

## **Appendix I1**

### **Health**

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# I1 Health assessment methodology

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## I1.1 Introduction

**I1.1.1** The health assessment applies the established principles and methods of health impact assessment (HIA). A HIA is based on the ‘wider determinants of health’ model<sup>1</sup>, recognising that health is determined by a wide range of environmental, social and economic factors known as ‘health determinants’. The assessment is therefore based on a broad definition of health which includes both physical and mental health and wellbeing. It considers the potential effects on health outcomes resulting from impacts on a range of health determinants. The health determinants that have been scoped in the health assessment are set out in Section 12 of the ES and are restated with definitions of each health determinant in Table 1.

## I1.2 Baseline methodology

### Study area

**I1.2.1** The study area is comprised of four geographic scales, as shown in Figure 1 and described in Appendix I2 in detail.

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<sup>1</sup> The wider determinants of health are a diverse range of social, economic and environmental factors which influence people’s mental and physical health. Variation in people’s experience of wider determinants of health is considered the fundamental cause of health outcomes. Further information about wider determinants of health is Available at: <https://www.gov.uk/government/publications/health-profile-for-england-2018/chapter-6-wider-determinants-of-health> [Accessed 28 March 2020] and Available at: <https://fingertips.phe.org.uk/profile/wider-determinants> (Accessed 28 March 2020).

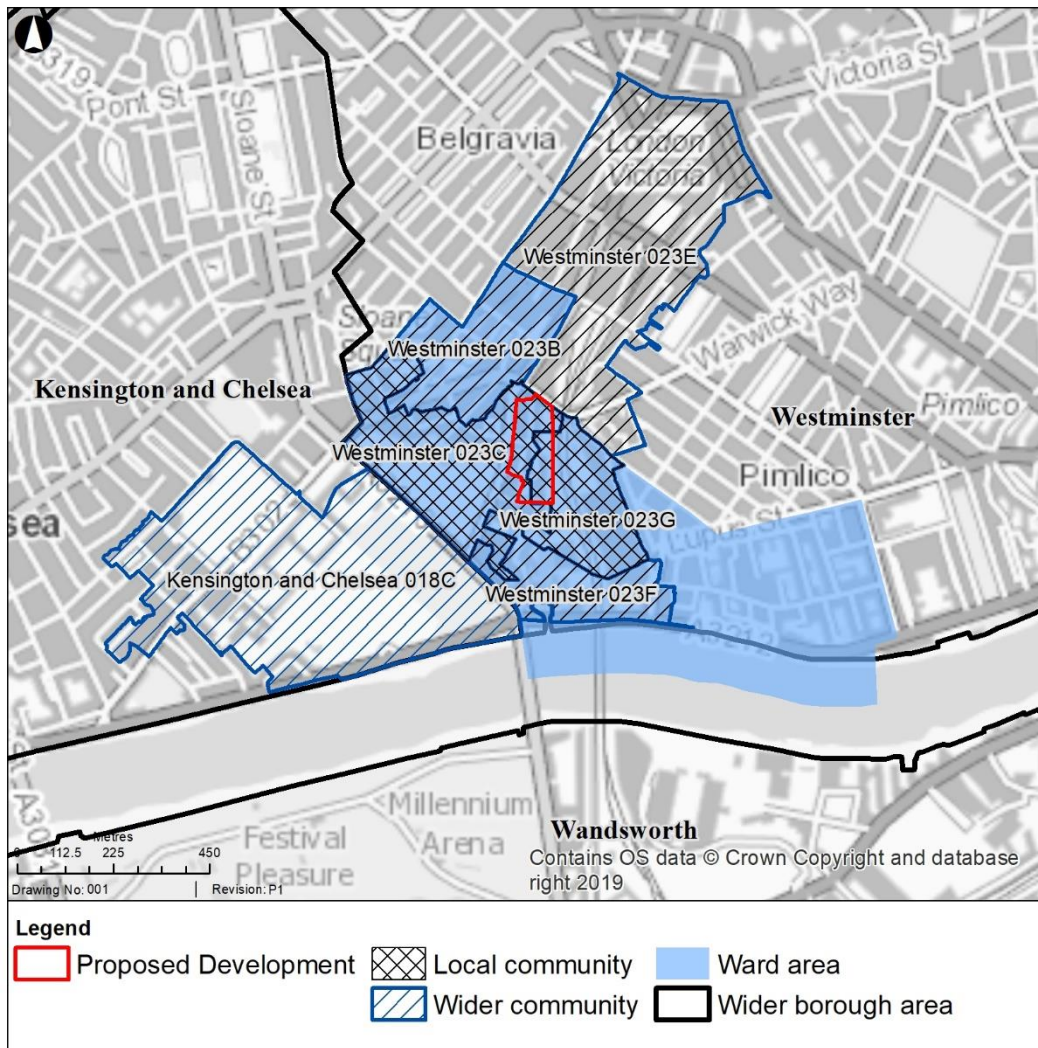


Figure 1 Study area for health assessment

### Community profile

**I1.2.2** Baseline data has been collected for the health assessment study area for the Proposed Development. The study area is based on the spatial distribution of the likely environmental and economic impacts on health determinants of the Proposed Development and the location of sensitive receptors or population groups.

**I1.2.3** The population profile includes data and information about:

- demographics: population density, age profile, ethnic diversity;
- social and economic characteristics: employment, income, deprivation; and
- health characteristics: life expectancy, health and wellbeing indicators for adults and children.

**I1.2.4** Data has been obtained from publicly available sources including: Office of National Statistics (ONS) Census data, 2011<sup>2</sup>, Indices of Multiple Deprivation

<sup>2</sup> ONS, 2011. Census. Available from: <https://www.ons.gov.uk/census/2011census>

(IMD) 2019<sup>3</sup>, Public Health England (PHE) Fingertips PHE Health Profile for Westminster (2018)<sup>4</sup>; Joint Strategic Needs Assessment<sup>5</sup>, relevant local policy and strategy documents the Health and Wellbeing Strategy for Westminster (2017 – 2022<sup>6</sup>) and the Churchill Ward Profile 2018<sup>7</sup>.

**I1.2.5** This baseline data and information has been checked for consistency with the existing Draft Equality Impact Assessment (EqIA) (April 2020) and the Socio-economic baseline report (November 2017), as well as the baseline data used for the Socio-economic assessment of the Proposed Development (Section 15 of the ES).

### **Evidence base**

**I1.2.6** Publicly available literature has been reviewed to identify evidence linking health determinants with health outcomes. This has formed the basis of the qualitative assessment of health effects of the Proposed Development.

**I1.2.7** The evidence review establishes the links between health determinants and health outcomes during construction and operation. It is provided in Appendix I3.

### **Baseline and assessment years**

**I1.2.8** The baseline assessment is based on the most up to date, publicly available data, that ranges in publication from 2011 (when the last census was conducted) to 2020. Due to the rate of demographic change expected in this part of London, it is not expected that this range in publication years would materially impact the assessment. This baseline also reflects the worst-case scenario. In reality, at the start of construction (mid-2021), Phase 1 of the site will have been decanted, the meanwhile use will be in situ and demolition of the following buildings will have taken place (Wellesley, Wainwright, Hillersdon, Dalton, Mercer and Pimlico Houses).

**I1.2.9** The assessment considers the construction phase to be 2021 – 2028, which covers construction of the Detailed Area and Outline Area, as this represents a reasonable worst-case scenario for construction effects. However, it is acknowledged that the magnitude of some construction impacts will be greater for existing residents of blocks not yet demolished during construction of the Detailed Area, and new residents of completed blocks during construction of the Outline Area, this will be considered in the assessment.

**I1.2.10** The future baseline year for the health assessment is 2028. This refers to what the baseline would be in 2028 with no development but with the demolition of the six buildings under the Prior Approval (Wellesley, Wainwright, Hillersdon, Dalton, Mercer and Pimlico Houses). For the purpose of the health assessment,

<sup>3</sup> Available from: <https://dclgapps.communities.gov.uk/imd/idmap.html>

<sup>4</sup> Available from: <https://fingertips.phe.org.uk/profile/health-profiles>

<sup>5</sup> Available from: <https://fingertips.phe.org.uk/profile-group/mental-health/profile/MH-JSNA/data#page/1/gid/1938132922/pat/6/par/E12000007/ati/102/are/E09000033>

<sup>6</sup> Available from: <https://www.westminster.gov.uk/sites/www.westminster.gov.uk/files/uploads/joint-he.pdf>

<sup>7</sup> Available from: <https://www.westminster.gov.uk/sites/default/files/churchill-ward-profile.pdf>

in terms of population at a community level, this future baseline is not expected to be materially different from the 'baseline year', however, population projections and trends from publicly available sources have been used in this assessment to account for expected changes to local demographics.

**11.2.11** The assessment considers the operational phase to be 2028 onwards, following full build out, as this represents a reasonable worst-case scenario for operational effects. However, it is acknowledged that operational effects will be experienced by new residents of completed blocks in the Detailed Area, during construction of the Outline Area and this will be considered in the assessment.

**11.2.12** Climate change impacts have been integrated into our assessment of relevant health determinants as set out in paragraph 11.3.5 below.

## **11.3 Assessment scope**

**11.3.1** The health assessment methodology is consistent across construction and operational effects.

**11.3.2** The health assessment has been based on the NHS London Healthy Urban Development Unit (HUDU) Rapid Health Impact Assessment Tool<sup>8</sup> and the IMPACT Urban Health Impact Assessment Methodology<sup>9</sup>. The HUDU tool is designed to assess the likely health impacts of development plans and proposals and identifies those determinants of health which are likely to be influenced by a specific development proposal. The IMPACT methodology sets out a process for assessing health effects and improving health outcomes.

**11.3.3** Table 1 shows the health determinants scoped into the assessment, defining each health determinant and highlighting any minor changes in scope (in **bold** text) which have arisen during the assessment. These are based on the health determinants outlined in the HUDU tool.

**11.3.4** The changes in scope present a structural change only and have not influenced the outcome or scope of the assessment. For example, the potential effects that were to be assessed as 'existence' effects under housing quality and design, were actually assessed under operation as it was deemed that the mere existence of these factors (i.e. the existence of additional affordable housing), without their operational elements (i.e. the existence and availability of improved affordable housing being used by the community), would not result in health outcomes to people.

**11.3.5** Climate change impacts have been integrated into the assessment of relevant health determinants 'Housing quality and design', 'Access to open space and nature' and 'Accessibility and active travel'.

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<sup>8</sup> Available from: <https://www.healthyrbandevelopment.nhs.uk/wp-content/uploads/2017/05/HUDU-Rapid-HIA-Tool-3rd-edition-April-2017.pdf> [Accessed on 23 September 2019]

<sup>9</sup> Dreaves H, Pennington A, Scott-Samuel A (2015) Urban Health Impact Assessment methodology (UrHIA). Liverpool: IMPACT, University of Liverpool. [www.healthimpactassessment.co.uk](http://www.healthimpactassessment.co.uk) ]

Table 1 Scope of assessed health determinants

Health determinant scoped in and what it covers	Construction	Existence	Operation
<p><b>Housing quality and design</b></p> <p>Includes layout, orientation, internal space standards, insulation and ventilation (noise, cold weather/hot weather performance), responsive to range of local housing needs, adaptability for older and disabled people, energy and water efficient, adequate space for recycling and food waste composting. Incorporates climate change impacts.</p>	n/a	n/a – scoped out	✓ - scoped in
<p><b>Access to healthcare services and other social infrastructure</b></p> <p>Includes access to healthcare services, community centres, childcare, nurseries, schools, libraries, care homes.</p>	n/a	n/a – scoped out	✓
<p><b>Access to open space and nature</b></p> <p>Includes access to public open space and residents' only space, green space, play space, provision of shade and shelter, useable in all weather and seasons.</p> <p>Incorporates climate change impacts.</p>	✓	n/a	✓
<p><b>Air quality, noise and neighbourhood amenity</b></p> <p>Includes physical environmental factors e.g. improving air quality and landscape and visual impacts, and reducing noise and traffic impacts.</p> <p>N.B. Neighbourhood amenity is defined as 'the character and attractiveness of the physical environment and public realm within a neighbourhood'. A neighbourhood amenity effect occurs where there are two or more noticeable changes in either air quality, noise, traffic, landscape and visual impacts. When these environmental factors are altered, people's level of satisfaction with their living environment may change, which in turn may affect their wellbeing.</p>	✓	n/a	✓
<p><b>Accessibility and active travel</b></p> <p>Includes enabling and encouraging walking and cycling, connectivity to strategic routes and public transport for all ages and abilities, encouraging low carbon travel options.</p> <p>Incorporates climate change impacts.</p>	✓	n/a	✓
<p><b>Crime reduction and community safety</b></p> <p>Includes designing out crime, provision of community resources and activities to discourage anti-social behaviour</p>	n/a	✓	✓
<p><b>Access to healthy food</b></p> <p>Includes food growing space, shops and cafes/restaurants which include healthy food options.</p>	n/a	n/a	✓
<p><b>Access to work and training</b></p> <p>Includes access to training and employment resources and opportunities relevant to local residents.</p>	✓	n/a	✓
<p><b>Social cohesion and inclusive design</b></p> <p>Includes provision of public open spaces and community facilities for all ages and abilities, including voluntary and community sector organisations, enabling and encouraging social cohesion.</p>	n/a	n/a – scoped out	✓

## I1.4 Assessment of health impacts, effects and significance

**I1.4.1** The health assessment focuses on the impacts of the Proposed Development on the health determinants set out in Table 1 in this Appendix, and then on a qualitative assessment of the potential health effects on the population within the study area (see Figure 1) informed by the population profile (Appendix I2)

**I1.4.2** Each impact on each health determinant was assessed using professional experience, informed by available evidence (Appendix I3) on how the impact affects different population groups, including vulnerable groups.

**I1.4.3** The approach for defining significance of health effects considers the magnitude of impacts on health determinants arising during construction and operation, and the sensitivity of the population exposed to these impacts. A summary of the approach is provided above, with the full set of criteria provided below.

### Magnitude of impact

**I1.4.4** The magnitude of an impact on a health determinant and/or community resource has been assessed on a scale of high, medium, low and very low and may be either beneficial or adverse. Table 2 provides guidance on the criteria used to determine the magnitude of impact. This guidance has been applied using professional judgement.

Table 2 Guidelines for the assessment of magnitude of health impacts

Magnitude	Guidelines for magnitude of impact on health determinants
<b>High</b>	A substantial change to a health determinant, with two or more of the following characteristics: <ul style="list-style-type: none"> <li>assessed as ‘major’ by relevant environmental topics (where applicable<sup>10</sup>);</li> <li>likely to be perceived by the population as a substantial change;</li> <li>has the potential to affect the occurrence of acute or chronic mental or physical illness;</li> <li>long term duration or permanent (judgements on timescales are dependent on nature of impact).</li> </ul>
<b>Medium</b>	A change to a health determinant, with two or more of the following characteristics: <ul style="list-style-type: none"> <li>assessed as ‘moderate’ by relevant environmental topics (where applicable*);</li> <li>likely to be perceived by the population as a change;</li> <li>has the potential to improve / reduce mental wellbeing or quality of life, or exacerbate / alleviate symptoms of existing illness;</li> <li>medium to long-term duration.</li> </ul>
<b>Low</b>	A modest change to a health determinant, with two or more of the following characteristics: <ul style="list-style-type: none"> <li>assessed as ‘minor’ by relevant environmental topics (where applicable*);</li> <li>likely to be perceived by the population as a modest change;</li> <li>has the potential to lower or raise wellbeing in terms of levels of comfort and contentment;</li> <li>short to medium term duration</li> </ul>
<b>Very low</b>	A ‘very low’ magnitude of impact is likely to be perceptible and localised. It may have the potential to lower or raise wellbeing in terms of levels of comfort and contentment.

<sup>10</sup> \*Note that other EIA topics’ assessment results are not always relevant to the health assessment. For example, a ‘major’ effect identified by a topic for an individual receptor would not necessarily constitute a major change to a health determinant. However, other topic assessments may assist with judgements made about the magnitude of impacts. Professional judgement is required when using information from other topics in the health assessment.



## Sensitivity of population

**11.4.5** Sensitivity is defined by the size of the population exposed to an impact and its vulnerability to health effects. Table 3 sets out guidelines for the assessment of population exposure and vulnerability for the health assessment. Table 4 shows how these two factors are combined to give a rating of sensitivity.

Table 3 Guidelines for the assessment of population vulnerability and exposure for health assessment.

Rating	Guidelines on vulnerability of population (for health assessment)	Guidelines on size of population exposed
<b>High</b>	Affected population includes a higher than national average proportion of vulnerable or disadvantaged groups who are more likely to experience adverse health effects as a result of the impact in question.	A high level of exposure would occur over a wide geographical area and/or be likely to affect a large number of people (e.g. over 500).
<b>Medium</b>	Affected population includes an average or close to average proportion of vulnerable or disadvantaged groups who are more likely to experience adverse health effects as a result of the impact in question.	A medium level of exposure would occur over a relatively localised area and/or be likely to affect a moderate-large number of people (e.g. 100-500).
<b>Low</b>	Affected population includes a below average proportion of vulnerable or disadvantaged groups who are more likely to experience adverse health effects as a result of the impact in question.	A low level of exposure would cover a small area and/or affect a small number of people (e.g. fewer than 100).
<b>Very Low</b>	Not applicable (no population is considered to be vulnerable to health effects).	A very low level of exposure would affect a small number of individuals.

Table 4 Population sensitivity matrix for health assessment.

Population exposure	Population vulnerability			
	High	Medium	Low	Very low
<b>High</b>	High	High	Medium	Low
<b>Medium</b>	High	Medium	Low	Low
<b>Low</b>	Medium	Low	Low	Very low
<b>Very low</b>	Low	Low	Very low	Very low

## Assessment of significance

**11.4.6** The matrix used for the assessment of the significance of health effects is provided in Table 5.

Table 5 Significance of health effects matrix.

Magnitude of impact	Population / receptor sensitivity			
	High	Medium	Low	Very low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Minor
Low	Moderate	Minor	Minor	Negligible
Very low	Minor	Minor	Negligible	Negligible

**I1.4.7** Generally, major and moderate effects are considered to be significant, whilst minor and negligible effects are considered to be not significant. However, professional judgement has also been applied where necessary.

### Mitigation and recommendations

**I1.4.8** Where necessary, measures have been included to mitigate significant adverse health effects. It is expected that these measures will be implemented.

**I1.4.9** In addition, recommendations have been made to improve the health outcomes of the Proposed Development. These would improve health outcomes but need not necessarily be implemented.

## I1.5 Cumulative effects methodology

**I1.5.1** The criteria for assessing the significance of cumulative effects are the same as those for assessing effects summarised in Section I1.4 above.

## I1.6 Assumptions and limitations

**I1.6.1** Assumptions for the health assessment are summarised below:

- The assessment of impacts on health determinants is informed by residual effects, that is, after mitigation measures have been taken into account, reported by other relevant EIA topics (e.g. air quality, townscape and visual, noise and vibration, socio-economics and transport). It is assumed that the assessment conclusions from these topics are correct. It is also assumed that any mitigation outlined by these topics would be effective.

**I1.6.2** Limitations of the health assessment are summarised below:

- The assessment of effects is supported by a review of published research relating to each of the identified health determinants, using the most up to date and credible sources. The evidence for health effects ranges from strong, where this is well supported by research evidence, to weak, where evidence is sparse or conflicting. Consequently, professional judgement is necessary to assess the likely health effects.
- Literature and baseline data used in the health assessment is limited to readily available public and published sources.
- The health assessment can be sure about the impacts on the determinants of health, but there is less certainty regarding the resulting health effects of that impact as it is often dependent on a range of other factors i.e. the Proposed

Development may improve opportunities for active travel, but the uptake of those opportunities by the population is less certain.

- Due to the qualitative nature of the health assessment, trends in baseline data are acknowledged in the future baseline.

## I2 Health assessment baseline

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### I2.1 Introduction

**I2.1.1** A review of publicly available data has been undertaken to provide a profile of the demographic and health status of the population in the study area around the Ebury Bridge Estate, located in the Churchill Ward within the City of Westminster in London. Refer to Section I2.1 of this appendix below for a description of the study area, and Appendix A1 (Health assessment methodology) for an explanation of how baseline data was obtained to compile the population profile.

**I2.1.2** The baseline information is structured to align with, but not completely match, the health determinants used for the health assessment (set out in Appendix A1). The presentation of the data obtained from secondary data sources has made it impossible to match completely.

### I2.2 Baseline information

#### Study area

**I2.2.1** The study area for the health assessment is based on the spatial distribution of the likely environmental and economic impacts of the Proposed Development on health determinants and the location of sensitive receptors (vulnerable groups within the population – see paragraph I2.2.1 of this Appendix). Health determinants can have different direct and indirect health effects at different geographic scales. For this reason, the study area is comprised of four geographic scales and relevant baseline data for each scale has been obtained:

- Ward area: refers to the Churchill Ward, the electoral area in which Proposed Development is located.
- Local community area: refers to the two Local Super Output Area (LSOAs) (Westminster 023C and 023G) and parts of the Churchill Ward in which the Ebury Bridge Estate is located and where the majority of direct and indirect health effects are likely to occur.
- Wider community area: refers to the local community area as well as the other four LSOAs (Westminster 023B, 023E, 023F, Kensington and Chelsea 018C) and parts of the Churchill Ward. Some indirect health effects may be felt in the wider community area.
- Wider borough area: refers to the City of Westminster, the borough in which the Proposed Development is located and the adjacent Royal Borough of Kensington and Chelsea.

**I2.2.2** Where relevant and necessary, comparison is drawn between baseline data obtained for the study area and London, England or Great Britain.

**I2.2.3** Figure 2 depicts the study area for the health assessment and shows how it is comprised of the local community area (including parts of the ward area), the wider community area (including the local area and other parts of the ward area) and the wider borough area.

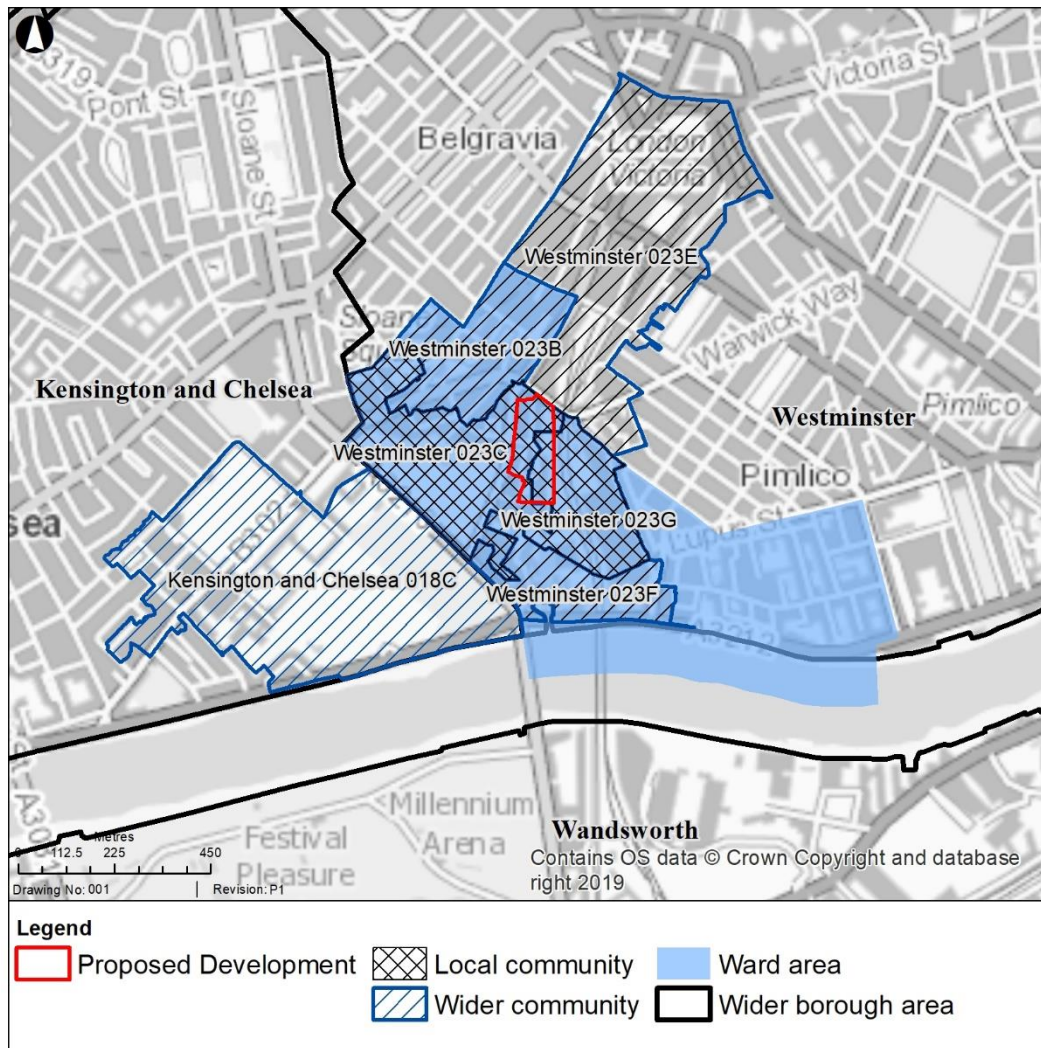


Figure 2 Study area for health assessment and the four geographic scales which comprise it

## I2.3 Population profile

### Population

**I2.3.1** According to the 2018 mid-year estimate, the population of the City of Westminster was 255,324<sup>11</sup>. Based on 2017 calculations, the population is projected to increase by 32,631<sup>12</sup> by 2042, an increase of 13.3%. This projected growth is lower than the projected growth in both the neighbouring Royal Borough of Kensington and Chelsea (15.9%) and London as a whole (19.1%)<sup>13</sup>.

<sup>11</sup> ONS, 2018. *Mid-year population estimate*. Available from: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/lowersuperoutputareamidyearpopulationestimates>

<sup>12</sup> GLA, 2017. *Trend-based population estimates: Long-term*. Available from: <https://data.london.gov.uk/dataset/gla-population-projections-custom-age-tables>

<sup>13</sup> ONS, 2017. *Mid-year population estimate*. Available from: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/lowersuperoutputareamidyearpopulationestimates>

**12.3.2** The population density of Westminster is 102.2 people per hectare<sup>14</sup>. The population density of the local community area is 148.3 people per hectare. However, there is a significant difference in density between the two Lower Super Output Areas (LSOAs) that comprise the local community area (023C and 023G: 102.8 and 239.1 people per hectare, respectively). In addition, the density of the local community area is higher than that of the wider community area, Westminster and London (87.3, 102.2 and 52.0 people per hectare, respectively). Table 6 sets out the population and densities for each LSOA within the study area.

Table 6 Population density per LSOA within study area

Geographical area	Population size	Population density (people per hectare)
Westminster 023C	1,348	102.8
Westminster 023G	1,573	239.1
Local community area	Sub-total 2,921	148.3
Westminster 023B	1,103	128.7
Westminster 023E	1,769	69.0
Westminster 023F	990	168.9
Kensington and Chelsea 018C	1,250	38.7
Wider community area	Sub-total 5,112	70.6
All LSOAs in study area	Total 8,033	87.3

## Ethnicity

**1.1.1** The local community is ethnically diverse (see Figure 3). The local community area has a similar proportion of white residents to that of London<sup>15</sup> (59% and 60%, respectively) but a much lower proportion of white residents than the wider community area (67%). Asian and Asian-British residents comprise the largest minority group within the local community area, accounting for 14% of residents. Although the Proposed Development lies wholly within the City of Westminster, it borders the City of Kensington and Chelsea. Westminster also has a higher proportion of non-white residents (38.3%) than does Kensington and Chelsea (29.4%).

<sup>14</sup> ONS, 2011. *Census 2011: Population Density*. Available from: <https://www.nomisweb.co.uk/census/2011>

<sup>15</sup> ONS, 2011. *Census 2011: Ethnic group*. Available from: <https://www.nomisweb.co.uk/census/2011>

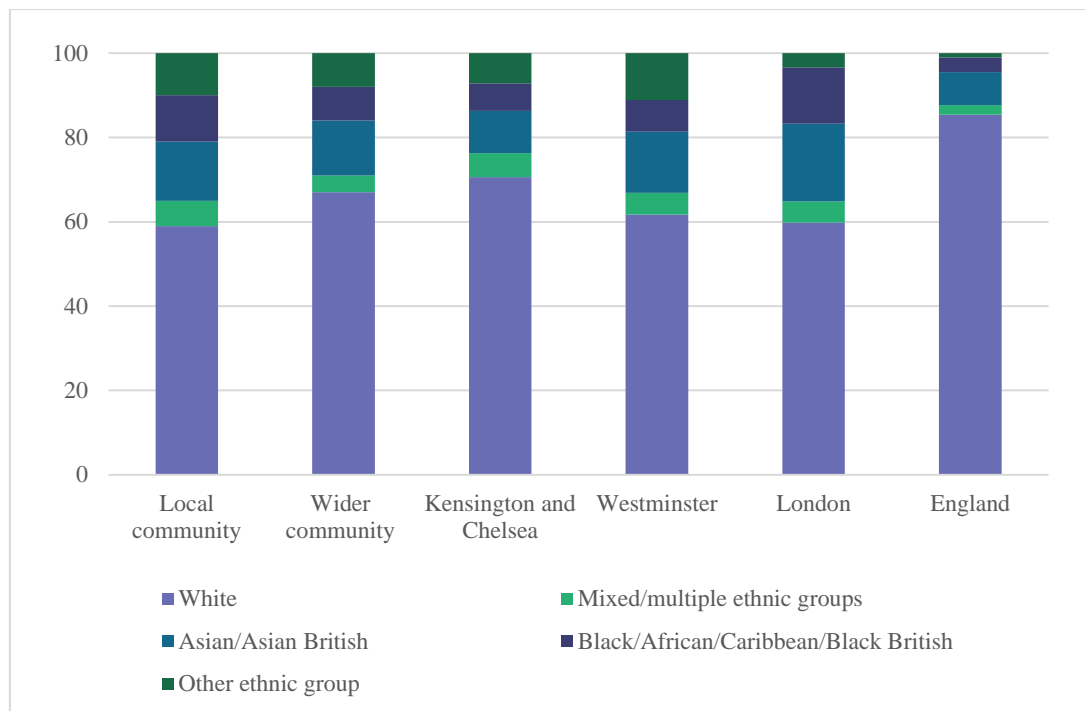


Figure 3 Ethnic community composition, expressed as a percentage of total usual residents.

## Age

**1.1.2** The local community area has a higher proportion of residents aged between five and 15 years (15%), when compared to the wider community area and Westminster (10% and 9%, respectively)<sup>16</sup> (Figure 4). It is expected that there will be smaller proportion of children and young people in Westminster by 2036<sup>17</sup>.

**1.1.3** The proportion of residents aged 65 or over is higher within the wider community area than in the local community area (18% compared to 10%, respectively)<sup>6</sup> and the borough area is rapidly ageing<sup>7</sup>.

<sup>16</sup> ONS, 2011. *Census 2011: Age Structure*. Available from: <https://www.nomisweb.co.uk/census/2011>

<sup>17</sup> City of Westminster, 2017. *Health and Wellbeing Strategy for Westminster 2017-2022*. Available from: <https://www.westminster.gov.uk/sites/www.westminster.gov.uk/files/uploads/joint-he.pdf>

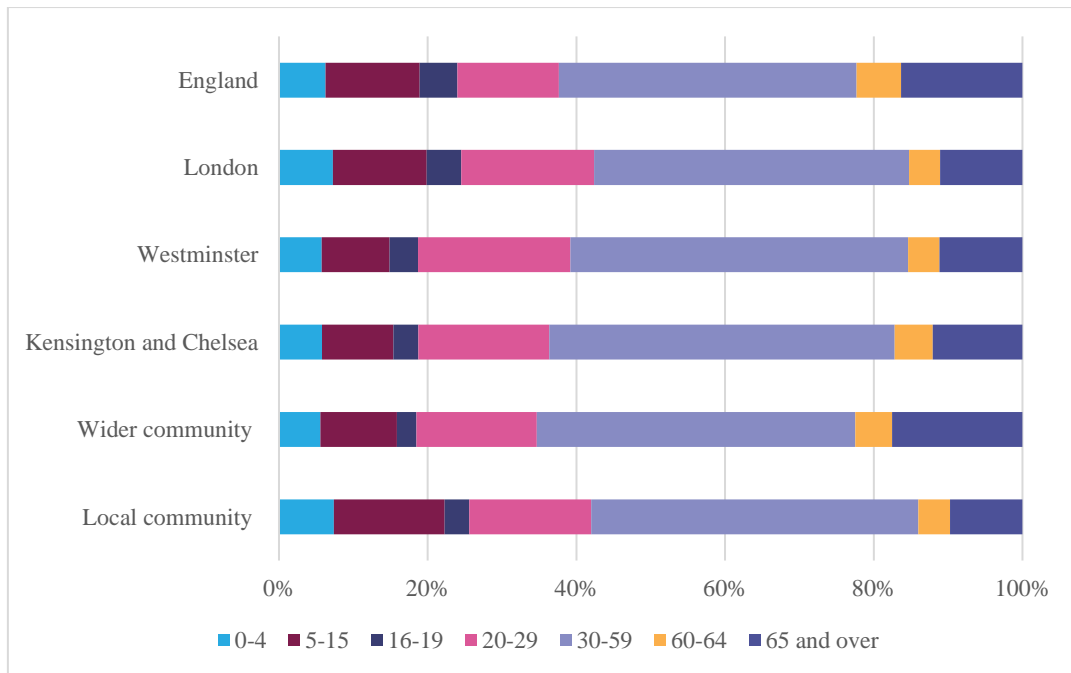


Figure 4 Population age profile

### Summary of vulnerable groups

#### I2.3.3

Table 7 summarises the most disadvantaged and/or vulnerable groups present in the study area. It should be noted that the most disadvantaged and/or vulnerable groups are those that will exhibit a number of characteristics, for example, children living in poverty. Those groups that have been included in the scope of this assessment are those that are identified as likely to be differentially affected by the Proposed Development.

Table 7 Summary of vulnerable groups

Vulnerable groups	Vulnerable sub-groups	Applicable? (Y/N)
Age related groups	Children and young people	Y
	Older people	Y
Income related groups	People on low income	Y
	Economically inactive	Y
	Unemployed	Y
Groups who suffer discrimination or other social disadvantage	People with physical or learning disabilities/difficulties	Y
	Refugee groups	N
	People seeking asylum	N
	Single parent families	N
	Religious groups	N

### Deprivation



**1.1.4** The 2019 English Index of Multiple Deprivation<sup>18</sup> (IMD) measures relative levels of deprivation at the LSOA level and is made up of seven 'domains' of deprivation (employment, health and disability, education, skills and training, crime, barriers to housing and services, and living environment). Table 8 summarises the deprivation levels for each of the LSOAs within the study area<sup>19</sup>. While overall the levels of deprivation within the local and wider communities is relatively high, depending on the indicator, there is significant variation in rankings between and within LSOAs. This pattern is consistent with this part of London, where it is not uncommon to see high levels of variation in levels of deprivation over short distances. The local community appears to be among the most deprived in the UK (Table 8). Specific deprivation indicators are discussed in their relevant sections throughout this baseline.

Table 8 Index of Multiple Deprivation 2019

	Local Community Area		Wider Community Area			
	023C	023G	023B	023E	023F	018C
Overall IMD	3	3	4	5	3	6
Income Deprivation	3	2	3	3	3	7
Employment Deprivation	2	3	3	6	3	10
Education, Skills and Training	7	6	8	10	8	9
Health Deprivation and Disability	5	6	6	7	5	10
Crime	4	7	4	8	7	3
Barriers to Housing and Services	5	2	5	4	3	2
Living Environment Deprivation	1	1	2	2	1	1

## Housing design and affordability

**12.3.4** According to the 2011 Census<sup>20</sup>, within the ward area, 23% of households were rented, 24% were owned and 50% were socially rented. 12% of the households within the ward area are considered to be overcrowded<sup>21</sup>, which is considered to be relatively high. Overcrowding levels in London are more than twice as high as the rest of England<sup>22</sup>. In London in 2014/2015, the rate of overcrowding among ethnic minority households in London was 13% compared to 5% of White households. Although not a direct comparison, these facts suggest that overcrowding within the ward is relatively high.

<sup>18</sup> ONS, 2019. *Indices of Deprivation 2019 and 2015*. Available from: <https://dclgapps.communities.gov.uk/imd/idmap.html>

<sup>19</sup> Where 1 indicates that the LSOA is within the 10% most deprived in the UK, and 10 within the 10% least deprived.

<sup>20</sup> ONS, 2011. *Census 2011: Tenure*. Available from: <https://www.nomisweb.co.uk/census/2011/ks402ew>

<sup>21</sup> City of Westminster, 2018. Churchill Ward Profile. Available from: <https://www.westminster.gov.uk/sites/default/files/churchill-ward-profile.pdf>

<sup>22</sup> Trust for London, 2017. *Overcrowding*. Available from: <https://www.trustforlondon.org.uk/data/overcrowding/>

- I2.3.5** The socio-economic chapter (Section 15 of the ES) states that the average household size in the City of Westminster is 2.0 persons per household, relative to the London average of 2.5. Nineteen per cent of households within the borough include a dependent child.
- I2.3.6** The median property price in Churchill was £705,000, which is less than the median property price in Westminster by 34%<sup>21</sup>.
- I2.3.7** There is a total of 336 residential units on the existing site. Two thirds of existing homes do not comply with modern space standards, 25% had dual aspect living spaces and none had any private outside space.
- I2.3.8** Additional information pertinent to our assessment is summarised as follows, based on policy targets set out in the Draft Westminster City Plan 2019-2040<sup>23</sup>:
- 35% of all new homes will be affordable across Westminster;
  - 60% of affordable units will be 'intermediate' affordable housing for rent or sale and 40% will be social rent or London Affordable Rent; and
  - 25% of all new homes are to be family sized (between 3 - 5 bedrooms).
- I2.3.9** The level of statutory homelessness in Westminster is lower than London and England; 0.7 people per 1,000 are homeless in Westminster, relative to 1.0 in London and 0.8 per 1,000 in England<sup>24</sup>.

## Health and social care services and other social infrastructure

### *Health and wellbeing*

- I2.3.10** Eighty-one per cent of residents within the local community area report good or very good health<sup>25</sup>. This is in line with the figures for Westminster and London (84% and 83%, respectively).
- I2.3.11** Within the ward area itself, 93% of the population reports to be in good health<sup>21</sup>.
- I2.3.12** The percentage of residents in the local and wider community area with a disability that limits day to day activity is 17%<sup>26</sup>. This is the same as England (17%) but higher than London (14%). The Churchill Ward Profile<sup>21</sup> states that there is a higher number of Incapacity Benefit<sup>27</sup> (IB) claimants in the ward area than when compared with the borough average.

<sup>23</sup> City of Westminster, 2019. *City Plan 2019-2040 – Regulation 19 Publication Draft (June 2019)*. Available from: [https://www.westminster.gov.uk/sites/default/files/core\\_001\\_regulation\\_19\\_publication\\_draft\\_city\\_plan\\_2019-2040\\_wcc\\_june\\_2019.pdf](https://www.westminster.gov.uk/sites/default/files/core_001_regulation_19_publication_draft_city_plan_2019-2040_wcc_june_2019.pdf)

<sup>24</sup> Public Health England, 2018. *Westminster Local Authority Health Profile*. Available from: <https://fingertips.phe.org.uk/profile/health-profiles/data#page/0/gid/1938132696/pat/6/par/E12000007/ati/101/are/E09000033/iid/11001/age/1/sex/4>

<sup>25</sup> ONS, 2011. *Census 2011: General health*. Available from: <https://www.nomisweb.co.uk/census/2011>

<sup>26</sup> ONS, 2011. *Census 2011: Long term health problem or disability by sex by age*. Available from: <https://www.nomisweb.co.uk/census/2011>

<sup>27</sup> Defined as residents with physical and mental health challenges.

- I2.3.13** Compared to neighbouring boroughs, Westminster has more people receiving mental health social care services<sup>7</sup>.
- I2.3.14** As the population of Westminster is rapidly ageing, acute diseases more common in the elderly, such as dementia and Alzheimer's, are becoming more prevalent<sup>7</sup>. Westminster has a high rate of emergency and inpatient admissions for people with dementia, accounting for a quarter of acute hospital beds. It is predicted that diagnoses of long-term conditions associated with ageing, will increase by 56% between 2013 and 2033<sup>7</sup>.
- I2.3.15** The 2018 Public Health England profile for Westminster shows that public health data for Westminster is largely reflective of that for the general population in London and England<sup>28</sup>. Some key indicators include:
- life expectancy at birth is higher in Westminster than in England for both men and women (82.7 and 86 years relative to 79.6 and 83.1 years, respectively);
  - the proportion of physically active adults in Westminster is 68.8%, slightly higher than England (66.30%);
  - the proportion of adults with excess weight in Westminster is significantly lower than England's average. 48% of adults in Westminster have excess weight, relative to 62% of adults in England;
  - the proportion of obese children aged 10 - 11 years is higher than the England average (24.40% relative to 20.10%);
  - the estimated rate of diabetes diagnosis is 57.8%, relative to 78% in England; and
  - the percentage of people killed or seriously injured on the roads is significantly higher than the England average (79.6 per 100,000 population relative to 40.8 per 100,000 population).
  - The estimated prevalence of mental health disorders **Error! Bookmark not defined.** in:
    - children aged five – sixteen is 9.6% in Westminster relative to 9.2% in England;
    - adults sixty-five or older is 11.6% in Westminster and 10.2% in England; and
    - adults sixteen and older is 18.7% in Westminster and 16.9% in England.
- I2.3.16** The Churchill Ward Profile<sup>21</sup> states that in 2017, there were 248 families in Churchill Ward that were considered Troubled Families, which comprises 7.7% of Westminster's total number of Troubled Families. Families are classified as Troubled Families when they have two or more complex needs, falling within the following six criteria: crime and anti-social behaviour, poor school attendance, children in need, worklessness or financial insecurity, domestic violence and parents or children that suffer from health problems.

### *Healthcare services*

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<sup>28</sup> Public Health England, 2018. *Westminster Local Authority Health Profile*. Available from: <https://fingertips.phe.org.uk/profile/health-profiles/data#page/0/gid/1938132696/pat/6/par/E12000007/ati/101/are/E09000033/iid/11001/age/1/sex/4>

**I2.3.17** The socio-economics chapter (Section 15 of the ES) identifies nine GP surgeries located within a one-mile radius of the Proposed Development. All of these are currently accepting new patients and collectively show an excess of 21 patients per GP. These are listed in full in Appendix L of the ES.

#### *Other social infrastructure*

**I2.3.18** Existing onsite community uses include a space of 154 sqm in Edgson House prior to demolition and a 23 sqm community gardening building.

#### **Open space and nature**

**I2.3.19** Within the existing site itself, there are two large areas of open space towards the middle and south of the site. One space between Edgson House and Hillersdon House and takes the form of open landscaping with trees and children's play space. The second large area of open space is located between Doneraile House and Cheylesmore House and takes the form of a Multi-Use Games Area.

**I2.3.20** Westminster has over 200 identified parks and open spaces across the borough, which includes large multi-functional areas, pocket parks and squares<sup>17</sup>. The Proposed Development does not lie within an area of open space deficiency<sup>29</sup>.

**I2.3.21** Existing open space on site measures 13,525 sqm and is composed of the community garden, access roads and parking, and 'ad-hoc' external spaces around the building curtilages. Therefore, the majority of this open space is poorly defined, has limited levels of usability and low biodiversity value. There is no private open space.

**I2.3.22** Westminster is able to provide more than the national average of publicly available open space, with 2.17 hectares per 1,000 resident population<sup>30</sup>. Ninety-four per cent of the ward area population is reported to be satisfied with the local parks<sup>21</sup>.

#### **Air quality, noise and neighbourhood amenity**

**I2.3.23** The IMD (Table 8) shows that residents of the local and wider community areas face significant deprivation in terms of their living environment, ranking between the top 10 and 20% most deprived LSOAs in the country. The living environment IMD indicator measures and rates the quality of local living conditions, including the quality of housing, as well as external factors such as the levels of local pollution and traffic accidents<sup>31</sup>.

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<sup>29</sup> Defined as the percentage and count of residential households within wards, with access to at least one open space by specified type of space, and the amount/proportion of each ward that is open space with and without public access. Refer to Greenspace Information for Greater London (GiGL) for analysis. Available from: <https://data.london.gov.uk/dataset/access-public-open-space-and-nature-ward>

<sup>30</sup> City of Westminster, 2018. *Greener City Action Plan 2015-2025 (Year 3 Update October 2018)*. Available from: [https://www.westminster.gov.uk/sites/default/files/greener\\_city\\_action\\_plan\\_2015-2025\\_year\\_3\\_update\\_-\\_october\\_2018.pdf](https://www.westminster.gov.uk/sites/default/files/greener_city_action_plan_2015-2025_year_3_update_-_october_2018.pdf)

<sup>31</sup> IMD definitions available from: <https://www.doorda.com/glossary/index-of-multiple-deprivation-england/?/seven-domains-of-deprivation>

**I2.3.24** The air quality chapter (see Section 5 of the ES) describes the baseline air quality levels for the site, which is summarised here. The City of Westminster declared the whole borough as an Air Quality Management Area (AQMA) due to exceedances of the annual mean NO<sub>2</sub> and the annual and daily mean PM<sub>10</sub> objectives. The adjacent RBKC has also declared the borough an AQMA. The key source of air pollution identified is road traffic emissions along Ebury Bridge Road. Air emissions from rail and industrial process are not expected to have a significant impact on air quality at the Proposed Development.

**I2.3.25** The noise and vibration chapter (see Section 14 of the ES) identifies the site as a busy urban environment where the baseline noise climate is dominated by a mixture of road traffic from Ebury Bridge Road and Ebury bridge, which border the site to the west and north respectively, and the major railway lines to the east of the site. It is not anticipated that the future baseline noise levels (2028) will change substantially.

**I2.3.26** Sensitive noise receptors have been identified as:

- Westbourne House to the north of the site;
- Ebury Place to the east of the site;
- Cheylesmore House to the south of the site; and
- Terraced properties of 20-42 Ebury Bridge Road to the west of the site.

### **Accessibility and active travel**

**I2.3.27** The Proposed Development site's inner-city location means that it is easily accessible on foot and is well connected with public transport links, as well as to the cycling network. The key routes and facilities have been identified in the draft Travel Plan (EBR-08) and relevant baseline information is summarised below. It is expected that Westminster will continue to experience a rise in daily commuters to the city, which would put pressure on transport networks and infrastructure<sup>17</sup>.

#### *Walking*

**I2.3.28** The site is directly accessible from Ebury Bridge Road, which has wide walkways, street lighting and zebra crossings (draft Travel Plan (EBR-08)).

**I2.3.29** Four pedestrian access points into the site are located on Ebury Bridge Road. The two accesses furthest to the north are for pedestrians only and are restricted in width by bollards. Footways for pedestrians are provided at two gated vehicular access points further to the south on Ebury Bridge Road.

#### *Cycling*

**I2.3.30** The site is well connected to local and strategic cycling routes. The travel plan states that much of central London, including the City of London, can be accessed within a 25-minute cycle journey of the site (see draft Travel Plan)).

**I2.3.31** There is a cycle hire docking station at the northern most point of the site. In addition, the site is located within easy reach (two kilometres or less) of Cycle Superhighway 4, Quietway 15 and National Cycle Route 4.

## *Public transport*

**I2.3.32** The draft Travel Plan states that the site is located within an area that has a Public Transport Accessibility Level (PTAL) rating of 6b, which indicates an ‘excellent’ connectivity to the surrounding network, and the highest possible score on the PTAL scale<sup>32</sup>.

**I2.3.33** The site is located approximately 650m from Victoria station, which is served by the Circle, District and Victoria lines. One other station, Sloane Square, is also located within 960m of the site. This provides access to the Circle and District lines. Step free access from the street to trains is available at Victoria station.

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<sup>32</sup> For methodology explanation, refer to: Transport for London, 2017. *Public Transport Accessibility Levels*. Available from: <https://data.london.gov.uk/dataset/public-transport-accessibility-levels>

## Crime and community safety

**I2.3.34** The IMD (refer to section 0 of this appendix) shows that the local and wider community areas experience varied levels of deprivation in terms of crime, which is not uncommon in this part of London. The City of Westminster shows high levels of reports of violent crime, with 39.9 violence offences per 1,000 population, relative to 22.9 violence offences per 1,000 population in London<sup>33</sup>.

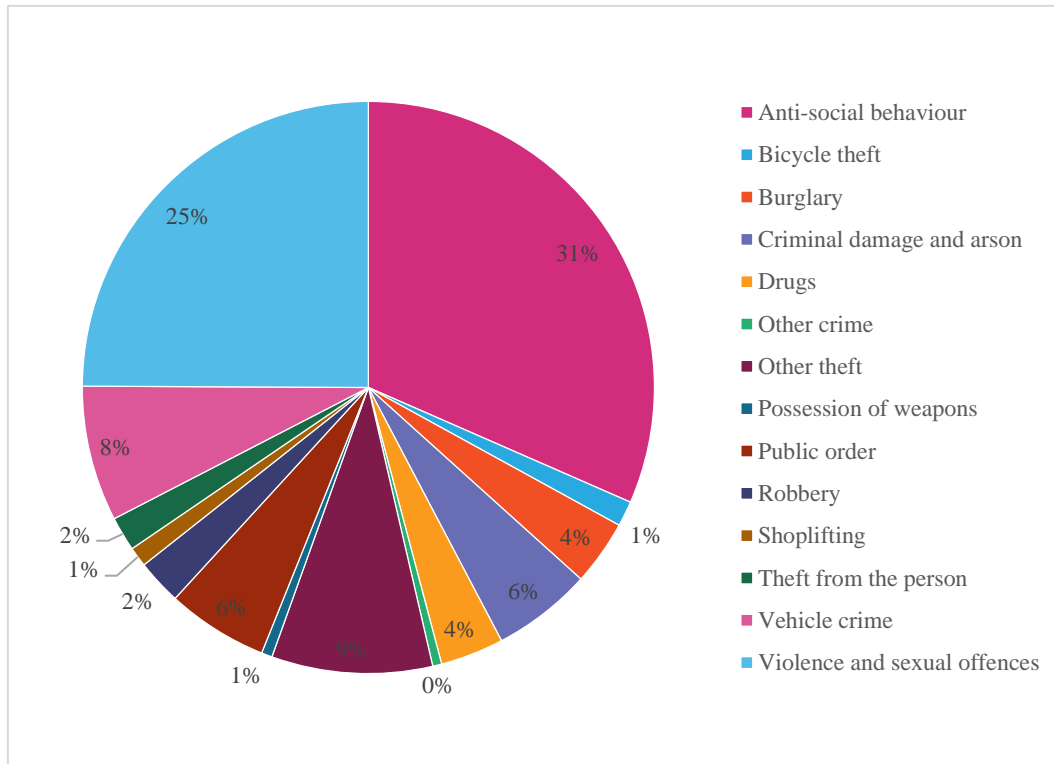


Figure 5 Types of crime recorded in Churchill Ward between July 2018 and June 2019.

**I2.3.35** Crime data was collected to understand the types of crime that occur within the ward area. The most common type of reported crime relates to anti-social behaviour, which accounts for 31% of all reported crime (Figure 5). Twenty-five per cent of crime is in the form of violence and sexual offences.<sup>34</sup>

**I2.3.36** The socio-economics section (see Section 15 of ES) refers to Metropolitan Police statistics<sup>35</sup> that show that that between January 2018 and January 2020 there were 1,464 recorded crimes in the Churchill Safer Neighbourhood area, which is lower than crime counts in the adjacent Safer Neighbourhood areas. These areas have crime counts ranging from 1,258 (Tachbrook Safer Neighbourhood area) – 6,524 (Brompton and Hans Town Safer Neighbourhood area).

<sup>33</sup> Public Health England, 2018. Westminster Mental Health and Wellbeing JSNA. Available from: <https://fingertips.phe.org.uk/profile-group/mental-health/profile/MH-JSNA/data#page/1/gid/1938132922/pat/6/par/E12000007/ati/102/are/E09000033>

<sup>34</sup> Police UK, 2018. *Detailed Statistics for Churchill*. Available from: [https://www.police.uk/metropolitan/00BK06N/crime/stats/#crime\\_stats](https://www.police.uk/metropolitan/00BK06N/crime/stats/#crime_stats)

<sup>35</sup> Metropolitan Police, 2020. *Crime data dashboard*. Available from: <https://www.met.police.uk/sd/stats-and-data/met/crime-data-dashboard/>

**I2.3.37** It is also reported that 96% of residents felt safe in Churchill Ward, 81% felt safe after dark and 33% felt that crime in their neighbourhood impacted their quality of life. This is higher than the average value for Westminster, where 19% of residents felt that crime in their neighbourhood impacted their quality of life<sup>21</sup>.

### **Access to healthy food**

**I2.3.38** The existing development includes 23 sqm of community gardening space.

**I2.3.39** Existing residents have access to a Sainsbury's Local just south of the site.

**I2.3.40** An open-air farmer's market, the Pimlico Road Farmer's Market, is within walking distance to the north of the site. This fresh-produce market is open from 9am to 1pm every Saturday.

**I2.3.41** In 2011, the proportion of residents of the local community area who were considered to consume more than five fruits and vegetables a day was proportionately lower than in Westminster (39.4% relative to 44.9%, respectively)<sup>38</sup>. The reason for this is unknown but could be due to a range of factors including; nutritional education, affordability and access.

### **Work and training**

#### Education and training

**I2.3.1** Levels of access to education, skills and training are relatively good, with the local community area in the 60th and 70th percentile of the IMD index. 39% of the residents of the local community area have a level 4 or above qualification<sup>36</sup>, which is the equivalent of a higher apprenticeship or a certificate of higher education<sup>37</sup>. Although this is in line with the London value (38%), it is far lower than Westminster (50%). It should be noted however, that the Ebury Bridge Estate Health and Wellbeing Needs Assessment<sup>38</sup> points out that the proportion of residents of the local community area that have no qualifications at all appears higher than average for Westminster but much lower than the national average.

**I2.3.2** School achievement in Westminster appears to be low, with only 28% of pupils achieving good GCSEs (Ebacc 9-5)<sup>21</sup>.

**I2.3.3** The socio-economics chapter (see Section 15 of ES) describes in detail the provision of educational facilities for early learning, primary and secondary school levels. In summary:

- There are 79 Ofsted-registered early years facilities within a two-mile radius of the Proposed Development, with an overall surplus of 74 places compared to current capacity.

<sup>36</sup> ONS, 2011. Census 2011: *Highest level of qualification*. Available from: <https://www.nomisweb.co.uk/census/2011>

<sup>37</sup> Descriptions available from: <https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels>



- There is a total of 58 primary schools within a two-mile radius of the Proposed Development, with an overall surplus of 1,841 places, compared to current capacity, though this is expected to be an overestimation.
- There are 14 secondary schools within a three-mile radius of the Proposed Development, nine of which also have sixth form provision, with an overall surplus of 426 places compared to capacity, though this too is expected to be an overestimation.

### Employment

- I2.3.4** The IMD shows that the local community area faces significant income and employment deprivation, ranking between the top 10% and 30% most deprived in the country. The proportion of the ward area population claiming out of work benefits, in November 2012, was higher than the Westminster and national average<sup>38</sup>. Despite this, the level of unemployment in Westminster is at 4.3%, which is lower than both the London (4.9%) and Great Britain (4.1%) figures<sup>39</sup>. This could be explained by the very high socio-demographic variation within a small geographic area. Economic activity data within Westminster shows that 71.8% of residents within the borough are economically active, compared to London and Great Britain (78.1% and 78.7%, respectively<sup>40</sup>).
- I2.3.5** Occupation data shows that the local community area has proportionately fewer residents employed in managerial positions, when compared to the wider community<sup>41</sup> and the City of Westminster (12%, 18% and 20% respectively). The local community area has a higher proportion of residents in elementary occupations when compared to the population of Westminster (11% and 6%, respectively). 4% of residents of the Westminster and Kensington & Chelsea are employed in skilled trades occupations. This is considered to be low, especially when compared to the London and England values (8% and 11%, respectively).
- I2.3.6** According to the Churchill Ward Profile<sup>21</sup> the proportion of people claiming a Job Seekers Allowance<sup>42</sup> within the ward area was 2.16%, greater than Westminster's figure, which is 0.55%.

### Social cohesion and inclusive design

- I2.3.7** The ward area appears to have strong community cohesion with 96% of residents stating that they feel they can get along well together<sup>21</sup>.
- I2.3.8** The site has decent access to community facilities and areas of social interaction; both within the development and outside.
- I2.3.9** Within the existing development site there is a playground set within the community gardens and a multi-use games area (MUGA). The development site

<sup>38</sup> City of Westminster, 2013. *Ebury Bridge Estate Health and Wellbeing Needs Assessment*. Available from: <https://www.jsna.info/sites/default/files/Ebury%20Masterplan%20Health%20Profile%202013.pdf>

<sup>39</sup> ONS, 2019. *Labour Market Profile for Westminster*. Available from: <https://www.nomisweb.co.uk/reports/lmp/la/1946157259/report.aspx?town=westminster>

<sup>40</sup> ONS, 2018. *Labour Market Profile for Westminster*. Available from: <https://www.nomisweb.co.uk/reports/lmp/la/1946157259/report.aspx?town=westminster>

<sup>41</sup> ONS, 2011. *Census 2011: Occupation*. Available from: <https://www.nomisweb.co.uk/census/2011>

<sup>42</sup> Defined as residents who are unemployed and actively seeking work

is located in an identified area of Play Space Deficiency (see Figure 7 of the Draft Infrastructure Delivery Plan (IDP) (November 2019)<sup>43</sup>).

- I2.3.10** The socio-economics chapter (see Section 15 of ES) provides detailed information on the community facilities available in the vicinity of the Proposed Development. This is summarised below.
- I2.3.11** Within the development itself, there is 177 sqm of existing community floorspace, which includes 23 sqm of community gardening space.
- I2.3.12** Within the wider borough area, the socio-economics chapter refers to a number of youth clubs, children’s centres and family hubs within the vicinity of the development site. It is understood that the provision of community facilities in the vicinity of the site is proportionate to that of the wider borough area. Refer to Appendix L for a full list of community facilities.

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<sup>43</sup> City of Westminster, 2019. *City Plan 2019-2040 – Draft Infrastructure Delivery Plan (November 2019 – Live document)*. Available from: [https://www.westminster.gov.uk/sites/default/files/ev\\_gen\\_007\\_draft\\_infrastructure\\_delivery\\_plan\\_wcc\\_november\\_2019.pdf](https://www.westminster.gov.uk/sites/default/files/ev_gen_007_draft_infrastructure_delivery_plan_wcc_november_2019.pdf)

## I3 Health assessment evidence review

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### I3.1 Introduction

**I3.1.1** This Appendix sets out the evidence base used to inform the professional judgement undertaken as part of the health assessment.

**I3.1.2** It is organised by health determinant and includes all health determinants scoped into the health assessment. In addition, two health determinants, *climate change* and *minimising the use of resources* have been included in this evidence review even though they were scoped out of the health assessment. This is because the effects will be assessed as part of other health determinants, specifically:

- *Minimising the use of resources* was scoped out as this is covered in *housing quality and design* (energy and water efficient, adequate space for recycling and food waste composting) and *accessibility and active travel* (encouraging low carbon travel options); and
- Climate change was scoped out as this is covered in *housing quality and design* (energy and water efficient, adequate space for recycling and food waste composting, cold weather/hot weather performance), *access to open space and nature* (provision of shade and shelter, useable in all weather and seasons) and *accessibility and active travel* (encouraging low carbon travel options).

### I3.2 Housing quality and design

**I3.2.1** There has been a range of evidence presented for the effects of housing quality and design on health. A systematic review of housing interventions<sup>44</sup> concluded that high quality, well designed housing and improvements to the quality and design of housing can lead to health benefits.

**I3.2.2** There are also linkages between housing and other determinants of health such as educational attainment and crime and safety<sup>45</sup>. The security of housing provides financial and social stability and research has identified the links between home ownership and health ‘financially secure home ownership has been linked to improved health, which may be due to better housing quality and feelings of security’<sup>46</sup>. A lack of affordable housing within communities may result in negative health effects in low-income residents as they are forced to spend more on housing costs and less on other health needs<sup>47</sup>.

**I3.2.3** The WHO has undertaken a comprehensive literature review for the effect of inadequate housing on health and interventions that have had positive impacts on health<sup>48</sup>. The review has provided substantial evidence of housing conditions (such as household crowding, mould, dampness, lack of safety measures and

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<sup>44</sup> 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

<sup>45</sup> Greater London Authority, 2005. ‘Review of the London Health Strategy High Level Indicators’. London Health Commission.

<sup>46</sup> Thomson, H. and Petticrew, M., 2005, Is housing improvement a potential health improvement strategy, World Health Organisation Europe

<sup>47</sup> NHS London Healthy Urban Development Unit (2019) ‘Rapid Health Impact Assessment Tool’

<sup>48</sup> WHO (2011) Environmental burden of disease associated with inadequate housing

exposure to pollutants) and related impacts on physical health. It states that ‘Improving housing in a way that removes or at least minimizes the negative impact on health and safety and promotes a healthier living environment is good for the residents and beneficial for society.’

- I3.2.4** This research supports previous WHO evidence<sup>49</sup> that identifies the positive effects of housing interventions related to quality and design. This research determines that improvements to mental health appear to be directly related to the extent of the housing improvement and physical health benefits such as the alleviation of respiratory conditions related to improved energy efficiency measures. The Marmot Review 10 Years On<sup>50</sup> states that since 2010 the number of non-decent homes in England has decreased but that levels of homes with cold, damp and poor conditions and insecure tenures still remains high.
- I3.2.5** Research has also shown a strong independent association between housing conditions and health, particularly poor housing and poor health<sup>51</sup>. Research<sup>52</sup> suggests that poor housing is associated with a range of health problems including cardiovascular diseases, respiratory diseases, neurological, cognitive and mental health issues including depression and anxiety. This is linked to conditions of cold, damp, mould and structural defects, infestations and toxins such as lead, carbon monoxide, formaldehyde, asbestos and radon<sup>53</sup>.
- I3.2.6** Overcrowded housing is linked to higher rates of mental illness<sup>54</sup>, with a particular prevalence of mental illness in women<sup>55</sup> and the development of emotional problems in children such as links with aggression and poor mental adjustment<sup>56</sup>.
- I3.2.7** There are a number of standards in place that set out the recommendations for the design of new homes such as the Code for Sustainable Homes, Building for Life and Secured By Design and there is a good deal of overlap and cross-referencing for what is necessary to achieve good housing quality and design. A systematic review of improvements for health and socio-economic outcomes<sup>57</sup> has identified that improvements to housing quality and design may be related to the changes in the physical fabric, the provision of equipment and educational interventions to reduce domestic injuries therefore contributing to positive impacts on health and wellbeing.

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<sup>49</sup> WHO (2005) Is housing improvement a potential health improvement strategy? Health Evidence Network (HEN) Synthesis Report

<sup>50</sup> Marmot et al (2020) Health equity in England: The Marmot Review 10 years on

<sup>51</sup> Thomson et al (2001) ‘Health effects of housing improvement: systematic review of intervention studies’

<sup>52</sup> Houses of Parliament (2001) Postnote 371, Housing and Health

<sup>53</sup> Wales Health Impact Assessment Support Unit (2013) Housing and Health Evidence Review for HIA

<sup>54</sup> Page A (2002) ‘Poor Housing and Mental Health in the United Kingdom: Changing the Focus for Intervention’. Journal of Environmental Health Research, Volume 1, Issue 1, February 2002.

<sup>55</sup> Cave.B, Curtis.S, Aviles.M, and Coutts.A (2001). ‘Health Impact Assessment for Regeneration Projects. Volume II Selected evidence base’. East London and City Health Action Zone.

<sup>56</sup> Greater London Authority (2005). ‘Review of the London Health Strategy High Level Indicators’. London Health Commission.

<sup>57</sup> Thomson et al (2013) Housing Improvements for Socio-economic outcomes: A systematic review, Campbell Systematic Reviews

**I3.2.8** Evidence<sup>58</sup> suggests that inadequate exposure to sufficient daylight can be the cause of many health problems and that light can be used to overcome health deficiencies. Given that most people spend 80 – 90% of their time indoors<sup>58</sup>, ensuring buildings are designed with enough day light is important to health. A study<sup>59</sup> examining the impact of daylight exposure on the health of office workers found that workers working in low daylight environments were found to have poorer sleep quality and overall lower vitality than their counterparts working in environments with more daylight. A study<sup>60</sup> has found that daylight exposure has been found to influence the mental health and decrease anxiety and insomnia of the elderly. This same study recommended that adequate light should be provided in homes for the elderly.

### **Vulnerable groups**

**I3.2.9** The elderly have been identified as a particularly vulnerable group at risk of health problems in low quality homes as a result of excess cold and accidents<sup>7</sup>. They are more likely to suffer directly from injuries related to accidents and to suffer from ill health in damp, cold homes.

**I3.2.10** Children are also identified as a particularly vulnerable group as overcrowding, insecurity and poor physical conditions of housing in conjunction with fuel poverty can pose risks to their health and early development<sup>61</sup>. A study by Shelter<sup>62</sup> identified that children living in poor housing conditions are more susceptible to mental health problems, such as anxiety and depression, to contract meningitis, more likely to have respiratory problems, experience long-term ill health and disability, experience slow physical growth and have delayed cognitive development.

## **I3.3 Access to healthcare services and other social infrastructure**

**I3.3.1** Services and social infrastructure such as healthcare, education, social networks and social interaction can be inclusionary or exclusionary, thereby impacting on people's physical and mental health<sup>63</sup>. It has been found that access to public services and social infrastructure such as health, education and community facilities has a direct positive effect on human health<sup>64</sup>.

**I3.3.2** Recent evidence<sup>65</sup> has stated that the accessibility of local shops, community services and healthcare facilities may be affected by:

<sup>58</sup> Boubekri, M., 'Daylight, architecture and people's health' in *Environmental Health Risk IV*, ed. C.A. Brebbia (WIT Press, 2007), 53-60.

<sup>59</sup> Boubekri, M. et al. (2015) Impact of windows and daylight exposure on overall health and sleep quality of office workers: a case-control pilot study.

<sup>60</sup> Karami, Z. et al. (2013) Effect of daylight in subjective general health factors in elderly

<sup>61</sup> National Children's Bureau (2012) Environmental inequalities and their impact on the health outcomes of children and young people

<sup>62</sup> Harker L (2006) *Chance of a lifetime: The impact of housing on children's lives*. London: Shelter.

<sup>63</sup> Global Research Network on Urban Health Equity (2010) *Improving urban health equity through action on the social and environmental determinants of health*

<sup>64</sup> HUDU (2013). HUDU Planning for Health. Rapid Health Impact Assessment Tool. (NHS) London Healthy Urban Development Unit

<sup>65</sup> Quigley, R. and Thornley, L., 2011, Literature Review on Community Cohesion and Community Severance: Definitions and Indicators for Transport Planning and Monitoring, Report to New Zealand Transport Agency, Quigley and Watts Ltd

- effects on the capacity of existing services;
- physical accessibility (i.e. distances travelled and transport connections);
- social and/or cultural access (i.e. communication issues); and
- separation imposed by a new piece of physical infrastructure.

**I3.3.3** Research has suggested that ‘access to local shops, post offices, places of entertainment and community activity all contribute to well-being’<sup>66</sup>. It has been estimated that 5% of adults in Great Britain reported feeling a sense of isolation due to difficulties accessing local shops and services<sup>67</sup>. Furthermore, the same research also reported that over a fifth of adults reported that they knew someone who felt a sense of isolation due to difficulties accessing local shops and services.

**I3.3.4** Everyone has a fundamental right to preventative health care and the right to benefit from medical treatment and there have been many recent initiatives to improve access to health services<sup>68</sup>. Access to reach healthcare services is affected by the accessibility of transport modes, availability of financial support for those on low incomes and the location of healthcare services<sup>67</sup>. Groups impacted by disability and of certain ages can also experience even greater barriers to health and social care services<sup>69</sup>. Access to healthcare is important for communities as healthcare offers information, screening, prevention and treatments. Restricted access to healthcare prevents patients gaining necessary treatments and information.

**I3.3.5** Access to social infrastructure including leisure and cultural facilities is a determinant of health and wellbeing. According to research ‘leisure activities can have a positive effect on people’s physical, social, emotional and cognitive health through prevention, coping (adjustment, remediation, diversion), and transcendence’<sup>70</sup>. People participate in cultural activities for a number of reasons including personal growth and development, to learn new skills, enjoyment and entertainment and as a ‘means of creative expression’, or ‘to meet new people’ and to ‘pass on cultural traditions’<sup>71</sup>.

### **Vulnerable groups**

**I3.3.6** Long-term illness sufferers, the disabled and the elderly are the most vulnerable group which are likely to suffer from a lack of local healthcare services as they are less likely to access services outside the vicinity.

**I3.3.7** Children are the most vulnerable group in terms of access to educational services and this greatly influences their health outcomes. School can provide

66 Harding, T., 1997, A Life Worth Living: the Independence and Inclusion of Older People, London: Help the Aged, cited in Randall, C., 2012, Measuring National Well-being – Where we Live, 2012, Office for National Statistics

67 Randall, C., 2012, Measuring National Well-being - Where we Live – 2012, Office for National Statistics

68 Commission of the European Communities (2009) Solidarity in health: Reducing health inequalities in the EU

69 Hamer, L., 2004, Improving patient access to health services: a national review and case studies of current approaches, Health Development Agency

70 Caldwell, L.L. (2005) Leisure and health: Why is leisure therapeutic?

71 New Zealand Government, 2007, Social Report: Leisure and Recreation, Ministry of Social Development, New Zealand Government

greater opportunities in later life and the provision of health promoting behaviours and activities in schools can also encourage healthy behaviours.

**I3.3.8** Access to social infrastructure is also particularly important for the more deprived portion of the population as it can improve their quality of life which they may otherwise not be able to afford. This could lead to health, employment and social benefits that could balance the social gradient and improve social cohesion.

## **I3.4 Access to open space and nature**

**I3.4.1** A comprehensive review of papers<sup>72</sup> examining the health effects of green space supported the view that open space and nature has health benefits. From this study it was established that physical health benefits are related to an increase in physical activity which is linked to those health effects mentioned in Section I3.5.

**I3.4.2** Open space and nature can also improve community resilience and cohesion, (Section I3.7) reduce greenhouse gases (Section I3.12), reduce health inequalities, enhance our living environment and improve mental health particularly for children<sup>73</sup>.

**I3.4.3** A literature review of peer reviewed papers undertaken by the Forestry Commission<sup>74</sup> found evidence that proximity, size and amount of green space available to people in urban environments influenced physical and mental health outcomes. The review identified the key health benefits of green space as:

- ‘Long and short term physical benefits associated with obesity, life expectancy, heart rate and blood pressure;
- attention and cognitive benefits associated with restoration, mood and self-esteem;
- physical activity benefits associated with the use of greenspace;
- self-reported benefits in terms of health and life satisfaction; and
- community cohesion benefits through social contact fostered by greenspace’.

**I3.4.4** The review suggested various mechanisms for the beneficial effects of green space including ‘providing a space that promotes social interaction and inclusion, reducing social annoyances and crime’ and ‘reducing stress and restoring cognitive function and capacity to function with the demands of life’.

**I3.4.5** A literature review by Greenspace Scotland<sup>75</sup> also found a positive relationship between green space and general health. Importantly this study also identified

72 Lee A.C.K and Maheswaran (2010) The health benefits of urban green spaces: a review of the evidence. *Journal of Public Health* 33

73 Faculty of Public Health in association with Natural England (2010) Great Outdoors: How our natural health service uses green space to improve wellbeing – An action report

74 O’Brien, L., Williams, K., 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

75 Croucher, K., Myers, L., and Bretherton, J., (2007), The links between greenspace and health: a critical literature review, Greenspace Scotland

that ‘the attractiveness or quality of greenspace is an important determination of green space use’.

- I3.4.6** The Greenspace Scotland review also identified links to mental health, stating that ‘studies consistently show a relationship between levels of stress and access to urban green spaces’ and identified ‘activity and exercise, natural daylight, stimulation of the senses and aesthetic experience’ as potential factors in reducing stress.
- I3.4.7** Research into the effects of the visual and aesthetic environment on wellbeing is mainly focused on the psychological effects of ‘natural’ versus ‘man-made’ or urban views. In general, evidence shows a preference for views of natural over man-made scenes. These links are often tied in with other, related issues such as opportunities for exercise and contact with nature.
- I3.4.8** Maller et al<sup>76</sup> identified the lack of opportunity to experience contact with nature, as a strong determinant of health and wellbeing. It has been concluded<sup>77</sup> that ‘exposure to natural spaces – everything from green parks and open countryside to gardens and other greenspace – is good for health’.
- I3.4.9** Open space and nature can improve physical health, comfort, and mental wellbeing, as well as provide opportunities to improve people’s quality of life and social interactions<sup>78</sup>. Other benefits cited by Douglas<sup>79</sup> include alleviation of symptoms of anxiety and depression, and restored capacity for concentration and attention.
- I3.4.10** A review of empirical, theoretical and anecdotal evidence<sup>Error! Bookmark not defined.</sup><sup>78</sup> has shown that contact with nature can also have positive effects on blood pressure, cholesterol and stress reduction, with particular relevance to mental health and cardiovascular disease.

### **Vulnerable groups**

- I3.4.11** Often the poorest people experience the poorest quality outdoor environments and suffer disproportionately from a lack of equitable access to ecology and green spaces. Recent Dutch research has suggested that there is a positive association between the percentage of green space in a person’s residential area and their perceived general health and that this relationship is strongest for lower socio-economic groups<sup>80</sup>.

76 Maller,C., Townsend,M., Pryor,A., Brown,P., and St Leger,L. (2005). Healthy Nature Healthy People: ‘Contact With Nature’ as an Upstream Health Promotion Intervention for Populations. Health Promotion International, Vol 21 No.1. Oxford University Press.

77 Sustainable Development Commission (2008) Health, Place and Nature

78 Royal Commission on Environmental Pollution (2007). The Urban Environment (RCEP Twenty-Sixth Report). RCEP.

79 Douglas,I. (2005). Urban Greenspace and Mental Health. Prepared for the UK MAB Urban Forum.

80 Maas J et al (2006). Green space, urbanity and health: how strong is the relation? Journal of Epidemiology and Community Health, 60, 587-592.



## I3.5 Accessibility and active travel

### Accessibility

- I3.5.1** A new transport hub can influence the number of destinations that can be reached within a given time-travel distance for the local population. Accessibility and the provision of public services such as health, education and community facilities have been found to have a direct positive effect on human health<sup>81</sup>.
- I3.5.2** Recent research has stated that 5% of adults in Great Britain reported feeling a sense of isolation due to difficulties accessing local shops and services. Accessibility was also an issue for over a fifth of adults who reported that they knew someone who felt a sense of isolation due to difficulties accessing local shops and services.
- I3.5.3** As the WHO<sup>82</sup> explained access to local facilities such as shops, schools, health centres and places of informal recreation are also important for health and wellbeing due to the physical activity taken in getting there and the social interaction on the way there or at the facilities.
- I3.5.4** Accessibility for local residents to community facilities can play a significant role in promoting or discouraging physical activity. The key influential characteristics of an accessible community noted by Dannenberg et al<sup>83</sup> included proximity of recreation facilities, housing density, street design and accommodation for safe pedestrian, bicycle, and wheelchair use.

### Active travel

- I3.5.5** Active travel applies to modes of transport that require physical activity, in contrast to modes that require little physical effort such as motor vehicles. Therefore, it is the physical activity associated with active travel that brings about health effects.
- I3.5.6** Research suggests that most sustained exercise is taken during the course of everyday activities such as travelling to work or going to the shops, rather than specifically for health purposes<sup>84</sup>.
- I3.5.7** A systemic review<sup>85</sup> has shown that the environment has an effect on people's participation in physical activity which in turn affects their health. The evidence linked transport, the environment and physical activity and includes:
- access to physical activity facilities;
  - distance to destinations;
  - levels of residential density;

81 HUDU (2013). HUDU Planning for Health. Rapid Health Impact Assessment Tool. (NHS) London Healthy Urban Development Unit

82 WHO (2012) Addressing the social determinants of health: the urban dimension and the role of local government

83 Dannenberg A.L, Jackson R.J, Frumkin H, Schieber R.A, Pratt M, Kochtitzky C and Tildon H. N (2003) The Impact of Community Design and Land-Use Choices on Public Health: A Scientific Research agenda. American Journal of Public Health 93

84 Caldwell, L.L. (2005), Leisure and health: Why is leisure therapeutic?

85 National Obesity Observatory (2011) Data sources: environmental influences on physical activity and diet

- type of land use;
  - urban walkability scores;
  - perceived safety;
  - availability of exercise equipment; and
  - the provision of footways.
- Altering the environment, particularly an urban landscape may also lead to unintended changes in patterns of mobility, physical activity and therefore eventually population health<sup>86</sup>. Particularly the intervention of transport systems designed to promote active travel such as cycling and walking can reap health benefits by increasing physical activity, reducing morbidity from air pollution and reducing the risk of road traffic accidents by decreasing the number of journeys undertaken by motor vehicles<sup>87</sup>.

**I3.5.8** A recent systemic review of the link between positive health benefits and physical activity has been undertaken by Saunders et al<sup>88</sup>. Although the study determined that there is no clear evidence in the effectiveness of active travel in reducing obesity, it noted that there has been a rise in the prevalence of obesity which has occurred in parallel with a decline in active travel in the past 30-40 years<sup>89</sup>. It was also suggested that active travel over longer periods and longer distances may also reduce the risk of diabetes.

**I3.5.9** The positive effects of physical activity on physical health was summarised in a recent Department of Health report<sup>90</sup> which suggests that *'Regular physical activity can reduce the risk of many chronic conditions including coronary heart disease, stroke, type 2 diabetes, cancer, obesity, mental health problems and musculoskeletal conditions. Even relatively small increases in physical activity are associated with some protection against chronic diseases and an improved quality of life'*.

**I3.5.10** It has been shown that *'physical activity improves health throughout the life course – from childhood through to older age'*<sup>91</sup>. The health benefits of physical exercise occur across virtually the full range of diseases, and when this is combined with the prevalence of inactivity among the public, it *'makes physical activity one of the main contemporary public health issues'*.

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86 Ogilvie D, Mitchell R, Mutrie N, Petticrew M and Pratt S (2010) Shoe leather epidemiology: active travel and transport infrastructure in the urban landscape. International Journal of Behavioural Nutrition and Physical Activity 7.

87 Sustainable Development Commission (2008) Health, Place and Nature

88 Saunders LE, Green JM, Petticrew MP, Steinbach R, Roberts H (2013) What Are the Health Benefits of Active Travel? A Systematic Review of Trials and Cohort Studies. PLoS ONE 8(8)

89 Lubans D, Boreham C, Kelly P, Foster C (2011) The relationship between active travel to school and health-related fitness in children and adolescents: a systematic review. International Journal of Behavioral Nutrition and Physical Activity 8.

90 CMO (2011) Start Active, Stay Active: A report on physical activity from the four home countries' Chief Medical Officers, Department of Health, Physical Activity, Health Improvement and Protection.

91 Harding, T., (1997), A Life Worth Living: the Independence and Inclusion of Older People, London: Help the Aged, cited in Beaumont, J., 2011, Measuring National Well-being, Discussion paper on domains and measures, Faculty of Public Health, Office for National Statistics

**I3.5.11** Positive mental health effects associated with physical exercise have been highlighted in evidence reviews by Cave et al<sup>92</sup>, Sport England<sup>93</sup> and AEA Technology<sup>94</sup>. Mental health effects cited include improvements in people with generalised anxiety disorders including phobias, panic attacks, and stress disorders.

### **Vulnerable groups**

**I3.5.12** Although all groups are shown to benefit from regular exercise, the benefits to children and the elderly are particularly emphasised. The importance of exercise for children is highlighted in terms of benefits in building up bone density, avoidance of weight gain, links to health status in later life, and in establishing habits, which may be more difficult to begin in later life<sup>95</sup>. (British Medical Association, 2002). The benefits for the elderly include retention of mobility, cognitive function and independence<sup>95</sup>.

## **I3.6 Crime reduction and community safety**

**I3.6.1** Community safety is crucial in determining health and wellbeing. It has been stated<sup>83</sup> that *'a healthy community protects and improves the quality of life for its citizens, promotes healthy behaviours and minimizes hazards for its residents, and preserves the natural environment.'*

**I3.6.2** The effects of crime on health include both direct effects, for example through violence, and indirect social and psychological effects arising from fear of crime<sup>96</sup>.

**I3.6.3** The same factors that affect local crime rates often seem to affect health<sup>97</sup>. A recent report on Measuring National Wellbeing<sup>98</sup> has also identified crime as a key indicator in determining wellbeing.

**I3.6.4** Hirschfield<sup>99</sup> showed that victimisation or fear of crime may manifest itself through symptoms such as stress, sleeping difficulties, loss of appetite, loss of confidence and health harming 'coping' mechanisms such as smoking and alcohol consumption. The research also suggested that community problems such as disorder and anti-social behaviour, which are not strictly criminal offences, can have adverse effects on health.

**I3.6.5** A recent review undertaken by Lorenc *et al*<sup>100</sup> looked at qualitative evidence on the fear of crime and the environment. The report notes that most research on

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92 Cave, B, Curtis, S, Aviles, M, and Coutts, A, (2001). 'Health Impact Assessment for Regeneration Projects. Volume II Selected evidence base'. East London and City Health Action Zone.

93 Sport England. (2007). 'Active Design. Promoting opportunities for sport and physical activity through good design'. Supported by CABE, DH and DCMS. Sport England.

94 AEA Technology, (2000). 'Informing transport health impact assessment in London'. Commissioned by NHS Executive, London.

95 Department of Health, (2004). 'Choosing Health Summaries: Diet and Nutrition'. Public Health White Paper. Department of Health.

96 British Medical Association (1999). 'Health and Environmental Impact Assessment: an Integrated Approach'. Earthscan Publications Ltd.

97 Greater London Authority (2005) 'Review of the London Health Strategy High Level Indicators'. London Health Commission.

98 Randall, C. (2012), Measuring National Well-being, Where we Live, Office for National Statistics

99 Hirschfield, A. (2003). 'The Health Impact Assessment of Crime Prevention'. Sourced from NHS National Institute for Health and Clinical Evidence.

100 Lorenc, T., Petticrew, M., Whitehead, M., Neary, D., Clayton, S., Wright, K., Thomson, H., Cummins, S., Sowden, A., Renton, (2012). A. Fear of crime and the environment: systematic review of UK qualitative evidence, BMC Public Health. 13: 496.

crime and health focused on the direct health effects suffered by victims of crime. However, indirect effects of crime and its broader influence on individuals and communities may also have important effects on wellbeing.

**I3.6.6** Fear of crime has been shown in several studies to have a modest, but consistently significant, association with health and wellbeing. The report also noted that fear of crime was only weakly correlated with actual crime rates and highlighted other community safety issues such as urban neglect and social cohesion as factors affecting fear of crime.

**I3.6.7** The study by Lorenc *et al* examines the consequences of fear of crime, stating that ‘relatively few participants see fear as having serious mental health effects, although several report some degree of psychological stress as a result of fear. A much more widely perceived consequence of fear is to limit people’s activities, including social and cultural activities, sometimes leading to social isolation. Participants from across the population report such limitations, but they appear to be more serious for women, older people and people with disabilities. Parents also report placing serious restrictions on children’s activities.’

**I3.6.8** The design of the built environment can influence levels of crime and perceptions of community safety with interventions such as street lighting helping to reduce crime, and design that promotes ‘eyes on the street’ helping to reduce anti-social behaviour.

### **Vulnerable groups**

**I3.6.9** Social inequalities are particularly marked in urban environments, with different population subgroups experiencing impacts to different degrees. Older people are identified as being particularly likely to suffer as a result of fear of crime.

## I3.7 Social cohesion and lifetime neighbourhoods

### Social cohesion

- I3.7.1** Social cohesion is defined as the quality of social relationships and existence of trust, mutual obligations and respect in communities or the wider society<sup>101</sup>. This is closely related to levels of inequality or exclusion within a given community.
- I3.7.2** Social cohesion has been linked to volunteering, the empowerment of individuals and ethnic diversity which drive social cohesion but on the contrary inequalities within a population and crime and safety can erode social cohesion within a community<sup>102</sup>.
- I3.7.3** It is also closely linked to social capital which the World Bank has defined as '...the institutions, relationships and norms that shape the quality and quantity of a society's social interactions... Social capital is not just the sum of the institutions which underpin a society – it is the glue that holds them together'<sup>103</sup>.
- I3.7.4** The physical environment can directly influence social capital and social cohesion, as social networks rely on high quality, accessible spaces where people can meet to pursue their enthusiasms and form relationships.
- I3.7.5** Social cohesion is also linked to transport infrastructure which enables residents to both integrate within and move outside of their own community.
- I3.7.6** Social cohesion and social capital have been shown to positively correlate with a reduced fear of social isolation and positive mental health<sup>45</sup>.
- I3.7.7** Opportunities for communities to participate in the planning of healthcare services and social infrastructure can impact positively on mental health and wellbeing and improve community cohesion<sup>81</sup>.
- I3.7.8** According to a literature review by Cave et al.<sup>104</sup> social capital may:
- protect health by buffering against the effects of life events which may be damaging to health;
  - have physiological effects, through the hormonal system, on the body's response to stress and functioning of the immune system;
  - reduce isolation, which is associated with disease, accidents and suicide;
  - enable people to cope with illness better and have better prognoses when ill; and
  - reduce or protect against mental health problems, such as anxiety and depression.

101 WHO (2003) Social determinants of health: the solid facts 2nd edition.

102 Department for Communities and Local Government (2008) Predictors of community cohesion: multi-level modelling of the 2005 Citizenship Survey

103 The World Bank, (1999), What is Social Capital?, PovertyNet

104 Cave, B., Curtis, S., Aviles, M. and Coutts, A.,(2001), Health Impact Assessment for Regeneration Projects. Volume II Selected evidence base, East London and City Health Action Zone, University of London

## Lifetime neighbourhoods

- I3.7.9** The Communities and Local Government (CLG) document ‘Towards Lifetime Neighbourhoods: Designing sustainable communities for all<sup>105</sup>’ describes lifetime neighbourhoods as being ‘sustainable communities that offer a good quality of life to all generations’.
- I3.7.10** They should aim to be:
- Accessible and inclusive
  - Aesthetically pleasing and safe (in terms of both traffic and crime), and easy
  - and pleasant to access; and
  - A community that offers plenty of services, facilities and open space.
- I3.7.11** Furthermore, we can add that lifetime neighbourhoods are likely to foster:
- a strong social and civic fabric, including volunteering, informal networks;
  - a culture of consultation and user empowerment amongst decision-makers; and
  - a strong local identity and sense of place.
- I3.7.12** The potential health effects of the aspects outlined above, that contribute to the concept of a lifetime neighbourhood, are all further explored within the other determinant sections that make up this literature review.

## Vulnerable groups

- I3.7.13** Some population groups are believed to be at particular risk of social exclusion, including black and minority ethnic (BME) groups, disabled people, lone parents, older people, carers, asylum seekers and refugees and ex-offenders<sup>106</sup>.

## I3.8 Air quality, noise and neighbourhood amenity

### Air quality

- I3.8.1** Evidence on the links between road traffic emissions and health is well established, based on numerous research studies. A WHO report in 2000 suggested that about 36,000–129,000 adult deaths a year are brought forward due to long-term exposure to air pollution generated by traffic in European cities. The main health damaging pollutants released as emissions from road traffic are Particulate Matter (PM<sub>10</sub><sup>107</sup>) and nitrogen dioxide (NO<sub>2</sub>).
- I3.8.2** PM<sub>10</sub>, which is an important pollutant with regard to health effects, comprises atmospheric particles that are less than 10µm in diameter. Road transport is a major source of PM<sub>10</sub>, which is emitted from the combustion of vehicle fuels. An important property is the extent to which these particles may be deposited

<sup>105</sup> Ed Harding, International Longevity Centre UK (2007) ‘Towards Lifetime Neighbourhoods: Designing sustainable communities for all’. Department for Communities and Local Government.

<sup>106</sup> Wanless.D, (2003). ‘Securing good health for the whole population’. Population Health Trends. HM Treasury/Department of Health.

<sup>107</sup> Particulate Matter up to 10 micrometers in size

within the lungs and this is dependent on size of particles (smaller particles have a greater chance of reaching the deeper parts of the lungs). There is growing evidence that smaller respirable particulate matter may be more relevant to health than larger particles. Recent studies<sup>108</sup> have found that ultra-fine particles (less than 0.1 µm) have been associated with stronger effects on the lung function and symptoms in asthmatics than either PM<sub>10</sub> or PM<sub>2.5</sub>.

- I3.8.3** Studies have also suggested that particulate pollution of various sizes may exacerbate pre-existing asthma<sup>109</sup>.
- I3.8.4** It should be noted that exposure in an urban setting is complex and cumulative and interactive effects need to be considered<sup>118</sup>. Furthermore, increasing temperatures related to climate change have also been shown to augment the negative health impact of particulate matter, resulting in increased mortality<sup>110</sup>.
- I3.8.5** The effects of road traffic related NO<sub>2</sub> on health are less well understood than the effects of PM<sub>10</sub>. Numerous epidemiological studies have identified associations between NO<sub>2</sub> concentrations and respiratory health<sup>111</sup>, but it may be that in these studies NO<sub>2</sub> is a key marker for traffic-related pollution more generally.
- I3.8.6** Quantifying short and long-term impacts of NO<sub>2</sub> pollution has been problematic due to uncertainties in the concentration-response functions available. It has been estimated that the direct effect of NO<sub>2</sub> on the health of the UK's population could be that between 600 and 6,000 deaths per year may have been brought forward by a matter of days or weeks as a result of exposure to NO<sub>2</sub> in the ambient air. Likewise, it has been estimated that between 1,400 and 14,000 hospital admissions and between 200,000 and 2 million GP consultations for respiratory illnesses may arise as a result of exposure to the ambient NO<sub>2</sub> in the UK each year. Ambient NO<sub>2</sub> is said to contribute to an average of 1-7 extra days of symptoms in asthmatics annually<sup>112</sup>.

### Vulnerable groups

- I3.8.7** Defra commissioned a study in 2006 to review recent research evidence on links between air quality and social deprivation in the UK<sup>113</sup>. The analysis for England showed that there is a tendency for higher relative mean annual concentrations of nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>) in the most deprived areas of the country. This distribution can largely be explained by the high urban concentrations driven by road transport sources, and the higher proportion of deprived communities in urban areas. If exceedences of National Air Quality Standards are considered, the correlation between poor air quality and deprivation is stronger, showing that when the most polluted areas are

108 World Health Organization. (2000) Transport, environment and health. WHO Regional Publications, European Series. No.89

109 DoH Committee of the Medical Effects of Air Pollutants, (1998), Quantification of the Effects of Air Pollution on Health in the United Kingdom

110 Meng, X., Zhang, Y., Zhao, Z., Duan, X., Xu, X. and Kan, H., (2012), 'Temperature modifies the acute effect of particulate air pollution on mortality in eight Chinese cities', Science of The Total Environment 435–436, 215–221.

111 Health Scotland, MRC Social and Public Health Sciences Unit and Institute of Occupational Medicine (2007). Health Impact Assessment of Transport Initiatives: A Guide. NHS Health Scotland.

112 Searl A. (2004). A review of the acute and long term impacts of exposure to nitrogen dioxide in the United Kingdom. Institute of Occupational Medicine

113 Defra, Netcen, Department for Communities and Local Government, National Statistics. Air Quality and Social Deprivation in the UK: an environmental inequalities analysis - Final Report to Department of Environment, Food and Rural Affairs AEAT/ENV/R/2170, June 2006

considered, the greatest burden is on the most deprived communities, and very little on the least deprived.

- I3.8.8** The review also identifies age as a key indicator of susceptibility to air pollution: *‘children and elderly groups [are] deemed more susceptible to certain health impacts’*.

### Noise

- I3.8.9** Sound is produced by mechanical disturbance propagated as a wave motion in air or other media and noise is defined as unwanted sound. According to the WHO, *‘In some situations, but not always, noise may adversely affect the health and well-being of individuals or populations’*<sup>114</sup>. More recently, the WHO has stated that *‘Environmental noise is a threat to public health, having negative impacts on human health and well-being’*<sup>115</sup>.

- I3.8.10** Hearing loss does not occur from typical exposure to environmental noise; it is more commonly associated with occupational exposure to much higher noise levels. In the everyday environment, the response of an individual to noise is more likely to be behavioural or psychological (i.e. non-auditory) than physiological. There are a wide range of non-auditory health effects that may be associated with exposure to environmental noise, although the pathways, strength of association, and possible causal mechanisms for these are not fully understood. The WHO<sup>116</sup> recognises the health linkages between environmental noise and disease including cardiovascular disease (mean blood pressure, hypertension, and ischaemic heart disease), sleep disturbance, tinnitus and annoyance. Other Effects on mental wellbeing include psychosocial effects, mental morbidity, impaired memory, impaired performance<sup>117</sup> communication and learning effects and impaired social behaviour<sup>118</sup>.

### Vulnerable groups

- I3.8.11** According to the World Health Organisation Guidelines on Community Noise<sup>119</sup> *‘Vulnerable people are generally under-represented in studies; this group could include people with decreased personal abilities (e.g. the old, ill or depressed people); people with particular diseases or medical problems; people dealing with complex cognitive tasks, such as reading acquisition; people who are blind or who have hearing impairment; foetuses, babies and young children; and the elderly in general ... These people may be less able to cope with the impacts of noise exposure and be at greater risk for harmful effects’*.

114 World Health Organisation (1995). Community Noise. Edited by B. Berglund and T. Lindvall

115 World Health Organisation (2009). Night Noise guidelines for Europe

116 World Health Organisation (2011). Burden of disease from environmental noise, Quantification of health life years lost in Europe. World Health Organisation and JRC European Commission

117 Evans.G.W. and Lepore.S.J (1993). Non-auditory Effects on Children: A Critical Review. Children’s Environments 10(1), 1993.

118 EAA and JRCC (2013) Environment and human health. Report No 5/2013.

119 World Health Organisation (1995). Community Noise. Edited by B. Berglund & T. Lindvall



## Neighbourhood amenity

- I3.8.12** There is no established evidence linking airborne dust such as that from construction sites with adverse health effects. Dust can cause eye, nose and throat irritation and lead to deposition on cars, windows and property<sup>120</sup> therefore impacting on the neighbourhood amenity.
- I3.8.13** Noise has been noted to impact on amenity for a local community by causing annoyance. As a result, people may experience anger, disappointment, dissatisfaction, anxiety and stress amongst other symptoms<sup>118</sup>.
- I3.8.14** Notley et al<sup>121</sup> reports the preliminary results emerging from the UK National Noise Attitude Survey undertaken during 2012 which indicate that around 30% of those who hear road traffic noise report being moderately, very or extremely bothered, annoyed or disturbed
- I3.8.15** Furthermore, families with lower income tend to have lower mobility but greater exposure to the adverse environmental conditions related to transport such as air and noise pollution and road traffic<sup>122</sup>.
- I3.8.16** There is evidence of links between health outcomes and the physical characteristics of neighbourhoods. In 2013, a Position Statement by the Landscape Institute<sup>123</sup> looked at evidence linking the quality of places with health and wellbeing across a range of environmental, social and lifestyle determinants. This document cites evidence to suggest that health and wellbeing are influenced positively by factors such as the attractiveness, noise and other pollution, and the perceived safety of the environment. Similarly, a report by Cubbin et al. 2008 for the Commission to Build a Healthier America<sup>124</sup> identified links between health outcomes and the physical characteristics of neighbourhoods, including issues such as air quality, safety and traffic, alongside a range of social and neighbourhood service characteristics.
- I3.8.17** Another study by Seresinhe et al. in 2015<sup>125</sup> sought to quantify the relationship between environmental aesthetics and human health by comparing geographic data against self-rated health. This found that ‘inhabitants of more scenic environments report better health, across urban, suburban and rural areas, even when taking core socioeconomic indicators of deprivation into account, such as income, employment and access to services.’

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120 GLA (2006). The control of dust and emissions from construction and demolition Best Practice Guidance, Greater London Authority.

121 H. Notley, C. Grimwood, G. Raw, C. Clark, R. Van de Kerckhove and G. Zepidou (2013), The UK national noise attitude survey 2012 - the sample, analysis and some results. Proc. Internoise 2013.

122 WHO (2012) Addressing the social determinants of health: the urban dimension and the role of local government

123 Landscape Institute (2013), Public Health and Landscape – Creating healthy places,

[https://www.landscapeinstitute.org/PDF/Contribute/PublicHealthandLandscape\\_CreatingHealthyPlaces\\_FINAL.pdf](https://www.landscapeinstitute.org/PDF/Contribute/PublicHealthandLandscape_CreatingHealthyPlaces_FINAL.pdf).

124 Cubbin, C., Pedregon, V., Egerter, S. and Braveman, P. (2008), Where we live matters for our health: Neighbourhoods and health, Commission to build a Healthier America

125 Seresinhe, C., Preis, T. and Moat, H. (2015), Quantifying the Impact of Scenic Environments on Health, Scientific Reports

## I3.9 Access to healthy food

**I3.9.1** Access to healthy food and a nutritious diet can prevent health effects and chronic diseases related to obesity. Poor diet and nutrition, together with smoking and alcohol accounted for many coronary heart disease and cancer deaths<sup>126</sup>.)

**I3.9.2** A report by the Department of Health in 2011<sup>127</sup> noted England as one of the world's leaders in obesity and excess weight which can increase health risks such as breathing problems, back pain, infertility, angina, gall bladder disease, liver disease, ovarian cancer, osteoarthritis and stroke.

**I3.9.3** Furthermore, the report detailed the most prevalent health risks for an obese man can include:

- five times more likely to develop type 2 diabetes;
- three times more likely to develop cancer of the colon; and
- more than two and a half times more likely to develop high blood pressure – a major risk factor for stroke and heart disease.

**I3.9.4** An obese woman, compared with a healthy weight woman, is:

- almost thirteen times more likely to develop type 2 diabetes;
- more than four times more likely to develop high blood pressure; and
- more than three times more likely to have a heart attack.

**I3.9.5** As the California Center for Public Health Advocacy outlined<sup>128</sup> the availability of healthy eating food outlets which sell high quality, nutritious food at affordable prices is an important factor influencing food choices. It can encourage a healthier diet and thus lower the health risks associated with higher calorific and sugar intake and lower consumption of fruit and vegetables. Higher numbers of fast food outlets and convenience stores (as opposed to grocery stores or produce vendors) increased the likelihood of diabetes and obesity for individuals.

**I3.9.6** Allotment gardening is an example of access to healthy food and HUDU have outlined<sup>129</sup> that it can have a positive effect on both physical and mental wellbeing by providing opportunities for horticultural therapy to people with physical and mental health problems.

### **Vulnerable groups**

**I3.9.7** It has been noted that people on low incomes suffer more disproportionately from diet-related diseases. Difficulties are wider than a lack of money, relating to worse access to transport and to shops that sell good quality affordable food, particularly fruit and vegetables.

<sup>126</sup> Department of Health, (2004). 'Choosing Health Summaries: Diet and Nutrition'. Public Health White Paper. Department of Health.

<sup>127</sup> Department of Health (2011) Healthy Lives, Healthy People: A call to action on obesity in England.

<sup>128</sup> California Center for Public Health Advocacy (2008) Designed for Disease: The link between local food environments and obesity and diabetes

<sup>129</sup> NHS London Healthy Urban Development Unit (2007) Delivering Healthier Communities in London

**I3.9.8** Children are also disproportionately affected. Those children who grow up in food insecure homes are more likely to have poor health and worse educational outcomes compared with children who grow up without food stress<sup>50</sup>.

## **I3.10 Access to work and training**

### **Access to work**

**I3.10.1** The Marmot Review (2010)<sup>130</sup>, which was commissioned by the Department of Health to look into health inequalities in England, looks at the differences in health and wellbeing between social groups. The report identified six policy objectives for reducing health inequalities, one of which was to ‘*Create fair employment and good work for all*’. The Review identified the importance of work for health: ‘*being in good employment is protective of health. Conversely, unemployment contributes to poor health.*’ However, the Marmot Review Update<sup>50</sup> adds that being in employment does not guarantee a contribution to good health – it may also be detrimental to health, depending on the quality of work and additional stress caused.

**I3.10.2** Many of the documented linkages between access to work and health are often related to the negative impacts of unemployment, rather than the positive impacts of employment. However, it should follow that maintaining high levels of good quality employment opportunities could be expected to be positive in health terms. The Marmot Review Update<sup>50</sup> defines good quality work as work that features job security; health, safety and psychological wellbeing; support for employee voice and representation; inclusion of varied and interesting work; a fair workplace; promotion of learning development and skills use; a good effort-reward balance; support for autonomy and a good work-life balance.

**I3.10.3** The Marmot Review Update<sup>50</sup> states that since 2010, employment rates have increased but so has the amount of poor-quality work, including part time, insecure employment.

**I3.10.4** Employment is related to social and psychological wellbeing; a study commissioned by the Department of Work and Pensions<sup>131</sup> found that ‘work meets important psychosocial needs in societies where employment is the norm’ and that ‘work is central to individual identity, social roles and social status’.

### **Access to training**

**I3.10.5** Training is a form of work involving the application of physical or mental effort to improve skills, knowledge or other personal resources which can improve chances of employment and career progression.

**I3.10.6** The Marmot Review<sup>130</sup> highlighted the links between inequalities in educational outcomes and physical and mental health, and identified ‘*Reducing the social gradient in skills and qualifications*’ as a priority objective to reduce health inequalities. The review made policy recommendations including increasing

130 Marmot, M., Allen, J., Goldblatt, P., Boyce, T., McNeish D., Grady, M. and Geddes, I., (2010), Fair society, healthy lives: Strategic review of health inequalities in England post-2010, The Marmot Review

131 Waddell, G and Burton A. K (2006) *Is work good for your health and well-being?* The Stationary Office.

lifelong learning opportunities, including work-based learning, to improve health outcomes. The Marmot Review Update<sup>50</sup> states that in 2020, that despite the recommendations made, the clear and persistent socioeconomic inequalities in educational attainment that were present in 2010 remain.

**I3.10.7** Young adults who undertake training have been shown to have improved somatic and psychological symptoms compared with those who are unemployed. It is noted as particularly important for mental health, general wellbeing and for the longer-term social development of school leavers<sup>131</sup>.

## **I3.11 Minimising the use of resources**

**I3.11.1** Reducing or minimising waste including disposal processes for construction as well as encouraging recycling at all levels can improve human health directly and indirectly by minimising environmental impact, such as air pollution<sup>132</sup>.

**I3.11.2** Sending out waste from a development site to be sorted or disposed can increase vehicle movements, emissions and cause significant disruption including noise and dust which can contribute towards health problems for residents. See section I3.8 of this appendix for further details on the linkages between potential health effects from both air quality and dust, and noise impacts.

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132 HUDU (2013). HUDU Planning for Health. Rapid Health Impact Assessment Tool. (NHS) London Healthy Urban Development Unit.

## **I3.12 Climate change**

**I3.12.1** Climate change is the projected rise in global temperatures as a result of anthropogenic development which is likely to contribute to continued changes in weather patterns, rising sea levels and increased frequency and intensity of extreme weather events.

**I3.12.2** The most recent UK Climate Projections (UKC18) show that the UK should expect a shift generally towards wetter winters and a greater proportion of precipitation to fall as heavy events. There is a predicted rise in temperature and greater likelihood of drier summers has been suggested, but the various projections cover a wide range of outcomes from climate change.

**I3.12.3** There are direct impacts linking the environment and health such as heat-related effects, flooding and poor air quality and indirect impacts such as fuel poverty, access to green space and disruption to services and access such as healthy food.

**I3.12.4** Many of the health impacts are therefore interrelated with the health determinants and associated health impacts previously mentioned.

### **Vulnerable groups**

**I3.12.5** Chalmers et al<sup>133</sup> concluded that certain people are expected to be the most vulnerable to climate change and this includes:

- poorly housed or non-mobile individuals;
- people with existing health conditions;
- the young and the elderly;
- the population living in high risk places such as flood zones and coastal locations; and
- socially isolated or those individuals otherwise unable to adapt to change.

### **Heat-related effects**

**I3.12.6** In 2012, it was found that increasing temperatures would increase heat-related mortality which currently accounts for 1,100 premature deaths in the UK, with London being the area most affected<sup>134</sup>. This could further increase in the future in London, primarily as a result of the urban heat island effect.

**I3.12.7** There are also particularly vulnerable groups who are at a greater risk of serious harm from heat extremes including babies, young children, the elderly, people taking diuretic drugs and those suffering from dementia, respiratory ailments, neurological conditions or diabetes<sup>135</sup>.

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133 Chalmers H, Pilling A and Maiden T (2008) Adapting to the Differential Social Impacts of Climate Change in the UK

134 London Climate Change Partnership (2012) Linking environment and health: A resource for policy and decision makers working on Joint Strategic Needs Assessment.

135 Defra (2012) UK Climate Change Risk Assessment: Health Sector Report

### **Increased precipitation, rising sea levels and flooding**

- I3.12.8** The Health Protection Agency outlined the direct and indirect health effects of flooding. Direct effects include physical trauma, injuries and drowning. Indirect effects include damage from infrastructure, water supplies, displacement and disruption to people's lives.
- I3.12.9** Flooding also has negative effects on mental health and wellbeing by increasing cases of anxiety, depression and sleeplessness after a flooding event<sup>136</sup>.
- I3.12.10** Rising sea levels and increased sea temperatures associated with climate change may also increase marine pathogens and harmful algal blooms which are harmful to human health<sup>135</sup>.
- I3.12.11** Increased precipitation, rising sea levels and flooding can also increase the risk of contamination to water supplies **Error! Bookmark not defined.** however this is usually low risk in the UK.

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<sup>136</sup> Ahern M, Kovats R.S, Wilkinson P, Few R and Matthies F (2005) Global Health Impacts of Floods: Epidemiologic Evidence. *Epidemiologic Reviews* 27.