and Visual Impacts Assessment*** there are no special visual impacts that are generated as a result of the demolition and construction process outside of those that are inherent in constructing buildings of the type proposed.

6.35 Each phase of the works will be secured with plywood hoarding, approximately 2.4m in height, around the boundaries of the project and painted in the Notting Hill colours and logo. Perspex viewing panels will be incorporated to allow the public to view site progress. The impacts on visual amenity and townscape are expected to be moderate adverse (significant) for a minority of views and townscape character areas, and not significant for the majority, according to the ***Townscape and Visual Impacts Assessment***.

6.36 The construction phase of the Proposed Development would not cause large adverse effects in terms of air quality, noise, accessibility, or visual amenity. It is expected to result in an impact on neighbourhood amenity that is low in magnitude (general population and vulnerable groups). This combines with a receptor of medium sensitivity to create a temporary, adverse effect of minor scale in the Local Area, for both vulnerable groups and the general population. The **minor adverse** effect is **not significant**.

6.37 The community receptors would similarly see **minor adverse** (**not significant**) effects related to neighbourhood amenity.

Operational phase

Access to work and training

6.38 As outlined in the construction phase effect, there is a strong and significant positive link between employment opportunities and health outcomes.

6.39 ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing*** reports that depending on the final floorspace mix the Proposed Development could support between 455 and 3,410 gross additional jobs. The jobs could reduce local unemployment and raise incomes, benefiting health.

6.40 The Applicant has committed to a range of employment and skills commitments, to be secured by the s106. These are summarised in the draft head of terms but include commitments to offering new jobs to locals, apprenticeships, mentoring, volunteering, paying the London Living Wage. The Applicant will also propose to work with future businesses located at the site to promote good practice and advertise vacancies in partnership with Good Work Camden, Gospel Oak Job Hub and other relevant local employment organisations.

6.41 Based on the known positive links between employment and health outcomes, the creation of new employment and training opportunities is expected to have a positive effect on health. It is thought that the additional jobs will have a low magnitude impact on local access to jobs and skills, for both the general population and vulnerable groups. This combines with high receptor sensitivity to create a permanent, beneficial effect of moderate scale at the District level. The **moderate beneficial** effect is **significant**.

Housing provision

6.42 **Appendix B** identifies strong links between housing design and quality and health. The World Health Organisation states that poor quality housing and indoor environments cause or contribute to many types of preventable diseases and injuries. The Housing and Health report, authored by the World Health Organisation, explains that due to the large

volume of time spent within the home setting, residents have a high exposure to health risks associated with housing and housing design.[31] The HUDU Rapid HIA Tool states that "the quality of design, including internal sound insulation, daylighting and provision of private space can influence the health and wellbeing of occupiers".[32]

6.43 The Proposed Development will provide between 750 and 825 residential units, spanning 1 bedroom, 2-bedroom, 3-bedroom and 4-bedroom apartments. LBC's housing targets fall between 1,038 and 1,092 units required per year. The Proposed Development's contribution would therefore be between 69% and 72% of the annual target, a large amount for a single scheme. Over a six-year period there would be an average of 125 units delivered per year, or about 12% of LBC's annual targets, a relatively large contribution.

6.44 A good number of larger (three- to four-bedroom) homes would be delivered, and less than 40% of the total would be in the one bedroom category, which is not usually suitable for families. LBC identified that the greatest housing need in the borough is for three-bedroom properties, as discussed in ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing***.

6.45 The Financial Viability Assessment submitted with this application shows that a 35% affordable housing contribution by habitable room is in excess of the maximum reasonable housing quantum that the scheme can viably deliver, due to the significant financial pressures of the site. Despite this, the Proposed Development is committing to provide 35% affordable housing with a policy compliant split of 21% London Affordable Rent and 14% Intermediate Rent. This will contribute to the creation of a mixed and balanced community.

6.46 The ambition for Murphy's Yard is to create a vibrant new neighbourhood in Kentish Town, where residents are not only offered good quality homes but access to good transport links, views and also a host of new communal facilities. Residents will have ample access to private and communal outdoor space. The residential building footprints have been driven by a desire to maximise daylight (from the south) and views to either Hampstead Heath in the north west, or London's skyline to the south East along the existing rail corridor. Spacing between buildings allows significant daylight hours.

6.47 The Proposed Development would have a sizeable impact on the LBC housing supply as well as delivering affordable housing and a commitment to high quality design. The impact is therefore considered medium magnitude for the general population and high for vulnerable groups. This combines with medium sensitivity receptors to produce permanent, beneficial effects of moderate (general population) and major (vulnerable groups) scale at the District level. The **moderate beneficial** effect and **major beneficial** effect are **significant**.

Accessibility and active travel

6.48 There are strong links between accessibility and active travel and health. Good transport links allow better access to employment, open space, and health and community facilities, and active travel can reduce overweight and improve mental health.

6.49 A literature review undertaken within by Vernon et al.[33] suggests that improvements to transport safety, particularly road safety, have the positive effect of not only preventing injuries but also encouraging greater levels of physical activity. The direct and indirect

31 World Health Organisation, 2017. Housing and health
32 Healthy Urban Design Unit, 2017. Rapid HIA Tool (3rd Edition).
33 D. Vernon et al., 2014. Road Safety and Public Health, Royal Society for the Prevention of Accidents (RoSPA)

effects of active travel in inducing higher levels of physical activity contribute to improved health outcomes.[34]

6.50 ***ES Volume 1, Chapter 7: Traffic and Transport*** finds that the Proposed Development is expected to result in a net decrease in vehicles throughout the day, apart from on Gordon House Road and Greenwood Place where there are expected to be negligible increases. The current signalised crossing on Gordon House Road could be relocated east to align with the new pedestrian / cycle access to the site and the entrance to Hampstead Heath, providing a more direct route. In addition to the relocated crossing, the footway along Greenwood Place will be widened which will improve pedestrian amenity. The Heath Line will also create a new through route for pedestrians through the site connecting Highgate Road and Gordon House Road, which will improve pedestrian amenity. The new elevated cycle route will provide a direct cycle route between Highgate Road and Gordon House Road, which will improve cyclist amenity.

6.51 In terms of London Underground trips the Proposed Development is expected to result either in no change to available capacity or a reduction of less than 1% on Northbound and Southbound lines during the AM and PM peak hours. The AM peak is the most critical period for Northern Line services and the assessment demonstrates that the busier southbound line would have a minimum of 9.5% spare capacity after development trips are added.

6.52 TfL predicts that bus patronage in London will fall, therefore the additional passengers from the Proposed Development are not anticipated to result in capacity issues.

6.53 The effects discussed in ***ES Volume 1, Chapter 7: Traffic and Transport*** range from negligible to moderate beneficial. The Proposed Development would have beneficial effects in terms of pedestrian and cyclist delay and amenity as a result of the new connections through the site, as well as resulting in a net reduction in vehicles and improvements on Greenwood Place and Gordon House Road.

6.54 The Proposed Development will include a new pedestrian and cyclist throughway in high quality public realm, locating multiple uses within easy reach, creating a walkable community and improving active travel options. The Proposed Development would also create the Heathline, a new pedestrian and cycleway linking Kentish Town to Hampstead Heath. The clear network and hierarchy of routes and spaces seek to prioritise and encourage walking and cycling and the diverse mix of public spaces and activities will create a stimulating place to encourage participation and foster enjoyment. During consultation, the creation of new access routes into and through the site and their interaction with the surrounding area were key priorities for several respondents.

6.55 Overall, through provision of active travel and improved accessibility the Proposed Development is expected to have a beneficial health impact of medium magnitude for local residents (general population and vulnerable groups). This combines with a receptor of low sensitivity to create a permanent beneficial health effect of minor scale at the Local Area. The **minor beneficial** effect is **not significant**.

6.56 The community receptors will see a larger impact, as the vulnerable populations who are their main users or visitors will derive extra benefit from the improved accessibility and more active travel. The effect on them would be **moderate beneficial** (**significant**).

Access to primary healthcare

6.57 As shown in **Appendix B**, good accessibility and availability are important determinants in primary healthcare systems, with adverse health outcomes typically associated with

34 Department of Health, 2011. Start Active, Stay Active: A report on physical Activity from the Four Home Countries

longer wait times. In general, barriers to accessing primary healthcare can result in unmet health needs and delays in receiving appropriate healthcare.

6.58 The residents would place additional demand on primary care provision in the area. The Proposed Development would also have an impact on wider health and social care services, including mental health, community and acute services.

6.59 If the additional residents (1,715 residents in the worst-case assessment) were to register with the GPs assessed in the baseline, patient numbers in the area would increase by 3%.

6.60 During consultation, HUDU concluded that additional capacity would be required to accommodate an increasing demand for services and the need to provide a wider range of services. The cumulative impact of other developments in the Kentish Town and Gospel Oak areas will place additional pressure on services.

6.61 Planning permission is sought for a maximum of 16,000 sqm GEA of healthcare (Use Class E(e)) in the outline phase of the development. The exact details will be settled at the RMA stage.

6.62 A Needs Based Assessment for Healthcare prepared by Cushman and Wakefield has been submitted in support of this application and assesses the current need and anticipated demand for healthcare uses with LBC. In summary, its main findings are:

- The supply of approved healthcare schemes in LBC is extremely limited.
- The private sector is likely to be contributing to the NHS service provision for the foreseeable future.
- Specific localised demand for certain uses.
- Key life sciences operators are in need of space within the borough.
- There is foreseeable demand relevant to the Murphy's Yard site for localised and community focused healthcare needs in Camden against a backdrop of global operator interest.
- The site is uniquely positioned to appeal to a wide range of healthcare services and providers.

6.63 Located within central London and within 1km of the main Royal Free Hospital Campus, the site is considered to be strategically located to provide essential healthcare facilities that will not only benefit LBC but the wider North London community. The proposed healthcare floorspace will be aimed at addressing the area's clinical capacity needs and local community (not emergency core hospital facilities).

6.64 The site is well suited to support facilities for the Royal Free which has financial constraints. The capacity that a building in Murphy's Yard could provide akin to that being proposed at Royal College Street is such that it would allow the Foundation Trust to have access to a new flexible facility which could afford essential support to the main procedures and operations being undertaken at the Royal Free and other hospitals and clinics in LBC. The findings of Cushman and Wakefield indicate that there would be a good level of demand for healthcare facilities at the site and the pandemic has highlighted the shortage of acute treatment beds, particularly in London.

6.65 Conversations are ongoing with the NHS and the North Central London CCG to ensure that there is an identified demand for the proposed healthcare use that can be built upon at the RMA stage. It is understood that the following facilities have been identified as current NHS requirements in LBC:

- Geriatric Rehabilitation (60,000 – 80,000 sqft)
- Dialysis/Renal Unit (20,000 – 30,000 sqft)
- Community Healthcare Hub (20,000 sqft)

- Fertility Clinic (10,000 -15,000 sqft)
- Diagnostics (10,000 sqft)

6.66 As such, the proposed healthcare use seeks to provide high-quality new and enhanced health facilities to meet identified need and support London and Camden's role as a centre of medical excellence in line with planning policy objectives.

6.67 The masterplan anticipates the ability for the healthcare use to co-locate with research and development facilities in the med-tech and life sciences sectors which would generate mutual benefits for these uses.

6.68 The Proposed Development's new residents would increase the burdens on local GPs which are contractually bound to register them if desired. However, the provision of the healthcare use on site has the potential to mitigate this impact to some extent, as well as potentially providing services which would benefit a wider community than just those directly living onsite.

6.69 To be conservative, without the exact details of the proposed healthcare provision, this assessment concludes the effect of the additional demand will be adverse. The Proposed Development is expected to have a low magnitude of impact on the existing primary healthcare provision for the general population and for vulnerable groups. These combine with medium receptor sensitivity to create permanent, adverse effects of moderate (general population and vulnerable groups) scale within the GPs' inner catchment. The **moderate adverse** effects are **significant**.

A&E provision during operation

6.70 As discussed above, poor access to healthcare can pose health risks, if patients' conditions do not receive appropriate attention and care.

6.71 As detailed in ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing***, the maximum 1,715 new residents and 3,410 additional workers could put pressures on A&E services. There are approximately 40 A&E attendances per year for every 100 people in England[35] and 1.77 workplace injuries per 100 workers across all sectors.[36] The estimated impact on the local A&E department is shown in **Table 11**.

Table 11 Estimated number of annual accidents at the Proposed Development

	Employment/Residents	Accident rate	No. accidents (per year)
Additional workers	3,410	1.77%	60
Residents	1,715	40%	686
Total accidents			**746**

6.72 The additional 746 annual accidents would be an approximately 0.25% increase on the existing 281,680 A&E attendances at Royal Free Hospital in 2018/2019, if it is assumed that all would seek treatment at this hospital.

6.73 The workers and residents at the Proposed Development would result in only a marginal increase in A&E attendances at the nearest hospital (Royal Free Hospital). This is not expected to materially interfere with the delivery of services. Impact magnitude is judged very low for the general population and for vulnerable groups. This combines with medium

35 House of Commons Library, 2017. Accident and Emergency Statistics: Demand Performance and Pressure
36 ONS, 2020. Labour Force Survey – self reported workplace injuries, 2017/18 to 2019/20

sensitivity receptors to create a permanent effect of negligible scale (general population and vulnerable groups). The **negligible** effect is **not significant**.

Crime, community safety and social cohesion

6.74 Crime and the fear of crime can lead to adverse health outcomes, including contributing to a reluctance of individuals to leave their homes, and reducing the number of opportunities to participate in society or partake in physical activity.

6.75 The ability of well-designed developments to 'design-out' crime is well studied. Architects and criminologists have long recognised the role of urban design in crime prevention. Crime Prevention Through Environment Design (CPTED) holds that proper design, through application of CPTED guidance, results in behavioural responses that deter and reduce crime and the fear of crime. Elements of CPTED that new developments can apply include:

- Natural surveillance – more 'eyes on street' deters criminal activity;
- Access control – physical barriers to entry provide less opportunity for criminals; and
- Maintenance and management – low levels of visual deterioration that could otherwise encourage crime, and increased 'pride of place'.

6.76 A number of workshops were held with Designing Out Crime and anti-terrorism officers from the Metropolitan Police.

6.77 Retail, leisure, galleries, cafés and restaurants proposed are concentrated on the ground and lower levels of the buildings, with a significant public offering proposed within the ground floor of Shed 2 as a prominent anchor in the centre of the site. These will provide active uses to animate the public realm and passive surveillance, improving the sense of security.

6.78 The Proposed Development would also contribute a minimum of 300sqm of F1/F2 use class floorspace for community uses. This could strengthen social bonds and cohesion locally, deterring crime and improving community feeling.

6.79 The Proposed Development would contribute to social cohesion through improving public realm and accessibility to the site. Vibrant new open spaces will add porosity to the urban grain, introducing breaks in the fabric, offering opportunities to dwell and for happenstance and casual interactions.

6.80 An extensive public consultation has been undertaken which included stakeholder engagement, sending individual letters to local politicians and stakeholder groups, 6,769 leaflets sent to local addresses, and two consultation drop-in events alongside attendance at local community events such as the Lady Somerset Road Street Party, the Parliament Hill Street Party, and the Camden Community Makers Film Festival, as well as individual meetings with the Kentish Town Neighbourhood Forum, the Dartmouth Park Neighbourhood Forum, and with Camden Community Makers.

6.81 The items below are the design changes that have been made in response to consultation:

- Removal of the open space at the north of the site, "Murphy's Meadow", to provide additional housing typologies in the form of family houses.
- Play space for teenagers located across the site, with specific play features to be included in front of the Heath Cliff arches.
- Providing additional employment workspace for SMEs including affordable workspace provisions proposed for Phase 1.
- A clear hierarchy of public spaces and provisions for both north-south and east-west pedestrian routes.

- Clearly defining the public realm offer in the Design Code with a variety of ecological conditions informed by Hampstead Heath.
- Stepping massing down towards the Heathline at the south of the site.
- Landing provisions safeguarded for potential new bridge connections from Regis Road, and Kentish Town Road.
- Providing generous public space in and around the centre of the site.
- Providing a pedestrian and cycle priority route between Kentish Town and Gospel Oak.
- Non-residential uses proposed within the ground floor at the north of the site to allow for local amenities.

6.82 The Proposed Development would provide increased natural surveillance in the Local Area, with improved legibility and landscaped public realm to create a sense of place. It will also provide space for community uses. It is anticipated that the reductions in crime and community cohesion due to the improved design of the site are likely to have a low magnitude of impact (general population and vulnerable groups). On a medium sensitivity receptor, this is expected to result in a direct, permanent beneficial effect that is minor in scale at the Local Area level. The **minor beneficial** effect is **not significant**.

Access to open space, nature and amenity space

6.83 Access to open space is associated with improved health outcomes. These benefits are linked to physical activity and mental health improvements.

6.84 As discussed in ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing***, the Proposed Development would provide a minimum of 21,360 sqm of open and play space. The Illustrative Masterplan shows that the site is capable of delivering approximately 18,000 sqm of high-quality public open space (excluding children's play space), exceeding LBC's policy requirements.

6.85 The open spaces would consist of various open and green areas, as well as the Heathline – a cycle and pedestrian path through the site, linking Kentish Town and Hampstead Heath, allowing residents there better access to the park. The Heathline will be a new green route for the area integrated into open spaces. Crossing the site from north-west to south-east, the pedestrian and cycle link will help resolve severance created by the surrounding railways, significantly improving permeability in the area. A series of open spaces are proposed along the Heathline which will offer areas for social interaction. Pedestrian and cycle movement will be prioritised and ground floor activities encouraged, all of which will help activate the space.

6.86 During consultation, there was widespread support among respondents for the Heathline, with feedback and suggestions revolving around its landscaping and route, as well as the level of greenery.

6.87 The Proposed Development would both provide new, high-quality open spaces and improve access to existing ones, making physical activity and the mental health benefits of open and green spaces more accessible. The clear network and hierarchy of routes and spaces seek to protect and encourage walking and cycling and the diverse mix of public spaces and activities will create a stimulating place to encourage participation and foster enjoyment.

6.88 The Proposed Development would make a significant contribution to open space in the Local Area as well as new routes and improved permeability. It is expected to have a high magnitude of health impact associated with access to open space, nature, and amenity space for both the general population and for vulnerable groups. This combines with low receptor sensitivity to create permanent, beneficial effects of moderate (general

population and vulnerable groups) scale at the Local Area. The **moderate beneficial** effect is **significant**.

Access to play space

6.89 Similarly to the health impacts of open space, access to children's play space has been routinely linked to positive health outcomes.[37] Natural England has produced a review of evidence on the link between access to play space and physical activity. The review concludes that physical activity within natural environments contributes to increased energy, positive community engagement, and reduced tension, anger and depression.

6.90 As outlined in ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing***, a maximum of 294 children are expected to live at the Proposed Development. Based on LBC policy, these would require 1,912 sqm of children's play space.

6.91 The GLA note that "if there is the opportunity from the new development to access existing provision that has excess capacity or is capable of enhancement from the new development, the benchmark standard of 10 sqm per child does not need to be applied."[38] The Proposed Development is directly adjacent to Hampstead Heath providing abundant space for informal play for the 5-11 and 12-17 year old categories. Nevertheless, the Proposed Development will provide more than enough play space to meet demand. The exact design and provision will be determined through the reserved matters process, however, 6.5sqm play space per child will be provided as a minimum as per local policy.[39]

6.92 The Illustrative Masterplan in the DAS shows that up to 5,212 sqm of children's play space could be accommodated on-site, more than double the required provision (in addition to approximately 18,000 sqm of public open space). This will be finalised through the RMA process.

6.93 The Proposed Development would also meet the needs of each age category, except for the 12-17 age group which could be marginally under (390 sqm capable of being provided in comparison to the target of 435 sqm). However, a very large quantum of all-ages play space will also be provided as part of the Proposed Development's multigenerational and 'playable landscape' approach, more than meeting the needs of the 12-17 age group as well. There will be a variety of different play spaces embedded throughout the scheme.

6.94 The Proposed Development will provide more than enough play space for the children and young people resident onsite, and could therefore improve levels of access for the Local Area in general. Therefore, the Proposed Development would have a high magnitude impact on health associated with changes in access to play space for the general population (including vulnerable groups).[40] This combines with a low sensitivity receptor, to create a permanent, beneficial effect of moderate scale (general population and vulnerable groups) at the Local Area. The **moderate beneficial** effect is **significant**.

Access to healthy food

6.95 Eating a healthy, balanced diet plays an essential role in maintaining a healthy weight. Being either overweight or underweight can lead to increased likelihood of some health conditions such as type 2 diabetes, certain cancers, heart disease and stroke.

37 Natural England, 2016. Natural England Access to Evidence Information Note EIN019; Links between natural environments and physical activity: evidence briefing.
38 GLA, 2012. Shaping Neighbourhoods: Play and Informal Recreation SPG
39 If more appropriate to their local circumstances, boroughs are able to use the local standards that reflect their own local priorities and policies as derived from their play strategy. GLA, 2012. Shaping Neighbourhoods: Play and Informal Recreation SPG
40 The population who derive health benefits from access to children's play spaces are children themselves, meaning that for this effect the general population affected and the relevant vulnerable groups are one and the same.

6.96 As detailed in the Commercial Strategy, the main focus of the offer on the site is based predominantly on local independent food providers and small chains. It should also include a reasonable quantum of outdoor dining space, which the existing high street is largely unable to replicate. These would introduce variety to the area. The exact types of food provision anticipated to be accessed by both local residents and workers is not yet specified, though it is expected that the provision would follow general market trends which demonstrate that people are wanting a wider variety of cuisines, including a trend towards healthier eating.

6.97 There could also be a limited quantum of allotments/community gardens for the benefit of site residents.

6.98 On balance, therefore, the Proposed Development's impact on access to healthy food will be positive, resulting in a very low magnitude impact (general population and vulnerable groups). This combines with a receptor of low sensitivity, to create a direct, permanent effect of negligible scale at the Local Area level. The **negligible** effect is **not significant**.

Air quality

6.99 Poor air quality can lead to respiratory diseases, cancer, and premature death among others. The primary diseases that are associated with rises in air pollution are child asthma, coronary heart disease, stroke and lung cancer.

6.100 The Proposed Development would result in a net decrease in traffic on the local road network when compared to the existing use. There would not be any centralised combustion energy plant or back-up life safety generator plant. As such, the Proposed Development would not have a significant impact on local air quality at nearby sensitive receptors during the operational phase.

6.101 The Proposed Development would not introduce sources of air quality emission to the area – to the contrary, it is expected to result in a net decrease of traffic on the local road network. Overall, the Proposed Development is expected to have a very low magnitude impact on air quality during the operational phase (general population and vulnerable groups). This combines with a medium sensitivity receptor to create a direct, permanent effect of negligible scale in the Local Area. The **negligible** effect is **not significant**.

6.102 Likewise, **negligible (not significant)** effects are expected at nearby community facilities.

Noise and vibration

6.103 As discussed under the construction phase effect, excessive noise can disturb sleep, cause cardiovascular and psychophysiological effects, reduce performance and provoke annoyance and changes in social behaviour.[41]

6.104 According to ***ES Volume 1, Chapter 9: Noise and Vibration***, all the residual effects during the operational phase are expected to be negligible, as predicted noise levels are not expected to change by more than 1dB compared to the baseline due to traffic generation and plant noise associated with the Proposed Development.

6.105 The Proposed Development is not expected to noticeably change the noise environment of the area. The overall impact on health throughout the Local Area is therefore considered to be very low, for both the general population and vulnerable groups. This combines with a medium sensitivity receptor to create a direct, permanent effect of negligible scale at the Local Area. The **negligible** effect is **not significant**.

6.106 The community receptors in the Local Area are also expected to see **negligible** effects (**not significant**)

41 World Health Organisation, 2017. Noise

Neighbourhood amenity

6.107 Neighbourhood amenity refers to the quality of private and public physical external space. There is evidence of links between the quality of places and general health and wellbeing. Individuals of more scenic environments report better health across urban, rural, and suburban areas, even when taking socio-economic indicators of deprivation into account.

6.108 The Local Area is expected to see minor beneficial effects related to accessibility and active travel (moderate beneficial for community receptors nearby), and negligible effects related to air quality or the noise environment. Visual amenity will benefit from the opening up of the site to the public and from the high quality public realm being delivered. According to the ***Townscape and Visual Impacts Assessment*** all the effects of the Proposed Development on views would be neutral or beneficial, ranging from negligible (not significant) to major (significant) in scale.

6.109 Neighbourhood amenity will see benefits during the operational phase. The Proposed Development would lead to an impact that is low in magnitude. This combines with a receptor of medium sensitivity to create a permanent, beneficial effect that is minor in scale at the Local Area level. The **minor beneficial** effect is **not significant**.

6.110 The sensitive receptors of schools and community centres in the Local Area could primarily see improvements to transport accessibility and visual amenity, resulting in a **minor beneficial** effect, which is **not significant**.

7 MITIGATION AND MONITORING MEASURES

Mitigation and Monitoring Measures

7.1 The health assessment accounts for mitigation defined by other EIA technical assessments to reduce the adverse effects of the Proposed Development, which limits the opportunities for further mitigation measures.

Construction phase

7.2 No significant adverse health effects are expected during construction. No further mitigation measures are proposed in this HIA.

Operational phase

7.3 One significant adverse effect is expected during the operational phase, related to access to primary healthcare. Community Infrastructure Levy monies are to be used by local authorities to help deliver the infrastructure needed to support development in their area. The proposed development will be required to make CIL contributions which for Borough CIL are estimated to be equivalent to c. £30 million. The purpose of CIL is to fund facilities such as medical facilities. The impact the Proposed Development may have on access to primary healthcare will be mitigated by the significant CIL contributions from the scheme.

7.4 It is also worth bearing in mind that the assessment is based on a worst-case scenario, which would create the largest burden on local healthcare infrastructure through the introduction of the largest number of new residents, and does not take into account the new healthcare space which could be delivered as part of the proposals.

8 RESIDUAL EFFECTS

8.1 The residual effects resulting from the Proposed Development are summarised in **Table 12**.

Table 12 Residual effects

Health determinant	Receptor population	Sensitivity	Impact magnitude	Effect
Construction phase				
Access to work and training	Residents	High	Low (all receptors)	**Moderate beneficial** (all receptors)
Accessibility and active travel	Residents Workers Users of community assets	Low	Low (general population & vulnerable groups) Medium (community receptors: Gospel Oak Primary School, Parliament Hill School, William Ellis School, La Sainte Union Catholic Secondary School, Ash Court Care Centre'', Lime Tree House)	Negligible (general population & vulnerable groups) Minor adverse (community receptors: Gospel Oak Primary School, Parliament Hill School, William Ellis School, La Sainte Union Catholic Secondary School, Ash Court Care Centre, Lime Tree House)
Access to primary healthcare	Residents Workers	Medium	Very low (all receptors)	Negligible (all receptors)
A&E provision	Residents Workers	Medium	Very low (all receptors)	Negligible (all receptors)
Crime, community safety, and social cohesion	Residents Workers	Medium	Very low (all receptors)	Negligible (all receptors)
Air quality	Residents Workers Users of community assets	Medium	Low (all receptors)	Minor adverse (all receptors)
Noise and vibration	Residents Users of community assets	Medium	Low (all receptors)	Minor adverse (all receptors)
Neighbourhood amenity	Residents Workers Users of community assets	Medium	Low (all receptors)	Minor adverse (all receptors)
Operational phase				
Access to work and training	Residents	High	Low (all receptors)	**Moderate beneficial** (all receptors)
Housing provision	Residents	Medium	Medium (general population) High (vulnerable groups)	**Moderate beneficial** (general population) **Major beneficial** (vulnerable groups)
Accessibility and active travel	Residents Workers Users of community assets	Low	Medium (general population & vulnerable groups) High (community receptors)	Minor beneficial (general population & vulnerable groups) **Moderate beneficial** (community receptors)
Access to primary healthcare	Residents Workers	Medium	Medium (all receptors)	**Moderate adverse** (all receptors)
A&E provision	Residents Workers	Medium	Very low (all receptors)	Negligible (all receptors)
Crime, community safety and social cohesion	Residents	Medium	Low (all receptors)	Minor beneficial (all receptors)
Access to open space, nature and amenity space	Residents	Low	High (all receptors)	**Moderate beneficial** (all receptors)
Access to play space	Residents	Low	High (all receptors)	**Moderate beneficial** (all receptors)
Access to healthy food	Residents	Low	Very low (all receptors)	Negligible (all receptors)

Health determinant	Receptor population	Sensitivity	Impact magnitude	Effect
Air quality	Residents Workers Users of community assets	Medium	Very low (all receptors)	Negligible (all receptors)
Noise and vibration	Residents Users of community assets	Medium	Very low (all receptors)	Negligible (all receptors)
Neighbourhood amenity	Residents Workers Users of community assets	Medium	Low (all receptors)	Minor beneficial (all receptors)

Effects summary

8.2 The Proposed Development could result in the following significant health effects:

- Access to work and training (construction): moderate beneficial effects on population health for both the general population and vulnerable groups, due to increased access to jobs and training during the construction phase;
- Access to work and training (operation): moderate beneficial effects on population health for both the general population and vulnerable groups, due to increased access to jobs and training during the operational phase;
- Housing provision (operation): moderate beneficial effects for the general population, and major beneficial effects for vulnerable groups from the provision of high quality housing;
- Accessibility and active travel (operation): moderate beneficial effect for community receptors from better accessibility and active travel options;
- Access to primary healthcare (operation): moderate adverse effects for the general population and vulnerable groups due to increased demand on primary healthcare during the operational phase;
- Access to open space, nature, and public realm (operation): moderate beneficial effects for all receptors from the provision of high-quality open space and links to Hampstead Heath; and
- Access to play space (operation): moderate beneficial effects for all receptors from the provision of a range of play spaces.

9 CUMULATIVE EFFECTS ASSESSMENT

9.1 The EIA Scoping Report did not propose that a cumulative health assessment would be undertaken. In the approach set out in Ben Cave's 'A review package for Health Impact Assessment reports of development projects'[42] cumulative assessments are not mentioned as a requirement. An HIA was available for only 11 of the 34 cumulative schemes. An accurate assessment of cumulative health effects is therefore not possible. However, a high-level cumulative health assessment is provided here.

9.2 Three scenarios are assessed in the cumulative effects assessment:

- Scenario 1 considers schemes with planning consent, resolution to grant (Tier 1 schemes) or a submitted planning application which is awaiting determination (Tier 2 schemes).[43]
- Scenario 2 considers all the Scenario 1 schemes as well as regeneration schemes which are being considered in the local area but have not yet been formally submitted (Tier 3 schemes). These include schemes supported by planning policy including, but not limited to Opportunity Areas, Site Allocations and Area Action Plans.[44]
- Scenario 3 considers in addition to the Scenario 2 schemes the additional impact of Infrastructure Initiatives in the area.

9.3 Apart from the effects assessed on a borough-wide basis (which are assessed slightly differently) the largest assessment area is that of the access to primary healthcare effect (GPs' Inner Catchment). All the cumulative schemes falling outside this area have been scoped out of the cumulative effects assessment.

9.4 **Table 13** lists the cumulative schemes identified for this assessment, and whether they have been scoped in or out, with appropriate justification.

Table 13 List of cumulative schemes

Cumulative Scheme Number	Planning Application Name	Planning Application Number	Scoped In/Out	Justification
Tier 1 (Consented)				
1	Land bounded by Haverstock Road, Wellesley Road and Vicar's Road	2012/6338/P 2014/3633/P 2015/1189/P 2016/5358/P	In	The development provides additions to open and play space. HIA not available.
2	Agar Grove Estate	2013/8088/P 2014/5730/P 2015/3396/P 2018/0548/P 2020/0468/P 2019/4280/P	Out	The development falls outside the study area for the relevant effects.
3	Morrisons Superstore, (New Camden Goods Yard)	2017/3847/P 2019/0153/P 2019/2962/P 2019/6301/P 2020/0034/P 2020/3116/P	In	An HIA is available for this scheme. Minimal impacts are expected on primary healthcare services, and the development falls outside the study area for other effects.
4	Kings Cross Central R8	2016/1877/P	Out	The development falls outside the study area for the relevant effects.
5	2-6 St. Pancras Way (Ugly Brown Building)	2017/5497/P	Out	The development falls outside the study area for the relevant effects.

42 Ben Cave, 2009. A review package for Health Impact Assessment reports of development projects
43 Only schemes which produce an uplift upwards of 10,000 sqm of mixed-use floorspace, 150 residential units, or office to residential conversions giving rise to 150 residential units are included.
44 Only schemes which produce an uplift upwards of 10,000 sqm of mixed-use floorspace, 150 residential units, or office to residential conversions giving rise to 150 residential units are included.

Cumulative Scheme Number	Planning Application Name	Planning Application Number	Scoped In/Out	Justification
6	Stephenson House, 75 Hampstead Road, London, NW1 2PL	2017/3518/P 2019/3232/P	Out	The development falls outside the study area for the relevant effects.
7	100 Avenue Road (Theatre Square), NW3 SHF	2014/1617/P 2017/4036/P 2018/4239/P 2019/1405/P	Out	The development falls outside the study area for the relevant effects.
8	Abbey Co-op housing sites at Casterbridge Snowman Emminster & Hinstock and Abbey Co-op Community Centre and Belsize Road car-park Abbey Road London NW6 4DP (Abbey Road Cross)	2013/4678/P 2015/1501/P 2015/1636/P 2015/5147/P 2016/4578/P 2017/2523/P	Out	The development falls outside the study area for the relevant effects
9	Phoenix Place, Mount Pleasant (Postmark London) London Borough of Camden and Islington.	2013/3807/P 2020/3333/P	Out	The development falls outside the study area for the relevant effects
10	Central Somers Town / Brill Place (Edith Neville Primary School)	2019/5882/P 2019/5882/P	Out	The development falls outside the study area for the relevant effects
11	Kings Cross Central	2012/4741/P 2016/1877/P 2018/4813/P	Out	The development falls outside the study area for the relevant effects
12	Building S3 King's Cross Central	2019/5379/P	Out	The development falls outside the study area for the relevant effects
13	ONYX Apartments, 102 Camley Street	2014/4381/P 2018/5357/P	Out	The development falls outside the study area for the relevant effects
14	XY (Maiden Lane Estate)	2012/5552/P 2015/5997/P 2016/2308/P 2018/0173/P	In	The development could reprovide a GP surgery in the area. HIA not available.
15	Camden Courtyards, 79 Camden Road	2013/7646/P 2015/6214/P 2015/6214/P	Out	The development falls outside the study area for the relevant effects
16	St Martin's Walk (Bacton Low Rise Estate)	2012/6338/P 2014/3633/P 2015/1189/P 2016/5358/P 2020/1019/P	In	This cumulative scheme is part of scheme number 1. HIA not available.
17	West Hampstead Square, 187-199 West End Lane London NW6 2LJ	2011/6129/P	Out	The development falls outside the study area for the relevant effects
18	Travis Perkins, 156 West End Lane, NW6	2015/6455/P 2019/4140/P	Out	The development falls outside the study area for the relevant effects
19	King's College London Hampstead Residence - Hampstead Manor (Kidderpore Avenue North)	2015/3936/P 2016/2914/P 2016/4743/P	Out	The development falls outside the study area for the relevant effects

Cumulative Scheme Number	Planning Application Name	Planning Application Number	Scoped In/Out	Justification
20	Lethaby Building, Former Cochrane Theatre, 12- 42 Southampton Row & 1-4 Red Lion Square London WC1B	2020/2470/P	Out	The development falls outside the study area for the relevant effects
21	The Greenwood Centre (on Greenwood Place) & Highgate Day Centre (on Highgate Road	2013/5947/P	In	The development will re-provide two day care centres, and contributes to open and play space. The HIA submitted with this scheme notes that services at the Greenwood Independent Living Centre associated with this scheme are likely to reduce health service utilisation among service users through improved health and wellbeing. A new pedestrian route will improve the accessibility. Active travel and public transport options are encouraged. The development also facilitates a small increase in public open space, and mitigates its air quality impacts. Secured by Design principles have been used in the design of the scheme.
22	Highgate Centre and A&A Self Storage (Former Lensham House)	2016/5372/P	In	The application is part of number 21.
23	369-377 Kentish Town Road (Car Wash Site)	2019/0910/P	In	The HIA available for this scheme notes how the proposals would improve the cycle infrastructure in the area, improving accessibility and encouraging active travel. The proposals also incorporate elements to help design out crime, and seek to increase social interaction by reducing physical barriers. Health impacts are expected due to the creation of lifetime neighbourhoods.
24	St Pancras Commercial Centre	2019/4201/P	Out	The development falls outside the study area for the relevant effects.
Tier 2 (Planning Application)				
25	Belgrove House,	2020/3881/P	Out	The development falls outside the study area for the relevant effects
26	Acorn house	2020/3880/P	Out	The development falls outside the study area for the relevant effects
27	Royal National Throat, Nose and Ear Hospital	2020/5593/P	Out	The development falls outside the study area for the relevant effects
28	the Network Building	2020/5624/P	Out	The development falls outside the study area for the relevant effects
Tier 3 (Regeneration Sites)				
29	Regis Road Growth Area		In	Community facilities and open space could be provided in accordance with LBC policy.
30	Gospel Oak/Haverstock		In	Parks, community spaces, and health and education facilities could be delivered
31	Euston Area Plan		Out	The development falls outside the study area for the relevant effects
32	British Library Extension		Out	The development falls outside the study area for the relevant effects
33	O2 Finchley Road		Out	The development falls outside the study area for the relevant effects
34	Selkirk House		Out	The development falls outside the study area for the relevant effects

Cumulative effects assessment – Scenario 1

Construction phase

9.5 There is not enough detail available on the construction impact of most of the cumulative schemes. The exceptions are effects related to accessibility and active travel, air quality and noise and vibration, which either have their own cumulative assessment methods or cumulative assessments based on professional judgement have been undertaken in their respective technical chapters.

Accessibility and active travel

9.6 ***ES Volume 1, Chapter 7: Traffic and Transport*** finds that of the Tier 1 and 2 schemes, 1, 21, 22 and 23 are located within 1km of the site. The first phase of scheme 1 has already been constructed, and the remaining phases are expected to be completed prior to the construction of the Proposed Development. Therefore, this is not expected to overlap or impact the site. Scheme 21 is located in close proximity to the site, however it has already been constructed and would have been included in the baseline surveys used for this assessment. Scheme 22 and 23 are located in close proximity of the site, however, the construction programme or anticipated construction vehicle activity is not known.

9.7 It is not possible to undertake any cumulative assessment beyond professional judgement, as identifying and estimating the demolition and construction programmes / start dates and trip generation of the other cumulative schemes would lead to a number of potential inaccuracies. It is considered that the anticipated cumulative effect would remain as in the main assessment.

Air quality

9.8 ***ES Volume 1, Chapter 8: Air Quality*** finds that per IAQM guidance, with appropriate mitigation measures in place, any residual construction dust effects from an individual site will be 'not significant'. The guidance also suggests that cumulative construction dust impacts are only likely where sites are within 500m of each other. Work would also have to be taking place in areas of both sites that are close to a receptor in order for cumulative effects to occur.

9.9 Of the sites identified, two are located within 500m of the site:

- Highgate Centre and A&A Self Storage (Former Lensham House) (2016/5372/P); and
- 369-377 Kentish Town Road (Car Wash Site) (2019/0910/P).

9.10 It is anticipated that all construction sites will adopt appropriate mitigation measures to limit emissions of dust, will hold the liaison meetings recommended above and will ensure that plans are co-ordinated to minimise impacts upon the most sensitive receptors. With these measures in place, the cumulative effect of construction activities should be not significant.

Noise and vibration

9.11 ***ES Volume 1, Chapter 9: Noise and Vibration*** finds that the majority of cumulative schemes are at least 200m from the Proposed Development and associated receptors that the noise and vibration levels from them will not influence the effects described herein.

9.12 The closest cumulative schemes to the Proposed Development include:

- Highgate Centre and A&A Self Storage; and
- 369-377 Kentish Town Road.

9.13 Both of these schemes are consented.

9.14 Highgate Centre and A&A Self Storage is located approximately 50m to the north of the site and shares Highgate Studios and Highgate Road businesses and Christ Apostolic Church as common receptors. The construction programme for Highgate Centre and A&A Self Storage is unknown and so there is potential for construction activities to coincide.

9.15 It is expected that there would be moderate adverse effects at Highgate Studios and the Highgate Road businesses. No other receptors are expected to see significant cumulative effects. In health terms, the effect remains **minor adverse (not significant)** as in the main assessment.

Operational phase

Access to work and training

9.16 The strong cumulative employment growth in the borough is expected to benefit residents, reducing unemployment. The cumulative effect could be **major beneficial (significant)** up from **moderate beneficial (significant)** in the main assessment.

Accessibility and active travel

9.17 Cumulative schemes would improve the cycle infrastructure in the area, provide new pedestrian links, and encourage the use of public transport and active travel options. Together with the Proposed Development, they would create beneficial impacts.

9.18 ***ES Volume 1, Chapter 7: Traffic and Transport*** provides a cumulative assessment by applying TEMPRo growth factors in order to generate the future baseline (opening year) scenario and considering the cumulative schemes. The likely effects are not expected to change and would remain as in the main assessment.

Housing provision

9.19 At the borough level, the cumulative effect is expected to be **major beneficial (significant)** up from **moderate beneficial (significant)** in the main assessment.

Access to primary healthcare

9.20 Cumulative schemes would include a reprovided GP surgery and two day-care centres, but otherwise minimal impacts are expected. Cumulative schemes are expected to mitigate their own impacts. Together with the Proposed Development, they would create impacts of low magnitude for the general population and for vulnerable groups. The **minor adverse** effect is **not significant**.

A&E provision

9.21 No detail on what the cumulative schemes could mean for A&E provision is available. The effects remain **negligible** (general population) and **minor adverse** (vulnerable groups) and **not significant** as before.

Crime, community safety and social cohesion

9.22 The cumulative schemes are expected to incorporate designing out crime principles in their proposals. However, the exact nature of these measures is uncertain, therefore they are expected to have a minor beneficial impact as in the main assessment.

Access to open space, nature, and amenity space

9.23 The cumulative schemes would deliver additions to local open space and enhancements to the public realm. ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing*** expects cumulative schemes to have a high magnitude impact on access to open space (general population and vulnerable groups). These combine with low sensitivity receptor population, creating permanent, beneficial effects of moderate scale. The **moderate beneficial** effect is **significant**.

Access to play space

9.24 The cumulative schemes would add to local play space provision. ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing*** expects cumulative schemes to have a high magnitude impact on access to play space (general population and vulnerable groups). These combine with low sensitivity receptors, creating permanent, beneficial effects of moderate scale. The **moderate beneficial** effect is **significant**.

Access to healthy food

9.25 No detail on what the cumulative schemes could mean for access to healthy food is available. The effect remains **negligible** and **not significant** as per the main assessment.

Air quality

9.26 The traffic data used in the 2024 modelling scenario has considered traffic flows associated with all cumulative schemes which would affect flows on the roads included in this assessment. As such, predictions of future pollutant concentrations presented in this chapter take account of cumulative effects.

9.27 Operational impacts, which inherently include the cumulative schemes, have been shown to be not significant in relation to existing sources of road traffic emissions on the Proposed Development. The effect remains **negligible** and **not significant** as per the main assessment.

Noise and vibration

9.28 The cumulative schemes considered within both Scenario 1 and Scenario 2 are inherently included within the calculation of road traffic noise levels and therefore have been included within this assessment. The addition of the surrounding cumulative schemes, due to their distance from the site, are not expected to increase traffic noise levels by means of discrete reflections from buildings or other structures.

9.29 Building services plant noise limits for the Proposed Development have been set to achieve a negligible effect. The cumulative schemes will also need to adopt a similar strategy.

9.30 The effect on noise and vibration remains **negligible** and **not significant** as per the main assessment.

Neighbourhood amenity

9.31 The effect remains **minor beneficial** and **not significant** as per the main assessment.

Cumulative effects assessment – Scenario 2

Construction phase

Accessibility and active travel

9.32 ***ES Volume 1, Chapter 7: Traffic and Transport*** describes that of the Tier 3 schemes only the Regis Road Growth Area is scoped in. It is understood that the Regis Road site is expected to be used as a distribution centre for the immediate future, therefore it is unlikely that the construction of this site will overlap with the construction of the site. Cumulative effects are expected to remain the same as in Scenario 1.

Air quality

9.33 One of these has been scoped into the air quality cumulative effects assessment: the Regis Road Growth Area regeneration site. The other five sites have been scoped out of this assessment due to the fact that they are located over 500m away from the Proposed Development; with the introduction of the requirement for new developments to be Air Quality Positive, it is judged to be extremely unlikely that future developments will generate significant air quality effects beyond this distance.

9.34 According to ***ES Volume 1, Chapter 8: Air Quality***, it is not possible to ascertain whether the construction of the Regis Road Growth Area regeneration site will run concurrently with the construction of the Proposed Development. However, it is anticipated that all construction sites will adopt appropriate mitigation measures to limit emissions of dust,

will hold the liaison meetings recommended above and will ensure that plans are co-ordinated to minimise impacts upon the most sensitive receptors. With these measures in place, the cumulative effect of construction activities should be 'not significant'

Noise and vibration

9.35 The Regis Road Growth Area (pre-application state) is approximately 50-100m to the south of the site and has been included as a potential receptor. The Regis Road Growth Area would share common receptors at 1-101 Cressfield Close. This receptor could experience cumulative effects of up to moderate adverse if construction of the Proposed Development and Regis Road Growth Area coincide during certain times of the construction phase. In health terms, the effect remains **minor adverse (not significant)** as in the main assessment.

Operational phase

9.36 Scenario 2 considers the additional impact of regeneration plans and site designations. Two of these are scoped into the cumulative effects assessment: the Regis Road Growth Area and Gospel Oak/Haverstock.

9.37 The Regis Road Growth Area is envisaged to deliver a new park for Kentish Town, close to the high street, with large public spaces for residents and workers in the area to play and relax. Community and cultural facilities could be delivered particularly on the eastern part of the site.[45]

9.38 LBC is still in the early stages of forming the Gospel Oak/Haverstock Community Vision. The Council is inviting comments on the proposals, which indicate that the following could be delivered:

- New and enhanced routes: enhancing open space and improving how easy it is to walk and cycle around the area are key priorities. Across the core area and across the wider area, the creation of new open spaces is targeted, as well as improvements to the existing spaces.
- Cycling routes: As well as walking, the Camden Transport Strategy aims to make it easier and safer to get around by bike, encouraging more residents to start cycling. Central to this is the creation of a Borough-wide cycle network, intended to create a network of cycle routes that are safe, comfortable and accessible for all.
- Community facilities: new facilities would be delivered. The list of top investment requirements includes: open spaces and sports and play facilities, improving community safety, enhancing youth provision, health centre, community hub, enhancing library and community centre offer, new public squares and green walking routes.
- Community safety: improving community safety is a top priority for the area. As well as developing better community services and reporting systems, physical changes to improve safety can also be used.

9.39 Much needed homes could also be built along with essential infrastructure, although the extent of the scheme will be subject to a residents' ballot.[46]

9.40 The Regis Road Growth Area and Gospel Oak/Haverstock are both also expected to deliver further education and health infrastructure, as needed by residents/workers. These effects are likely to be beneficial.

9.41 ***ES Volume 1, Chapter 8: Air Quality*** does not expect air quality to be adversely impacted by the Scenario 2 cumulative schemes. ***ES Volume 1, Chapter 9: Noise and Vibration***

45 LBC, 2020. Kentish Town Planning Framework
46 Gospel Oak and Haverstock Community Vision [available at: https://gohcommunityvision.commonplace.is/proposals/comment-on-early-ideas]

considers Scenario 1 and 2 cumulative schemes jointly, and expects negligible effects (not significant). ***ES Volume 1, Chapter 7: Traffic and Transport*** expects that the Regis Road Growth Area could enhance transport effects, making adverse effects more adverse (public transport trips) and beneficial effects more beneficial (pedestrian and cyclist delay and amenity and severance, fear and intimidation, highway safety, and driver delay). However, in health terms the effects are expected to remain as before.

9.42 While the data is necessarily high-level at this stage, the Scenario 2 cumulative effects are not expected to differ from those discussed under Scenario 1.

Cumulative effects assessment - Scenario 3

Construction phase

Air quality

9.43 The inclusion of Infrastructure Initiatives would not affect the conclusion of the Scenario 2 cumulative assessment because the initiatives predominantly concern measures for pedestrians and cyclists; the impacts of these measures will thus not impact upon local air quality.

Noise and vibration

9.44 The inclusion of Infrastructure Initiatives may affect the conclusion of the Scenario 2 assessment because their construction is likely to occur during the night time or engineering periods when the railway lines are not operating. Any significant effects that eventuate will only be associated with the Infrastructure Initiatives, as night time construction activities are not anticipated from the Proposed Development, though they could be major adverse at the receptors closest to the works. In health terms, the effect remains **minor adverse (not significant)** as in the main assessment.

Operational phase

9.45 The Infrastructure Initiatives could create new access routes for pedestrians and cyclists, improving accessibility and the availability of active travel options in the area. The scale of improvements, however, is not sufficient to have additional significant effects on health, and the effect remains as in the main assessment.

9.46 All other effects assessed in this HIA are expected to be unchanged as a result of the Infrastructure Initiatives, including air quality and noise and vibration based on ***ES Volume 1, Chapter 8: Air Quality*** and ***ES Volume 1, Chapter 9: Noise and Vibration*** respectively.

Future sensitive receptors assessment

9.47 LBC has asked the Applicant to ensure that any future sensitive receptors in the area are looked into, and relevant effects considered. Two future sensitive receptors have been identified as part of this exercise. These are shown in **Table 14**.

Table 14 Future sensitive receptors

Planning Reference	Description	Scoped In/Out	Justification
2018/4449/P	Erection of a six storey building plus single storey basement to provide 50 Assisted Living residential units (1 x 1 bed, 41 x 2 bed, 8 x 3 bed), following demolition of the existing building together with associated communal facilities, plant equipment, landscaping and 8 car parking spaces.	In	People in assisted living residential units are likely to belong to the older people or long-term ill or disabled vulnerable groups. They could be sensitive to the Proposed Development's impact on accessibility and active travel, air quality, noise and vibration, and neighbourhood amenity.
2019/1724/P	Demolition of existing buildings and erection of a four storey block with retail units at ground floor and 3 x 3-bed residential units above.	Out	The additional retail and residential units are not considered sensitive receptors from a health perspective. Sensitive receptors include main users belong to a vulnerable group identified in this assessment.

9.48 The one future sensitive receptor scoped into the assessment would deliver 50 Assisted Living residential units. These could be built on Ingestre Road, to the north east of the site. Based on the technical chapters, the Assisted Living units would be too far from the site to see any effects from the Proposed Development's construction or operation on accessibility and active travel, air quality, noise and vibration, and neighbourhood amenity.

9.49 The inclusion of future sensitive receptors into the assessment is not expected to change the conclusions reached, and all effects remain as reported previously.

10 APPENDIX A: DETAILED BASELINE

Access to work and training

10.1 ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing*** presents several statistics which summarise the employment and skills profile of the borough. While LBC residents tend to be very highly qualified, they also have an unemployment rate noticeably higher than that of London and the UK. In terms of deprivation on the income domain, LBC can be considered average.

10.2 Within the borough, there are relatively high levels of child poverty, which has considerable importance for health. Across LBC, 29%[47] of children live in low income families, considerably higher than the regional average of 19% and the national average of 18%.

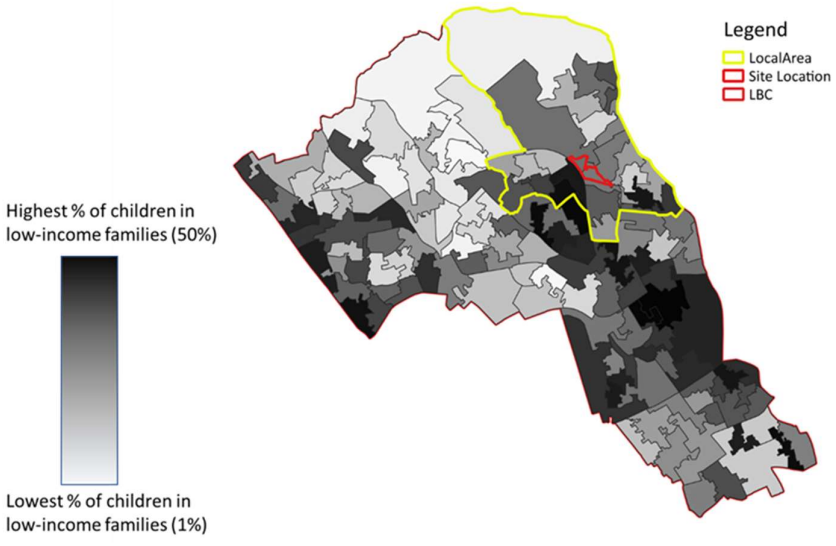
Figure 2 Percentage of children in low income families, 2016

	% of children in low income families
LBC	29%
London	19%
Great Britain	18%

Source: ONS, 2016. Personal tax credits: Children in low-income families local measure: 2016 snapshot as at 31 August 2016

10.3 **Figure 3** gives an indication of the distribution of child poverty in LBC. As can be seen, child poverty is mostly concentrated in the western, central and north-eastern parts of the borough. The site falls in the northeast of LBC.

Figure 3 Percentage of children in low-income families by LSOA



Source: ONS, 2016. Personal tax credits: Children in low-income families local measure: 2016 snapshot as at 31 August 2016

47 ONS, 2016. Personal tax credits: Children in low-income families local measure: 2016 snapshot as at 31 August 2016

Vulnerable groups

10.4 Parental unemployment increases the child's risk of unemployment in later life (with its associated negative consequences for health) and can create psychological distresses that last well into adulthood. Low income groups and the unemployed stand to gain the most from additional employment opportunities. Ethnic minorities are often under-represented in the labour market owing to discrimination and other factors and tend to have higher unemployment rates. Of the vulnerable groups identified, low income groups and ethnic minorities have a relatively large presence in LBC.

COVID-19

10.5 The medium to long-term impact of COVID-19 on the labour market is expected to be small,[48] but in the short-term (during the construction phase) the additional job creation could be more valuable.

Housing quality and design

10.6 Homelessness is less of a problem in LBC than the rest of London. ***ES Volume 1, Chapter 5: Socio-economics*** identifies that the number of LBC residents who are accepted as homeless and in priority need is 0.8 per 1,000 households, much lower than for London overall (4.0 per 1,000 households).

10.7 The provision of housing can help residents exit the private rented sector and step onto the property ladder. The English Private Landlord Survey 2018[49] found that 94% of landlords were individuals and nearly 50% of them rented just a single dwelling. Similar proportions had less than 10 years experience. This matters because a quarter (25%) of PRS homes do not meet the Decent Homes Standard compared to 19% of owner occupied and 13% of social rented homes. Some 14% of PRS homes possess a Category 1 hazard.

10.8 The delivery of new housing has been relatively swift in the borough, and a step change can be observed from 2015 onwards. The delivery of affordable housing, however, has been about 20% of the total, falling far short of the LBC target of 50%.[50]

10.9 Overcrowded households in LBC make up 12% of the total (approx. 11,395 in 2011), slightly higher than London's 11%, but much worse than the 5% of overcrowded households in England and Wales (**Table 15**).

Table 15 Overcrowding in the study areas, 2011

	% of households overcrowded
LBC	12%
London	11%
England and Wales	5%

Source: ONS, 2011 Census (Table: QS412EW)

Vulnerable groups

10.10 Young people, the disabled and older residents typically spend a greater proportion of their day in the home environment, meaning that if it is of substandard quality, cold, or

48 Even under the most pessimistic scenario, economic activity is expected to return to pre-crisis levels by 2024, indicating that the majority of the effects of COVID-19 are expected in the short-term, and are forecast to have passed by the time the Proposed Development would be operational. Office for Budget Responsibility, 2020. Fiscal Sustainability Report November 2020

49 MHCLG, 2019. English Private Landlord Survey 2018

50 LBC, 2017. Local Plan

damp, their health can be more strongly impacted. Older residents are also more susceptible to accidents and injuries (e.g. falls) in poor quality environments. Low income groups are more likely to live in overcrowded conditions, which can heighten the risk of the spread of infectious diseases and mental health issues. However, of the vulnerable groups identified, only low income groups have a relatively larger presence in LBC.

Accessibility and active travel

10.11 The site is located in the northern part of Kentish Town, LBC. The Regis Road Growth Area lies to the south of Murphy's Yard, separated by train tracks. The site is currently a large industrial site of approximately 6.2ha. Hampstead Heath is to the north west of the site. Kentish Town Rail Station is only a short walk away. The site is accessible through public transport: it is located within Zone 2/3 and has a PTAL rating of 2-5.[51] Redevelopment of the site and creation of new pedestrian routes will increase the PTAL level of the whole site to 5.[52] It is noted that the private nature of the site and lack of any public or through routes is likely to be reflected in the current PTAL rating. Opening up on the site would improve this. The future site PTAL will also improve in the western section of the site due to an increased number of rail services available from Kentish Town Station. It is also expected to increase slightly in the eastern corner of the site.

10.12 The site is easily accessible by a range of different forms of public transport. Kentish Town is the closest London Underground station. The station is on the High Barnet branch of the Northern Line between Camden Town and Tufnell Park and is within Travelcard Zone 2. Other nearby London Underground stations within walking distance of the site include Tufnell Park (600m), Belsize Park (1.4km) and Chalk Farm (1.5km). There are known capacity constraints on Northern Line services at Kentish Town.

10.13 There are no delineated cycle routes in the immediate vicinity of the site, however advance cycle stop lines are present at some junctions. On-street markings along Gordon House Road identify that the road is a designated cycle route, however no dedicated cycle lanes exist. TfL Cycleway 9 is accessible via the A5202 Royal College Street, approximately 800m south of Greenwood Place. This route features cycle routes on both sides of the carriageway which are segregated from the footway and carriageway by kerbs.

10.14 LBC residents tend to be more physically active and less overweight than residents of London or England. No direct data is available for the smaller Local Area, but it is assumed that its profile is similar to the LBC average. In reception year only 19.8% of children are classified as overweight in LBC, which compares with 21.6% in London and 23.0% in England. For adults the contrast is even stronger: 41.7% are overweight in LBC, while 55.9% in London and 62.3% in England. LBC residents are also more physically active (70.1%) than the regional (66.2%) or national (67.2%) average. The mortality rate (under 75) attributable to cardiovascular diseases is also much lower in LBC than London or England. **Table 16** summarises the statistics relevant for overweight and physical activity.

Table 16 Overweight and physical activity in LBC

	LBC	London	England
Children overweight (aged 5-6)	19.8%	21.6%	23.0%

51 PTAL is an assessment of a location's access to the public transport network, taking into account walk access time and service availability. Each area is graded between 0 and 6b, where 0 is very poor access and 6b is excellent access to public transport.
52 Curtins, 2021. Transport Assessment submitted for Murphy's Yard

	LBC	London	England
Children overweight (aged 10-11)	35.9%	38.2%	35.2%
Adults overweight	41.7%	55.9%	62.3%
Physically active adults	70.1%	66.2%	67.2%
Physically inactive adults	17.2%	22.1%	21.4%
Under 75 mortality from cardiovascular diseases (rate per 100,000)	58.5	69.1	70.4

Source: PHE, 2021. Local authority fingertip profiles

10.15 Road safety is another factor in accessibility and active travel. Road safety has a much wider impact on health than just preventing injuries', because some forms of travel (e.g. walking and cycling) bring more health benefits for individuals and society than others, and people in environments with better road safety walk and cycle more. Those killed or seriously injured (KSI) on the roads of LBC numbered 50.9 per 100,000, compared with 39.5 in London and 42.6 in England, meaning that LBC's roads are in general less safe than in comparator geographies.

Vulnerable groups

10.16 Studies find that inactive children are more likely to become inactive adults, increasing the risk of obesity, diabetes, high blood pressure, heart disease and cancer in later life. Better active travel options should help reduce these risks. Changes to routes and transport access can lead to social isolation, which can be particularly harmful for older people and those with disabilities as these groups are more susceptible to social isolation due to being cut off from society, which can severely impact wellbeing. Those on low incomes have fewer alternative transport routes and have been found to turn down jobs due to transport issues. The Local Area has a relatively large presence of older people, low income-groups, unemployed, and people with long-term illness or disability.

10.17 Other relevant receptor populations for which data is not available are existing and future workers in the area. It is not possible to know the proportion of these groups vulnerable to health effects associated with accessibility and active travel, but making a precautionary assumption it is assumed that vulnerable groups are present among these.

10.18 There are three care homes and 17 schools or education centres within the Local Area. These community uses may see larger effects from the Proposed Development's impact on local travel patterns, accessibility, and active travel.

Access to primary healthcare

10.19 Contractually, GP practices register patients living permanently within a defined catchment area. This is known as an inner catchment area. A GP practice may register patients living outside of this area, but may restrict services, such as home visits.

10.20 Only five GP practices have inner catchment areas which cover the site. Looking at the patient catchment data at LSOA level, Parliament Hill Surgery has by far the greatest proportion of patients currently living in the two LSOAs which include the site. This indicates that the majority of new residents are likely to register with the following five GP practices, notably Parliament Hill Surgery.

10.21 The five GP practices have a total patient list size of a little over 61,000, and there are 1,127 patients per FTE GP across the five of them, below the NHS benchmark target of no more than 1,800 patients per GP FTE. None of the five has a patient per GP FTE ratio above 1,800. In this respect local GP practices perform much better than those in the LBC (1,440 patients per GP FTE), London (1,951 patients per GP FTE) and the nation (1,772 patients per GP FTE).

10.22 **Table 17** shows patient and GP data in the inner catchment and in comparator areas.

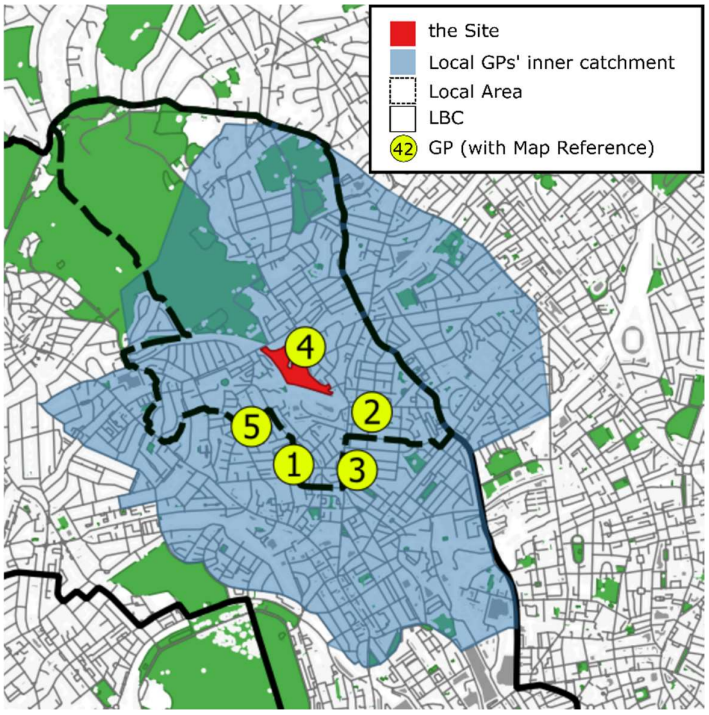
Table 17 GP surgeries within the GPs' Inner Catchment area

Map Reference	Name	Patients	GP FTEs	Patients/GP FTE
1	PRINCE OF WALES GROUP SURGERY	8,728	8	1,041
2	CAVERSHAM GROUP PRACTICE	15,888	14	1,175
3	JAMES WIGG PRACTICE	21,967	19	1,151
4	PARLIAMENT HILL SURGERY	7,605	9	829
5	QUEENS CRESCENT PRACTICE	7,059	4	1,685
Total		**61,247**	**54**	**1,127**
District		282,481	196	1,440
Region		10,273,480	5,266	1,951
Nation		60,191,870	33,968	1,772

Source: NHS Digital, 2020, General Practice Workforce Data - October 2020.

10.23 **Figure 4** shows the location of the GPs' inner catchment surgeries.

Figure 4 Map of GP surgeries in the GPs' Inner Catchment area



Source: NHS Digital, 2020, General Practice Workforce Data - October 2020

10.24 However, the patient per GP FTE ratio is a crude measure as GP practices are now working across a network, known as primary care networks providing a wider range of services, using a multi-disciplinary workforce. This has implications for workforce and estate capacity. An alternative measure is to calculate a benchmark number of clinical rooms for each GP practice according to its patient list size and compare against the actual number of rooms in each practice. This in turns produces a ratio of rooms per patient list size.

10.25 Even this calculation should not be treated in isolation and other factors should be taken into consideration, such as practice list growth; a shift to digital consultations (telephone/video); additional space requirements to deliver PCN services; and the type of building and condition. **Table 18** provides some of the data on these metrics. The ratio of patients per clinical rooms in LBC is 1,052 on average; Parliament Hill Surgery and Queens Crescent Practice exceed this benchmark.

Table 18 GPs' Inner catchment clinical rooms

GP Practice Name	List size Jan 2016	List size Jan 2021	List size % increase	Actual clinical rooms	Benchmark clinical rooms	Ratio (rooms / list size)
PARLIAMENT HILL SURGERY	6,667	7,583	13.7%	7	7	1,083
CAVERSHAM GROUP PRACTICE	14,135	15,949	12.8%	22	15	725
PRINCE OF WALES GROUP SURGERY	8,441	8,880	5.2%	12	8	740
QUEENS CRESCENT PRACTICE	5,478	6,918	26.3%	4	7	1,730
JAMES WIGG PRACTICE	20,284	21,860	7.8%	23	22	950

Source: NHS Digital, North Central London CCG and NHS England

10.26 The impact of the development extends beyond GP services and includes community and hospital inpatient and outpatient services. The area contains a number of health centres which in addition to GP practices accommodate community and mental health services. These include Kentish Town Health Centre (James Wigg Practice), Peckwater Health Centre (Caversham Group Practice), Gospel Oak Health Centre and the Brandon Centre.

10.27 The strategy in North Central London is to ensure that infrastructure supports integrated health and care services. New and existing health centres will be expected to accommodate a wider range of services, including PCN enhanced services and out of hospital services. NHS North Central London Clinical Commissioning Group (CCG) is of the opinion that additional capacity will be required in the area to accommodate an increasing demand for services and the need to provide a wider range of services.

Future baseline

10.28 LBC is actively considering and planning for expected population growth, in order to meet its challenges for healthcare provision.[53] The St Pancras Transformation Programme proposes a number of hubs that will co-locate mental health services along with primary and community services to deliver care closer to home. Moorfields Eye Hospital and the UCL Institute of Ophthalmology are seeking to move into a purpose-built facility.

53 LBC, 2019. Infrastructure Study

10.29 NHS funding has been secured to create capacity across the primary care estate. In addition, a pipeline of projects has been identified, including at the Hampstead Group Practice.[54]

Vulnerable groups

10.30 Reduced access to healthcare services can lead to an exacerbation of health conditions. Older people currently face barriers to accessing healthcare due to a lack of mobility, reduced access to knowledge of available services, and relatively greater reliance on existing services. Ethnic minorities face some similar barriers e.g. language barriers, lack of knowledge, as well as discrimination. As people get older, they typically develop more long-term health conditions and require more health care, and the same is often true of people with long-term illness or disabilities. Within the GPs' inner catchment area, ethnic minorities and those with long-term illness or disability have an above average presence.

COVID-19

10.31 Although following the initial nationwide lockdown there was a general trend towards fewer patients accessing health services, this is not thought to continue into the future. It is thought that as fears of contracting or spreading the virus reduce, individuals are less likely to put off accessing health services.[55] Some research suggests that the lack of access of health services has created a significant backlog of planned care, and this will create lasting pressures on the ability of health infrastructure to provide health services.[56]

A&E provision

10.32 The closest Accident & Emergency (A&E) department to the site, Royal Free Hospital, is located 1.3km from the site. The hospital is part of the Royal Free London NHS Foundation Trust.

10.33 The A&E target is that 95% of patients who attend A&E departments are to be admitted to a hospital bed, discharged from the department, or transferred to another hospital within four hours of arrival.[57] The standard recognises that for some patients it may not be clinically appropriate to manage this within four hours of arriving at the department.

10.34 In 2018-2019 Royal Free London NHS Foundation Trust had a total of 281,680 A&E attendances.[58] In total 87% of patients were admitted within the four-hour target time. Across London and England the same figure was 84%.

Future baseline

10.35 LBC's Infrastructure Study writes[59] that the level of calls the London Ambulance Service (LAS) currently receives increases by an average of 6% per year and the number of incidents increases at an average rate of 3%. Assuming that growth in incidents is uniform across the area covered by the LAS and continues into the next decade, the Royal Free London NHS Foundation Trust could have 346,431 A&E attendances by 2025 and 401,608 attendances by 2030.

Vulnerable groups

10.36 Research has shown that reduced access to healthcare services can lead to an exacerbation of conditions. Older people currently face barriers to accessing healthcare due to a lack of mobility, reduced access to knowledge of available services, and relatively

54 LBC, 2019. Infrastructure Study
55 The Health Foundation, 2020. Public perceptions of health and social care in light of COVID-19 (July 2020)
56 Iacobucci, 2020, Government Must Fund Extra NHS Capacity to Tackle Backlog; British Medical Association.
57 House of Commons Library, 2018. NHS Key Statistics: England, May 2018
58 NHS, 2019, Hospital Accident and Emergency Activity, 2018-19; Provider Level Analysis
59 LBC, 2019. Infrastructure Study

greater reliance on existing services. Ethnic minorities face some similar barriers e.g. language barriers, lack of knowledge, as well as discrimination. As people get older, they typically develop more long-term health conditions and require more health care, and the same is often true of people with long-term illness or disabilities. No data on the proportion of vulnerable groups among the users of Royal Free Hospital's A&E services is available, so as a precautionary approach it is assumed that they are present.

Crime, community safety and social cohesion

Crime

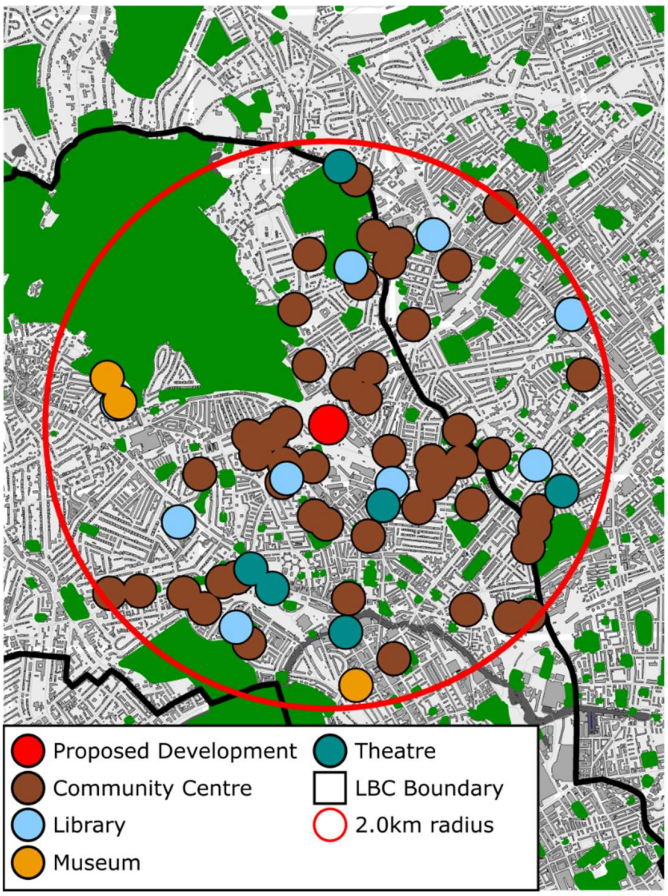
10.37 As discussed in ***ES Volume 1, Chapter 6: Socio economics, Health and Wellbeing***, LBC is within the worst 30% of English local authorities in terms of crime deprivation. Crime, however, is most pronounced in the south and west of the borough; the site is located in the northeast. The crime rate per 1,000 residents reflects this: while it stands at 197 per 1,000 residents for LBC as a whole, it is significantly less (136) in the Local Area. Crime levels in the Local Area are broadly average for London.

Social cohesion

10.38 Research suggests that it is considered best practice for one community centre to be provided for every 7,000-11,000 people resident in a community, [60] but the catchment population required to sustain one community centre in terms of viability is around 4,000.[61] According to the GLA's Cultural Infrastructure Map,[62] there are 52 community centres within 2km of the site. These provide a community centre per every 3,041 residents in the area, indicating that community centres could be oversupplied and might become unviable without population increases. The community centres, as well as local libraries, museums and theatres are shown in **Figure 5**.

60 Barton, Grant and Guise, 2010. Shaping Neighbourhoods for Local Health and Global Sustainability
61 Barton, Grant and Guise, 2003. Shaping Neighbourhoods: A Guide for Health, Sustainability and Vitality
62 GLA, 2020. Cultural Infrastructure Map

Figure 5 Map of community facilities in the area



Source: GLA, 2020. Cultural Infrastructure Map

10.39 While no direct data on the strength of community cohesion is available at the borough or local level, the Community Life Survey[63] indicates that only 70% of Londoners meet up in person at least once a week, compared with 74% nationally. London has the lowest proportion of people agreeing that there are people who would be there for them if they needed help (93%, compared with 95% nationally). The capital also has the lowest proportion agreeing that if they wanted company or to socialise there are people they could call on (89%, compared with 91% nationally) of all English regions. Those living in urban areas are more likely to feel lonely (6%, compared with 4% in rural areas) and those living in the most deprived areas tend to feel lonelier than those in the least deprived areas (8% compared with 4%). As noted, the data is not available for the study area, but these statistics indicate that urban areas are, on average, likely to have lower levels of social cohesion.

Vulnerable groups

10.40 Young people as well older residents are far less active physically when in an environment not judged safe. When growing up in cohesive communities, young people are less likely to be engaged in crime themselves when they later grow up. Social interaction in older adults leads to a lower risk of cardiovascular problems, some cancers, osteoporosis and arthritis, and contributes to wellbeing while crime in an area induces loneliness and social isolation, and militates against the possibility of social interaction. Ethnic minorities are

63 Department for Digital, Media, Culture & Sport, 2019. Community Life Survey 2018-19

more likely to be the victims of crime than those from a white background. Older people and ethnic minorities have an above average presence in the Local Area.

Access to open space, nature and amenity space

10.41 According to ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing***, LBC has a moderately large quantity of open space per 1,000 residents (1.7ha), although still falling slightly short of the 2.4ha per 1,000 residents open space target recommended nationally by Fields in Trust.[64] The Local Area, however, has abundant supply of open space, largely thanks to Hampstead Heath directly north of the site. The provision of open space in the Local Area is estimated at 4.6ha per 1,000 residents, double the recommended level.

10.42 Distance from open spaces is another important factor in assessing accessibility. All open space types are within the target distances set by the GLA from the site, except for the largest regional parks (greater than 400ha) of which London has only one: Richmond Park.

10.43 As reported in **Table 16**, LBC residents tend to be more physically active and less overweight than those of London or England. In 2015/16 PHE also recorded the percentage of the 16+ population who are members of a sports club. For LBC this was 21.4%, very similar to the 22.0% across England. The data for the London region was not included, however Camden ranked 15th out of the 33 London boroughs, meaning that sports club membership is broadly average in the borough.

Vulnerable groups

10.44 Access to open space can improve the cognitive development and educational attainment of children, helping build a habit of regular physical activity for later life. Nearly half of older people are inactive, and difficulties in accessing places for physical activity are a key driver of this as a higher proportion of older people are bound to their direct home surroundings. Open spaces have various benefits for mental wellbeing, therefore those with mental health problems could be particularly affected, while those on low incomes suffer disproportionately from a lack of access to green spaces. Older people, low income groups and the unemployed, and those with long-term illness and disability have a relatively large presence in the Local Area.

Access to play space

10.45 ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing*** shows that the site is in an area with good coverage of children's play spaces. There are 42sqm of formal and informal play space per child in the Local Area, far above the target provision of 10sqm per child. ***ES Volume 1, Chapter 6: Socio-economics, Health and Wellbeing*** also suggested that play spaces for all age categories could be within target distances.

10.46 Focusing on formal areas of play only, LBC identified that provision of 1,200sqm of dedicated play space could alleviate all deficiencies within the Local Area. It is also reported by officers at LBC that, excluding Multi-Use Games Areas (MUGAs), there is a significant lack of appropriate youth provision in the borough.[65]

Vulnerable groups

10.47 Children's play spaces boost development and can contribute to stronger social ties and physical activity. However, there is a relatively small proportion of young people in the Local Area.

64 Fields in Trust, Guidance for Outdoor Sport and Play
65 LBC, 2019. Infrastructure Study

Access to healthy food

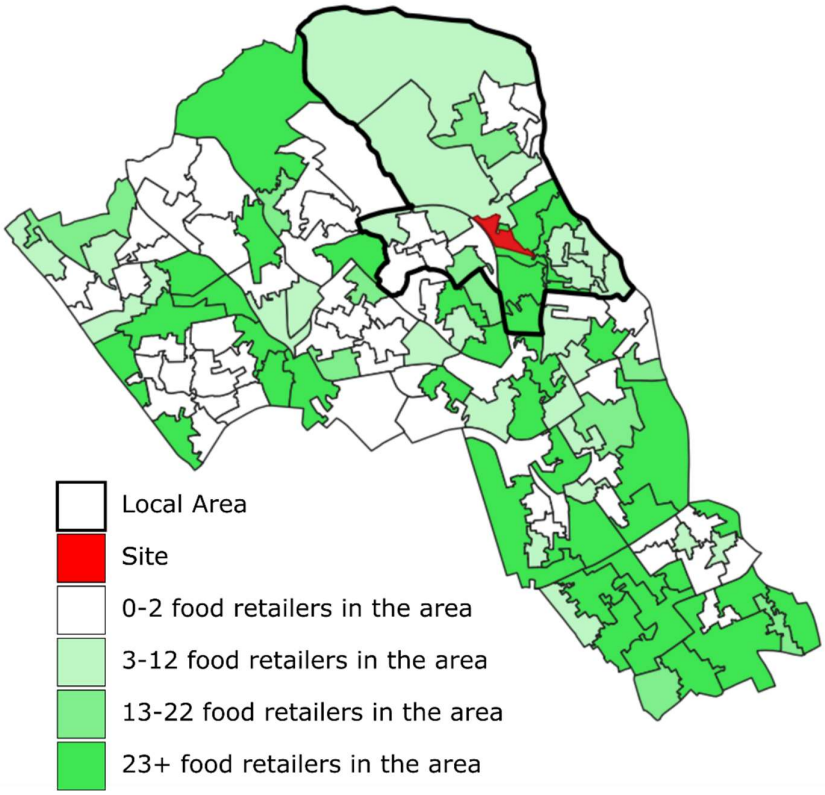
10.48 Accessibility of fast food retailers has been linked in research to the consumption of more fast food. There are 434 fast food outlets in LBC,[66] a rate of 166 per 100,000 population – the third highest of any local authority, only beaten by Blackpool and the City of London. However, the high density of fast food outlets does not apply to the Local Area, with 21 fast food outlets between the three wards, 19 of which are located in Kentish Town, 2 in Gospel Oak, and none in Highgate. This translates into 51 fast food outlets per 100,000 population. The London-wide density is 96 per 100,000 residents and the national figure is 95 per 100,000 residents.

10.49 While fast food outlets provide access to unhealthy foodstuffs, the lack of a variety of food retailers may outright prevent access to healthier alternatives. There has been much talk in public about the existence or non-existence of so-called food deserts (areas with little access to healthy food) in the UK. Although an imperfect measure, the Social Market Foundation (SMF) has used UK business count data to gauge the level of provision within small areas. Data is available by 5-digit industry code to middle-layer super output area (MSOA) level. The SMF analysis is reproduced here for LBC: SIC-code 47110 (retail sale in non-specialised stores with food, beverages or tobacco predominating) and 47210 (retail sale of fruit and vegetables in specialised stores) businesses are considered. It should be noted that business counts are rounded to 5. Within the Local Area there are 235 food retailers.[67]

10.50 **Figure 6** presents a map showing the number of food retailers in each area. The map shows that in the Local Area most localities have at least 3 different food retailers present, and even in the areas which could be considered food deserts there are areas nearby with good food retailer coverage.

66 PHE, 2016. Density of fast food outlets in England
67 ONS, 2020. Business Register and Employment Survey, 2019.

Figure 6 Food retailers in LBC



Source: ONS, 2020. Business Register and Employment Survey, 2019.

10.51 As discussed above in **Table 16**, LBC residents are more physically active and much less overweight than residents of London and England, counterbalancing some of the negative effects of high fast-food density.

Vulnerable groups

10.52 A very large number of UK children are overweight or obese, and exposure to healthy or unhealthy foods can play a large role in weight gain or loss. Evidence suggests that children with chronic conditions or with Autism Spectrum Disorder may be predisposed to becoming overweight and obese. Nutrition is an important element of health in the older population and affects the aging process, while malnutrition or a reduced dietary intake can lead to declining functional status, impaired muscle function, decreased bone mass, immune dysfunction, anaemia, reduced cognitive function, poor wound healing, delayed recovery from surgery, higher hospital readmission rates, and mortality. In the UK population studies have shown that some ethnic minority groups are more likely to have higher rates of cardiovascular disease, type 2 diabetes, and obesity, and according to a US study there is an association between the density of fast food outlets and an area's population belonging to an ethnic minority. Older people and ethnic minorities have an above average presence in the Local Area.

Air quality

10.53 ***ES Volume 1, Chapter 8: Air Quality*** finds that the entire borough of Camden has been declared an Air Quality Management Area (AQMA) for exceedances of the annual mean

NO_2 objective and the 24-hour mean PM_{10} objective. The Proposed Development lies within this AQMA.

10.54 The GLA has identified 187 air quality focus areas in London. These are locations that not only exceed the EU annual mean limit value for nitrogen dioxide, but also have high levels of human exposure. They do not represent an exhaustive list of London's air quality hotspot locations, but locations where the GLA believes the problem to be most acute. The Proposed Development is not located within any air quality focus area; the nearest - the 'Camden High Street' focus area - is located approximately 1km to the south.

10.55 At LBC's local air quality monitoring sites, where data is available, a clear downward trend in measured annual mean concentrations is in evidence. The trend is expected to continue in the future, especially owing to the expansion of the ULEZ in October 2021. Reductions are also expected by using Defra's background maps to forecast future air quality.

10.56 The LBC JSNA[68] notes that poor air quality is detrimental to human health. The assessment suggests that there are 264 deaths per year attributable to poor air quality in LBC and there are around 9,400 across all of London.

10.57 The mortality rate from respiratory diseases for those aged under 75 is 23.9 per 100,000 residents, better than the regional (29.9 per 100,000 residents) or the national rate (34.2 per 100,000 residents). The mortality rate from lung cancer in LBC is lower than at regional and national level, with a rate of 45.6 per 100,000 LBC residents, compared to 48.0 for London and 53.0 for England.

Vulnerable groups

10.58 Changes in air quality may have a disproportionate impact on children because their lung function doesn't finish developing until they mature into adulthood, making them more sensitive to respiratory illness. Their cognitive development could also suffer due to bad air quality. Older people are more likely to suffer from pre-existing cardiac and respiratory conditions and poor air quality can exacerbate these, just as in younger populations with pre-existing lung conditions. Older people and those with long-term illness or disability have an above average presence in the Local Area.

10.59 There are three care homes and 17 schools or education centres within the Local Area. These locations may see larger effects from the Proposed Development's impact on air quality.

Noise and vibration

10.60 ***ES Volume 1, Chapter 9: Noise and Vibration*** finds that the noise climate around the site is mainly dominated by the various railway lines that are located to the south, west and north of the site. Road traffic from Highgate Road and Sanderson Close is dominant at parts of the eastern boundary to the site.

10.61 The nearest existing receptors that have the potential to be sensitive to noise and vibration associated with the Proposed Development are listed below and illustrated in **Table 19**.

- Gordon House Road, Heathview, Mortimer Terrace, Wesleyan Place, Salcombe Lodge (residential properties);
- Sanderson Close, Carrol Close (residential properties);
- Highgate Studios and Highgate Road Businesses (Recording studios, offices, commercial, public houses);
- Christ Apostolic Church (place of worship);
- O2 Forum Kentish Town (entertainment venue);
- 2-12 Highgate Road (residential, commercial);

68 LBC, 2019. JSNA: Focus on Air Quality

- The Bull and Gate and 1-7 Highgate Road (public house, residential);
- Regis Road industrial estate (commercial);
- 1-101 Cressfield Close (including Kentish Town City Farm)(residential and community farm);
- 1-42 Hemmingway Close and 1-17 Meru Close (residential); and
- J.Murphy & Sons Limited headquarters (commercial).

10.62 The receptors are listed (with their sensitivity) in Error! Reference source not found..

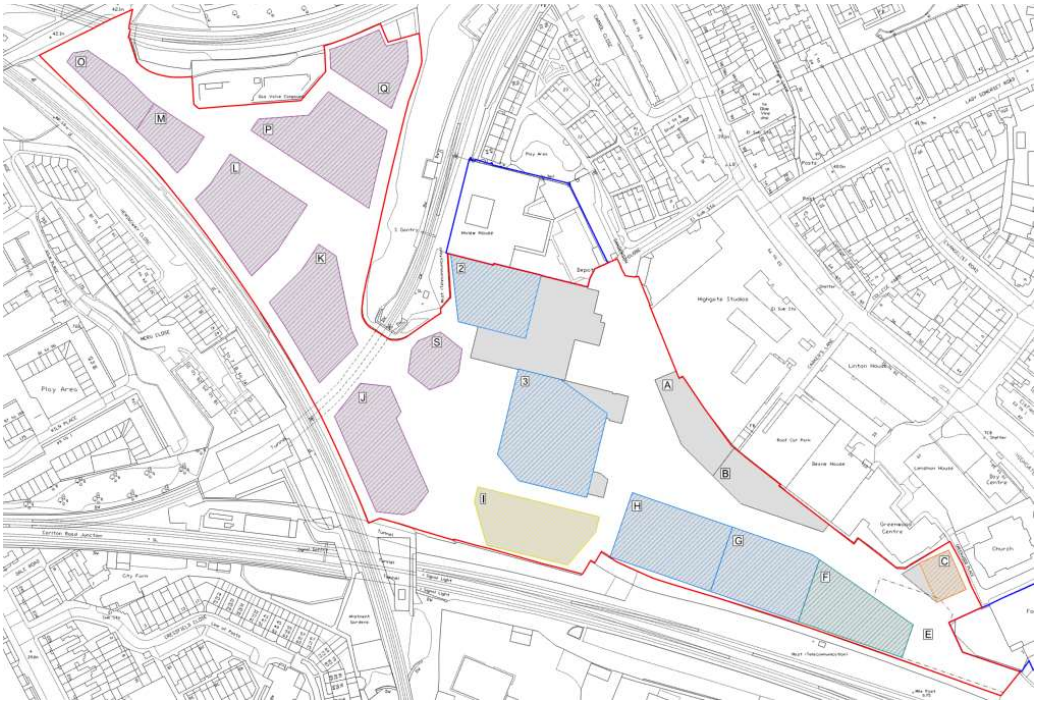
Table 19 Sensitive Receptors and Receptor Sensitivity (Existing)

Receptors	Type (Highest Sensitivity)	Sensitivity
Gordon House Road, Heathview, Mortimer Terrace, Wesleyan Place, Salcombe Lodge	Residential	High
Sanderson Close, Carrol Close	Residential	High
Highgate Studios and Highgate Road Businesses	Recording studios, offices, commercial, public houses	High
Christ Apostolic Church	Place of worship	Medium
2-12 Highgate Road	Residential, commercial	High
The Bull and Gate and 1-7 Highgate Road	Residential, public house	High
Regis Road industrial estate	Commercial	Low
1-101 Cressfield Close (including Kentish Town City Farm)	Residential	High
1-42 Hemmingway Close and 1-17 Meru Close	Residential	High
O2 Forum Kentish Town	Entertainment venue	Low
J Murphy & Sons Limited	Commercial	Low

Source: ES Volume 1, Chapter 9 : Noise and Vibration

10.63 The Proposed Development shall introduce noise sensitive receptors, namely residential dwellings and a health care facility. As such, these locations have been considered when in operation and where appropriate during construction. Residential noise sensitive receptors have the potential to be introduced and could come forward in Development Plots C, I, J, K, L, M, O, P, Q and S. A healthcare facility has the potential to come forward in Development Plot I. These are shown in **Figure 7** with the potential residential buildings shaded in purple.

Figure 7 Illustrative scheme of introduced noise sensitive receptors



Source: ES Volume 1, Chapter 9: Noise and Vibration

10.64 The following future sensitive receptors have been considered:

- 2018/4449/P (six storey building plus single storey basement to provide 50 Assisted Living residential units). 355 m to the north east of site.
- 2019/1724/P (four storey block with retail units at ground floor and 3 x 3-bed residential units above). 387 m to the east of the site.

10.65 Both of these future sensitive receptors are considered high sensitivity.

10.66 These future sensitive receptors are further from the site than other high sensitivity existing receptors considered. As such, effects at these future sensitive receptors are considered to be the same or lower than the effects predicted at nearby existing receptors closer to the site.

10.67 Across LBC there were 14.6 noise complaints per 1,000 residents in 2018/19, which is higher than the national average of 6.8, but lower than the London average of 17.0. [69]

10.68 Local authority-level statistics on sleep and night-time disturbance are not publicly reported. Nevertheless, lack of sleep and interrupted sleep are serious national health problems. While the National Sleep Foundation in the USA recommends between 7 and 9 hours of sleep for the average adult,[70] the 2017 Great British Bedtime Report of the Sleep Council in the UK has revealed that almost three-quarters (74%) of Brits sleep less than 7 hours per night.[71] Some 12% sleep less than 5 hours.

69 Public Health England, 2020, Local Authority Fingertip Health Profiles
70 National Sleep Foundation, National Sleep Foundation Recommends New Sleep Times [available at: https://www.sleepfoundation.org/press-release/national-sleep-foundation-recommends-new-sleep-times]
71 Sleep Council, 2017, Great British Bedtime Report

Vulnerable groups

10.69 The most common health effects for children from noise have been found to be annoyance, sleep disturbance, cardiovascular disease, and cognitive effects (reading attention, problem-solving, and memory). Louder neighbourhood noise can increase the risk of stroke and decrease life expectancy in older people, partly attributable to the sensory changes of old age and possible dementia. Noisy environments can be stressful, and those with mental health problems can be particularly affected, and epileptics can even have seizures triggered. Older people and those with a long-term illness or disability have an above average presence in the Local Area.

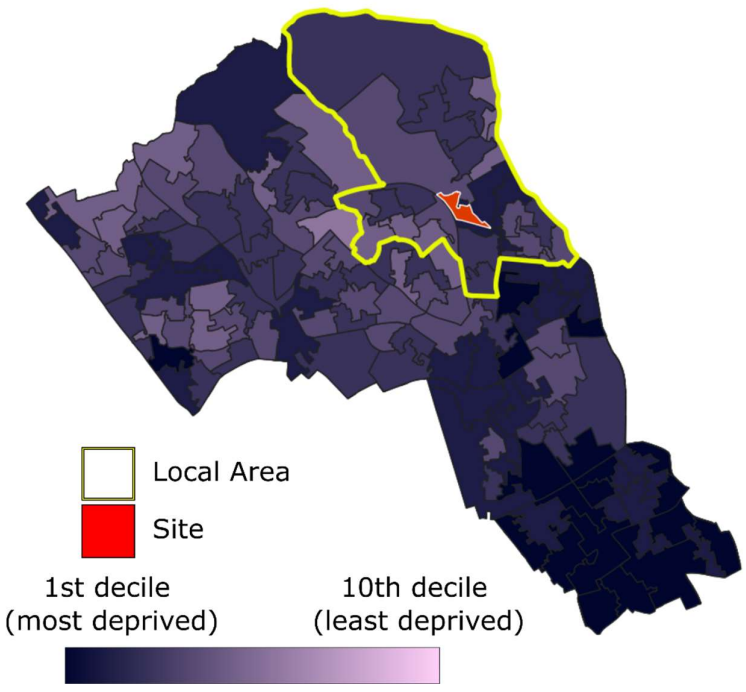
10.70 There are three care homes and 17 schools or education centres within the Local Area. These locations may see larger effects from the Proposed Development's impact on noise and vibration levels.

Neighbourhood amenity

10.71 Neighbourhood amenity depends on several factors, but development is expected to impact on neighbourhood amenity through changes to traffic, air quality, noise and vibration, and visual amenity.

10.72 LBC ranks 22nd worst out of England's 317 local authorities in terms of quality of living environment on the 2019 IMD, meaning that the quality of living environment is among the worst 10% in England.[72] The area of the borough that suffers most from deprivation related to the quality of the living environment is the south, whereas the Local Area of the site in the northeast fares better. Of all the LSOAs in LBC, there are none which rank in the top 40% nationally for good living environment.

Figure 8 Living environment IMD rankings, 2019



Source: MHCLG, 2019. English Index of Multiple Deprivation

72 MHCLG, 2019. English Index of Multiple Deprivation

10.73 The transport, air quality and noise baseline are summarised above.

Vulnerable groups

10.74 As discussed above, neighbourhood amenity refers to the in-combination effects of air quality, noise and vibration, and accessibility and active travel. As such, the vulnerable groups of young people, older people, those on low incomes, and those with long-term illness or disability could be differentially affected (refer to the respective sections for the health pathways). In addition, it has been found that those on low incomes are much more likely to live in areas of poor environmental quality, affecting wellbeing and self-esteem. Older people and those with a long-term illness or disability have an above average presence in the Local Area.

10.75 There are three care homes and 17 schools or education centres within the Local Area. These locations may see larger effects from the Proposed Development's impact on neighbourhood amenity.

11 APPENDIX B: HEALTH EVIDENCE BASE

Introduction

11.1 This section reviews the literature on the links between health determinants and effects on an individual's health. The following information provides the evidence base which underpins the assessment of health effects of the Proposed Development.

Health determinants

11.2 The topics covered in this review include:

- Housing quality and design;
- Access to healthcare services and social infrastructure;
- Access to play/open space and nature;
- Air quality, noise and neighbourhood amenity;
- Accessibility and active travel;
- Crime reduction and community safety;
- Access to healthy food;
- Access to work and training; and
- Social cohesion and lifetime neighbourhoods.

Evaluating the strength of evidence

11.3 The strength of the evidence concerning links between health determinants and health outcomes has been carefully considered. The following ratings have been used in the evaluation of the strength of evidence:

Table 20 Strength of evidence

Strength of evidence	Description
Strong	A wide range of peer-reviewed research has found an association between the determinant and health outcomes. There is consensus in the scientific community about the existence of the association.
Moderate	Several peer-reviewed studies have found an association between the determinant and health outcomes. There is wide agreement in the scientific community about the existence of the association, but there may be a number of dissenting voices about the particulars.
Weak	A few peer-reviewed or non peer-reviewed research articles have found an association between the determinant and health outcomes. There is little consensus in the scientific community, or there are conflicting studies.

11.4 Where strength of evidence is "weak" it is not considered evidence for the lack of an effect between the health determinants and health outcomes. It simply reflects gaps in the state of our knowledge about the causal links involved.

Evidence base for health determinants

Access to work and training

11.5 There exists a vast amount of literature linking employment and individuals' income levels with health. The World Health Organisation (WHO) identified and published a list of health determinants[73] that affect the health of individuals, as whether people are healthy or not is determined by both their circumstances and their environment. Within this list, income and social status is included: "higher income and social status are linked to better health. The greater the gap between the richest and the poorest people, the greater the differences in health."

11.6 The Marmot Review, commissioned by the Department of Health, examined the relationship between health inequalities and economic status for communities within England.[74] The review concludes that greater economic status is predictive of better health outcomes, and unemployment contributes to poor health outcomes. This conclusion is echoed within the Public Health England report, which states "unemployed people have a greater risk of poor health than those in employment, contributing to health inequalities."[75]

11.7 The report identifies several policy objectives and recommendations, such as giving every child the best start to life, ensuring a healthy standard of living for all, and creating fair employment and good work for all. The report details how employment creates good health, whilst unemployment contributes to poor health, and so "getting people into work is therefore of critical importance for reducing health inequalities." Additionally, the link between unemployment and poor health is amplified for young children whose parents are unemployed – not only will the unemployment result in poor health for the adult but also for the child due to a lower amount of family income. Long-term impacts on older children include reductions in mental wellbeing (health) and happiness.[76]

11.8 Further into the Marmot Review,[77] the link between educational attainment and physical/mental health is also established. A lower educational attainment is shown to result in lower levels of physical and mental health.

11.9 A study undertaken by Wapner in 2015[78] showed that children from low income backgrounds reported a health gap relative to teenagers in wealthier and poorer households. Disadvantaged children reported lower levels of physical activity and higher levels of bodily aches and pains relative to more advanced teenagers. This literature focuses on the increased likelihood of poor health in low income groups – referred to as the social gradient in health.

11.10 Long periods of work from a child's father when the child is around the age of 3 or 4 were found to reduce the child's risk of unemployment later in life and reduce the child's risk of experiencing psychological distresses in young adulthood.[79]

73 World Health Organisation, 2017. Health Impact Assessment – The determinants of health. Available at: https://www.who.int/hia/evidence/doh/en/
74 Marmot et al., 2010. Fair Society, Healthy Lives: Strategic Review of Health.
75 Public Health England, 2014. Local action on health inequalities: increasing employment opportunities and improving workplace health
76 Powdthavee and Veroit, 2013. 'Parental unemployment and children's happiness: A longitudinal study of young people's well-being in unemployed households' labour Economics, 24(1):253-263
77 Marmot et al., 2010. Fair society, healthy lives: strategic review of health inequalities in England post-2010, The Marmot Review
78 Wapner, J., 2015. Money is driving a wedge in teen health, Scientific American. Available at: https://www.scientificamerican.com/article/money-is-driving-a-wedge-in-teen-health/?previewID=10406E47-5A0C-43C7-9ED6C2894208BD99
79 JRF, 2001. The effect of parents' employment on outcomes for children

11.11 A study undertaken in 2015 by Urbanos-Garrido & Lopez-Valcarcel[80] linked the impact of unemployment to negative impacts on heath. The study finds that the anxiety and stress linked to unemployment causes these adverse health outcomes. SAH (subarachnoid haemorrhages) and mental health outcomes are worse for unemployed people than employed people, and the longer the unemployment period, the bigger the gap.

11.12 Further literature regarding employment and health shows that there exists a positive correlation between employment and health, both for the general population but also those with disabilities.[81] This study shows that employment has social, psychological, and financial benefits that improve health; unemployment is associated with higher rates of suicide,[82] long-standing mental illness, psychological distress, and medical consulting for mental health issues.

11.13 Literature also finds there to be positive health effects related to employment, notably a study by Olesen et al.[83] in 2013 that lists several health benefits of employment, reflecting both material and psychological outcomes, such as social status and a sense of achievement. Material outcomes may refer to levels of income and the resulting access to the resources that this may bring about. Conversely, poor mental health can be a barrier to gaining and maintaining employment.

11.14 A study by Kim and Knesbeck[84] found that joblessness is identified with poorer self-rated health, mental illness and increased risk of coronary heart disease, whilst paid work is generally known to promote health since it offers financial security and social inclusion.

11.15 There are large bodies of evidence on the clear ethnic minority penalty present in the labour market which has been persistent over time.[85] Unemployment rates for ethnic minorities are higher than they are for their white counterparts, and thus they are often under-represented in the labour market.

11.16 There are vast other bodies of literature evidencing the link between employment and positive health outcomes, including van der Noordt et al. in 2014[86] and Herbig et al. in 2013.[87]

11.17 The evidence linking access to work and training to health and wellbeing is strong.

Housing quality and design

11.18 There has been a range of evidence presented for the effects of housing quality and design on health. A systematic review of housing interventions[88] concluded that high quality, well designed housing and improvements to the quality and design of housing can lead to health benefits.

11.19 The WHO has found that "poor housing and indoor environments cause or contribute to many preventable diseases and injuries, such as respiratory, nervous system and cardiovascular diseases and cancer".[89] Because of the large amount of time individuals

80 R.M Urbanos-Garrido and B.G. Lopez-Valcarecel, 2015. The influence of economic crisis on the association between unemployment and health: an empirical analysis for Spain. The European Journal of Health Economics. Vol 16(2) 175-184
81 N. Goodman, 2015. The Impact of Employment on the Health Status and Health Care Costs of Working-age People with Disabilities. Lead Centre Policy Brief.
82 NHS, 2015. 'Unemployment and job insecurity linked to increased risk of suicide'
83 Olesen et al., 2013. Mental health affects future employment- as job loss affects mental health: findings from a longitudinal population study, BMC Public Health
84 Kim, T. and Knesbeck, O., 2015. Is an insecure job better for health than no job at all? A systematic review of studies investigating the health-related risks of both job insecurity and unemployment, BMC Public Health
85 JRF, 2015. Ethnic minority disadvantage in the labour market.
86 van der Noordt et al., 2014. 'Health effects of employment: a systematic review of prospective studies'
87 Herbig, et al., 2013. 'Health in the long-term unemployed'
88 Thomson H, Thomas S, Sellstrom E, 2009. The health impacts of housing improvement: a systematic review of intervention studies from 1887 to 2007 Journal of Public Health 99 p681–692
89 World Health Organization, 2017. Housing and health, http://www.euro.who.int/en/health-topics/environment-and-health/Housing-and-health.

spend in the home environment – approximately 70% according a to review by the WHO[90] –, health risks associated with poor quality housing are important determinants of health outcomes. This number is even higher when considering vulnerable groups such as the elderly, small children or the disabled.

11.20 The WHO also reported that overcrowding can lead to adverse health outcomes, among them a heightened risk of spread for infectious diseases and mental health problems.[91] Overcrowding can also lead to poorer educational attainment.

11.21 Tenure type seems to have import: a study has found that people in social housing experience higher levels of depression than owner-occupiers, an effect linked to environmental quality in the Local Area – social housing areas typically suffer from lower quality environments.[92]

11.22 The quality of the living environment can have an impact on self-esteem and well-being, as the public realm quality acts as a signal of maintenance or disuse; the Scottish Household Survey[93] found social renters reported antisocial behaviour two to three times more often than owner-occupiers.

11.23 In general, poor and unsafe housing are experienced in the PRS.[94] The PRS has high levels of poor housing conditions, with 25% of homes not meeting the Decent Homes Standard, and 14% containing at least one category one hazard.[95] Involuntary residential relocation can also have a negative impact on wellbeing, a risk to which the elderly are particularly exposed.[96,97]

11.24 The evidence linking the status and condition of housing to health and wellbeing is strong.

Accessibility and active travel

11.25 The term active travel applies to modes of transport that require physical activity, which is generally walking and cycling. The physical activity associated with active travel is what brings about health benefits for individuals. Saunders et al.[98] published a literature review in 2013 on the health benefits of active travel. The review determined that there has been a rise in the prevalence of obesity due to a decrease in active travel in the past 30-40 years. There is also good evidence to suggest that obesity levels have been rising in those countries with lower levels of active travel.

11.26 Vernon[99] found that 'road safety has a much wider impact on health than just preventing injuries', because some forms of travel (e.g. walking and cycling) bring more health benefits for individuals and society than others. The report notes that the way we travel is a determinant of how healthy we are, and increased life expectancy is one of the outcomes from an increase in road safety and consequently active travel.

90 World Health Organisation, 2018. Housing and health guidelines, http://apps.who.int/iris/bitstream/handle/10665/276001/9789241550376-eng.pdf?ua=1
91 WHO, 2018. Housing and Health Guidelines
92 Ellaway, A., Macdonald, L. and Kearns, A., 2016. Are housing tenure and car access still associated with health? A cross-sectional study of UK adults over a 13 year period, British Medical Journal
93 Ellaway, A., Macdonald, L. and Kearns, A., 2016. Are housing tenure and car access still associated with health? A cross-sectional study of UK adults over a 13 year period, British Medical Journal
94 Public Health England, 2015. Bringing together housing and public health. https://publichealthmatters.blog.gov.uk/2015/10/21/bringing-together-housing-and-public-health/
95 MHCLG, 2019. The English Private Landlord Survey 2018
96 Saito, T., Lee, H. and Kai, I., 2007. Health and motivation of elderly relocating to a suburban area in Japan, Archives of Gerontology and Geriatrics
97 Wu, Y., Prina, A., Barnes, L., Matthews, F. and Brayne, C., 2015. Relocation at older age: results from the cognitive function and aging study, Journal of Public Health
98 Saunders et al., 2013. What are the health benefits of active travel? A systematic review of trials and cohort studies
99 Vernon, D., 2014. Road Safety and Public Health, Royal Society for the Prevention of Accidents (RoSPA)

11.27 Recent research[100] has identified that people living in walkable neighbourhoods are more physically active and less likely to be obese, contributing to a reduced risk of diabetes for older adults. The study looked at 14 cities and found that those living in areas which were classed as more activity-friendly were more likely to satisfy the minimum recommended amount of physical activity per day.

11.28 There is substantial evidence on the links between physical activity and improved health. The WHO[101] defines physical activity as 'any bodily movement produced by skeletal muscles that requires energy expenditure', and also state that 'physical activity has significant health benefits and contributes to preventing non-communicable diseases'. Such benefits of active travel are recognised as reduced risks of: hypertension, coronary heart disease, stroke, diabetes, depression, falls, and improved weight control.

11.29 The health benefits mentioned above were also summarised in a 2011 Department of Health Report.[102] Physical activity was shown to reduce several negative health outcomes, including coronary heart disease, stroke, type 2 diabetes, cancer, obesity and mental health problems.

11.30 A report by Kumar et al. in 2015[103] notes that the health benefits from being active are not just physical but extend to wellbeing and social behaviour/interaction. A literature review[104] which studied the relationship between physical activity and happiness showed that just ten minutes of physical activity per day or a day of doing exercise per week resulted in increased levels of happiness.

11.31 A review of studies found that physical activity starts to decline during early schools years even among kids who were once active.[105] Being physically active in childhood and adolescence may be of high importance since it can postpone the time of becoming inactive later on.

11.32 Changes to routes and transport access has already been established to lead to social isolation, which can be particularly harmful for older people as they are more susceptible to social isolation due to being cut off from society.[106] The removal of established routes (transport and pedestrian) may cause issues for older people in the form of preventing them from accessing usual amenities, leading to the adverse health outcomes associated with social isolation.

11.33 Those from lower socio-economic backgrounds may be disproportionately affected by a reduction in access to transport routes due to a heavier reliance on public transport. Those on lower incomes take up to two times more bus trips than those on higher incomes.[107] Furthermore, those on low incomes are more likely to turn down jobs due to transport issues.[108]

11.34 The evidence linking accessibility and active travel to health and well being is strong.

100 Booth GL, Creatore MI, Luo J, et al., 2019. Neighbourhood walkability and the incidence of diabetes: an inverse probability of treatment weighting analysis
101 World Health Organization, 2017. Physical activity. Available at: http://www.who.int/mediacentre/factsheets/fs385/en/
102 Department of Health, 2011. Start Active, Stay Active: A report on physical activity from the four Home Counties. Available at:, https://www.gov.uk/government/publications/startactive-stay-active-a-report-on-physical-activity-from-the-four-home-countries-chief-medicalofficers.
103 Kumar, B, Robinson, R and Till. S, 2015. Physical activity and health in adolescence
104 Zhang, Z. & Chen, W., 2018. A Systematic Review of the Relationship between Physical Activity and Happiness.
105 Lounassalo, I., et al., 2019. Distinct trajectories of physical activity and related factors during the life course in the general population: a systematic review, BMC Public Health
106 NHS, 2018. Loneliness in older people
107 The Health Foundation, 2018. Transport and health
108 NatCen, 2019. Transport, health and wellbeing: an evidence review for the Department for Transport

Access to primary healthcare and A&E provision

11.35 Strong, vibrant, sustainable and cohesive communities require good quality, accessible public services and infrastructure. Access to social infrastructure and other services is a key component of Lifetime Neighbourhoods. Access to good quality health and social care, education (primary, secondary and post-19) and community facilities has a direct positive effect on human health.[109]

11.36 Good accessibility and availability are important determinants in primary healthcare systems, and adverse health outcomes are typically associated with longer wait times, leaving some patients to rely on urgent care. It has been found that when wait times are too long, patients' adverse health outcomes may be exacerbated. In addition to decreased satisfaction from increased wait times , longer wait times are 'significantly associated' with a deterioration in patient outcomes for those with wait times that span over a few months (effects are strongest when waiting times are longer than 3 months).

11.37 In general, barriers to accessing health services in a timely manner have the potential to result in unmet health needs, delays in receiving appropriate care (in which time the condition may deteriorate), financial burdens (which may lead to further adverse health outcomes), and the inability to get suitable preventive services.

11.38 Older people currently face barriers to accessing healthcare due to a lack of mobility or knowledge in accessing the correct services. As people get older, they typically develop more long-term health conditions and require more health care. Due to an increased reliance on healthcare, an increase in demand for local health services may reduce older people's access to healthcare, leaving to the adverse health outcomes associated with longer waiting times

11.39 Individuals with disabilities and chronic conditions have a greater reliance on and use of healthcare services. In general, barriers that those with disabilities face are ignorance from healthcare services towards those with learning disabilities, poor communication, poor continuity of care. Additionally, those who have hearing problems have many difficulties in communicating with GPs and making appointments. Those with long-term illnesses may also need to frequent health services more often, an issue that would be worsened with increased demand for health care

11.40 Ethnic minority groups have historically had poorer health and barriers to accessing healthcare services. Some barriers that influence ethnic minorities' access to healthcare include cultural differences, such as religion that may affect access to services or other cultural factors that mean people cannot access services without sufficient support, or differences in language where accurate diagnoses cannot be made. Other extrinsic factors may include differential needs, or ignorance as to services available.

11.41 The evidence linking the provision of healthcare services to health and wellbeing is moderate.

Crime, community safety, and social cohesion

11.42 A study by Stafford et al.[110] in 2007 found evidence to suggest that fear of crime was a contributing factor in some adverse health outcomes. One link identified was that those with a fear of crime may be restricted from leaving their home and this reduces the number of opportunities that person has to form social ties and participate in social activities. Fear of crime may also lead to less physical activity, negative effects on psychological wellbeing, and an increased likelihood of heavy drinking.

109 NHS, 2017. HUDU Plannning for Health: Rapid Health Impact Assessment Tool
110 Stafford et al., 2007. Association Between Fear of Crime and Mental Health and Physical Functioning, American Journal of Public Health

11.43 This was further reinforced by Lorenc et al.[111] who highlighted that crime and the fear of crime have an extensive indirect impact on health and are influenced by environmental factors, e.g. environment may affect health/wellbeing by increasing fear of crime due to poor design/quality.

11.44 A literature review by J. Won et al. in 2016[112] studied older people's health outcomes in relation to neighbourhood safety. The review found that higher levels of safety caused higher levels of physical activity amongst older people. Further to this, crime-related safety was associated with better mental health and more walking, as individuals were more assured of their safety when going outdoors.

11.45 In relation to younger children, a study into childhood obesity and physical activity[113] found that children were less physically active when they were in an environment not judged as safe.

11.46 BAME Londoners account for 40% of the London population, and data shows that a higher percentage of people from BAME groups were targets of crime relative to white individuals (22% for mixed and 16% for Asian compared with 14% for white).[114] Moreover, 1 in 5 BAME individuals were victim to crime (compared to 15% for white people), while black people were three times more likely to be arrested than white people,[115] highlighting the disproportionate impact of crime on ethnic minorities, partially due to racial profiling. Those from ethnic minority groups already experience poorer health than the overall UK population,[116] and the differential impact of crime on this group may affect their health further.

11.47 Women are also more likely to be targeted by men in opportunistic crime due to being viewed as more vulnerable,[117] and are therefore at a higher risk of adverse health outcomes.

11.48 A 2014 ONS paper examined the connections between social capital (defined as the social connections people have and all the benefits they generate) and well-being.[118] Particularly impacted by social connections are personal well-being, health, and crime rates. People with frequent social contact report higher levels of well-being, especially mental health. Social-isolation can increase the prevalence of risky behaviours as well, such as smoking, drinking, physical inactivity and poor diet. This is corroborated by a study by Nieminen et al., finding that in Sweden lower trust in communities and families led to increased alcohol consumption, and that in England strong support networks are associated with healthy eating.[119]

11.49 Social cohesion and a supportive and active neighbourhood play an important role in health outcomes.

111 Lorenc et al., 2012. Crime, fear of crime, environment, and mental health and wellbeing: mapping review of theories and causal pathways, Health Place
112 J. Won et al., 2016. Neighbourhood safety factors associated with older adults' health-related outcomes: A systematic literature review. Social Science and Medicine 165: 177-186
113 An et al., 2017. Influence of Neighbourhood Safety on Childhood Obesity: A Systematic Review and Meta-analysis of Longitudinal Studies. Obesity Reviews. Nov;18(11):1289-1309
114 ONS, 2018. Victims of Crime
115 Independent, 2017. Ethnic minorities most likely to be both victims and suspects of crime, UK race report finds. Available at: https://www.independent.co.uk/news/uk/home-news/ethnic-minorities-crime-victims-perpetrators-uk-race-report-a7993521.html
116 Centre for Crime and Justice Studies – Roberts & McMahon, 2008. Ethnicity, harm and crime
117 TfL, 2019. 'Travel in London: understanding our diverse communities'
118 Siegler, V. and Office for National Statistics, 2014. Measuring Social Capital, Office for National Statistics
119 Nieminen, T., Prattala, R., Martelin, T., Harkanen, T., Hyyppa, M., Alanen, E. and Koskinen, S., 2013. Social capital, health behaviours and health: a population-based associational study, BMC Public Health

11.50 The evidence linking crime, community safety, and social cohesion to health and wellbeing is strong.

Access to play/open space, nature, and amenity space

11.51 There is a large body of literature on the links between health and wellbeing outcomes and access to green space. A systematic review by Keijezer et al. in 2016[120] evidenced an association between long-term exposure to green space and cognition. The evidence shows that exposure to 'greenness' among children was positively associated with educational attainment and school performance. There is also a consistent positive link between exposure to green space and cognition for adults. Further evidence of the link between green space and health benefits was found by O'Brien et al. in 2010,[121] particularly through promoting increased physical activity.

11.52 Focusing on the impacts to children, a literature review by McCormick[122] concluded that access to green spaces promoted competence, self-discipline, attention restoration, memory and was associated with higher standardised test scores.

11.53 The review by O'Brien[123] at al also identified key health benefits of green space have been found to be: both long and short-term physical benefits associated with obesity and life expectancy, attention and cognitive benefits associated with mood and self-esteem, and physical activity benefits, amongst other things.

11.54 Some evidence by Natural England[124] has also shown that people with poorer health benefit more from physical activity in environments with a greater proportion of green spaces than people with better health. Open spaces can be particularly beneficial for disabled people, as they provide a safe, risk-managed environment aimed at those disadvantaged by physical and or mental difficulties. They can provide feelings of safety, relaxation, achievement and happiness, and increased self-esteem. Loss of open spaces can lead to those living with disabilities not able to realise these benefits, and could lead to adverse health outcomes.

11.55 Open space is particularly beneficial for older people as they are more bound to their direct home surroundings , and are therefore more likely to benefit from the physical and mental health advantages associated with nearby green and open spaces. As older people place more of a reliance on their local community and surroundings, the displacement of open spaces may disproportionately affect this group.

11.56 A literature review published by Croucher et al.[125] found a positive relationship between green space and general health. The review also found that the attractiveness of the greenspace is an important determination of green space use. Links to mental health are noted stating that 'studies consistently show a relationship between levels of stress and access to urban green spaces'. Experiencing green spaces has a positive impact on levels of stress.

11.57 There has been a finding that individuals from lower income backgrounds experience poor quality outdoor environments and suffer disproportionately from a lack of access to green spaces. Research conducted by Maas et al in 2006[126] has suggested that there is a

120 Keijezer, C et al., 2016. Long-term Green Space Exposure and Cognition Across the Life Course: A Systematic Review
121 O'Brien, L., Williams, K. and Stewart, A., 2010. Urban health and health inequalities and the role of urban forestry in Britain: A review, The Research Agency of the Forest Commission
122 McCormick, R., 2017. Does Access to Green Space Impact the Mental Well-being of Children: A Systematic Review
123 O'Brien, L., Williams, K. and Stewart, A., 2010. Urban health and health inequalities and the role of urban forestry in Britain: A review, The Research Agency of the Forest Commission
124 Natural England, 2016. Links between natural environments and physical activity: evidence briefing.
125 Croucher, K., Myers, L., and Bretherton, J., 2007. The links between greenspace and health: a critical literature review, Greenspace Scotland
126 Maas, J., Verheij, R., Groenewegen, P., de Vries, S. and Spreeuwenberg, P., 2006. Green space, urbanity and health: how strong is the relation? Journal of epidemiology and community health

positive association between the proportion of green space in a residential area and the general health of residents (perceived by themselves), and that this relationship is strongest among lower socio-economic groups. In areas where 90% of the environment around the home is green, 10.2% of the residents felt unhealthy, compared to where 10% of the environment is green and 15.5% of residents felt unhealthy.

11.58 Similarly, to the health impacts of open space, access to children's play space has been routinely linked to positive health outcomes, and particularly through the mechanism of increasing physical activity. Natural England have produced a review of evidence on the link between access to play space and physical activity.[127] The review concludes that physical activity within natural environments contributes to increased energy, positive community engagement, and decreases in tension, anger, and depression.

11.59 The evidence linking access to open and play spaces and nature to health and wellbeing is strong.

Access to healthy food

11.60 A study[128] by researchers at the University of Cambridge has found that increased exposure to fast food outlets, particularly around work, is associated with increased fast food consumption and marginally increased BMI. People most exposed to takeaway food outlets at work consumed an additional 5.3g per day of takeaway food compared to those least exposed. At home people in the most exposed areas ate 4.9g per day more than those least exposed. The research controlled for possible confounders, including age, sex, household income, educational level, car ownership daily energy intake and smoking status.

11.61 A review of studies[129] has found that fast food consumption and out-of-home eating behaviour is a main risk factor for lower diet quality, higher calorie and fat intake and lower micronutrients density of diet. Frequent consumption of fast foods was accompanied with overweight and abdominal fat gain, impaired insulin and glucose homeostasis, lipid and lipoprotein disorders, induction of systemic inflammation and oxidative stress. Higher fast food consumption also increases the risk of developmental diabetes, metabolic syndrome and cardiovascular disease.

11.62 About 17% of all households surveyed in a study indicated that groceries put a strain on their finances. Food is a key component of household budgets and low income has been linked to the lack of a nutritious, healthy diet.[130]

11.63 The evidence linking access to (un)healthy foodstuffs to health and wellbeing is judged moderate.

Air quality

11.64 Air Quality England[131] defines outdoor air pollution as 'a mixture of gases and particles that have been emitted into the atmosphere by man-made processes' that have an adverse effect on human health. The WHO recognises that outdoor air pollution is a major environmental health problem for all countries in the world.[132]

127 Natural England, 2016. Natural England Access to Evidence Information Note EIN019; Links between natural environments and physical activity: evidence briefing.
128 Bourgoine, Forouhi, Griffin, Wareham & Monsivais, 2014. Associations between exposure to takeaway food outlets, takeaway food consumption, and body weight in Cambridgeshire, UK: population based, cross sectional study, British Medical Journal
129 Bahadoran, Mirmiran & Aizizi, 2015. Fast food pattern and Cardiometabolic Disorders: A Review of Current Studies, Health Promot Respect 5(4), 231-240
130 Corfe, Scott, 2018. What are the barriers to eating healthily in the UK?
131 Air Quality England, no date. Available at: http://www.airqualityengland.co.uk/air-pollution
132 WHO Topic Sheet, 2018. Ambient (outdoor) air quality and health. Available at: https://www.who.int/newsroom/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health

11.65 The primary air pollutants are particulate matter (PM) and nitrogen dioxide (NO2). Air pollution is estimated to cause as many as 40,000 deaths a year. By 2035, it is estimated that the health and social care costs of air pollution could reach up to £18.6 billion.[133] There is also estimated to be a rise in diseases that have a strong association with air pollution such as child asthma, coronary heart disease, stroke and lung cancer. Much of this pollution comes from off-road machinery and static engines such as power generators, associated with activities such as demolition and earthworks.

11.66 The main pollutants PM and NO2 can reduce lung function for certain individuals and would have a disproportionate impact on children because their lung function doesn't finish developing until they mature into adulthood. They are therefore more sensitive to respiratory illness, as children are more vulnerable to breathing polluted air than adults.[134]

11.67 Older people (especially those with existing respiratory conditions) are likely to be particularly affected by changes in air quality. Guidance published by the Department for Environment, Food and Rural Affairs (DEFRA) highlights that older people are more likely to suffer from cardiovascular and respiratory conditions than the general population,[135] making them more susceptible to poor air quality impacts. Similarly, people who have pre-existing health conditions may be at increased risk of becoming ill and/or needing treatment.[136]

11.68 The WHO cites that 4.2 million premature deaths occur every year across the world due to outdoor air pollution. Estimates published in 2016 show that 58% of outdoor air pollution-related premature deaths were related to ischaemic heart disease and strokes.

11.69 Within the UK, air pollution is estimated to result in almost 23,500 deaths per year.[137] Both PM and NO2 were found to be associated with adverse health effects at concentrations that were 'at or below the current EU limit values'.

11.70 A policy review by the UK Health Alliance on Climate Change in 2018 noted that transport is a major cause of air pollution.[138] Emissions from road transport in 2016 accounted for 12% of PM10 and PM2.5 emissions in the UK and were the third largest source, with the other two sources for PM being industrial processes such as coal burning, and combustion in residential, public, commercial and agricultural sectors.[139]

11.71 Further studies find that poor air quality is the largest environmental risk to public health in the UK.[140] Long-term exposure to air pollution over a lifetime has been shown to reduce life expectancy due to respiratory and cardiovascular disease. Short-term exposure has been shown also to have health effects on lung function and increases in respiratory and cardiovascular hospital admissions.

133 UK Health Alliance on Climate Change, 2018. Moving Beyond the Air Quality Crisis. Realising the health benefits of acting on air pollution. Available at: http://www.ukhealthalliance.org/wpcontent/uploads/2018/10/Moving-beyond-the-Air-Quality-Crisis-4WEB-29_10-2018-final-1.pdf
134 British Lung Foundation, 2016. How air pollution affects your children's lungs. Available at: https://www.blf.org.uk/support-for-you/risks-to-childrens-lungs/air-pollution
135 DEFRA, 2013. 'Effects of air pollution'.
136 Department for Environmental Food and Rural Affairs, 2013. 'Guide to UK Air Pollution Information Resources'.
137 DEFRA and Public Health England, 2017. Air Quality. A briefing for Directors of Public Health. Available at: https://laqm.defra.gov.uk/assets/63091defraairqualityguide9web.pdf
138 UK Health Alliance on Climate Change, 2018. Moving Beyond the Air Quality Crisis. Realising the health benefits of acting on air pollution. Available at: http://www.ukhealthalliance.org/wpcontent/uploads/2018/10/Moving-beyond-the-Air-Quality-Crisis-4WEB-29_10-2018-final-1.pdf
139 DEFRA, 2018. Clean Air Strategy 2018
140 Public Health England, 2018. Guidance: Health Matters: air pollution. Available at: https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution

11.72 A report on air quality, health, wellbeing and behaviour[141] has shown that outdoor air pollution can influence productivity and have undesired social costs such as contributing to days off due to bad health.

11.73 Increased levels of PM are damaging even at low levels to those whose lungs are not functioning at a healthy capacity.[142] These individuals are at an increased risk of air quality effects.

11.74 The evidence linking air quality to health and wellbeing is strong.

Noise and vibration

11.75 The WHO[143] say that: "excessive noise seriously harms human health and interferes with people's daily activities at school, at work, at home and during leisure time. It can disturb sleep, cause cardiovascular and psychophysiological effects, reduce performance and provoke annoyance responses and changes in social behaviour". The report finds that one in five Europeans are regularly exposed to sound levels at night that could significantly damage health.

11.76 A publication from the European Commission in 2015[144] notes that 'living in a quiet area has a positive impact on health'. This study assessed the quality of life for people living in quiet and noisy locations and found that those who lived in quiet locations had a better quality of life. The report finds that long-term exposure to environmental noise can affect people's health in other ways too, notably stress hormones are released and sleep is disturbed.

11.77 Some vulnerable groups are more at risk from exposure to environmental noise relative to healthy adults. The literature is fairly limited, apart from a literature review by van Kamp and Davies in 2013[145] which focused on children, the elderly, and children with autism and ADHD. The most common health effects cited in this literature review were annoyance, sleep disturbance, cardiovascular disease, cognitive effects and effects on hearing. Risk groups most effected by environmental noise were children, older people, chronically ill people and those with hearing impairments.

11.78 WHO has recently published guidelines on Environmental Noise for the European Region.[146] The systematic reviews concluded that there was evidence for an association of road traffic noise on cardiovascular disease, sleep disturbance, annoyance, and cognitive impairment, all of which have an effect on health.

11.79 Because of its role in sleep disturbance, some studies suggest that night-time noise has a greater impact on health than day-time noise.[147] In accordance with the WHO, noise levels, both in the day and night, that exceed 55dBA increase the risk of adverse health effects occurring, and many people have to adapt their lives to cope with the noise at night.[148]

141 IOM Working for a Healthier Future. Scotland's Environment, 2015. Air Quality, Health, Wellbeing and Behaviour. Available at: https://www.environment.gov.scot/media/1133/iom-seweb-aq-healthbehaviour-review.pdf
142 London Low Emission Construction Partnership, no date. 'Health impacts from construction emissions: Sources and health impacts of construction generated pollution'. Available at: http://www.clec.uk/worker-exposure/health-impacts-construction-emissions
143 World Health Organization, 2017. Noise. Available at: http://www.euro.who.int/en/health-topics/environment-and-health/noise/noise.
144 European Commission, Science for Environment Policy, Thematic issues: Noise impacts on health, 2015. Available at: http://ec.europa.eu/environment/integration/research/newsalert/pdf/47si.pdf.
145 van Kamp, I. and Davies, H., 2013. Noise and health in vulnerable groups: A review, Noise and Health
146 World Health Organisation Regional Office for Europe, 2018. Environmental Noise Guidelines for the European Region. Available at: http://www.euro.who.int/__data/assets/pdf_file/0008/383921/noise-guidelines-eng.pdf?ua=1
147 Münzel, T., et al., 2014. 'Cardiovascular effects of environmental noise exposure'. European Heart Journal.
148 World Health Organisation, 2011. 'Burden of disease from environmental noise Quantification of healthy life years lost in Europe'.

11.80 Changes in noise exposure can have disproportionate effects on those living with epilepsy through acting as an additional trigger which may cause a seizure.[149] Some seizures for epileptic people are triggered by noise exposure which may have adverse effects on health such as loss of consciousness.[150]

11.81 The evidence linking noise and vibration to health and wellbeing is judged moderate.

Neighbourhood amenity

11.82 Neighbourhood amenity refers to the overall quality of the physical environment, both private and public. Construction of the Proposed Development will impact on neighbourhood amenity through construction vehicle use of the transport network, impacts on air quality from construction dust and construction vehicle emissions, and through noise and vibration impacts. The operational phases of the Proposed Development will impact on neighbourhood amenity through residents' use of the local transport network, impacts on air quality from their transport options, and the noise impacts of new residents.

11.83 There is evidence of links between the quality of places and health and wellbeing. The Landscape Institute found that health and wellbeing could be influenced by factors such as the attractiveness, noise, air and other pollution, and the perceived safety of an environment.[151] Individuals of more scenic environments report better health across urban, rural, and suburban areas, even when taking socio-economic indicators of deprivation into account, such as income, employment and access to services.[152]

11.84 Road safety is one aspect of neighbourhood amenity. As discussed earlier, road safety has a much wider impact on health than just preventing injuries', because some forms of travel (e.g. walking and cycling) bring more health benefits for individuals and society than others, and people in environments with better road safety walk and cycle more. Increased life expectancy is one of the outcomes from an increase in road safety and consequently active travel. Families with low incomes tend to enjoy lower mobility and are disproportionately living in areas with lower environmental quality, so that the relative inaccessibility of an area can exacerbate problems related to neighbourhood amenity.[153]

11.85 The primary air pollutants are particulate matter (PM) and nitrogen dioxide (NO2). Air pollution is estimated to cause as many as 40,000 deaths a year.

11.86 As discussed under the literature review for noise and vibration effects, noise and vibration can lead to annoyance, as well as to disturbed sleep patterns, which can negatively impact health.

11.87 The strength of the links between neighbourhood amenity and human health are judged moderate.

149 The Catholic University of America, 2014. Seizuer Disorders. Available at: http://dss.cua.edu/Providing%20Equal%20Access%20in%20the%20Classroom/seizuredisorders.cfm
150 Genetics Home Reference, 2019. Autosomal dominant partial epilepsy with auditory features
151 Landscape Institute, 2013. Public Health and Landscape – Creating healthy places
152 Seresinhe, C., Preis, T. & Moat, H., 2015. Quantifying the Impacts of Scenic Environments on Health, Scientific Reports
153 WHO, 2012. Addressing the social determinants of health: the urban dimension and the role of local government

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