

LAND NORTH OF LITTLE GREEN LANE, CROXLEY GREEN

HEALTH IMPACT ASSESSMENT

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Croxley Green Health
Impact Assessment
1.0
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REPORT

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Glossary

Term	Meaning
Applicant	Richborough
Construction Traffic Management Plan	A document detailing the construction traffic routes for heavy goods vehicles and personnel travel, protocols for delivery of Abnormal Indivisible Loads to site, measures for road cleaning and sustainable site travel measures.
Green space	Green spaces may include a watery element but are characterised by predominantly 'green' elements such as grass or trees.
Health	State of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.
Health outcome	Change in health status of an individual, group or population attributable to a planned intervention or series of interventions, regardless of whether such an intervention was intended to change health status.
Health risk factor	A social, economic or biological status, or behaviours or environments which are associated with or that cause increased susceptibility to a specific disease, ill health or injury.
Likely health effect	This effect is one that, with reference to the scientific literature, shows a plausible theoretical link between source-pathway-receptor; and the occurrence of which is judged as probable, in a specific context.
Mental health	State in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community.
Proposed Development	The elements of the Land North of Little Green Lane, Croxley Green, which includes the residential dwellings, primary school, open green space, NHS health and social care services, community buildings and country park.
Population health	The health outcomes of a group of individuals, including the distribution of such outcomes within the group.
Significant health effect	An effect triggered by the Proposed Development that is judged to be important for public health (a positive or negative effect), highly desirable for public health (a positive effect) or unacceptable for public health (a negative effect).
Vulnerable groups or subpopulations	Sensitive to changes in health determinant in a given context. Can include groups such as ethnic minorities, people with disabilities, people who are homeless, people living in poverty, those struggling with addiction and substance abuse, and isolated older people.
Wider determinants of health	Biological, behavioural, socio-economic, cultural or environmental factors which contribute to the health status of individuals or populations.

1 SUMMARY

- 1.1.1 The Proposed Development would provide important public health benefits due to the way the site is sensitivity developed, including through the incorporation of health place making principles.
- 1.1.2 A comprehensive Health Impact Assessment has been undertaken. The assessment has been informed by local public health evidence and consultation feedback from the community. It has also been informed by discussion with the local public health team, integrated care board and local primary care provider.
- 1.1.3 Local context has been taken into account, including integrating with the existing community and complementing the Breakspeare special educational needs school relocation. The Health Impact Assessment has positively contributed to the design of the scheme, including in relation to housing type, outdoor space, food growing, active travel and new and improved community services.
- 1.1.4 Significant local health benefits are expected, notably due to the 600 new homes, 50% of which would be affordable housing; and due to space in the local centre for new NHS health and social care services, which would benefit not only residents of the Proposed Development but also the 14,082 existing local patients whose medical facilities would be improved.
- 1.1.5 The recently updated NPPF Policy 101 referencing health facilities states that “Significant weight should be placed on the importance of new, expanded or upgraded public service infrastructure when considering proposals for development”.

2 INTRODUCTION

2.1.1 This Health Impact Assessment (HIA) report presents the assessment of the potential impacts of the proposed residential development at the land north of Little Green Lane, Croxley Green hereafter the 'Proposed Development'. Specifically, this HIA considers the potential impact of the Proposed Development during the construction and operations and maintenance phases.

2.1.2 The HIA Report has been prepared by RPS on behalf of Richborough ('the Applicant') in support of an outline planning application for:

Construction of up to 600 residential dwellings (Use Class C3(a)), a 5-bedroom property for children's social care and supported living (Use Class C3(b)). Two vehicular access points from Little Green Lane and further pedestrian / cycleway accesses. A one form entry primary school (Use Class F1(a)) (plus expansion land for a two form entry primary school). A mixed use local centre including provision for NHS health and social care services (Use Class E(e)), community building (Use Class F2), retail and café provision (Use Class E(a-c)), car parking and associated infrastructure. A country park, areas for play and recreation, allotments, community orchard and landscaping with associated infrastructure including sustainable urban drainage systems. (All matters are reserved except for vehicular access).

2.1.3 The site is formed of one irregular field enclosure. The western, northern and eastern boundaries are broadly contained by mature woodland, hedgerow and hedgerow trees. The southern boundary is formed by Little Green Lane and the existing settlement edge of Croxley Green. Within the site is an area of Ancient Woodland and a hedgerow running north to south. A public right of way crosses the site from east to west. The site lies approximately 4.0km to the west of Watford town centre. The southern boundary is defined by existing residential development along Little Green Lane and by the curtilage of Little Green Junior School. The northern, southern and western boundaries are defined by Whippendell Woods consisting of mature hedgerows and woodland. Land use across the site is predominantly arable. The total site area is 40.69 hectares.

2.1.4 HIA encompasses the principles, process and approach used to identify and assess the potential effects (both adverse and beneficial) of a project on the health of a population. HIA generates evidence for appropriate actions to avoid or mitigate health risks and promote health opportunities.

2.1.5 Human health is a broad topic. The assessment considers how the Proposed Development affects the wider determinants of population health. This includes changes to biological, behavioural, socio-economic, cultural or environmental factors which contribute to the health status of individuals or populations.

2.1.6 In particular, this HIA report:

Presents the existing population health baseline established from desk studies.

Identifies any assumptions and limitations encountered in compiling the health information.

Presents the potential impacts on human health arising from the Proposed Development, based on the information gathered and the analysis and assessments undertaken.

Highlights any necessary monitoring and/or mitigation measures which could prevent, minimise, reduce or offset the possible human health effects of the Proposed Development.

2.1.7 Health is defined 'as a state of complete physical, mental and social wellbeing and not merely the absence of disease' (World Health Organization, 1948). Mental health is defined as a 'state in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community' (World Health Organization, 2022). In this report, the terms health and

- wellbeing are used interchangeably, and equal consideration is given to considering both physical and mental health outcomes.
- 2.1.8 This HIA takes a public health approach, meaning it reaches conclusions on the health outcomes to defined populations, rather than the health outcomes of individuals. The guidance that explains this is the correct approach to take in an assessment is set out in section 3.
- 2.1.9 In following guidance and good practice the report:
- takes a population health approach to assessing physical and mental health outcomes;
 - considers the wider determinants of health that may be significantly affected directly or indirectly.
 - assesses the potential for health inequalities to vulnerable groups; and
 - considers opportunities to improve population health.
- 2.1.10 The assessment presented is informed by the following technical reports:
- Design and Access Statement (DAS)
 - Parameter plans
 - Energy and Sustainability Statement
 - Transport Assessment
 - Outline Travel Plan
 - Noise Impact Assessment
 - Air Quality Assessment and
 - Statement of Community Involvement
 - Planning Statement
 - Affordable Housing Statement.

3 POLICY REVIEW

3.1 National policy and guidance

3.1.1 The National Planning Policy Framework

- 3.1.1 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2024) sets out the planning policies for England. Promoting healthy and safe communities is a central theme. Key provisions of the NPPF that guide the HIA and the Proposed Development are:

96. Planning policies and decisions should aim to achieve healthy, inclusive and safe places which:

- a) promote social interaction, including opportunities for meetings between people who might not otherwise come into contact with each other – for example through mixed-use developments, strong neighbourhood centres, street layouts that allow for easy pedestrian and cycle connections within and between neighbourhoods, and active street frontages;
- b) are safe and accessible, so that crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion – for example through the use of well-designed, clear and legible pedestrian and cycle routes, and high quality public space, which encourage the active and continual use of public areas; and
- c) enable and support healthy lifestyles, through both promoting good health and preventing ill-health, especially where this would address identified local health and well-being needs and reduce health inequalities between the most and least deprived communities – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling.

97. Local planning authorities should refuse applications for hot food takeaways and fast food outlets:

a) within walking distance of schools and other places where children and young people congregate, unless the location is within a designated town centre; or

b) in locations where there is evidence that a concentration of such uses is having an adverse impact on local health, pollution or anti-social behaviour.

98. To provide the social, recreational and cultural facilities and services the community needs, planning policies and decisions should:

- a) plan positively for the provision and use of shared spaces, community facilities (such as local shops, meeting places, sports venues, open space, cultural buildings, public houses and places of worship) and other local services to enhance the sustainability of communities and residential environments;
- b) take into account and support the delivery of local strategies to improve health, social and cultural well-being for all sections of the community; [...]
- e) ensure an integrated approach to considering the location of housing, economic uses and community facilities and services.

101. To ensure faster delivery of other public service infrastructure such as health, blue light, library, adult education, university and criminal justice facilities, local planning authorities should also work proactively and positively with promoters, delivery partners and statutory bodies to plan for required facilities and resolve key planning issues before applications are

submitted. Significant weight should be placed on the importance of new, expanded or upgraded public service infrastructure when considering proposals for development.

3.1.2 National Planning Practice Guidance

- 3.1.2 The National Planning Practice Guidance (NPPG) (Department for Levelling Up, Housing and Communities, 2022) supports the NPPF and provides guidance across a range of topic areas. The NPPG 'Healthy and safe communities', recognises that a health impact assessment is a useful tool to use where there are expected to be significant impacts. The guidance also notes that planning and health need to be considered firstly in terms of creating environments that support and encourage healthy lifestyles, and secondly in terms of healthcare capacity. In addition, engagement with individuals and/or organisations, such as Public Health representatives, will help ensure local public health strategies and any inequalities are considered appropriately and the Proposed Development aligns with local public health priorities.

3.1.3 Putting Health into Place

- 3.1.3 Putting Health into Place (NHS, 2019a, 2019b, 2019c) is a set of 10 principles designed by NHS to support partners in housebuilding, local government, healthcare and local communities to demonstrate how to create new places that offer people improved choices and chances for a healthier life. The principles are centred around building healthy new towns. The 10 principles of Putting Health into Place that inform this HIA include:

Plan ahead collectively

Assess local health and care needs and assets

Connect, involve and empower people and communities

Create compact neighbourhoods

Maximise active travel

Inspire and enable healthy eating

Foster health in homes and buildings

Enable healthy play and leisure

Develop health services that help people stay well

Create integrated health and wellbeing centres

3.1.4 Sport England – Active Design

- 3.1.4 By applying Active Design's 10 principles to our built and natural environments, we can create active environments that encourage people to be active through their everyday lives (Sport England, 2024).

Principle 1 — Activity for all. All environments should support physical activity equitably across all ages, ethnicities, genders, and abilities, enabling everyone to be active and build long-term active habits and behaviours. This is essential for the delivery of all the principles of Active Design and is its foundational principle.

Principle 2 — Walkable communities. Facilities for daily essentials and recreation should be within easy reach of each other by active travel means, making it more likely that people will make the journey by using active travel modes (defined in Theme 1). Good active travel connections should be provided to extend the range of services that are accessible while remaining physically active.

Principle 3 — Providing connected active travel routes. Encourage active travel for all ages and abilities by creating a continuous network of routes connecting places safely and directly. Networks should be easy to use, supported by signage and landmarks to help people find their way.

Principle 4 — Mixing uses and co-locating facilities. People are more likely to combine trips and use active travel to get to destinations with multiple reasons to visit. Places with more variety, higher densities, and a mix of uses also reduce the perception of distance when travelling through spaces. They also generate the critical mass of travel demand to better support public transport services.

Principle 5 — Network of multi-functional open spaces. Accessible and high quality open space should be promoted across cities, towns and villages to provide opportunities for sport and physical activity, as well as active travel connections and natural or civic space for people to congregate in and enjoy

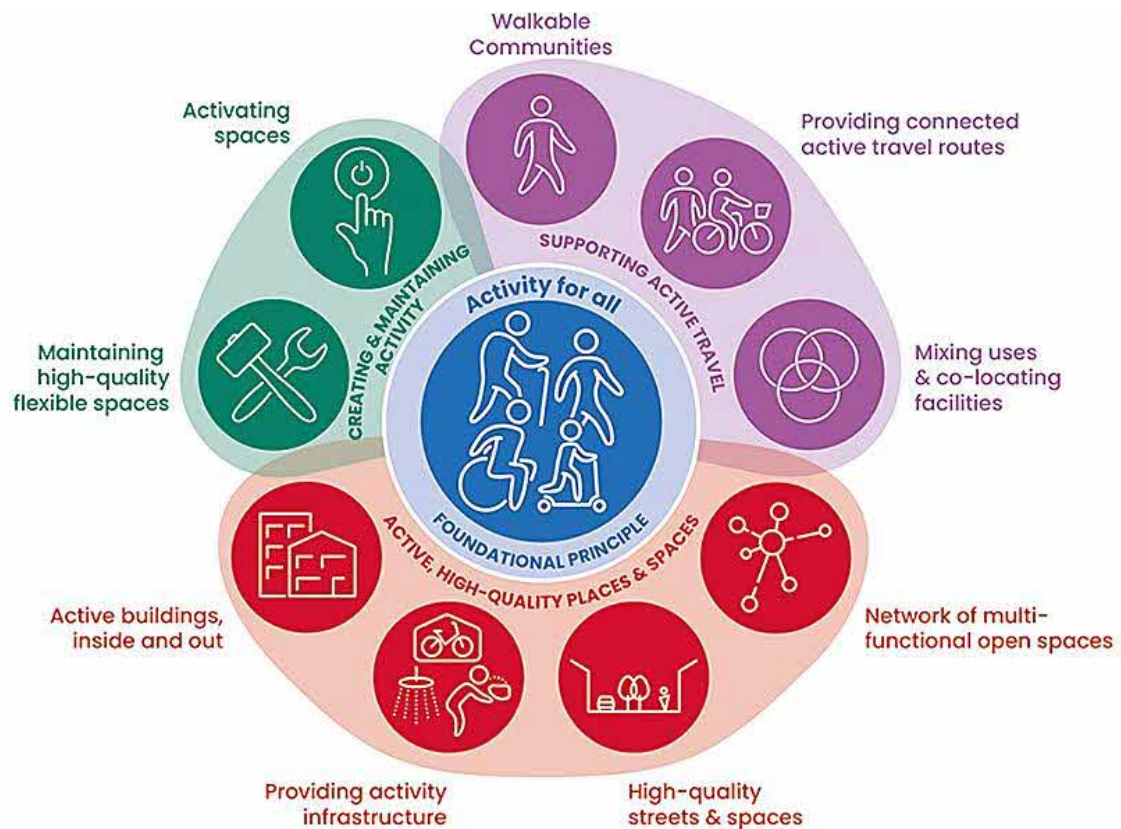
Principle 6 — High-quality streets and spaces. Streets and outdoor public spaces should be Active Environments in their own right. They should be safe, attractive, functional, prioritise people and able to host a mix of uses, with durable, high quality materials, street furniture in the right places and easy-to-use signage. High quality streets and spaces encourage activity, whereas poor quality streets and spaces are much less likely to be used to the same degree.

Principle 7 — Providing activity infrastructure. Infrastructure to enable sport, recreation and physical activity to take place should be provided across all contexts including workplaces, sports facilities and public space, to facilitate activity for all.

Principle 8 — Active buildings, inside and out. Buildings we occupy shape our everyday lives, both when users are inside and outside. Buildings should be designed with providing opportunities for physical activity at the forefront, considering the arrival experience, internal circulation, opportunities to get up and move about, and making the building an active destination.

Principle 9 — Maintaining high-quality flexible spaces. Spaces and facilities should be effectively maintained and managed to support physical activity. These places should be monitored to understand how they are used, and flexible so that they can be adapted as needed.

Principle 10 — Activating spaces. The provision of spaces and facilities which can help to improve physical activity should be supported by a commitment to activate them, encouraging people to be more physically active and increasing the awareness of activity opportunities within a community.



3.1.5 Building for a Healthy Life

3.1.5 Building for a Healthy Life (BHL) (Homes England, 2020) is a design code to help improve the design of new and growing neighbourhoods. BHL is organised across three headings with 12 considerations presented to capture the areas of design and placemaking that need most attention but are often the most overlooked. These considerations include:

Integrated Neighbourhoods:

- Natural connections: Create places that are well integrated into the site and their wider natural and built surroundings. Avoid creating isolated and disconnected places that are not easy places to move through and around.
- Walking, cycling and public transport: Short trips of up to three miles can be easily made on foot or bicycle if the right infrastructure is in place, helping to improve public health and air quality whilst also reducing local congestion and carbon emissions.
- Facilities and services: Places that offer social, leisure and recreational opportunities a short walk or cycle from their homes.
- Homes for everyone: A range of homes that meet local community needs.

Distinctive places

- Making the most of what's there: Understand the surrounding area including opportunities and constraints.
- A memorable character: Create places that are memorable, with a locally inspired or otherwise distinctive character.
- Well defined streets and spaces: Create a network of streets and spaces that are well enclosed by buildings and/or structural landscaping, taking care to ensure that front doors and the principal facades of buildings face streets and public spaces.

- Easy to find your way around: Use legible features to help people find their way around a place including streets that connect with one another and features and character areas that help people find their way around.

Streets for all

- Healthy streets: This includes streets that accommodate the movement of motor vehicles balanced alongside the need for people to move along and cross streets with ease. Activity in the street is an essential part of a successful public realm.
- Cycle and car parking: Well-designed developments will make it more attractive for people to choose to walk or cycle for short trips helping to improve levels of physical activity, air quality, local congestion, and the quality of the street scene. Well-designed streets will also provide sufficient and well-integrated car parking.
- Green and blue infrastructure: Creative surface water management such as rills, brooks and ponds enrich the public realm and help improve a sense of wellbeing and offer an interaction with nature.
- Back of pavement, front of home: Garden cities, towns and suburbs used hedges to define public and private spaces, helping to create characterful and biodiverse places. The space between the back of the pavement and the face of buildings has a significant impact on the quality of a place. Clear demarcations between public and private spaces can encourage people to personalise the front of their homes whilst also offering opportunities to integrate level changes, utility boxes and waste storage.

3.2 Local policy

3.2.1 Three Rivers Core Strategy Local Development Framework

3.2.1 The spatial vision of the Three Rivers Core Strategy states “Looking forward to 2026 and beyond, the District will remain a prosperous, safe and healthy place where people want and are able to live and work”

3.2.2 The spatial vision of the Strategy also identifies 10 priorities for the future of Three Rivers. Priorities relevant to this assessment including those that this Proposed Development responds to include:

To provide growth required to support local communities and provide for their needs in the most sustainable way possible.

To improve access to housing and affordable housing for communities across the whole District

To provide opportunities for local employment and maintain the vitality and viability of existing centres across the district, reducing the need to travel.

To promote sustainable transport options to improve access for all communities and reduce dependence on the car.

To reduce inequalities across the district

3.2.3 The Objectives of the existing local plan, which the Proposed Development responds to, include.

To increase levels of affordable housing in the district, prioritising the provision of social rented and larger family-sized homes

To provide accessible and varied opportunities for leisure, arts, sport and recreational activities in order to promote healthy lifestyles.

To promote safety and security as a high priority in the design of new developments in order to create attractive and safe places in which to live, work and play

- 3.2.4 The Core Strategy also identifies the following as key challenges and areas of need in the district. These include:

House prices which are very high, and affordability has been worsening. The Local Plan therefore identifies the need to achieve more affordable housing and to provide more family sized affordable housing.

The Local Plan identifies the need to enable and promote more sustainable modes of transport to improve travel options, increase access to services and reduce the environmental impacts of travel.

There is an ageing population which will lead to differing demands on services and housing. These demands need to be met whilst ensuring that the district remains attractive and accessible to younger people to support the economic development of Three Rivers

While the District as a whole is ranked low in terms of deprivation, there are inequalities. These include areas affected by income, barriers to housing and services, living environment, barriers to education, skills and training, and crime and disorder deprivation.

Climate change may have significant impacts on Three Rivers which will need to be responded to and it will be important to try and reduce and mitigate these impacts as far as possible.

3.2.2 Community Strategy for Three Rivers

- 3.2.5 The Community Strategy for Three Rivers has the objective to improve quality of life. The vision of the Strategy focuses on inclusivity, healthy lifestyles and reduced health inequalities.

- 3.2.6 The key themes identified in the strategy are:

Stable Economy: with an objective to promote local employment and volunteering opportunities.

Thriving Environment: the objective is to lead, enable and inspire communities to reduce their carbon emissions and proactively offset carbon emissions.

Safe and Well Communities: the objective is to adopt a place-based approach to address health inequalities, and to empower residents to adopt healthier lifestyles.

Belonging: the objective is to celebrate and create a local culture that reflects communities of Three Rivers.

3.2.3 Health and Wellbeing Strategy

- 3.2.7 The assessment is informed by Hertfordshire's Health and Wellbeing Strategy 2022-2026 (Hertfordshire County Council, 2022a). The aim of the strategy is to tackle the many causes of poor health that are not equal across Hertfordshire, including lifestyle and environmental conditions such as air quality, noise, physical activity and how these affect the wider determinants of health.

- 3.2.8 The health and wellbeing priorities relevant to this assessment include:

Every child has the best start in life: This priority notes the importance of supporting good maternal and quality services in the early years. The enduring effects of these factors on health, particularly for those from disadvantaged backgrounds are highlighted. The aims of this priority for children and young people include;

- to improve life chances, mental and emotional wellbeing for the most disadvantaged families including children in care, young carers, children living in poverty, and children with learning disabilities and special education needs.
- improve access to oral health,
- ensure they have access to information, advice and support that will enable them to maintain good health, and
- ensure they have access to a range of affordable recreational activities, including play and voluntary learning provision in their home and community.

Good nutrition, healthy weight, and physical activity: This priority notes the importance of regular physical activity to physical, mental and emotional wellbeing. There is emphasis for vulnerable people to be encouraged and supported to live healthy lifestyles including taking part in regular physical activity to maintain and improve their independence.

Good emotional and mental wellbeing throughout life: This priority recognises the importance of having good mental wellbeing to people's quality of life and the capacity to cope with life's ups and downs. Lower levels of self-reported wellbeing and a high proportion of people with depressive disorders are reported in the County highlighting the need to reduce the risk factors of poor emotional and mental wellbeing in the study area.

Healthy and sustainable places and communities: This priority recognises how the environment influences and shapes health and wellbeing outcomes. The needs to reduce levels of pollutants within the air and noise pollution, promote use of green space within Hertfordshire, promote a more sufficient transport and protect the environment by reducing pollution and waste are highlighted.

A healthy standard of living for all: The aims for this priority include to promote, influence and protect healthy food environments, so that residents have access to a diverse healthy food offer; provide equitable and timely access to sexual health and reproductive health services; strengthen services and wellbeing support for older people including support to address loneliness and isolation; and ensure young and adult carers have access to support to live healthy and fulfilling lives.

Healthy and sustainable places and communities: This priority aims to create healthy streets and places by promoting spaces where everyone feels welcome, people feel safe and relaxed, and where there are features that promote use by all. The priority recognises that the physical, economic and social characteristics of housing, places and communities people live in have an important influence over people's physical and mental health and wellbeing. Housing affects health, and health inequalities, in many ways, including through cost, housing conditions and security of tenure. In addition to housing, this priority also notes other important factors that influence health and aims to reduce levels of air pollutants, noise pollution and promote use of green space.

3.2.4 Joint Strategic Needs Assessment

- 3.2.9 The Hertfordshire Joint Strategic Needs Assessment (JSNA) also informs this assessment. The following priorities have been considered:

Young age:

- 3.2.10 The Three Rivers Health Inequalities JSNA (Hertfordshire County Council, 2023a) identifies the following priorities for this population group including obesity or excess weight in year 6 male pupils and reception female pupils; child and adolescent mental health; children with special needs; and the promotion of active travel and use of green spaces and mental health.

- 3.2.11 The Physical Activity JSNA (Hertfordshire County Council, 2022b) also identifies the importance of green space and outdoor exposure in children and adolescent's mental health including emotional and behavioural difficulties and physical health including health weight and physical conditions.

Old age: older people

- 3.2.12 With regards to this population group, the assessment has given priority to: older people living with dementia; income deprivation; long term conditions; sensory impairments; frailty; and end of life care. The high risk associated with health impacts of isolation, falls, and fractures is also noted.
- 3.2.13 The Barriers and Enablers to Physical Activity JSNA in Older Adults identifies older people living in deprivation and those with cognitive and mobility disability as more vulnerable to physical inactivity (Hertfordshire County Council, 2022c).
- 3.2.14 The Physical Activity JSNA (Hertfordshire County Council, 2022b) identifies the importance of green space and outdoor exposure in increasing physical activity among older adults which in turn can increase mobility and help to prevent falls, in addition to reducing the risk of chronic conditions such as type 2 diabetes, musculoskeletal disorders, different types of cancer, and cardiovascular diseases.

Low income:

- 3.2.15 The identified priorities related to this needs area by the Three Rivers Health Inequalities JSNA include: low-income families; Jobseeker's allowance claimants; unemployment; housing costs; and equitable opportunities for secure income and housing.
- 3.2.16 According to the Housing Quality and Health JSNA Briefing (Hertfordshire County Council, 2023b), excess cold was the most common housing hazard between 2010-2016 in Hertfordshire. A survey conducted between December 2022 and January 2023 showed that at risk groups including people with a disability and/or long-term condition and the elderly had been unable to heat their homes due to rising living costs. Other at-risk groups identified in the JSNA include single parents, carers and people from Asian / Asian British background were affected by rising costs impacting their physical and/or mental health.

Poor health: Discrimination and/or isolation

- 3.2.17 The identified priorities related to poor health include people in lower social class with high rates of complex mental and physical health issues, children with special needs and long-term conditions and older people living with multiple conditions.

Social disadvantage:

- 3.2.18 The identified priorities related to social disadvantage include: transgender people experiencing discrimination in sexual health services and sex specific health screenings; children with special educational needs and those who live in poverty or deprivation; and women, people from minority ethnic backgrounds or people with disabilities.

Other

- 3.2.19 The Air Quality JSNA (Hertfordshire County Council, 2023c) identifies LSOAs located in Hertfordshire districts that border London including Three Rivers as priority areas with the worst air quality and Watford as priority area with the highest mean concentration of PM_{2.5} and the highest fraction of mortality attributable to particulate air pollution compared with other districts in Hertfordshire. Road transport is identified as a key source of many air pollutants.

Interventions to improving air quality including walking and cycling (sustainable travel) are noted in the JSNA including the co-benefits of active travel in improving physical activity and related physical and mental health effects.

- 3.2.20 The Physical Activity JSNA briefing identifies priorities for physical activity including pregnant women, children (and those minority ethnicities), older people and those living with existing long term chronic conditions and disability (Hertfordshire County Council, 2022b).

4 CONSULTATION AND ENGAGEMENT

- 4.1.1 The HIA team met with the Hertfordshire County Council Public Health Team on 30th August 2024. The meeting agreed the methods and scope of the HIA and identified opportunities to collaborate on local health profile data and identifying organisations representing hard to reach groups. Data was shared and incorporated into the HIA. Hard-to-reach organisations were shared and included in the Project community consultation.
- 4.1.2 The HIA team met with the local GP practice on 7th June 2024, 27th June 2024, 10th September 2024 and 10th December 2024. Meetings discussed the need and viability of relocating existing medical premises to space for NHS health and social care services provided by the Project. It was confirmed through the meetings that in principle it would be beneficial for Dr Patel's practice to relocate to new premises, subject to confirming viability in conjunction with the Integrated Care Board (ICB).
- 4.1.3 The HIA team met with the Hertfordshire and West Essex ICB on 24th October 2024 and 9th of December 2024 to discuss the process and need for new NHS health and social care services as part of the Project. One option being considered is the opportunity to provide new local GP premises, as existing estates have constraints on local primary care delivery. The ICB confirmed that due to the engagement of the HIA with them they are in the process of undertaking a needs assessment. That assessment will enable them to confirm the specific way the Project would contribute to providing new NHS health and social care services locally. There will be ongoing discussion post submission with the ICB.
- 4.1.4 Community consultation was undertaken between 05 September and 13th October 2024. As of 1 November 2024, 328 responses were received online.
- 4.1.5 The HIA team inputted the following questions into the consultation:
- Are there any reasons you may be more sensitive to the effects of the project?
- Is there anything specific about the project that you would like more information on because you are concerned it may affect your health?
- How do you think the project could help to improve community health and wellbeing?
- Is there anything else we should consider in the health impact assessment?
- 4.1.6 The HIA team provided a list of hard-to-reach organisations representing local vulnerable groups who were sent a leaflet explaining the project and consultation. This enabled them to respond to the consultation and to be in a position to disseminate information about the project and the consultation.
- 4.1.7 The following summarises the health issues raised by the consultation:

Table 4-1: Consultation summary

Broad Topic	Issues Raised	Response to issue and where considered in this chapter
Are there any reasons you may be more sensitive to the impacts of the project?	Preservation of Green Spaces: Many respondents expressed the importance of maintaining green belts and local natural habitats, emphasising their role in community wellbeing and recreational activities.	The Proposed Development is retaining existing hedgerows, trees and woodland which would be integrated into public open space. A new country park is also proposed providing an open transition between the new development and the surrounding areas including Whippendell Wood (SSSI) and Cassiobury Park. Impacts of the Proposed Development on open green space and implications on community health and wellbeing during construction and operation are assessed in sections 11.1.2 and 11.2.1.

	Infrastructure Improvements: There were strong calls for adequate infrastructure developments, including schools, roads, and public transport options, to accommodate the expected population increase from the housing project.	The Proposed Development will include space in the local centre for new NHS health and social care services, and a one form entry primary school within the new residential development area. The beneficial impacts of the Proposed Development on health and social services as well as the implications on population health are assessed in section of this HIA. In terms of transport, the Proposed Development also includes a new bus service that will run through the site. Appropriate and proportionate contributions towards highway improvements are to be agreed following discussions with Hertfordshire County Council. The development will also be providing additional highway improvements including signalised junctions at Baldwins Lane to both Links Way and Durrants Drive, and a widening of path to facilitate a dedicated cycleway along Links Way. The impacts of the Proposed Development on transport and related services as well as the implications on population health are assessed in section 11.2.3 of this HIA.
	Enhanced Community Facilities: Suggestions were made to improve local amenities, including sports facilities and playgrounds, to benefit both existing residents and future inhabitants.	Noted. A contribution is being provided for off-site sport provision to Croxley Danes pitches.
	Traffic and Congestion Concerns: Members of community highlighted the detrimental impacts of increased traffic on local roads and safety, questioning the capacity of existing infrastructures to handle the projected flow.	Appropriate and proportionate contributions towards highway improvements are to be agreed following discussions with Hertfordshire County Council. Each of the access junctions into the site would be formed by a raised table with a change of surface as traffic calming measures. The development will also be providing additional highway improvements including signalised junctions at Baldwins Lane to both Links Way and Durrants Drive, and a widening of path to facilitate a dedicated cycleway along Links Way. Impacts of the Proposed Development with regards to increased traffic and disruptions to transport modes, access and connection are assessed in sections 11.1.3 and 11.2.3 of this HIA.
	Overdevelopment of Area: Respondents voiced fears that the project would lead to overdevelopment, turning Croxley Green from a village into a town, diminishing its community feel.	Issues related to impacts of the Proposed Development on community identity and influence on population health are assessed in sections 11.2.4 of this HIA. It is not anticipated for there to be significant impacts on community identity and society due to the Proposed Development. The overall impact of the Proposed Development on community identity and society is assessed as minor beneficial.
	Traffic Management: Questions arose regarding how the increased traffic and construction-related disruptions would be managed, especially concerning safety in residential areas.	Appropriate and proportionate contributions towards highway improvements are to be agreed following discussions with Hertfordshire County Council. Each of the access junctions into the site would be formed by a raised table with a change of surface as traffic calming measures. The development will also be providing additional highway improvements including signalised junctions at Baldwins Lane to both Links Way and Durrants Drive, and a widening of path to facilitate a dedicated cycleway along Links Way.

		Impacts of the Proposed Development with regards to increased traffic and disruptions to transport modes, access and connection are assessed in sections 11.1.3 and 11.2.3 of this HIA.
	Environmental Assessment: Residents sought clarity on how the environmental impact of the development would be assessed and mitigated, particularly concerning local wildlife and ecosystems.	Issues related to ecosystems and wildlife populations are beyond the scope of this HIA. These have been assessed elsewhere and details are provided in the Ecology Impact Assessment.
	Infrastructure Adequacy: There were inquiries about the capacity of local services, including schools and healthcare facilities, to accommodate new residents given their current strains.	The Proposed Development will include space in the local centre for new NHS health and social care services, and a one form entry primary school within the new residential development area. Beneficial impacts of the Proposed Development on health and social services as well as the implications on population health are assessed in section 11.2.7 of this HIA.
Is there anything specific about the project that you would like more information on because you are concerned it may affect your health?	Traffic Measures: Community members highlighted the need for effective traffic management, including alternative routing for vehicles to minimise congestion and improve safety around local schools.	Appropriate and proportionate contributions towards highway improvements are to be agreed following discussions with Hertfordshire County Council. Each of the access junctions into the site would be formed by a raised table with a change of surface as traffic calming measures. The development will also be providing additional highway improvements including signalised junctions at Baldwins Lane to both Links Way and Durrants Drive, and a widening of path to facilitate a dedicated cycleway along Links Way. Impacts of the Proposed Development with regards to increased traffic and disruptions to transport modes, access and connection are assessed in sections 11.1.3 and 11.2.3 of this HIA.
	Mental Health Considerations: Four respondents suggested addressing the mental health impacts due to increased noise, construction, and loss of green spaces, implying that health services should be prepared for potential increases in demand.	This HIA considers the mental health impacts of the Proposed Development due to construction noise, loss of green spaces and implications on health care services in its assessment in sections 11.1.7, 11.1.2, 11.2.1 and 11.2.7.
	Environmental Impact Reporting: Four responses recommended a detailed environmental impact assessment, particularly regarding air quality, noise pollution, and the ecological consequences of construction activities.	Detailed assessments with regards to air quality and noise pollution can be found in the Air Quality Statement and Noise Statement. This HIA has had regard to the impacts of air quality and noise pollution on population health during construction in sections 11.1.6 and 11.1.7, informed by the findings of the Air Quality and Noise Statements. During operation, the Proposed Development is not anticipated to have any air quality or noise and vibration impacts, as discussed in Table 6-1.
	Overdevelopment Concerns: Eleven responses categorically opposed the project's scale, arguing that it threatens the village's character and the green belt, with several stating that it is unnecessary.	Issues related to the Proposed Development impacts on community identity and landscape character and implications on population health are assessed in section 11.2.4.

	Increased Traffic and Pollution: Eight respondents expressed significant concern about traffic congestion and the resultant pollution, highlighting that the infrastructure is already strained.	Impacts of the Proposed Development with regards to increased traffic and disruptions to transport modes, access and connection are assessed in sections 11.1.3 and 11.2.3 of this HIA. In relation to pollution, sections 11.1.6 and 11.1.7 of this report consider the noise and air quality impacts of the Proposed Development resulting from construction vehicles. During operation, the Proposed Development is not anticipated to have any air quality or noise and vibration impacts, as discussed in Table 6-1.
	Noise and Dust Effects: Seven responses specifically mentioned worries about noise and dust during construction, asserting that it would negatively impact residents' daily lives and health.	Sections 11.1.6 and 11.1.7 of this report consider the noise and air quality impacts the noise and air quality impacts of the Proposed Development resulting from construction vehicles.
	Construction Timeline and Noise Management: Five respondents inquired about the expected duration of construction and measures to mitigate noise during the building phase.	The duration of construction of the Proposed Development is not yet known at this stage, but will be confirmed during the Reserved Matters stage. Mitigation measures related to construction noise are detailed in the Noise Statement and Construction Management Plans for the development. This HIA has also taken into consideration these mitigation measures in its assessment, and these are deemed to be sufficient. No further mitigation measures have been proposed in this HIA with regards to construction noise.
	Impact on Local Services: Five queries focused on how the development would affect local health services, especially considering already experienced pressures on hospitals and clinics.	A detailed assessment of the impacts of the Proposed Development on health and social services is provided in section 11.2.7 of this HIA.
Is there anything else we should consider in the health impact assessment?	Traffic Management: Several responses highlighted the urgent need for effective traffic management systems to address current congestion and the anticipated increase in vehicle numbers due to the development. Suggestions included improved road planning and public transport enhancements.	Noted. Appropriate and proportionate contributions towards highway improvements are to be agreed following discussions with Hertfordshire County Council. Each of the access junctions into the site would be formed by a raised table with a change of surface as traffic calming measures. The development will also be providing additional highway improvements including signalised junctions at Baldwins Lane to both Links Way and Durrants Drive, and a widening of path to facilitate a dedicated cycleway along Links Way.
	Local Health Services: Multiple respondents called for the establishment of additional medical facilities, such as a new GP surgery or medical centre, to accommodate the growing population and alleviate existing pressures on healthcare services.	The Proposed Development will include space in the local centre for new NHS health and social care services and a one form entry primary school within the new residential development area. Beneficial impacts of the Proposed Development on health and social services as well as the implications on population health are assessed in section 11.2.7 of this HIA.
	Environmental Impact Mitigation: Respondents advocated for green building practices, including integrating solar panels and water collection systems in new homes, along with preserving local wildlife habitats and green spaces."	Key components of the Proposed Development that support green building practices include: High performance building fabric- a fabric-first approach will be adopted ensuring advanced insulation, airtight construction and high performance windows. Low Carbon Heat Provision- Air Source Heat Pumps (ASHPs) will be used for heating, which extract heat from the air significantly reducing onsite carbon emissions.

		Renewable energy- Photovoltaic panels (solar) will be installed across available roofs to generate renewable energy onsite.
	Overall Development Discontent: A significant number of responses expressed strong opposition to the development itself, citing concerns over loss of green spaces, environmental degradation, and a negative impact on community character.	Issues related to impacts of the Proposed Development on green spaces and community character and influence on population health are assessed in sections 11.1.2, 11.2.1 and 11.2.4 of this HIA.
	Traffic and Pollution Concerns: Many highlighted worries about increased traffic volumes leading to severe congestion, air pollution, and noise disturbances, particularly during construction.	Impacts of the Proposed Development with regards to increased traffic and disruptions to transport modes, access and connection are assessed in sections 11.1.3 and 11.2.3 of this HIA. In relation to pollution, sections 11.1.6 and 11.1.7 of this report consider the noise and air quality impacts of the Proposed Development resulting from construction vehicles. During operation, the Proposed Development is not anticipated to have any air quality or noise and vibration impacts, as discussed in Table 6-1.
	Strain on Local Amenities: Various comments pointed to potential overcrowding in local services, especially schools and healthcare facilities, suggesting that these resources are already overstretched."	The Proposed Development will include space in the local centre for new NHS health and social care services and a one form entry primary school within the new residential development area. These are anticipated to alleviate the increased demand on health and education services resulting from the Proposed Development. Operational impacts of the Proposed Development on health and social services as well as the subsequent population health effects are assessed in section 11.2.7 of this HIA. Impacts on education including capacity and population health effects are assessed in section 11.2.5.
	Impact on Local Wildlife: Questions arose about how the development would affect local ecosystems and wildlife populations, with a request for specifics on environmental assessments.	Issues related to ecosystems and wildlife populations are beyond the scope of this HIA. These have been assessed elsewhere and details are provided in the Ecology Impact assessment.
	Plan for Emergency Services: Concerns were raised about how increased population density would influence response times and capabilities of emergency services in the area.	Impacts of the Proposed Development with regards to increased population and influence on response times and capabilities of emergency services in the study area are assessed in section 11.2.7. The Proposed Development will provide space in the local centre for new NHS health and social care services. This is anticipated to alleviate any increase in demand on emergency services due to the development.
	Traffic Assessment Reviews: Respondents queried whether updated traffic studies and assessments would be conducted to understand the full impact of the proposed housing on local traffic issues.	A full transport assessment has been conducted for the Proposed Development. Findings of the assessment are provided in the Transport Assessment

Promoting healthy lifestyles	Allotments and Community Gardens: Members of community advocated for the inclusion of community gardens and allotments to promote healthy lifestyles, with specific requests for enhanced management and protection of these spaces.	The Proposed Development includes provisions for a community orchard and allotments to promote healthy lifestyles.
	Sports Facilities: Members of community proposed creating all-weather sports facilities to better serve the community, highlighting the need for communal spaces that promote physical activity.	The Proposed Development will ensure appropriate off-site contribution towards the evaluated leisure needs for the Croxley Green area. This has considered both the adequacy of current provision, and the ability of existing infrastructure to sustain the growth that is proposed in the context of the existing provision. Early discussions with Sport England have demonstrated support for the potential approaches to mitigate the impact and bring off site benefit to existing sporting infrastructure, as set out in the Sport and Leisure Strategy. Issues relating to physical activity opportunities provided by the Proposed Development and impacts on population health are considered in section 11.2.1 of this HIA.
	Impact on Local Services: Members of community asked how the increased population would affect local NHS services and overall community health, given existing service strains.	The Proposed Development will include space in the local centre for new NHS health and social care services, in the new local centre. Consultation on feasibility and opportunities is ongoing with the ICB and relevant stakeholders. Impacts due to the Proposed Development on health and social services including effects on population health are assessed in section 11.2.7 of this HIA.

5 STUDY AREA

5.1.1 The following study areas are used in the assessment:

The site-specific population is defined using the following wards of:

- Chorleywood North and Sarratt
- Durrants
- Dickinsons
- Holywell and
- Park

The local population is defined using the district areas of:

- Three Rivers
- Watford

The regional population is defined using the area of the East of England.

The national area is England.

5.1.2 The site specific and local study areas are illustrated in Figure 5-1 below.

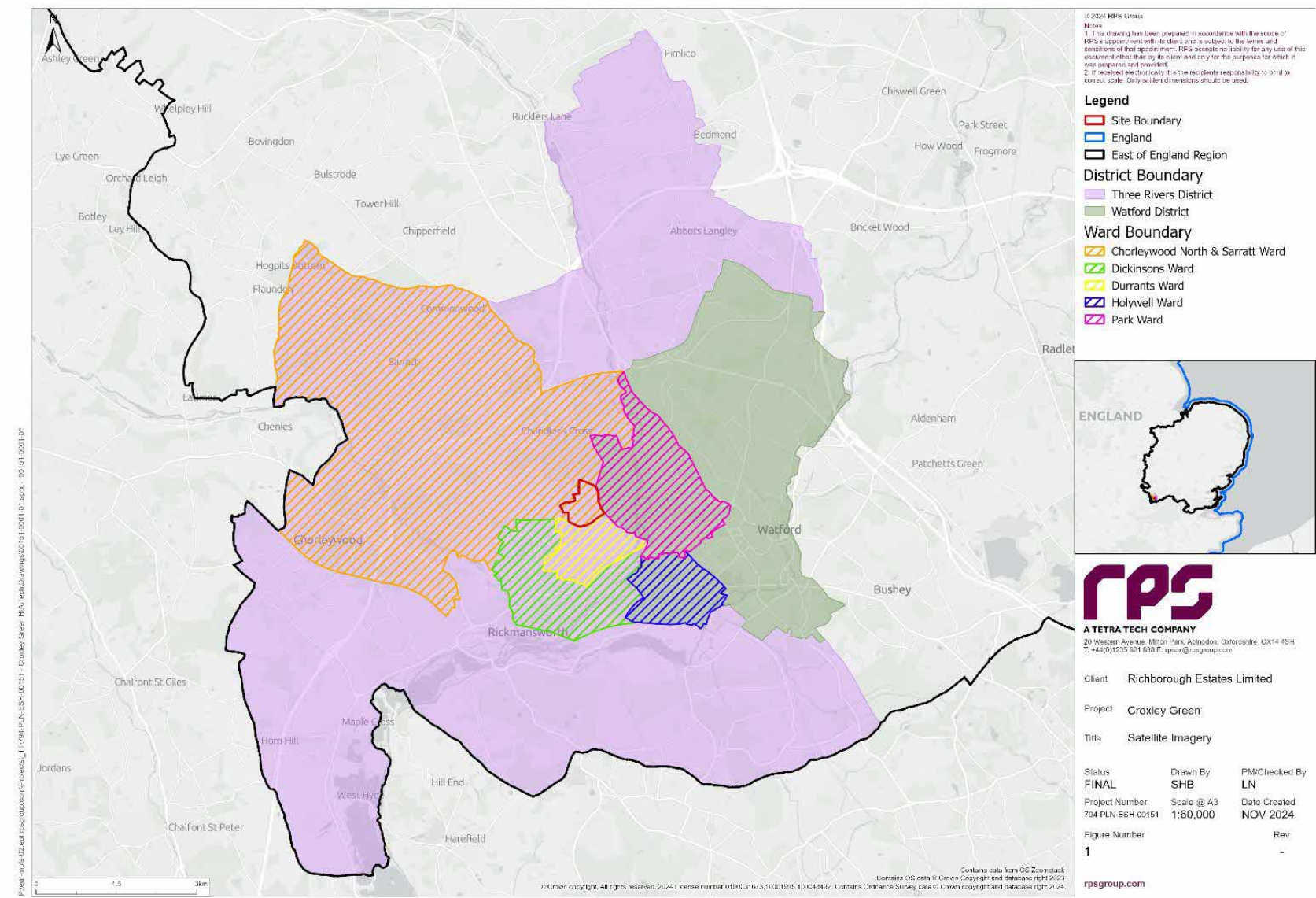


Figure 5-1: Project Study Area

6 SCOPE OF THE ASSESSMENT

- 6.1.1 A proportionate and evidence-based approach to the HIA scoping has been undertaken. Scoping has followed the IPH list of determinants of health and population groups (Pyper et al., 2021). The following issues are assessed in 11:

Healthy lifestyles: Open space and physical activity

Safe and cohesive communities: Housing

Safe and cohesive communities: Transport

Safe and cohesive communities: Community identity and society

Socio-economic conditions: Education

Socio-economic conditions: Employment (including quality)

Environmental conditions: Air quality

Environmental conditions: Noise

Health and social care services

- 6.1.2 Effects which are not considered to have the potential for 'likely significant population health effects' have been scoped out of the assessment. This is in line with a proportionate assessment as set out in guidance (Pyper et al., 2021). A summary of the effects scoped out is presented in Table 6-1.

Table 6-1 Issues scoped out of the HIA

Broad categories	Determinants of health	Justification
Health lifestyles	Sports, leisure and recreational connectivity and access (including safety)	Construction and operation Sports, leisure and recreational connectivity and access (including safety) is discussed under the 'Open Space and Physical Activity' health determinant. To avoid duplication, this issue has been scoped out here.
	Sports, leisure and recreational age, sensory and mobility considerations	Construction and operation Sports, leisure and recreational age, sensory and mobility considerations are discussed under the 'Open Space and Physical Activity' health determinant. To avoid duplication, this issue has been scoped out here.
	Health promotion (including smoking cessation); Substance misuse (including alcohol); Problem gambling; Communicable illness (including STIs and other infections)	Construction and operation Issues of community health behaviours being detrimentally affected by the presence of construction and operational workforces are scoped out. It is assumed that the majority of the workforce lives in the local/regional area, and interactions with the public would be minimal. The workforce is unlikely to be sufficiently large in number to affect local markets, e.g. for alcohol, cigarettes or gambling, to an extent which could significantly affect community health. The issue of communicable illness, including in relation to COVID-19 is noted but scoped out. The Proposed Development will operate appropriate measures to safeguard the Proposed Development workforce and the public in line with Government guidance of the day. Risks are similar to other routine construction and shipping activities
	Diet (including production and access to affordable healthy food options)	Construction and operation The Proposed Development is neither expected to require agricultural land take, nor disrupt food related production or transport. The changes are not considered likely to affect availability or price of food to a degree that could affect population health.

Broad categories	Determinants of health	Justification
Safe and cohesive communities: Built environment	Spatial planning, use classes, zoning and land allocations (including streets and routes, places, urban green space, parks, landscape)	Construction and operation Issues in relation to spatial planning that influence physical activity including urban green space and parks are assessed under Open Space and Physical Activity. These issues are therefore scoped out here, to avoid duplication
	Injury risk (including drowning and falls);	Construction and operation The Proposed Development is not anticipated to pose the risk of drowning on the population. This issue is therefore scoped out. The risk to the public from accidental injury, e.g. falls, is scoped out.
	Waste management (including sanitation systems and wastewater reuse);	Construction and operation The potential for the Proposed Development to affect existing features of the built environment that are supportive of population health including sanitation systems has been considered and scoped out. The Proposed Development would have a relatively low impact, including best practice means to avoid surface disruption at sensitive features. The position of existing services, such as water and sewer systems will be taken into account in and appropriate diversions would occur to avoid disruption to such services. This issue is scoped out.
	Access to shops, retail food resources, financial and commercial services;	Construction and operation Issues influencing accessibility to essential and health promoting services are assessed under Transport. These issues are therefore scoped out here to avoid duplication.
	Susceptibility to major accidents and/or disasters (including earthquake, water surge, wildfire, landslide, pandemic etc.)	Construction and operation The risk to the public from major accidents and/or disasters and accidental injury, e.g. falls or drowning is scoped out. There is not anticipated to be a risk of major accidents in relation to the proposed development during construction and operation. The proposed development will utilize standard good practice construction techniques to minimize the risk of accidents. Subject to compliance with relevant construction standards and working practices it is considered that the risk of major accidents (including those caused by climate change, in accordance with scientific knowledge) during construction and operation would be unlikely.
Safe and cohesive communities: Community safety	Police/security and emergency response	Construction and operation During construction, the Proposed Development workforce requires skilled technical roles. There are not anticipated to be community safety or security issues associated with worker behaviour The Proposed Development would include the appropriate security and safety measures including principles of designing out crime. These issues are assessed under Housing. This issue is scoped out here.
	Actual and perceived crime	Construction and operation The potential for widespread actual or perceived crime that could affect population health is unlikely. This issue is scoped out. The benefit of the Proposed Development in improving community safety during operation through new built environment, secured by appropriate Design Principles is noted and assessed under Housing.
	Safeguarding and modern slavery	Construction and operation During construction, the Proposed Development and its contractors would operate appropriate safeguarding and modern slavery policies. This issue is scoped out. There are not anticipated to be any issues in relation to safeguarding and modern slavery during operations. This issue is scoped out here.

Broad categories	Determinants of health	Justification
Environmental conditions	Climate change mitigation and adaptation	Construction and operation: Embodied carbon and climate altering pollutant emissions during construction and operation are not of a scale to have the potential for population level effects associated with climate change. This issue is scoped out. The benefits of the Proposed Development in addressing climate change, including sustainable drainage systems (SuDS), EV charging, active travel opportunities, connections to local cycling and walking networks, cycle infrastructure, and new dwellings that meet current sustainability and energy efficiency standards, are acknowledged. However, these will be addressed under housing, transport and open space and physical activity health determinants. To avoid duplication, this issue is scoped out here
	Air quality	Operation The Proposed Development is not anticipated to have any air quality impacts during operation. This issue is therefore scoped out.
	Water quality or availability	Construction and operation Construction works could create or mobilise pollutants through water pathways leading to potential toxin exposures through dermal contact or ingestion. Pollution of surface water or groundwater bodies used as potable sources could affect the quality or availability of drinking water. However, the mitigation measures detailed in the Drainage Strategy ensure that there is no significant impact on nearby sensitive receptors. Pollution risk issues are therefore scoped out on the basis of the anticipated effectiveness of such measures. Effects to public drinking water infrastructure are scoped out on the basis that disruption of the existing water utilities network would be avoided.
	Soil	Construction and operation Construction works, as well as materials handling and storage arrangements associated with the proposed changes is such as to ensure that the soil environment remains protected and in accordance with existing planning conditions. Occupational risk would be managed in line with health and safety legislation, including standard best practice protective equipment and management measures. Operational activities are not anticipated to result in public exposures to contaminated soils as no soil movement or disruption is anticipated and any pollution linkage pathways to soils are avoided by the building fabric. Linkages via air (dust) or water are discussed under those topics in Section 10, including that regulated management procedures are expected to keep all exposures within levels set for public protection. On this basis, land pollution risk issues are scoped out.
	Noise	Operation The Proposed Development is not anticipated to have any noise and vibration impacts during operation. This issue is therefore scoped out.
	Radiation	Construction and operation Non-ionising electro-magnetic field (EMF) effects are scoped out on the basis that the Proposed Development does not include major electrical infrastructure such as powerlines and substations and would not generate electrical energy for re-use. Public understanding of risk in relation to operational EMF is also scoped out on this basis. No ionising radiation sources or waste are involved and so this issue is also scoped out.
Institutional and built environment	Health and Social Care Services	Construction Effects on health and social care are scoped out. The project workforce is assumed to include residents of the local and regional area, who would access healthcare under their existing entitlements (e.g. medical card) or payment schemes. The Proposed Development will operate appropriate occupational health services. It is not expected that a high proportion of workers would move to the area with dependants requiring social care. Health protection measures such as screening and immunisations are expected to continue from the workers' usual place of residence. Similarly routine dental appointments are

Broad categories	Determinants of health	Justification
		assumed to be with the worker's dental practice close to their usual place of residence.
	Wider societal infrastructure and resources	Construction and operation The Proposed Development provides new housing, however, to avoid duplication this issue will not be assessed separately as the benefits of the Proposed Development have been extensively discussed in the scoped issues mentioned above. This issue is scoped out.

7 BASELINE ENVIRONMENT

7.1 General Health

Table 7-1: General Health

Indicators	Site Specific Wards					Local Districts		County	National
	Chorleywood North and Durrants	Dickinsons	Holywell	Park	Three Rivers	Watford	Hertfordshire	England	
General Health									
Very good or good health %	87.5	88.0	88.2	84.6	88.0	86.0	85.9	85.4	82.2
Fair health %	9.8	9.5	9.0	10.9	9.5	10.4	10.4	10.8	12.7
Very bad or bad health %	2.7	2.5	2.8	4.5	2.5	3.5	3.7	3.8	5.2
Healthy Life Expectancy									
Healthy Life expectancy at birth for males (year)	NA	NA	NA	NA	NA	NA	NA	66.3	63.1
Healthy Life expectancy at birth for females (year)	NA	NA	NA	NA	NA	NA	NA	66.3	63.9
Preventable Mortality									
Death from causes considered preventable, under 75 years (per 100,000)	40.3	59.6	67.6	150.3	56.0	76.7	95.3	79.3	100.0

Source: Office for National Statistics (ONS, 2024)

- 7.1.1 Table 7-1 shows key public health indicators that may be associated with differential effects to the site-specific area population due to the Proposed Development. The indicators show the general state of health and the extent to which there are already pressures on the population's health. The indicators at the Site-Specific Study Area level are compared against the national averages. The following baseline has been extracted on the 29th of June 2024 from the Office for National Statistics (ONS, 2024, 2024)
- 7.1.2 In assessing the general health within site-specific wards, the majority of the population reported being in very good or good health, consistent with national averages. Specifically, 87.5% of residents in Chorleywood North and Sarratt, 88% in Durrants, 88.2% in Dickinsons, 84.6% in Holywell, and 88.0% in Park reported to be in good to very good health, which is similar to the national average of 82.2%. Furthermore, the proportion of individuals reporting fair health was 9.8% in Chorleywood North and Sarratt, 9.5% in Durrants, 9.0% in Dickinsons, 10.9% in Holywell, and 9.5% in Park, all slightly below the national average of 12.7%. The proportion of individuals reporting to be in bad to very bad health was 2.7% in Chorleywood North and Sarratt, 2.5% in Durrants, 2.8% in Dickinsons, 4.5% in Holywell, and 2.5% in Park, all lower than the national average of 5.2%.
- 7.1.3 Health life expectancy at birth is the average number of years a person can be expected to live in full health. This data is not reported for all the wards and districts in the study area. At the county level, Hertfordshire has a health life expectancy at birth of 66.3 years for both males and females, which is higher than the national average of 63.1 years for males and 63.9 years for females.

- 7.1.4 The mortality rate for individuals under 75 from preventable causes is notably better in four of the site-specific wards compared to the national average, with the exception of Holywell, which has a rate 50% higher than the national average. Specifically, Chorleywood North and Sarratt has a mortality rate of 40.3 per 100,000, Durrants 59.6 per 100,000, Dickinsons 67.6 per 100,000, and Park 56 per 100,000 for causes considered preventable, all significantly lower than the national average of 100 per 100,000. In contrast, Holywell has a markedly higher mortality rate of 150.3 per 100,000 for preventable causes, which is worse than the national average.

7.2 Vulnerable groups including social disadvantage equality considerations.

Table 7-2: Relevant Protected Characteristics

Indicators	Site Specific Wards					Local Districts		County	National
	Chorleywood North and Sarratt	Durrants	Dickinsons	Holywell	Park	Three Rivers	Watford	Hertfordshire	England
Sex									
Male %	48.4	48.1	49.2	47.9	49.5	48.7	49.2	48.8	51.0
Female %	51.6	51.9	50.8	52.1	50.5	51.3	50.8	51.2	49.0
Age									
% age 0 to 15	16.6	21.5	20.3	22.5	20.7	20.0	20.8	20.0	18.5
% age 16 to 64	58.1	59.1	62.0	67.6	62.8	61.9	66.6	63.0	62.9
% aged 65 and over	25.3	19.4	17.7	10.0	16.5	18.1	12.6	17.0	18.6
Long term health problem or disability									
Disabled under the Equality Act: Day-to-day activities limited a lot or little %	11.8	11.0	12.5	13.4	12.0	13.5	12.6	14.4	17.3
Not disabled under the Equality Act: Has long term physical or mental health condition but day-to-day activities are not limited %	7.3	7.3	7.5	4.6	5.9	6.8	5.6	6.9	6.8
Not disabled under the Equality Act: No long term physical or mental health conditions %	80.9	81.7	80.1	82.0	82.1	79.7	81.8	78.7	75.9
Lower Income									
Income Deprivation (%)	2.8	3.8	4.1	14.6	5.3	7.1	9.2	8.2	12.9
Language proficiency									
Population who cannot speak English well or at all (%)	0.6	0.2	0.8	3.2	1.8	0.8	2.7	1.1	1.8
Ethnicity									
Asian, Asian British or Asian Welsh %	21.7	10.5	13.9	33.6	33.6	15.2	24.5	8.6	9.6
Black, Black British, Black Welsh, Caribbean or African %	1.7	1.2	1.8	8.0	4.2	2.4	6.3	3.7	4.2
Mixed or Multiple Ethnic groups %	3.3	3.0	4.0	5.0	4.9	3.6	4.7	3.8	3.0

White %	71.7	84.0	79.0	49.3	53.8	77.1	60.9	81.8	81.0
Other ethnic group %	1.6	1.3	1.3	4.1	3.4	1.7	3.6	2.1	2.2

Source: Office for National Statistics ((ONS, 2024, 2024)

- 7.2.1 Relevant protected characteristics are listed in Table 7-2 to consider the potential for any disproportionate effects that may arise due to the distribution of such characteristics within the population. Protected characteristics not shown in Table 7-2 have been reviewed and are not considered to have relevant links to health outcomes that may be influenced by this Proposed Development.
- 7.2.2 As shown in Table 7-2 above, the population of children and young people aged 15 and below is more prevalent in the site-specific wards, except for Chorleywood North and Sarratt, which has a higher elderly population. The proportion of people aged 16 to 64 in Chorleywood North and Sarratt is lower than the national average and on the other hand, the proportion of people aged 16 to 64 in Dickinsons, Holywell and Park are higher than the national average.
- 7.2.3 In terms of disability and limitations in daily activities, the proportion of people who are disabled and limited in activities in Chorleywood North and Sarratt, Durrants, Dickinsons, Holywell, and Park people are significantly lower than the national average. The proportion of those who are not disabled nor have a long-term condition in all the site-specific wards is higher than the national average.
- 7.2.4 Income deprivation is notably higher in Holywell Ward and lower in the other four wards as compared to the national average. The proportion of people living in income deprivation in Chorleywood North and Sarratt, Durrants, Dickinsons, and Park is significantly lower (better) than the national average. On the other hand, the proportion of people living in income deprivation in Holywell is higher than the national average.
- 7.2.5 Considering English proficiency, the proportion of the population who cannot speak English well or at all in Chorleywood North and Sarratt, Durrants and Dickinsons is lower than the national average. On the other hand, the proportion of the population who cannot speak English well or at all in Park is higher and similar in Holywell compared to the national average.
- 7.2.6 Considering ethnicity in the site-specific study area, Holywell and Park are the most ethnically diverse wards whereas Durrants is the least diverse as compared to the national average. The proportion of White residents is higher in Durrants and lower in Chorleywood North and Sarratt, Dickinsons, Holywell and Park as compared to the national average. The proportion of Asian/Asian British or Asian Welsh people in all the site-specific wards is higher than the national average. The proportion of Black, Black British, Black Welsh, Caribbean, or African residents is lower in Chorleywood North and Sarratt, Durrants, and Dickinsons; higher in Holywell and similar om Park compared to the national average.

7.3 Baseline Indicators by Determinant of Health

7.3.1 Open Space and Physical Activity

Table 7-3: Baseline summary indicators relevant to open space, and physical activity

Indicator Name	Site Specific Wards	Local Districts	Region	National
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	Chorleywood North and Sarratt	Durrants	Dickinsons	Holywell	Park	Three Rivers	Watford	East of England	England
Utilization of outdoor space for exercise/health reasons (16+ years)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	18.7	17.9
Percentage of physically active children and young people (5-16 years)	n/a	n/a	n/a	n/a	n/a	55.9	57.3	48.3	47.0
Percentage of physically active adults (19+ years)	n/a	n/a	n/a	n/a	n/a	66.5	66.2	67.7	67.1
Reception prevalence of overweight including obesity (4-5years)	10.5	16.4	18.2	21.9	14.9	18.7	19.2	20.0	22.6
Year 6 prevalence of overweight including obesity (10-11 years)	19.2	21.2	29.5	38.3	32.4	28.2	35.4	34.2	35.8
Adults prevalence of overweight including obesity	n/a	n/a	n/a	n/a	n/a	60.8	59.3	64.8	64
Emergency hospital admissions for coronary heart disease (SAR)	78.1	89.9	87.9	165.1	68.7	87.9	112.5	93.2	100
Emergency hospital admissions for intentional self-harm (SAR)	35.0	76.5	41.9	73.0	48.6	62.0	61.8	89.5	100
Legend									
	Better than national average								
	Worse than national average								
	Not significantly different to national average								
	Comparative analysis available								

- 7.3.1 As shown in Table 7-3, the site-specific and the local population performs better in most indicators than the national averages. It is also noted there are fewer statistics reported in the site-specific wards.
- 7.3.2 Considering physical activity, and the sensitivity of the local population to changes in open space and recreation, the proportion of physically active children and young people is higher (better) in Three Rivers and Watford Districts than the regional and national averages. On the other hand, the proportion of physically active adults in the local population area is similar to the regional and national averages. Data suggests average sensitivity to changes in open space, and physical activity in the local study area.
- 7.3.3 In relation to hospital admissions in the site-specific and local population, emergency hospital admissions due to coronary heart disease are all significantly lower (better) in Chorleywood North and Sarratt, Durrants, Dickinsons and Park and the two districts compared to the regional and national averages, noting physical activity is only one contributing factor to this metric. However, Holywell shows worse performance than national average with emergency hospital admissions in the ward 65% higher than national average. Data suggests generally less sensitivity in the site-specific area to changes in open space with higher sensitivity in Holywell, an area of elevated deprivation.
- 7.3.4 Considering the sensitivity of the population to mental health influences, noting there are other factors that contribute to mental health pressures, the rate of emergency hospital admissions for intentional self-harm is significantly lower in all the five Wards and two Districts than the national average.

7.3.2 Transport

Table 7-4: Baseline summary indicators relevant to transport health outcomes

Indicator Name	Site Specific Wards					Local Districts		Region	National
	Chorleywood North and Sarratt	Durrants	Dickinsons	Holywell	Park	Three Rivers	Watford	East of England	England
Killed and seriously injured (KSI) casualties on England's roads	n/a	n/a	n/a	n/a	n/a	n/a	n/a	75.3	94.5
Percentage of adults cycling for travel at least three days per week (16+ years)	n/a	n/a	n/a	n/a	n/a	1.2	1.6	2.4	2.3
Percentage of adults walking for travel at least three days per week (16+ years)	n/a	n/a	n/a	n/a	n/a	10.8	17.9	13.8	15.1
Percentage of physically active children and young people (5-16 years)	n/a	n/a	n/a	n/a	n/a	55.9	57.3	48.3	47.0
Percentage of physically active adults (19+ years)	n/a	n/a	n/a	n/a	n/a	66.5	66.2	67.7	67.1
Depression: QOF prevalence (18+ years)	n/a	n/a	n/a	n/a	n/a	12.2	10.4	12.2	13.2
Self-reported wellbeing: people with a high anxiety score (16+ years)	n/a	n/a	n/a	n/a	n/a	27.2	20.6	22.6	23.3
Legend									
	Better than national average								
	Worse than national average								
	Not significantly different to national average								
	Comparative analysis available								

7.3.5

7.3.6 Table 7-4 shows overall, health and wellbeing outcomes related to transport are variable compared to the national average. It is noted there are no statistics available for the site-specific population.

7.3.7 Considering the local population, the percentage of the population killed and seriously injured on roads is not reported in the local area. The rate of people killed and seriously injured on roads in County of Hertfordshire is 55.0 which is lower than the regional (75.3) and national (94.5) averages.

7.3.8 Considering active travel, local public health data shows worse performance in cycling and walking in the two Districts compared to the regional and national averages. The percentage of people who cycle for travel at least three times a week is lower in both Three Rivers and Watford than those in the East of England and England. The percentage of the population who walks for travel at least three times a week is relatively lower (worse) in Three Rivers and higher (better) in Watford as compared to the regional and national averages. A mixed picture is shown in the sensitivity of the local population to changes in transport regarding active travel, as data suggests higher sensitivity in cycling and reduced sensitivity in walking.

7.3.9 Considering physical activity, and the sensitivity of the local population to changes in transport and access to health promoting services, the proportion of physically active children and

young people in both districts is lower (worse) than the regional and national averages. Inversely, the proportion of physically active adults in the local population area is similar to the national average. Data suggests average sensitivity to changes in transport in the local study area.

- 7.3.10 Considering the sensitivity of the population to mental health influences, noting that change in transport is only one contributing factor to these mental health metrics, the proportion of the population diagnosed with depression in the two local districts of the study area is lower compared to the national average, suggesting less sensitivity in the local population to mental health influences. On the other hand, the proportion of people with a high self-reported anxiety score is higher in Three Rivers and lower in Watford compared to the regional and national averages.

7.3.3 Socioeconomic Factors

Table 7-5 Baseline - summary indicators relevant to socio-economic health outcomes

Indicator Name	Site Specific Wards					Local Districts		Region	National
	Chorleywood North and Sarratt	Durrants	Dickinsons	Holywell	Park	Three Rivers	Watford	East of England	England
Inequality in life expectancy at birth	n/a	n/a	n/a	n/a	n/a	6.2	8.2	6.1	9.7
Income deprivation (%)	2.8	3.8	4.1	14.6	5.3	7.1	9.2	8.2	12.9
Child Poverty Income Deprivation Affecting Children (%)	3.1	3.9	4.6	19.4	6.6	9.2	11.5	14.1	17.1
Older People in poverty Income deprivation affecting older people (%)	4.2	5.8	7.2	20.8	5.8	8.7	13.0	11.3	14.2
16-to-17-year old's not in education, employment, or training (NEET) or whose activity is not known (%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.2	5.2
19–24-year old's not in education, employment, or training (%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	13.1	13.2
Percentage of people in employment (16-64 years)	n/a	n/a	n/a	n/a	n/a	77.0	78.4	78.0	75.7
Average Attainment 8 score (15-16+ years)	n/a	n/a	n/a	n/a	n/a	53.8	46.4	46.4	46.2

- 7.3.11 As shown in Table 7-5, the health and wellbeing outcomes related to socio-economic opportunity in the study area are better than the national averages. It is noted there are fewer statistics available for the site-specific population.
- 7.3.12 Inequalities in life expectancy between the most and least deprived in the two local districts are lower than the regional and national averages. Total income deprivation including child poverty and older people income deprivation in Chorleywood North and Sarratt, Durrants, Dickinsons, and Park is lower (better) compared to the regional and national. On the other hand, Holywell shows elevated income deprivation levels than regional and national averages. Data suggests high sensitivity to socio-economic opportunity in Holywell.
- 7.3.13 In relation to employment, the overall percentage of people in employment in Three Rivers and Watford, is higher (better) than the national average. Similarly, the average educational

attainment score is higher (better) in Three Rivers than national average with Cherwell performing similar to England. Data suggests less sensitivity to socio-economic opportunity in the study area.

7.3.4 Air Quality

Table 7-6 Baseline summary indicators relevant to air quality health outcomes

Indicator Name	Site Specific Wards					Local Districts		Region	National
	Chorleywood North and Sarratt	Durrants	Dickinsons	Holywell	Park	Three Rivers	Watford	East of England	England
Fraction of mortality attributable to particulate air pollution (new method) (30+ years)	n/a	n/a	n/a	n/a	n/a	7.0	7.3	6.2	5.8
Air pollution: fine particulate matter (new method - concentrations of total PM2.5)	n/a	n/a	n/a	n/a	n/a	8.2	8.4	7.3	7.4
Emergency hospital admissions for Chronic Obstructive Pulmonary Disease (COPD) (SAR)	27.3	46.1	85.1	136.8	27.5	78.4	106.4	78.3	100.0
Emergency hospital admissions for coronary heart disease (Standardised Admission Ratio-SAR ¹)	78.1	89.9	87.9	165.1	68.7	87.9	112.5	83.3	100.0
Emergency hospital admissions for Myocardial Infarction (heart attack) (SAR)	71	82.6	85.3	164.6	63.3	82.3	105.3	87.2	100.0
Under 75 mortality rate from respiratory disease considered preventable (per 100,000)	n/a	n/a	n/a	n/a	n/a	8.1	13.9	13.2	17.0
Under 75 mortality rate from circulatory diseases considered preventable (per 100,000)	n/a	n/a	n/a	n/a	n/a	18.5	25.3	25.4	30.1

7.3.14 Table 7-6 shows a mixed picture in air quality related health outcomes in the site-specific and local population compared to the national averages.

7.3.15 For the site-specific population, emergency hospital admissions due to chronic obstructive pulmonary disease (COPD), coronary heart disease, and myocardial infarction (heart attack) are all significantly lower (better) in Chorleywood North and Sarratt, Durrants, Dickinsons, and Park compared to the regional and national averages, noting air quality is only one contributing factor to these health indicators. To note are emergency hospital admissions in Holywell Ward and Watford District which are significantly higher (worse) than the average of England, indicating worse performance in respiratory and cardiovascular diseases in the ward

¹ SAR - The Standardised Admission Ratio is a summary estimate of admission rates relative to the national average and takes into account differences in population's age, sex and socioeconomic deprivation

and district. Data shows a mixed picture in the sensitivity of the site-specific area to changes in air quality.

- 7.3.16 In relation to indicators reported at the district level and above, the fraction of mortality attributable to particulate air pollution (PM_{2.5}) in Three Rivers and Watford Districts is higher (worse) than the regional and national averages. Similarly, concentrations of fine particulate matter (PM_{2.5}), as an indicator of air pollution in the local area, are higher (worse) than the regional and national averages. Data suggests high sensitivity to changes in air quality in the local study area.

7.3.5 Noise and Vibration

Table 7-7 Baseline summary indicators relevant to noise health outcomes

Indicator Name	Site Specific Wards					Local Districts		Region	National
	Chorleywood North and Sarratt	Durrants	Dickinsons	Holywell	Park	Three Rivers	Watford	East of England	England
The rate of complaints about noise	n/a	n/a	n/a	n/a	n/a	12.2	9.2	5.8	12.0
The percentage of the population exposed to road, rail, and air transport noise of 65dB(A) or more, during the daytime	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.4	5.5
The percentage of the population exposed to road, rail, and air transport noise of 55 dB(A) or more during the night-time	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5.6	8.5
Self-reported wellbeing: people with a high anxiety score (16+ years)	n/a	n/a	n/a	n/a	n/a	27.2	20.6	22.6	23.3
Under 75 mortality rate from cardiovascular diseases considered preventable	n/a	n/a	n/a	n/a	n/a	n/a	n/a	38.8	45.3
Hypertension: QOF prevalence (all ages)	n/a	n/a	n/a	n/a	n/a	14.6	11.8	14.8	14.4
Depression: QOF prevalence (18+ years)	n/a	n/a	n/a	n/a	n/a	12.2	10.4	12.2	13.2
Emergency hospital admissions for intentional self-harm (SAR)	35.0	76.5	41.9	73.0	48.6	62.0	61.8	89.5	100.0

- 7.3.17 As shown in Table 7-7 there are fewer statistics available for the site-specific area. Overall, health outcomes in site-specific area are better and those in the local population area are variable as compared to the regional and national averages.
- 7.3.18 The rate of complaints about noise in Three Rivers is similar and that in Watford is lower (better) than the national average. Considering transport noise, the percentage of population exposed to elevated road, rail and air transport noise in the County of Hertfordshire is similar during the daytime and higher during the nighttime compared to the national average. Data shows a mixed picture in the performance of the local study area in terms of noise.
- 7.3.19 In relation to the sensitivity of the local population to noise, measured by the mental health outcomes of the population; the percentage of people diagnosed with depression in Three Rivers is higher than England suggesting high localised sensitivity to noise. The prevalence of depression in Watford is relatively lower (better) than the national average. On the other hand, emergency hospital admissions for intentional self-harm in the five wards and the Three Rivers and Watford districts are lower than the regional and national averages. Overall, local public health data shows a mixed picture in the sensitivity of the local population to mental health influences.
- 7.3.20 In relation to measures relevant to physiological effects of noise, the under 75 mortality rate from cardiovascular diseases considered preventable is lower in Three Rivers and Watford Districts as compared to the national average. On the other hand, the proportion of the

population with a hypertension diagnosis (high blood pressure) is lower in Watford and similar in Three Rivers compared to the national average. Data therefore shows a mixed picture in the sensitivity of the local population to physical health influences.

7.3.6 Health and Social Care Services

Table 7-8 Baseline - summary indicators relevant to health and social care outcomes

Indicator Name	Site Specific Wards					Local Districts		Region	National
	Chorleywood North and Sarratt	Durrants	Dickinsons	Holywell	Park	Three Rivers	Watford	East of England	England
Access to NHS dental services - successfully obtained a dental appointment (Persons, 18+ years)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	77.0	76.7
Percentage reporting good overall experience of making an appointment (Persons, 16+ years)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	54.4	52.5
Percentage of people who have a positive experience of their GP practice (Persons, 16+ years)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	71.3	69.9
Emergency hospital admissions for all causes (SAR)	86.3	94.1	101.4	149.9	84.6	99.5	112.1	93.0	100

7.3.21 As shown in Table 7-8 there are fewer statistics available for the site-specific area. Overall, health outcomes in site-specific area are variable as compared to the regional and national averages.

7.3.22 Emergency hospital admissions for all causes are better in Chorleywood North and Sarratt; and Park Wards compared to the regional and national averages. On the other hand, emergency hospital admissions in Dickinsons and Holywell wards are worse than the regional and national averages.

7.3.6.2 Allied Health Services

7.3.23 Allied health services are important for ensuring comprehensive routine primary care for patients and are being more commonly used to supplement demand for GP services (NHS England, 2023), including dentistry, pharmacies, opticians, specialist nurses and other ancillary service providers².

7.3.24 The following services have been identified within 2 miles of Proposed Development. These are fully detailed in the **Appendix A.1: Croxley Green Healthcare Needs Assessment** and include:

14 dental practices

11 pharmacies, and

1 optician/optometrist (5 within 2.5 miles).

² Includes Pharmacist, Physiotherapist, Podiatrist, Counsellor, Occupational Therapist, Physician Associate

7.3.6.3 Care Homes

- 7.3.25 A total of 10 care homes have been identified within 2 miles of the Proposed development. These are listed in Table 7-9 below.

Table 7-9: Care homes near the Proposed Development

Care Home	Address	Distance miles
Clarendon Lodge	Croxley Green, Rickmansworth, WD3 3JB	0.4
The Chase Care Centre	4 Printers Avenue, Off Whippendell Road, Watford, Hertfordshire, WD18 7QR	1.1
River Court Care Home	Explorer Drive, Watford, Hertfordshire, WD18 6TQ	1.5
St Anthonys Residential Care Home	3 Mildred Avenue, Watford, Hertfordshire, WD18 7DY	1.6
Westerley Care Home	Westerley Care, Chorleywood Close, Rickmansworth, Hertfordshire, WD3 4EG	1.6
Brunswick Court Care Home	2 Stratford Road, Watford, Hertfordshire, WD17 4JB	1.6
Amberside	17-19 Park Avenue, Watford, Hertfordshire, WD18 7HR	1.7
St Malo	The Drive, Watford, WD17 4JU	1.7
Montrose Care Home	95 Langley Road, Watford, Hertfordshire, WD17 4PE	1.7
Riverside Lodge	44 Church Street, Rickmansworth, WD3 1JE	1.8

7.3.6.4 Educational Facilities

- 7.3.26 A total of 14 educational facilities have been identified within 2 miles of the Proposed development including primary, secondary and vocational schools. These are listed in Table 7-10 below.

Table 7-10: Educational Facilities near the Proposed Development

School	Category	Address	Distance miles
Little Green Junior School	Primary	Lincoln Dr, Croxley Green, Rickmansworth WD3 3NJ	0.1
Malvern Way Infant and Nursery School	Primary School	Malvern Way, Croxley Green, Rickmansworth WD3 3QQ	0.6
Yorke Mead Primary School	Primary	Dulwich Way, Croxley Green, Rickmansworth WD3 3PX	0.69
Croxley Danes School	College	Baldwins Ln, Croxley Green, Rickmansworth WD3 3LR	0.7
York House School	Primary	Sarratt Rd, Croxley Green, Rickmansworth WD3 4LW	0.75
Cassiobury Junior School	Primary	Bellmount Wood Ave, Watford WD17 3PD	1.0
Cassiobury Infants and Nursery School	Primary	Cassiobury Infants and Nursery School, Bellmount Wood Ave, Watford WD17 3PE	1.1
Harvey Road Primary School	Primary	Harvey Rd, Croxley Green, Rickmansworth WD3 3BN	1.1
Rickmansworth School	Secondary	Scots Hill, Croxley Green, Rickmansworth WD3 3AQ	1.2
Lanchester Primary School	Primary	Hempstead Rd, Watford WD17 3HD	1.5
Charter Infants School	Primary	Southsea Ave, Watford WD18 7RD	1.5
Rickmansworth JMI School	Secondary	5 Park Rd, Rickmansworth WD3 1HU	1.7
Chater Junior School	Primary	1 Addiscombe Rd, Watford WD18 0ND	1.8
Beechfield School	Primary	Gammons Ln, Watford WD24 5TY	1.9

7.3.27 Breakspeare School, which caters for students aged 3-19 years with severe learning difficulties or profound and multiple and multiple learning difficulties, is proposed to be relocated in 2026/2027 to a site near the Proposed Development. This new location would be at the Durrants School Former Playing Field site, Manor Green, Croxley Green, WD3 3LU, approximately 100-200m south of the Proposed Development.

7.3.28 Students at Breakspeare school have additional needs including complex medical, physical or sensory impairment, autism or speech, language and communication needs. Currently 31% of the student population has complex medical needs and 64% are on the autistic spectrum.

7.3.7 Deprivation

7.3.29 Three Rivers district as a whole is ranked low in terms of deprivation (Three Rivers District Council, 2011) whilst Watford shows elevated deprivation (Ministry of Housing, Communities & Local Government, 2019).

7.3.30 All LSOAs in Chorleywood North and Sarratt are in the 10-20% least deprived neighbourhoods in England for overall deprivation. Similarly, for Durrants and Dickinsons, all LSOAs in the wards fall in the 10-20% least deprived neighbourhoods nationally. However, there are a few areas of inequalities including deprivation in access to housing where

Chorleywood North and Sarratt is in the 30% most deprived neighbourhoods in England and 50% most deprived in quality of the living environment.

7.3.31 Considering wards in Watford District, three of four LSOAs in Holywell fall in the 30-40% most deprived neighbourhoods in England. Overall deprivation in Park is low with all LSOAs ranking in the 10-20% least deprived neighbourhoods in England.

7.3.32 Representative LSOAs have been selected for each ward in Table 7-11, to show deprivation in the site-specific study area of the Proposed Development.

Table 7-11 Deprivation breakdown by indicator

Deprivation indicator	Chorleywood North and Sarratt (Three Rivers 003D)	Durrants (Three Rivers 003B)	Dickinsons (Three Rivers 006B)	Holywell (Watford 011D)	Park (Watford 008A)
Overall	20%	10%	10%	30%	40%
Income	20%	10%	10%	20%	40%
Employment	10%	10%	10%	30%	30%
Education	20%	20%	20%	30%	10%
Health	10%	10%	10%	40%	10%
Crime	40%	10%	30%	40%	40%
Barriers to Housing and Services	30%	50%	50%	30%	20%
Living Environment	50%	20%	30%	20%	50%
Income deprivation affecting children	20%	10%	20%	10%	50%
Income deprivation affecting older people	20%	10%	10%	30%	30%
Legend					
High	Medium	Low	Least deprived		
High	Medium	Low	Most deprived		

7.3.33 As shown in Table 7-11, overall deprivation in Chorleywood North and Sarratt, Durrants, Dickinsons and Park is lower; and overall deprivation in Holywell is higher.

7.3.34 Holywell (011D LSOA) is amongst the 20% most deprived in regard to income, 30% most deprived in regard to employment, 10% most deprived in regard to income deprivation affecting children, and 30% most deprived in regard to income deprivation affecting older people. Holywell (011D LSOA) is amongst the 30% most deprived in regard to education.

7.3.35 Regarding health, all LSOAs except Holywell (011D LSOA) are amongst the 10% least deprived in the country. Holywell (011D LSOA) is amongst the 40% most deprived.

7.3.36 Chorleywood North and Sarratt (003D LSOA), Holywell (011D LSOA) and Park (008A LSOA) are in the 20-30% most deprived for barriers to housing and services.

7.3.37 Chorleywood North and Sarratt (003D LSOA) is amongst the 50% most deprived in the country for living environment.

7.4 Assumptions and Limitations of the Assessment

- 7.4.1 This assessment is based on publicly available statistics and evidence sources. No new primary research or bespoke analysis of non-public data was undertaken for the assessment.
- 7.4.2 The HIA partially draws from and builds upon, the technical outputs from inter-related technical disciplines set out in paragraph 2.1.10.
- 7.4.3 As a consequence, the assumptions and limitations of those assessments also apply to any information used in this chapter. It is, however, considered that the information available provides a suitable basis for assessment.
- 7.4.4 Whilst not all uncertainty can be removed, the following steps have been taken to allow confidence in the HIA conclusions.
- 7.4.5 Methods are used that triangulate evidence sources and professional perspectives.
- 7.4.6 The scientific literature reviews undertaken give priority to high quality study design, such as systematic reviews and meta-analysis, and strength of evidence.
- 7.4.7 Quantitative inputs for other assessments have been used, which included model validation, as described in other chapters.
- 7.4.8 The HIA has been cautious, with conservative assessments, for example in taking account of non-threshold effects and vulnerable group findings.
- 7.4.9 The need for monitoring and adaptive management has been considered.
- 7.4.10 The health assessment has been transparent in its analysis and follows good practice.

8 IMPACT ASSESSMENT METHODOLOGY

8.1 Evidence review

- 8.1.1 A scoping literature review of relevant determinants of health was undertaken to inform the professional judgments of the HIA. The project relates to health determinants and vulnerable groups that are relatively well established and understood by public health. Consequently, detailed bespoke literature reviews were not required. The literature reviews undertaken used PubMed and Google Scholar, focusing on literature from the past 10 years in English. A PICO search strategy was used focusing on determinant of health and vulnerable group terminologies from the IPH 2021 and IEMA 2022 guidance as search terms. To ensure good quality studies were used the review focused on findings from systematic reviews and meta-analyses where these are available. Grey literature was avoided. To ensure good strength of evidence the review focused on studies that reported good aetiology and strength of effect. To ensure external validity UK context studies were favoured, although other high-income country contexts were also considered. These study selection decisions were pragmatic professional judgements appropriate to a scoping review. The results were critically appraised by the HIA team to ensure a balanced representation of scientific consensus.

8.2 Impact assessment criteria

- 8.2.1 This section sets out the methods for assessment of any likely significant population health effects of the Proposed Development. The methodology outlined in this section follows the IPH 2021 guidance (Pyper et al., 2021), which sets out best practice for HIA. The IPH guidance was informed by the international consensus publication between impact assessment and public health practitioners, the IAIA/EUPHA Reference Paper 2020 (Cave et al., 2020).
- 8.2.2 The methodology for this HIA follows the guidelines outlined in the Hertfordshire County Council Position Statement on HIA (Hertfordshire County Council, 2019). Regard has also been given to the Three Rivers District Council Health and Wellbeing Appendix 11 (Three Rivers District Council, 2023a), using the social and environmental determinants of health as applicable.
- 8.2.3 The HIA has also been evaluated using the Wales Health Impact Assessment Support Unit (WHIASU) Quality Assurance Framework (WHIASU, 2017). A simplified checklist of the framework criteria is provided in Appendix A.2 of this HIA.
- 8.2.4 Decision making on the HIA has been with the HIA authors, informed by client technical and legal reviews, as well as discussion with stakeholders. The HIA has used competent experts under the IEMA 2024 definition, which includes that “A competent expert adheres to relevant codes of professional conduct” (IEMA 2024). The scope and methods of the assessment have been discussed with the local authority public health team, which included meeting minutes being shared for accuracy. The HIA authors have advocated for measures that promote public health as part of the HIA process, including input to master planning and making of recommendations (sections 10 and 13).
- 8.2.5 The criteria for determining the significance of effects involves a two-stage process of defining the magnitude of the impacts and the sensitivity of the receptors. This section describes the criteria applied in this HIA to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in IPH 2021 guidance (Pyper et al., 2021).
- 8.2.6 The HIA qualitative analysis follows the IPH 2021 guidance approach. This draws on qualitative and quantitative inputs from other technical assessment reports. This reflects the

consensus position amongst public health and impact assessment practitioners that qualitative analysis is the most appropriate methodology for assessing wider determinants of health proportionately, consistently and transparently.

- 8.2.7 In this HIA, the IPH 2021 approach is presented in a tabulated format. Judgements are based on most relevant criteria in Table 8-1, Table 8-2 and Table 8-4 of this report. It is likely in any given analysis that some criteria will span score categories. These are as set out by guidance (Pyper et al., 2021, Figures. T10, T11, T12).
- 8.2.8 The criteria for defining magnitude in this HIA are outlined in Table 8-1 below.

Table 8-1: Definition of terms relating to the magnitude of an impact.

Magnitude of impact	Definition
High	High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/injury outcomes; majority of population affected; permanent change; substantial service quality implications.
Medium	Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or major change in quality-of-life; large minority of population affected; gradual reversal; small service quality implications.
Low	Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality-of-life; small minority of population affected; rapid reversal; slight service quality implications.
Negligible	Negligible exposure or scale; very short-term duration; one-off frequency; severity predominantly relates to a minor change in quality-of-life; very few people affected; immediate reversal once activity complete; no service quality implication.

- 8.2.9 The criteria for defining sensitivity in this HIA are outlined in Table 8-2 below.

Table 8-2: Definition of terms relating to the sensitivity of the receptor.

Sensitivity	Definition
High	High levels of deprivation (including pockets of deprivation); reliance on resources shared (between the population and the Proposed Development); existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and/or people with a very low capacity to adapt.
Medium	Moderate levels of deprivation; few alternatives to shared resources; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertainty with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt.
Low	Low levels of deprivation; many alternatives to shared resources; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalence with some concern; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt.
Very low	Very low levels of deprivation; no shared resources; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and/or people with a very high capacity to adapt.

- 8.2.10 The significance of the effect upon human health is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in Table 8-3. Where a range of significance of effect is presented in Table 8-3, the final assessment for each effect is based upon expert judgement.
- 8.2.11 For the purposes of this HIA, any effects with a significance level of minor or less have been concluded to be not significant.

Table 8-3: Matrix used for the assessment of the significance of the effect.

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

- 8.2.12 The IPH 2021 guidance requires that the conclusions, reached using sensitivity and magnitude, are then explained for the public health audience with a suitable concise narrative. The narrative summarises key considerations and supporting evidence. The guidance sets out the criteria for doing so, see Table 8-4.

Table 8-4: Explanation of Population Health Significance.

Category/Score	Indicative criteria
Major (significant)	The narrative explains that this is significant for public health because: Changes, due to the Proposed Development, have a substantial effect on the ability to deliver current health policy and/or the ability to narrow health inequalities, including as evidenced by referencing relevant policy and effect size (magnitude and sensitivity scores), and as informed by consultation themes among stakeholders, particularly public health stakeholders, that show consensus on the importance of the effect Change, due to the Proposed Development, could result in a regulatory threshold or statutory standard being crossed (if applicable) There is likely to be a substantial change in the health baseline of the population, including as evidenced by the effect size and scientific literature showing there is a causal relationship between changes that would result from the Proposed Development and changes to health outcomes In addition, health priorities for the relevant study area are of specific relevance to the determinant of health or population group affected by the Proposed Development.
Moderate (significant)	The narrative explains that this is significant for public health because: Changes, due to the Proposed Development, have an influential effect on the ability to deliver current health policy and/or the ability to narrow health inequalities, including as evidenced by referencing relevant policy and effect size, and as informed by consultation themes among stakeholders, which may show mixed views Change, due to the Proposed Development, could result in a regulatory threshold or statutory standard being approached (if applicable) There is likely to be a small change in the health baseline of the population, including as evidenced by the effect size and scientific literature showing there is a clear relationship between changes that would result from the Proposed Development and changes to health outcomes In addition, health priorities for the relevant study area are of general relevance to the determinant of health or population group affected by the Proposed Development.
Minor (not significant)	The narrative explains that this is not significant for public health because:

	Changes, due to the Proposed Development, have a marginal effect on the ability to deliver current health policy and/or the ability to narrow health inequalities, including as evidenced by effect size of limited policy influence and/or that no relevant consultation themes emerge among stakeholders Change, due to the Proposed Development, would be well within a regulatory threshold or statutory standard (if applicable); but could result in a guideline being crossed (if applicable) There is likely to be a slight change in the health baseline of the population, including as evidenced by the effect size and/or scientific literature showing there is only a suggestive relationship between changes that would result from the Proposed Development and changes to health outcomes In addition, health priorities for the relevant study area are of low relevance to the determinant of health or population group affected by the Proposed Development.
Negligible (not significant)	The narrative explains that this is not significant for public health because: Changes, due to the Proposed Development, are not related to the ability to deliver current health policy and/or the ability to narrow health inequalities, including as evidenced by effect size or lack of relevant policy, and as informed by the Proposed Development having no responses on this issue among stakeholders Change, due to the Proposed Development, would not affect a regulatory threshold, statutory standard or guideline (if applicable) There is likely to be a very limited change in the health baseline of the population, including as evidenced by the effect size and/or scientific literature showing there is an unsupported relationship between changes that would result from the Proposed Development and changes to health outcomes In addition, health priorities for the relevant study area are not relevant to the determinant of health or population group affected by the Proposed Development.

8.2.13 The temporal scope of this HIA used the following summary terms:

‘Very short term’ relates to effects measured in hours, days or weeks

‘Short term’ relates to effects measured in months, (up to 24 months duration)

‘Medium term’ relates to effects measured in years

‘Long term’ relates to effects measured in decades.

8.2.14 The HIA uses the WHO definition of health, which states that health is a ‘*state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*’ (World Health Organization, 1948).

8.2.15 The HIA also uses the WHO definition for mental health, which is a ‘state in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community’ (WHO, 2022).

8.2.16 Health and wellbeing are influenced by a range of factors, termed the wider determinants of health. Determinants of health span environmental, social, behavioural, economic and institutional factors. Determinants therefore reflect a mix of influences from society and environment on population and individual health.

8.2.17 Impacts of the Proposed Development that result in a change in determinants have the potential to cause beneficial or adverse effects on health, either directly or indirectly. The degree to which these determinants influence health varies, given the degree of personal choice, location, mobility and exposure.

8.2.18 A change in a determinant of health affects does not equate directly to a change in population health. Rather the change in a determinant alters risk factors for certain health outcomes. The assessment considers the degree and distribution of change in these pathways. The analysis of health pathways focuses on the risk factors and health outcomes that are most relevant to

the determinants of health affected by the Proposed Development. As there are both complex and wide-ranging links between determinants of health, risk factors and health outcomes, it would not be proportionate or informative for an assessment to consider every interaction.

- 8.2.19 Typically, the change in a risk factor may need to be large, sustained and widespread within a population for there to be a significant influence on public health outcomes.

8.3 Population health approach and vulnerable groups

- 8.3.1 In line with IPH guidance a population health approach has been taken, informed by discussion of receptors within the other technical reports.
- 8.3.2 This section has regard to groups reported as vulnerable by the Hertfordshire Joint Strategic Health Needs Assessment (Hertfordshire County Council, 2023d). The Hertfordshire JSNA is summarised in section 3.2.4. The methods draw on the list of vulnerable population groups set out in IPH Part 3, Table 09. The following six broad population groups are used to inform a consistent narrative on potential health inequalities across the assessment. People falling into more than one group may be especially sensitive:

Young age: Children and young people (including pregnant women and unborn children)

Old age: older people (particularly frail elderly)

Low income: People on low income, who are economically inactive or unemployed/workless

Poor health: People with existing poor health; those with existing long-term physical or mental health conditions or disability that substantially affects their ability to carry out normal day-to-day activities

Social disadvantage: People who suffer discrimination or other social disadvantage, including relevant protected characteristics under the Equality Act 2010 or groups who may experience low social status or social isolation for other reasons.

Access and geographical factors: People experiencing barriers in access to services, amenities and facilities and people living in areas known to exhibit high deprivation or poor economic and/or health indicators.

- 8.3.3 The following characterisations of how the general population may differ from vulnerable group populations were considered when scoring sensitivity:

The general population can be characterised as including a high proportion of people who are independent, as well as those who are providing some care; experiencing low deprivation; comprising people with good health status; rating their day-to-day activities as not limited; having a high capacity to adapt to change (high resilience); less likely to rely on resources shared with the Proposed Development.

The vulnerable group population can be characterised as including a high proportion of people who are providing a lot of care, as well as those who are dependant; experiencing high deprivation (including where this is due to pockets of higher deprivation within low deprivation areas); reporting bad or very bad health status; rating their day-to-day activities as limited; having a low capacity to adapt to change (limited resilience); more likely to rely on resources shared with the Proposed Development.

- 8.3.4 Heightened vulnerability is rarely due to a single cause and people may experience multiple forms of vulnerability due to intersecting social processes that result in inequalities (e.g., socioeconomic status and income).

- 8.3.5 As all development has the potential for adverse effects to some particularly vulnerable individuals, the role of HIA significance conclusions are not to set a threshold of 'no harm'

from development, but to show where, at a population level, the harm should weigh strongly in the balance alongside the development's benefits for health and other outcomes.

- 8.3.6 In some situations, an effect may only be relevant to a few individuals, indicating that a population health effect would not occur. As stated by guidance: *'Where the effect is best characterised as only affecting a few individuals, this may indicate that a population health effect would not occur. Such individuals should still be the subject of mitigation and discussion, but in assessment and public health terms the effect may not be a significant population health change.'* (Pyper et al., 2021, table. 12 Population extent).

- 8.3.7 The following establishments in the site-specific population study area have been identified as facilities associated with relevant vulnerable groups:

Little Green Junior School

Breakspeare School

Clarendon Lodge Nursing Home

9 KEY PARAMETERS FOR ASSESSMENT

9.1 Proposed Development parameters and design features

Safe and cohesive communities: Housing

- 9.1.1 The Proposed Development is for a high quality, well-connected and highly sustainable new neighbourhood of up to 600 homes which will be founded upon the creation of a network of green infrastructure showcasing its surroundings. 50% of the housing would be affordable. The development would also include inclusive and adaptable homes including accommodation suitable for the elderly, and dwellings which facilitate working from home and can adapt to the changing needs of a lifetime. The Proposed Development also includes a 5-bed unit for supported living for vulnerable young people.

Healthy lifestyles: Open space and physical activity

- 9.1.2 The Proposed Development includes approximately 59 acres/ 24 hectares of landscaped public open space, comprising landscaped focal green spaces, natural and equipped play for children and teenagers, sports pitch and pavilion, semi natural green spaces, woodland copses and ecological corridors, amounting to approximately 60% of the Site area.
- 9.1.3 The focal green spaces would be dispersed across the development, providing a series of attractive, legible focal points, with equipped children's play spaces and distinctive planting themes which complement development character areas.
- 9.1.4 A contribution is being provided for off-site sport provision to Croxley Danes pitches.
- 9.1.5 The Proposed Development is retaining existing hedgerows, trees and woodland which would be integrated into public open space. A new country park which encompasses the existing public footpath, and higher areas of land is also proposed. This provides an open transition between the new development and the surrounding areas including Whippendell Wood (SSSI) And Cassiobury Park.
- 9.1.6 As part of the Proposed Development, a greenway is also proposed comprising of a distinctive north-south corridor of landscaped public open space which would provide an attractive recreational route to new residential areas, play spaces, sports and Croxley Green Country Park whilst retaining the existing hedgerow.

Safe and cohesive communities: Transport

- 9.1.7 During operation, the potential traffic generation of the residential elements is 349 vehicular movements in the AM peak and 379 in the evening peak: equating to just over 6 vehicular movements per minute.
- 9.1.8 Access to the Proposed Development is proposed along Durrants Drive and Links Way. The proposals for access include raised tables at each of the entry junctions to the site, designed to keep speeds at or around 20mph. Direct pedestrian and cycle access is proposed to the site from Links Way and direct pedestrian access from Durrants Drive with traffic along Little Green Lane giving way.
- 9.1.9 The Proposed Development would include footways alongside the majority of carriageways (the exceptions being in any shared surface areas) and streets would be designed to appropriate speeds. Little Green Lane would be downgraded to reduce priority for motor vehicle traffic and become more conducive to walking and cycling to and from the Proposed Development.

- 9.1.10 The Proposed Development has put emphasis on active travel modes first followed by public transport. To that end, footway/cycleway infrastructure has been carefully planned around the site, including a cycle track alongside the primary vehicle route. Cycle infrastructure is planned to extend from the site across Little Green Lane and via Canterbury Way, Dover Way, and Links Way to the wider cycleway network present on Baldwins Lane and the A412.
- 9.1.11 The existing track would be enhanced to cater for and encourage pedestrian/cycle usage. In addition to these, there would also be initiatives to promote cycling including vouchers for assistance towards cycle purchase, cycle storage at dwellings/communal areas, funding cycle training at local schools and improving cycle infrastructure.
- 9.1.12 The Proposed Development would include a new bus service into and around the new development including bus shelter within the development incorporating real-time bus information.
- 9.1.13 Parking provision around the development would be in line with Three Rivers District Council (TRDC) requirements, including electric vehicle charging points at dwellings/communal area. Safe and cohesive communities:

Safe and cohesive communities: Community identity and society

- 9.1.14 The Proposed Development would include shared space that promotes community cohesion including public open space, comprising landscaped focal green spaces, natural and equipped play for children and teenagers, seminatural green spaces, Local Centre, Community Hall, Doctors Surgery, and New Country Park which promote community cohesion.
- 9.1.15 The Proposed Development would retain some of the existing features of the site including the historic field boundaries in the site and the wooded characteristics of the settlement to create an open transition between the site and the surrounding Whippendell woods and also the Cassiobury Park Registered Park and Garden beyond

Socioeconomic conditions: Education

- 9.1.16 The Proposed Development is providing a one form entry primary school including additional expansion land for a two-form entry primary school on site.

Socioeconomic conditions: Employment (including quality)

- 9.1.17 It is anticipated that there would be approximately 930 Full Time Equivalent (FTE) jobs created associated with the construction of the development. During construction, the Proposed Development will generate construction related jobs providing direct employment in the study area. Further details are set out in the DAS.
- 9.1.18 During operation, the Local Centre would provide opportunities for small businesses and commerce, and employment opportunities. Obligation or the Community Infrastructure Levy (CIL) would be available to spend on upgrading local infrastructure and this would be supplemented by the New Homes Bonus monies.

Environmental conditions: Air quality

- 9.1.19 During the construction phase the Proposed Development would elevate dust levels and increase PM and NO₂ emissions due to construction activities such as earth works and increased traffic. Further details are set out in the Air Quality Assessment.

Environmental Conditions: Noise and Vibration

- 9.1.20 During the construction phase the Proposed Development would include noise generating plant, equipment and vehicles within the site boundary and on public highways. While further detail is not available at this stage, the Proposed Development will adhere to best practice measures as set out by a Construction Environmental Management Plan (CEMP). Operation of the Proposed Development also has the potential to generate noise, both within the development and through traffic. Further details on this are set out in the Noise Assessment.

Health and social care services

- 9.1.21 In addition to existing GP surgeries nearby, the development would include space in the local centre for new NHS health and social care services. The specification for such provision is being progressed in conjunction with the ICB and local GP.

10 HIA INPUTS TO PROPOSED DEVELOPMENT MASTER PLANNING

- 10.1.1 From an early stage the HIA has informed the master planning process with healthy design principles. This includes measures to enhance the public health opportunities, as well as measures to reduce any potential adverse population health effects. One area of discussion has been the potential to provide space for improved local primary care healthcare premises.
- 10.1.2 Recommendations arising from the HIA that have informed the development of the current Masterplan.

High quality accessible public green and blue space integrated within residential (and employment) areas.

Routes to schools that promote and prioritise safe active travel and healthy diets, e.g. passing allotments rather than convenience stores.

A mix of good quality employment opportunities supporting a diversified local economy that provides a range of services for the community.

Community cohesion underpinned by prioritised active travel, supported by frequent public transport, linking current and future homes to each other, as well as amenities and jobs.

15-minute neighbourhood principles, layouts and lighting that promote safe inclusive linkages between communities, designing out severance, crime and the fear of crime.

A housing mix responding to local need with affordable housing equitably distributed, as well as lifetime and adaptable housing for those with extra-care or disability needs.

Home-working space for adults and home-study space for all ages to support strong educational and employment outcomes now and in the future.

Dementia friendly design principles within layouts and use of landmark buildings. As well as provision for care home accommodation close to amenities and services.

Anchor NHS health and social care services linked with allied services (pharmacy / optometry / dental) and co-located with key public services (community hub building), located close to existing communities.

Climate resilience to avoid residential proximity to flood risk and habitats that could support future disease vectors in a changed climate.

11 ASSESSMENT OF EFFECTS

11.1 Construction

- 11.1.1 Construction is anticipated to be undertaken in a phased manner over approximately six to eight years. Within this, periods of construction impacts are expected to be shorter term. The construction phase of the Proposed Development is anticipated to directly create around 930 FTE jobs for the estimated build out.

11.1.2 Healthy lifestyles: Open space and physical activity

- 11.1.2 There is potential that works associated with the construction for the Proposed Development may lead to temporary disturbance of public open spaces and disruption of public rights of way (PRoW), potentially affecting recreational activities. Section 11.1.3 assesses transport modes and access and considers how walking and cycling (active travel) may be affected by the Proposed Development on the road network.
- 11.1.3 The scientific literature identifies the following associations relating to open space, physical activity and human health. Time spent near green and blue space can positively affect mental wellbeing (Rojas-Rueda *et al.*, 2021). The evidence suggests an inverse association between surrounding greenness and all-cause mortality (Yang *et al.*, 2021). The health benefits of recreation and leisure include physical activity as well as mental wellbeing. Health outcomes include physical health (e.g., cardiovascular health) and mental health (e.g., decreased stress, anxiety or depression). Use of places of recreation may be affected by not only physical barriers but also changes in the amenity or setting of the destination. There are positive associations between access to green space and physical activity (Yang *et al.*, 2021). The availability of a natural environment, attractive views of nature and people's experiences using greenspace can enhance attitudes toward physical activity and perceived behavioural control via stress-relieving effects, leading to firmer intentions to engage in physical activity (Calogiuri and Chroni, 2014).
- 11.1.4 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:
- The source is disruption and disturbance including to open spaces and public rights of way (PRoW).
- The pathway is behavioural change in use of open spaces and recreational opportunities affecting physical activity and mental wellbeing.
- Receptors are residents and visitors in the local communities.
- 11.1.5 Furthermore, the theoretical effect is considered applicable in the context of this project.
- 11.1.6 The population groups relevant to this assessment are:
- The site-specific population of Chorleywood North and Sarratt; Durrants, Dickinson, Holywell and Park wards.
- The local population of Three Rivers and Watford Districts; and
- The sub-population vulnerable due to:
- Young age vulnerability (specifically children who are overweight or who have low physical activity levels);
 - Old age vulnerability (specifically the elderly for whom familiar routes with appropriate mobility considerations play a part in regular exercise);

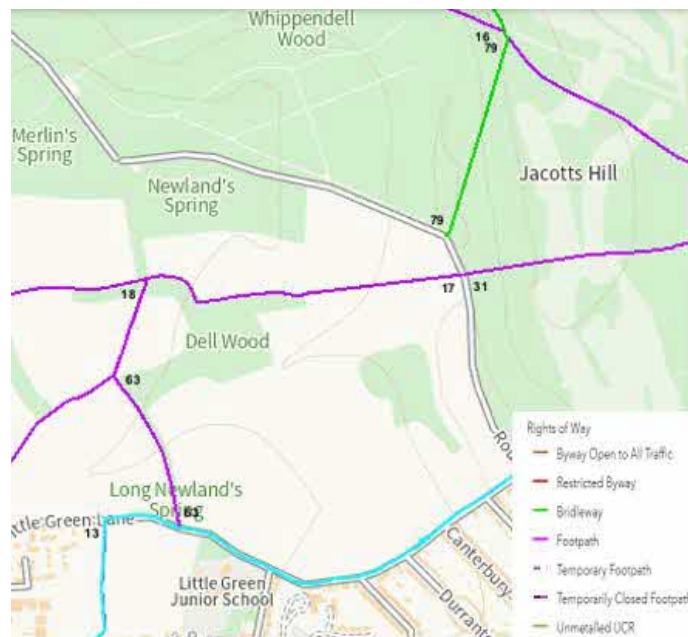
- Low-income vulnerability (specifically people with limited access to alternative physical activity opportunities or means of transport);
- Poor health vulnerability (specifically conditions where physical activity would be beneficial to physical or mental health, including routes suited to additional mobility and sensory needs); and
- Access and geographical vulnerability (specifically the population who have limited access to natural green space accessed by the routes affected by the Proposed Development).

Sensitivity of the Receptor

- 11.1.7 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account and are listed in **section 7.2**. Most people in the local area would only make occasional use of the affected physical activity, recreational and leisure opportunities. The general population also includes those with access to many alternatives that are not affected. The general population comprise those members of the community with a high capacity to adapt to changes, for example due to greater resources and good physical and mental health.
- 11.1.8 The sensitivity of the vulnerable group population is **high**. Vulnerability in this case is linked to having fewer resources and less capacity to adapt to changes. The population may be more reliant on the affected physical activity, recreational and leisure opportunities with greater likelihood that any additional disruption or disturbance could affect use and behaviours.

Magnitude of Impact

- 11.1.9 The construction phase of the Proposed Development may directly or indirectly disrupt access to five PRoWs including through closures and limited access. These include Footpaths **Sarratt 017**, **Sarratt 018**, **Sarratt 063** and **Watford Borough 031** and Bridleway **Sarratt 079**. Two of the identified PRoWs run along the boundary of the Proposed Development (Footpaths **017** and **063**) while the remaining lie entirely outside but in close proximity to the Proposed Development. The three external PRoWs are also connected to the



two boundary PRoWs.

Figure 11-1 : Public Rights of Way near the Proposed Development- Source: Hertfordshire Rights of Way Viewer

- 11.1.10 The change in access is judged to be of a *small scale* over the *short-term* from construction activities, including open spaces, sports and leisure spaces. The effect is likely to be *short-term*, with affecting *occasional* usage of open spaces. It is likely there would be *rapid* reversal of any effect once the given construction activity concluded, with limited potential to cause lasting behavioural change. The outcome is likely to be a *minor* change in quality of life and/or cardiovascular related morbidity for a *small minority* of the affected population. *No* effect on healthcare services would be expected.

Significance of the Effect

- 11.1.11 The significance of the population health effect due to the Proposed Development is **minor adverse**, which is not significant. The magnitude of the impact is deemed to be low and the sensitivity of the vulnerable group population is considered to be high. The effect is characterised as being *adverse* in direction, *temporary* and *indirect*. Although the scientific literature supports a clear association between open spaces, physical activity and health outcomes, there is likely to be at most a *slight* change in the population health baseline. This would have at most a *marginal* effect on health policy delivery and is not expected to change population health inequalities.

Further Mitigation

- 11.1.12 No diversions are required so no further mitigation is proposed.

11.1.3 Safe and cohesive communities: Transport

- 11.1.13 This section considers how construction affects public health through changes in road safety and accessibility, including travel times for road users or emergency services, and access to health promoting goods and services.
- 11.1.14 The construction activities comprise several distinct activities. The assessment takes into account where different sections of a route may be affected at different times, with localised effects influencing the overall route.
- 11.1.15 The scientific literature identifies the following general points relating to the association between transport including active transport and human health. The primary function of transport is the movement of people and goods between places, enabling access to employment, economic, and social opportunities as well as to essential services. Transport which is affordable and accessible may be viewed as an important determinant of health by facilitating access to key socio-economic opportunities (Thomson et al., 2008). Active transportation (i.e. walking or cycling) has been directly related to increased residential density, street connectivity, mixed land use and amenities within a walkable distance (Thomson et al., 2008). Walking and cycling for transportation (i.e. active transportation) provides substantial health benefits from increased physical activity (Mueller et al., 2015). Health gains exceed detrimental effects of traffic incidents and air pollution exposure. For example, active transport to work or school is significantly associated with improved cardiovascular health and lower body weight (Xu et al., 2013).
- 11.1.16 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:

The source is the presence of construction vehicle and restrictions on the road network.

The pathway is disruptions to active travel and changes in driver delay, accidents and safety. These factors also influence emergency response times.

Receptors are local road users, including motor vehicles, pedestrians and cyclists, as well as emergency services.

11.1.17 Furthermore, the theoretical effect is considered applicable in the context of this project.

11.1.18 The population groups relevant to this assessment are:

The site-specific population of Chorleywood North and Sarratt; Durrants, Dickinson, Holywell and Park wards.

The local population of Three Rivers and Watford Districts

The sub-population vulnerable due to:

- Young age vulnerability (children and young people are potentially more vulnerable road users)
- Old age vulnerability (older people are potentially more vulnerable road users)
- Poor health vulnerability (people with existing poor physical and mental health in relation to health trip journey times)
- Access and geographical vulnerability (people who experience existing access barriers or who rely on the affected routes, including for healthcare and other amenities).

11.1.19 As shown above, the scientific literature indicates that there is an association between the transport changes, road safety and accessibility. However, the literature does not identify particular thresholds for effects. The assessment has had regard to the population groups identified in the literature that may be particularly sensitive. For example, children, pregnant women and cyclists (particularly older cyclists) are generally more vulnerable in terms of road safety. People with lower socio-economic status typically face more transportation barriers in accessing healthcare.

Sensitivity of the receptor

11.1.20 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account and are listed in section 7.2. This reflects that most people in the site-specific and local area would have many *alternative* routes in the road network to the affected sections. It also includes those who would only make *occasional use* of the affected sections of the road network. The general population comprise those members of the community with a *high* capacity to adapt to changes in access, including changes in healthcare access, for example due to greater resources and *good* physical and mental health.

11.1.21 The sensitivity of the vulnerable group is **high**. The vulnerable sub-population includes *dependants*, such as children, elderly and those receiving care due to poor health. The population may therefore be more *reliant on the affected routes* with greater likelihood that any disruption or disturbance could affect safety or access to health supporting services. Vulnerability is linked to mode of travel, including pedestrians and cyclists being more sensitive to road safety changes. It also relates to age (young people and older people) being more vulnerable to accident severity, as well as to those who are reliant on services accessed on affected sections of the road network (e.g. traveling to schools). Vulnerability may be increased in areas of higher deprivation. Deprived populations may already face more access barriers compared to the general population and therefore be more sensitive to access changes. This sub-population may have *fewer resources* and *less* capacity to adapt to changes. Low incomes may compound access barriers by limiting the ability to adapt. Vulnerability also includes those accessing health services (emergency or non-emergency) at times and locations affected by congestion and/or junction upgrades. Ambulance services (and the recipients of their care) are particularly sensitive to delays in response times (time

taken to arrive and stabilise the patient). People in poor or very poor health may be more frequent users of healthcare service and therefore be more sensitive to access changes.

Magnitude of impact

- 11.1.22 During construction, the Proposed Development would include highway improvements at Baldwins Lane to add signalised junctions at Baldwins Lane to both Links Way and Durrants Drive. There is potential that these construction activities including construction vehicles may disrupt local vehicle traffic (private and public transport) as well as active travel impacting access to health and social care services and local schools.
- 11.1.23 For population health, the magnitude of impact due to the Proposed Development is considered to be **low**.
- 11.1.24 For population health the magnitude of change due to the Project is low.

In relation to health-related travel times and accessibility. During construction, the scale of change in delays is expected to be *small*, with the duration of such change *short-term*. The priority given to ambulances travelling under blue lights would be expected to reduce any changes in journey times. Mitigation in terms of early and ongoing information sharing with emergency and healthcare services would be secured through construction traffic management plans. Therefore, health-related journeys are likely to be *occasionally* affected. Most delays would not affect health outcomes, though for a *very few people*, severity could relate to a *small change* in risk for morbidity or mortality. Any health service implications are likely to be *slight*.

In relation to active/sustainable travel, the scale of change in use of active travel or public transport due to disruption and additional vehicle movements on the roads is considered *small* and over the *short-term*. This reflects the temporary nature of construction work and ability of people to adapt to known planned roadworks. Any changes relate to those making frequent or occasional use of active travel or public transport modes. Any changes, slight disincentivising the use of these modes, would be expected to make only a *very minor* contribution to quality-of-life and morbidity for cardiovascular and mental health outcomes for a *small minority* of the population. Sustained behavioural change due to the project change is not expected.

In relation to road safety, a *small scale* of change in road traffic would have a corresponding very small increase in accident risk (simply as a function of traffic volumes). Such events would remain occasional over the *short-term* for the construction phase. Severity relates to a *very minor change* in risk of injury or mortality (with outcome reversal gradual or permanent). *Very few people* would be affected, with *no* or *slight* implications for healthcare services.

Significance of effect

- 11.1.25 The significance of the population health effect due to this Proposed Development is **minor adverse** which is not significant. The magnitude of the impact is low, and the sensitivity of the vulnerable group population is high. The professional judgment is that there would, at most, be a *slight adverse* change in health. This conclusion reflects that road safety and access to health supporting services are public health priorities and there is causal association that is supported by the scientific literature. However, the level of change due to the Proposed Development is *small* and is appropriately *mitigated* by standard good practice measures that minimise disruption and disturbance. The change is unlikely to result in significant differential or disproportionate effects between the general population (low sensitivity) and the vulnerable sub-population (high sensitivity). Consequently, *no widening of health inequalities* would be expected, and no influence is expected on the ability to deliver local or national health policy.

Further Mitigation

- 11.1.26 Additional mitigation includes ensuring early and ongoing sharing with local residents with regard to any temporary road section closures during junction upgrades.

11.1.4 Socio-economic conditions: Education

- 11.1.27 This section discusses changes to education and training during the construction stage of the Proposed Development. The Proposed Development provides opportunities for career development and upskilling.
- 11.1.28 The scientific literature identifies the following associations relating to socioeconomic opportunity and human health. Increased educational attainment is associated with better health outcomes and delayed mortality. Education is associated with life expectancy, morbidity, health behaviours and educational attainment plays an important role in health by shaping opportunities, employment and income (The Lancet Public Health, 2020). Yu-Tzu Wu and colleagues show in their study that, differences in educational attainment and wealth are strongly associated with disparities in healthy ageing across a large population of older people (Wu et al., 2020)). Education is therefore an important indicator of socioeconomic status that plays an important role in reducing inequalities and in improving income, employment, social networks, and behaviours (Byhoff et al., 2017).
- 11.1.29 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:

The source is upskilling and career development opportunity.

The pathway is good quality education and skills development which is influential for health.

Receptors are local communities particularly young people and people of working age.

- 11.1.30 Furthermore, the theoretical effect is considered applicable in the context of this project.

- 11.1.31 The population groups relevant to this assessment are:

The local population of Three Rivers and Watford Districts;

The regional population of East of England

The sub-population vulnerable due to:

- Young age vulnerability (young people), particularly young adults early in their career.
- Poor health vulnerability (people with existing poor physical and mental health) who would disproportionately benefit from access to opportunities.
- Low-income vulnerability (people living in deprivation, including those on low incomes for whom upskilling, and career development may be particularly beneficial).

Sensitivity of receptor

- 11.1.32 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account are listed in section 7.2. This reflects that most people in the local area would make use of *alternative* educational or training opportunities or have existing educational attainment appropriate to their vocation and career progression.
- 11.1.33 The sensitivity of the vulnerable group population is **high**. Vulnerability in this case relates to young adults, in relation to apprenticeship opportunities, and children or young people, in relation to educational support initiatives. For both these groups those who are from disadvantaged backgrounds would be particularly sensitive to educational interventions that

provide knowledge, new skills or personal development. Young people leaving education or early in their careers may have the most to gain from an increase in training opportunities as a pathway into good quality local employment.

Magnitude of Impact

- 11.1.34 Consideration of the impacts of construction noise from the Proposed Development on nearby educational facilities and education outcomes is provided in section 11.1.7 of this report. Issues relating to access to nearby schools including Little Green Junior Schools are considered in section 11.1.3 of this report.
- 11.1.35 While details of apprenticeship and training opportunities are not known at this stage, it is recommended that these are, and anticipated that they would be, provided during the construction phase.
- 11.1.36 The magnitude of change due to the Proposed Development is **low**. The change would be *short term* and *small scale*. This reflects that the upskilling and training opportunities are likely to be associated with *minor* changes in morbidity and quality of life for a *small minority* of the population due to improved socio-economic status.

Significance of effect

- 11.1.37 The significance of the population health effect for this determinant of health is **minor beneficial (not significant)**. The professional judgment is that there would be a *slight* beneficial change in the health baseline for the local population. This conclusion reflects that the scientific literature establishes a clear relationship between career development and factors that promote health or are protective against poor health, particularly mental health. The scale and nature of career development is expected to be *marginal* in narrowing health inequalities locally, and more generally supporting delivery of health policy to improve local population health.

Further Mitigation

- 11.1.38 No additional mitigation is considered to be required.

11.1.5 Socio-economic conditions: Employment (including quality)

- 11.1.39 This section discusses changes to employment and income during construction phase of the Proposed Development. The Proposed Development provides opportunities for good quality employment.
- 11.1.40 Changes in direct and indirect employment opportunities have socio-economic effects that impact upon health and mental well-being. There is strong evidence for a protective effect of employment on depression and general mental health (van der Noordt et al., 2014). The long-term unemployed carry a markedly higher burden of disease, particularly mental illness, than employed persons and those who are unemployed only for a short time. The burden of disease increases with the duration of unemployment (Herbig et al., 2013). The evidence that large income differences have damaging health and social consequences is strong and, in most countries, inequality is increasing. Narrowing the gap will improve the health and wellbeing of populations (Pickett and Wilkinson, 2015).
- 11.1.41 Improvements in socioeconomic determinants positively impact population health. Income inequality, measured mainly as median household income, has a strong impact on health. Improvements in indicators like income, education, employment status and racial inclusion, could result in a reduction in mortality and morbidity outcomes improving overall population health. Improving more than one indicator simultaneously results in a greater health

improvement (Salgado et al., 2020). Socioeconomic position is consistently associated with children's nutrition knowledge, parent modelling, home food availability and accessibility. Socioeconomically disadvantaged children are at higher risk of consuming poor diets, in particular less fruits and vegetables and more non-core foods and sweetened beverages (Zarnowiecki et al., 2014).

- 11.1.42 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:

The source is changes in direct and indirect jobs and economic activity.

The pathway is good quality employment and income providing more health supporting resources.

Receptors are people of working age (and their dependants).

- 11.1.43 Furthermore, the theoretical effect is considered applicable in the context of this project.

- 11.1.44 The population groups relevant to this assessment are:

The local population of Three Rivers and Watford Districts;

The regional population of East of England

The sub-population vulnerable due to:

- Young age vulnerability (children and young people who are dependants, as well as young adults early in their careers)
- Old age vulnerability (older people who are dependants)
- Poor health vulnerability (people with existing poor physical and mental health, including for employment opportunities and as dependants)
- Low-income vulnerability (people living in deprivation, including those on low incomes for whom good quality employment may be particularly beneficial)
- Access and geographical vulnerability (people for whom other job opportunities may be limited due to access and geographical limitations).

Sensitivity of receptor

- 11.1.45 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account are listed in section 8.3. This reflects that most people would already be within stable employment that would be unaffected by the Proposed Development (or being a dependant of such a person).
- 11.1.46 The sensitivity of the vulnerable group population is **high**. Vulnerability in this case relates to people and their dependants who are on low incomes, have poor job security, poor working conditions or who are unemployed. Young people, including leaving education or early in their careers may have the most to gain from an increase in good quality job opportunities. Future young or older people may also come to rely on those employed. Improved access to employment opportunities may particularly benefit those on low incomes.

Magnitude of Impact

- 11.1.47 During construction the Proposed Development would contribute to the provision of employment in the local area through construction jobs both on site and through the local supply chain. It is anticipated that construction of the Proposed Development would directly create around 930 FTE jobs. Further detail on exact amounts of construction employment opportunities will be available at the Reserved Matters stage.

- 11.1.48 The magnitude of change due to the Proposed Development is **low**. This reflects a *small* scale of change within the context of the study area employment market. The employment would be *short-term* and on a *continuous* basis, whether full-time or part-time. Such jobs are likely to be associated with *minor* changes in morbidity and quality of life for a *small minority* of the population due to improved socio-economic status and increased spending on health supporting resources and activities (including through indirect benefits to dependants).

Significance of effect

- 11.1.49 The significance of the population health effect for this determinant of health is **minor beneficial** (not significant). The effect is characterised as being beneficial in direction, *temporary* and due to *direct* and *indirect* health pathways. The professional judgment is that there would be a slight beneficial change in the health baseline for the local population. This conclusion reflects that the scientific literature establishes a *clear relationship* between good quality employment and factors that promote health or are protective against poor health, particularly mental health. The scale and nature of employment is expected be *marginal* in narrowing health inequalities locally, and more generally *supporting* delivery of health policy to improve local population health.

Further mitigation

- 11.1.50 The following additional mitigation and enhancements are proposed:

As far as reasonably practicable (e.g. subject to standards and security checks) provide a targeted scheme of access to construction employment opportunities in the local and regional area for people who are Not in Education, Employment, or Training (NEET).

As far as reasonably practicable (e.g., subject to standards and security checks) work with local employment schemes (e.g. Job Centre) to support opportunities to provide local unemployed adults with access to interviews construction job opportunities. This may include advertising and interviewing for jobs locally and using approaches that facilitate access for people with disabilities or social disadvantage.

11.1.6 Environmental conditions: Air quality

- 11.1.51 This section discusses changes to air quality during construction of the Proposed Development, and related effects on population health. Construction of the Proposed Development has the potential to result in dust effects from construction activities and construction compounds, as well as vehicle emissions from construction traffic.
- 11.1.52 The scientific literature identifies the following associations relating to air quality and human health. Environmental air pollution is associated with increased risk of respiratory and cardiovascular diseases. Air pollution exerts its detrimental effects on the heart by developing pulmonary inflammation, systemic inflammation, oxidative stress, endothelial dysfunction and prothrombotic changes (Meo and Suraya, 2015). The adverse effects on health of PM and NO₂ indicates that the effects occur at air pollution concentrations lower than those in guidelines (WHO, 2021). Long term exposure to particulate matter is associated with incidence of coronary events, and this association persists at levels of exposure below the current limit values (Cesaroni et al., 2014). The magnitude of the long-term effects of NO₂ on mortality is at least as important as that of PM_{2.5} (Cesaroni et al., 2014).
- 11.1.53 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:

The source is dust and air pollutants (particularly Nitrogen Dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) from construction emissions.

The pathway is diffusion through the air.

Receptors are residents and long-term occupiers of nearby properties and community buildings.

11.1.54 Furthermore, the theoretical effect is considered applicable in the context of this project.

11.1.55 The population groups relevant to this assessment are:

The site-specific population of Chorleywood North and Sarratt; Durrants, Dickinson, Holywell and Park wards.

The sub-population vulnerable due to:

- Young age vulnerability (children and young people).
- Old age vulnerability (older people).
- Poor health vulnerability (people with existing poor respiratory or cardiovascular health).
- Access and geographical vulnerability (people for whom close proximity to the Proposed Development increases sensitivity).

11.1.56 Construction activities that produce dust relate to the coarser fractions of PM₁₀ and potential nuisance from dust deposition on property. The great majority of anthropogenic PM_{2.5} health effects relate to combustion related processes, particularly changes in transport patterns, solid fuel burning from space heating or industrial processes that use fossil fuels. Whilst the focus of discussion in this HIA differentiates between coarse PM during construction and fine PM during operation, the health outcomes of PM₁₀ and PM_{2.5} are not distinguished in this assessment. This reflects that both are typically present (though the relative proportions change) and that the evidence base does not consistently distinguish their effects particularly given that PM_{2.5} is a subset of PM₁₀. However, generally, elevated concentrations of PM_{2.5} are considered of greater concern due to their greater potential to interact within the body.

11.1.57 For construction dusts, the main health outcomes are likely to relate to exacerbation of existing conditions, such as asthma or chronic obstructive pulmonary disease (i.e. airway inflammation by coarse PM) and to reductions in wellbeing associated with annoyance or reduced amenity. Whilst other outcomes (e.g. cardiovascular events or toxicological response) may be relevant in the event of brief high concentrations, such elevated exposures are expected to be avoided though the embedded standard good practice mitigation discussed in the Air Quality Assessment.

11.1.58 The assessment has identified population groups that may be particularly sensitive to air quality effects. For example, young children are particularly susceptible to air pollution because of their developing lungs, high breathing rates per bodyweight, and amount of time spent exercising outdoors. Other vulnerable groups include the sick (e.g. people with type 2 diabetes), the elderly, and pregnant women.

Sensitivity of the population

11.1.59 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group have been taken into account and are listed in Section 7.2 of this report. The general population comprise those members of the community who live, work and study at a distance where high levels of dispersion and deposition would greatly limit the effects any change in exposure due to the Proposed Development. Furthermore, most people enjoy good respiratory health (e.g. do not have asthma) and are not a life stage (e.g. infant or frail elderly) with particular sensitivity to air quality.

11.1.60 The sensitivity of the vulnerable group population is **high**. This reflects that the sub-population includes a high representation of dependants, including children, elderly and those receiving

care due to poor health. For example, existing respiratory conditions including asthma and chronic obstructive pulmonary disease and type 2 diabetes would increase sensitivity. People likely to be most affected by the Proposed Development are those living, visiting or working close to the construction works (see receptors listed in Air Quality Assessment).

Magnitude of impact

- 11.1.61 The Air Quality Statement for the Proposed Development concludes that following mitigation to minimise construction dust, the residual impact will be not significant.
- 11.1.62 From the public health perspective, the magnitude of change due to the Proposed Development is **low**. Construction activity dust impacts on the identified sensitive receptors are predicted to be of temporary duration. A comprehensive set of mitigation measures and dust monitoring would be implemented during the construction phase, to further minimise construction dust impacts. Occasionally, weather conditions may coincide with construction activities to generate higher levels of dust. This can cause temporary annoyance, and for people with existing poor health, higher levels of coarse dust in the air can exacerbate some conditions (e.g. asthma). Coarse PM is larger and heavier and so it is deposited more quickly. This means that the concentration of coarse PM in the air reduces rapidly as it gets further from the source. The potential for nuisance-type dust effects is therefore expected to be *occasional* and limited in extent. At these levels it is unlikely that there would be discernible changes in the risk of developing a new health condition or of exacerbating an existing condition. Such changes would be temporary, with a *very minor influence* on quality of life and/or morbidity risk for respiratory and cardiovascular conditions for a *very few* people. Most effects would *rapidly reverse*, with no discernible influence for healthcare services.

Significance of effect

- 11.1.63 For the health assessment, the construction air quality effects are considered **minor adverse (not significant)**. The minor adverse (rather than negligible) score represents a conservative assessment finding given scientific uncertainty (and emerging evidence) about non-threshold health effects of NO₂, and PM_{2.5}. The score takes into account WHO advisory guidelines and also reflects that air pollution is a specific local public health priority. The level of change in the health baseline due to the Proposed Development is likely to be very limited, with at most a marginal effect on the delivery of health policy and inequalities. This is a public health acknowledgement of the very small incremental contribution to air pollution that the Proposed Development would make, but also recognition that at the Proposed Development level this should not be considered a significant effect on population health or health inequalities.

Further Mitigation

- 11.1.64 No additional mitigation is considered to be required.

11.1.7 Environmental conditions: Noise and Vibration

- 11.1.65 This section discusses changes in noise and vibration exposure during construction of the Proposed Development. This reflects that activities at the site would generate noise. The scale, timing or character of the noise is taken into account in determining the potential for adverse effects on population health and wellbeing.
- 11.1.66 There is potential for noise to temporarily arise from construction works and movement of construction related vehicles.
- 11.1.67 In general, the scientific literature suggests the potential for annoyance with an indication of further stress due to exposure to environmental noise including aviation noise (Guski et al.,

2017). Annoyance describes negative reactions such as disturbance, irritation, dissatisfaction, and nuisance (Guski, 1999). Environmental noise can initiate physiological stress responses in an individual that leads to a cascade of effects including a rise in heart rate and in levels of stress hormones (Guski et al., 2017). These responses influence risk factors for cardiometabolic health issues including blood pressure, blood sugar and blood fats and long-term exposure may affect mental health and lead to diseases such as diabetes, heart attack, and stroke (Münzel et al., 2018b, 2018a, 2017). Night-time noise may disrupt the total sleep time and the required physiological and mental restoration in an individual even at low levels (Guski et al., 2017).

11.1.68 Whilst the literature supports there being thresholds at which effects (such as annoyance and sleep disturbance) are likely, it also acknowledges the subjective nature of responses to noise. In this regard noise effects can be considered to have non-threshold effects, with characteristics other than sound levels also determining the influence on health outcomes (WHO, 2018). The assessment had regard to the population groups identified in the literature that may be particularly sensitive. For example, children, the elderly, the chronically ill, people with a hearing impairment, shift-workers and people with mental illness (e.g., schizophrenia or autism).

11.1.69 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:

The source is noise and vibration generated by construction activities.

The pathway is pressure waves through the air and vibration through the ground.

Receptors are residents and long-term occupiers of nearby communities.

11.1.70 Furthermore, the theoretical effect is considered applicable in the context of this Proposed Development.

11.1.71 The population groups relevant to this assessment are:

The site-specific population of Chorleywood North and Sarratt; Durrants, Dickinson, Holywell and Park wards.

The sub-population vulnerable due to:

- Young age vulnerability (children and young people including for educational disturbance).
- Old age vulnerability (older people including for elderly nursing homes).
- Poor health vulnerability (people with existing poor physical or mental health).
- Low-income vulnerability (people living in deprivation, including those on low incomes may have fewer resources to adapt, e.g. seek respite or install insulation furthermore, those who are economically inactive may spend more time in affected dwellings).
- Access and geographical vulnerability (people for whom close proximity to the proposed changes increases sensitivity).

11.1.72 The assessment covers these populations within two groups. The general population for the geographic area, notably Croxley Green village residents, and the vulnerable sub-population for this area. The latter is comprised of the vulnerabilities listed above. The differentiation of these two groups, allows a discussion of any potentially significant health inequalities and the targeting of any mitigation.

Sensitivity of the population

11.1.73 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into

account and are listed in Section 7.2 of this report. The general population comprise those members of the community in good physical and mental health and with resources that enable a high capacity to adapt to change. Additionally, most people live, work or study at a distance from the Proposed Development where construction noise and vibration is unlikely to be a source of concern.

- 11.1.74 The sensitivity of the vulnerable group population is **high**. This reflects that the sub-population includes a high representation of dependants, both children, elderly and those receiving care due to poor health. This sub-population may experience existing widening inequalities due to living in areas with increased noise and elevated deprivation, with limited capacity to adapt to changes. Vulnerability particularly relates to those living close to the construction activities and construction compounds, including those spending more time in affected dwellings, e.g. due to low economic activity, shift work or poor health. People who are concerned or have high degrees of uncertainty about construction noise and its effect on their wellbeing may be more sensitive to changes in noise.

Magnitude of impact

- 11.1.75 The following noise sensitive receptors are noted: there is a school immediately to the south (Little Green Junior School), a nursing home for people with dementia 0.4 miles away (Clarendon Lodge) and residential areas directly to the south of the Proposed Development. These locations may be sensitive to noise from the construction activities of the Proposed Development.
- 11.1.76 While detailed construction noise and vibration impacts are not assessed at this stage, further detail is anticipated at the Reserved Matters stage, and as stated in the DAS, impacts will be minimised by adherence to best practice measures via a CEMP.
- 11.1.77 From the public health perspective, the magnitude of change due to the proposed works is **low**. For population health the small scale of change in noise levels is likely to predominantly relate to a *minor* change in quality of life for a *small* minority of the community; and a *very minor* change in cardiovascular and mental wellbeing morbidity for the *very few* people closest to construction activities. The changes would be of *short-term* duration and relate to *frequent* construction related noise exposures. Annoyance related health outcomes would be expected to *reverse rapidly* on completion of the works. There are unlikely to be healthcare service implications as a result of construction noise and vibration. Construction noise is not expected to result in disruption of education. As discussed in the DAS, a comprehensive set of mitigation measures would be implemented during the construction phase, to appropriately manage construction noise and vibration impacts.

Significance of effect

- 11.1.78 Noise and vibration impacts from construction activities and construction traffic would be mitigated through the use of appropriate construction hours and best practice measures as set out in the CEMP at the Reserved Matters stage. Such mitigated construction noise impacts of the Proposed Development would be considered to result in a **minor adverse (not significant)** effect on population health. This assessment conclusion reflects that although the scientific literature indicates a clear association between elevated and sustained noise disturbance and reduced health outcome, the changes would result in a very limited effect in the health baseline of the site-specific population. The temporary and localised construction noise effects are not expected to affect health inequalities. The level of effect is not expected to affect the ability to deliver local or national health policy.

11.2 Operations and Maintenance

11.2.1 Healthy lifestyles: Open space and physical activity

- 11.2.1 This section discusses the potential benefits of the Proposed Development in relation to open space and physical activity. The Proposed Development would upgrade the existing PROWs going through the site. The Proposed Development also includes new open green spaces, recreational routes and various opportunities for physical activity.
- 11.2.2 The scientific literature identifies the following associations relating to physical activity, recreation, leisure and human health. Time spent near green and blue space can positively affect mental wellbeing (Rojas-Rueda *et al.*, 2021). The evidence suggests an inverse association between surrounding greenness and all-cause mortality (Yang *et al.*, 2021). The benefits of open spaces for recreation and leisure include improved physical activity and health outcomes including physical health (e.g., cardiovascular health) and mental health (e.g., decreased stress, anxiety or depression). The availability of a natural environment, attractive views of nature and people's experiences using greenspace can enhance attitudes toward physical activity and perceived behavioural control via stress-relieving effects, leading to firmer intentions to engage in physical activity (Calogiuri and Chroni, 2014).
- 11.2.3 The design and layout of a neighbourhood significantly influence physical activity levels, with more walkable areas linked to higher activity rates. However, the built environment's impact on physical activity varies across different population groups. For some, it plays a major role in determining activity levels, while for others, it is less influential. For example, Pearce and Maddison found that enhancing neighbourhood walkability was a strong predictor of increased physical activity, particularly among disadvantaged populations (Pearce and Maddison, 2011).
- 11.2.4 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:
- The source is new footpaths, cycleways, open spaces and play areas in the Proposed Development.
- The pathway is behavioural change in use of open spaces and levels of physical activity affecting physical and mental wellbeing.
- Receptors are residents and visitors in the local communities.
- 11.2.5 Furthermore, the theoretical effect is considered applicable in the context of this Proposed Development.
- 11.2.6 The population groups relevant to this assessment are:
- The site-specific population of Chorleywood North and Sarratt; Durrants, Dickinson, Holywell and Park wards.
- The local population of Three Rivers and Watford Districts; and
- The sub-population vulnerable due to:
- Young age vulnerability (specifically children who are overweight or who have low physical activity levels);
 - Old age vulnerability (specifically the elderly for whom familiar routes with appropriate mobility considerations play a part in regular exercise);
 - Low-income vulnerability (specifically people with limited access to alternative physical activity opportunities or means of transport);

- Poor health vulnerability (specifically conditions where physical activity would be beneficial to physical or mental health, including routes suited to additional mobility and sensory needs); and
- Access and geographical vulnerability (specifically the population who have limited access to natural green space accessed by the routes affected by the Proposed Development).

Sensitivity of the receptor

- 11.2.7 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account and are listed in **section 7.2**. Most people in the local area would only make occasional use of the new physical activity, recreational and leisure opportunities. The general population also includes those with access to many alternative opportunities for physical activity.
- 11.2.8 The sensitivity of the vulnerable group population is **high**. This reflects that the sub-population includes a high representation of those receiving care due to poor health who may benefit from the new and improved physical activities opportunities. Vulnerability in this case is linked to proximity to the open spaces and physical activity opportunities provided by the Proposed Development. This includes pupils at Little Green Junior School and the vulnerable population at Breakspeare School. The population may come to be more reliant on the new physical activity, recreational and leisure opportunities with greater likelihood that any provision and improvement could impact physical activity behaviours.

Magnitude of impact

- 11.2.9 Approximately 60% of the Site Area for the Proposed Development includes landscaped public open space, comprising landscaped focal green spaces, natural and equipped play for children and teenagers, semi natural green spaces, woodland copses and ecological corridors. The focal green spaces would be dispersed across the development, providing a series of attractive, legible focal points, with equipped children's play spaces and distinctive planting themes which complement development character areas.
- 11.2.10 The Proposed Development is retaining existing hedgerows, trees and woodland which would be integrated into public open space. A new country park which encompasses the existing public footpath, and higher areas of land is also proposed providing an open transition between the new development and the surrounding areas including Whippendell Wood (SSSI) and Cassiobury Park.
- 11.2.11 Alongside play integrated throughout the green and blue infrastructure network, exercise equipment will be introduced to create an informal trim trail. This will encourage use of the site's active travel routes not only for commuting, but for recreation and fitness purposes.
- 11.2.12 The magnitude of beneficial change due to the Proposed Development is **medium**. As identified in literature, the layout or design of a neighbourhood is a key determinant of physical activity; higher rates of activity are associated with more walkable neighbourhoods. The Proposed Development prioritizes walkability and physical activity. It includes urban design elements such as appropriately sized sidewalks, streetscaping (including trees and other pedestrian features), traffic calming measures, and parking management. The Proposed Development also meets all the assessment criteria of the NHS London Healthy Urban Development Unit (HUDU) access to open space and nature domain (Table 11-1).
- 11.2.13 The Proposed Development also aligns with Sport England Active Design's 10 principles as listed in section 3.1.4. The masterplan incorporates opportunities for recreation and physical activity in locations that are easily accessible from existing public rights of ways and the

proposed active travel routes. Recreational facilities would be within easy reach of each other by active travel means as the new streets will be designed to optimise connectivity by creating a continuous network of routes connecting key destinations and to promote physical activity.

- 11.2.14 The scale of change is considered *medium*. The Proposed Development would enhance existing green infrastructure and introduce new PRow and new open space for recreation and physical activity. This includes a new greenway, offering an attractive recreational route to new residential areas, play spaces and Croxley Green Country Park, while preserving the existing hedgerow. The new PRow and open spaces would provide *continuous* and *long-term* increase in physical activity opportunity. These new physical activity opportunities would be expected to support *minor* improvements in morbidity related physical and mental health outcomes for a *large* minority of the study area population. Neighbourhood crime, which impacts walkability, is also addressed in the development. Research shows that residents in areas with perceived high crime rates engage in less physical activity (Rees-Punia et al., 2018). The Proposed Development incorporates design features that reduce crime, such as pedestrian street lighting, helping to alleviate the fear of crime. The Proposed Development would also bring some visual changes to the existing PRow network which would contribute to subjective changes in the quality of the physical activity opportunity of the PRow network affected by the Proposed Development. The scale of change is characterised as beneficial and *small*.

Table 11-1: HUDU, Access to open space and nature criteria met by the Proposed Development

Assessment criteria	Yes/No	Details / evidence
Does the proposal retain and enhance existing open and natural spaces?	☒ Yes ☐ No	The Proposed Development is retaining existing hedgerows, trees and woodland which would be integrated into public open space. The development preserves and enhances the green belt buffer, maintaining hedgerows and existing trees.
In areas of deficiency, does the proposal provide new open or natural space, or improve access to existing spaces?	☒ Yes ☐ No	The Proposed Development would provide a new country park which encompasses the existing public footpath, and higher areas of land. The country park provides an open transition between the new development and the surrounding areas including Whippendell Wood (SSSI) And Cassiobury Park. The Proposed Development would also provide a new greenway, the Rousebarn greenway. The greenway comprises a distinctive north-south corridor of landscaped public open space providing an attractive recreational route to other play spaces, sports and Croxley Green Country Park. The Proposed Development also includes a new sports pitch and pavilion and a Multi-Use Games Area located with new parking facilities and within walking distance of Little Green Junior School.
Does the proposal provide a range of play spaces for children and young people?	☒ Yes ☐ No	The Proposed Development would provide natural and equipped play for children and teenagers including attractive focal green spaces dispersed across the development, with equipped children's play spaces; sports pitch and pavilion and a Multi-Use Game Area suitable for teenagers within a walking distance of Little Green Junior School.
Are the open and natural spaces welcoming and safe and accessible for all?	☒ Yes ☐ No	The Proposed Development provides an interconnected and accessible network of landscaped public open space, which greatly surpasses minimum open space requirements on safety and accessibility. Access for people with disabilities is not explicitly discussed in the planning documents but appear broadly aligned within the design.

Assessment criteria	Yes/No	Details / evidence
Does the proposal set out how new open space will be managed and maintained?	☒ Yes ☐ No	The Proposed Development does not have an explicit plan around how green space will be managed. Quality of greenspace is a mitigating factor in the association between exposure and positive health outcomes. Regular upkeep and gardening would allow ongoing health benefits of the space.

Significance of the effect

- 11.2.15 The significance of the population health effect for this determinant of health is **moderate beneficial (significant)**. The Proposed Development provides new recreational spaces and routes, and this would be beneficial in the promotion of recreation and leisure activities. The professional judgement is that there would be a *small* beneficial change in the health baseline for the local population related to long-term new open spaces. In addition, the visual changes across a large area of open space may discourage use of PRoW and open space for leisure and play. There may be a small reduction in the local health baseline. Such an effect could be *influential* to public health policy to promote physical activity and reduce obesity, including potentially widening inequalities. These conclusions reflect that physical activity is a local public health priority and the scientific literature on the benefits of physical activity to health is well established.

Further mitigation

- 11.2.16 Open and recreational spaces including sports facilities should be designed to be inclusive to cater for people with special needs, particularly pupils at the new Breakspeare School. The design should prioritize accessibility, sensory sensitivity, and safety.
- 11.2.17 Improvements to the public realm, should incorporate a Trim Trail /appropriate play equipment to promote neighbourliness and reduce the risk of social isolation.
- 11.2.18 The design of play spaces should include suitable seating and areas of shade.

11.2.2 Safe and cohesive communities: Housing

- 11.2.19 This section considers the beneficial effects of new housing from the Proposed Development during the operational phase. Housing exerts one of the strongest directly measurable effects on physical and mental health. The Proposed Development is providing approximately 600 dwellings including a mix of housing types and size to increase housing choice.
- 11.2.20 In general, the scientific literature suggests housing quality exerts one of the strongest directly measurable effects on physical and mental health (Ige et al., 2019). The influence of housing on population health, particularly mental health, is strongly linked to community and environmental factors. The World Health Organization specifies that dwellings must be large enough to comfortably accommodate people of different ages with sufficient space for privacy. The WHO found a strong positive association between crowded housing and respiratory infections (Shannon et al., 2018). The evidence also suggests that overcrowding may also be associated with poor mental health outcomes such as stress and depression (Shannon et al., 2018). Adaptable homes that meet the needs of residents at different stages of their life are especially health-promoting. The literature suggests that people with disabilities living in accessible home environments have better health and wellbeing than those living in conventional or inaccessible home environments (MacLachlan et al., 2018). Physical health benefits were also identified with adaptable homes, such as reductions in falls and injuries. Self-perceptions of increased quality of life and general wellbeing were found, along with psychological effects such as less fear of falling/accidents and reduced feeling of depression (MacLachlan et al., 2018).

- 11.2.21 The literature highlights an association between housing conditions (including air quality, noise levels, thermal comfort, access to natural light, access to high quality, and safe outdoor space) and health and wellbeing. A systematic review and meta-analysis of 15 studies in high-income countries found that microbial aerosol exposure (mould) in indoor air environments, including homes, was significantly associated with an increased risk of respiratory symptoms in children (Fakunle et al., 2021). The WHO recognises residential noise as a potential health-harming housing condition. Specifically, noise impacts related to cardiovascular effects, annoyance and sleep disturbance (and consequences arising from inadequate rest) are considered the main pathways by which population health may be affected (Li et al., 2022; Peris and Fenech, 2020). Findings from an ecological study that examined the associations between temperature, housing deprivation and excess winter mortality showed that lack of central heating could significantly increase the risk of excess winter deaths (Ige et al., 2019). The evidence suggests that inadequate home lighting is associated with likelihood of reporting depression (Brown and Jacobs, 2011).
- 11.2.22 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:
- The source is housing quantum, type, quality and conditions.
- The pathway is housing availability, affordability and conditions affecting physical and mental health.
- Receptors are residents in the local communities, including new and existing residents.
- 11.2.23 Furthermore, the theoretical effect is considered applicable in the context of this Proposed Development.
- 11.2.24 The population groups relevant to this assessment are:
- The site-specific population of Chorleywood North and Sarratt; Durrants, Dickinson, Holywell and Park wards.
- The local population of Three Rivers and Watford Districts; and
- The sub-population vulnerable due to:
- Young age vulnerability (including those residing in poor housing that can have lasting health effects across their life course);
 - Disability and older age vulnerability (who have particular housing needs);
 - Low-income vulnerability (with fewer resources to respond to changes in housing availability or prices, as well as those dependant on incomes linked to accommodation, e.g., tourism related); and
 - Poor health vulnerability (for whom impacts on housing and relocation would be disadvantageous to their health, wellbeing and independence).

Sensitivity of the Receptor

- 11.2.25 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account and are listed in section 7.2. This reflects that deprivation data indicates most wards in the site-specific study area are in the 10-20% least deprived nationally for overall and income deprivation and 50% least deprived for barriers to housing and services. This suggests *low* deprivation in the study area. The population is also considered to be with greater resources, particularly in relation to accessing housing opportunities including affordable homes being introduced by the Proposed Development.

- 11.2.26 The sensitivity of the vulnerable group is high. The sub-population includes a high representation of *dependants*, including children, elderly, and those receiving care due to *poor* health. These would greatly benefit from the housing opportunities being offered by the Proposed Development including the proposed affordable, inclusive and accessible homes. Deprivation data also shows some wards are in the 30% most deprived in overall deprivation and 20-30% most deprived in housing deprivation indicating pockets of *high* deprivation. Deprived populations may already face more access barriers to housing compared to the general population and therefore be more sensitive to access changes in local housing availability.

Magnitude of Impact

- 11.2.27 The Proposed Development would provide approximately 600 dwellings including a mix of housing types and size to increase housing choice. 50% of the total number of dwellings would be classified as affordable housing, equating to a total 300 affordable dwellings. 50% of the other dwellings would be open market dwellings including the 5% which will be custom and self-build dwellings. These would also come in a range of sizes and tenures across the development. The development would include inclusive and adaptable homes including accommodation suitable for the elderly, and dwellings which facilitate working from home and can adapt to the changing needs of a lifetime. A 5-bed unit for supported living for vulnerable young people (Use Class C3(b)) will also be provided onsite. The proposed housing is of high quality and the new dwellings will be to current sustainability and energy efficiency standards.
- 11.2.28 As shown in Table 11-2, the Proposed Development also meets all the housing and design criteria of the HUDU matrix. The Proposed Development provides an opportunity to meet local community housing needs to meet the current and future housing needs in the study area. This includes housing needs of the Breakspeare School including the school staff, students and carers. The Proposed Development is also providing a 5-bed unit for supported living for vulnerable young people (Use Class C3(b)). A proportion of the new dwellings would be designed to be adaptable, allowing them to accommodate the changing needs of residents. This would also include provision of accessible, local housing options that enable the continuation of informal and unpaid caregiving roles and support existing social networks. The design of the Proposed Development would also reduce the risk of social isolation through integration with the existing community, supported by the strategic placement of key amenities including the local centre and its space for new NHS health and social care services.
- 11.2.29 For population health, the magnitude of change due to the Proposed Development is considered to be **medium**. In relation to housing quality and availability opportunities, the change is likely to be at a *large* scale and over the *long-term*. The change in housing is likely to affect a *large* minority of the population, with potential for *moderate* changes in physical and mental health morbidity linked to living environment. The magnitude of change on this issue is therefore expected to be medium.

Table 11-2: HUDU Housing design and affordability criteria met by the Proposed Development

Assessment criteria	Yes/No	Details / evidence
Does the proposal seek to meet all 16 design criteria of the Lifetime Homes Standard or meet Building Regulation requirement M4?	☒ Yes ☐ No	As stated in the DAS, the proposals will be delivered in line with the latest building regulations for a high standard of accommodation. In accordance with Preferred Policy Option 6, 10% of new homes will be designed to be M4(2) compliant (accessible and adoptable). 10% of affordable dwellings have been

		designed to accommodate M4(3) (wheelchair accessible dwellings).
Does the proposal address the housing needs of older people, i.e. extra care housing, sheltered housing, lifetime homes and wheelchair accessible homes?	☒ Yes ☐ No	The Proposed Development includes housing suitable for the elderly. Dwellings would be designed to adapt to the changing needs of a lifetime.
Does the proposal include homes that can be adapted to support independent living for older and disabled people?	☒ Yes ☐ No	Adaptability and access for the elderly and people with disabilities is not explicitly discussed in the planning documents but appear broadly aligned within the design. The new dwellings would be designed to be suitable for the elderly and can adapt to the changing needs of a lifetime.
Does the proposal promote good design through layout and orientation, meeting internal space standards?	☒ Yes ☐ No	All homes would be designed to meet the Nationally Described Space Standards. Consideration has been given to internal home quality and its impact on health and wellbeing, and further detail is provided in the DAS.
Does the proposal include a range of housing types and sizes, including affordable housing responding to local housing needs?	☒ Yes ☐ No	The Proposed development includes a mix of housing types and sizes to increase housing choice. The proposal also allows for 50% affordable housing provision, meeting the Three Rivers District Council policy on affordable housing. The other 50% of dwellings would open market dwellings, including the 5% which will be custom and self-build dwellings. The Proposed housing mix includes: Market Housing Options (300) including one-bed, two-bed, three-bed and four-bed options. Affordable Housing (300): – Social Rent: including one-bed, two-bed, three-bed and four-bed options. – First Homes: including one-bed, two-bed, three-bed and four-bed options. – Shared Ownership: including one-bed, two-bed, three-bed and four-bed options.
Does the proposal contain homes that are highly energy efficient (e.g. a high SAP rating)?	☒ Yes ☐ No	New dwellings will be to current sustainability and energy efficiency standards. The energy strategy for the Proposed Development prioritises energy efficiency through a fabric first approach, incorporating measures such as advanced insulation, airtight construction, and high-performance glazing. The development also integrates low carbon technologies including air source heat pumps in homes and solar energy.

Significance of the Effect

- 11.2.30 The significance of the population health effect for this determinant of health is **moderate beneficial** (significant). This score reflects that the literature establishes a clear relationship between housing availability, affordability, adaptability and health outcomes. Any change in the health baseline due to the Proposed Development is likely to be *small* with an *influential* effect on health inequalities and delivery of health policy. The conclusion takes into account that the Proposed Development includes allocations for affordable housing that meets criteria of the HUDU housing and design domain.

Further Mitigation

- 11.2.31 The following additional mitigation and enhancements are proposed:

Provide lifetime homes and adaptable housing specifications that support people to live healthily in their own homes for longer.

Affordable housing allocation should take a clustered-pepper-pot approach, not be allocated to less desirable areas.

Within the commercial allocation, hot-food takeaways are in practice limited as far as is reasonably practicable within the viability constraints of the project.

The Proposed Development adopts a 'healthy ethos', prioritising affordable healthy food allocation over unhealthy food where practicable during the commercial letting of the operational development.

11.2.3 Safe and cohesive communities: Transport

- 11.2.32 This section considers how the operational phase of the Proposed Development affects public health through changes in active travel opportunities, road safety and accessibility, including travel times for road users or emergency services, and access to health promoting goods and services.
- 11.2.33 The scientific literature identifies the following general points relating to the association between transport including active transport and human health. The primary function of transport is the movement of people and goods between places, enabling access to employment, economic, and social opportunities as well as to essential services. Transport which is affordable and accessible may be viewed as an important determinant of health by facilitating access to key socio-economic opportunities (Thomson et al., 2008). Active transportation (i.e. walking or cycling) has been directly related to increased residential density, street connectivity, mixed land use and amenities within a walkable distance (Thomson et al., 2008). Walking and cycling for transportation (i.e. active transportation) provides substantial health benefits from increased physical activity (Mueller et al., 2015). Health gains exceed detrimental effects of traffic incidents and air pollution exposure. For example, active transport to work or school is significantly associated with improved cardiovascular health and lower body weight (Xu et al., 2013).
- 11.2.34 Traffic calming and presence of playgrounds/recreation areas are associated with more walking and less pedestrian injury amongst children (Rothman et al., 2014). The provision of convenient, safe and connected walking and cycling infrastructure is at the core of promoting active travel (Winters et al., 2017). An activity friendly neighbourhood that is walkable, dense, accessible, equipped with walk/cycle facilities and safe from traffic is associated with more active transportation to school in children (D'Haese et al., 2015).
- 11.2.35 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:

The source is the presence of operational vehicle and traffic restrictions on the existing network.

The pathway is disruptions to active travel and changes in driver delay, accidents and safety. These factors also influence emergency response times.

Receptors are local road users, including motor vehicles, pedestrians and cyclists, as well as emergency services.

11.2.36 Furthermore, the theoretical effect is considered applicable in the context of this Proposed Development.

11.2.37 The population groups relevant to this assessment are:

The site-specific population of Chorleywood North and Sarratt; Durrants, Dickinson, Holywell and Park wards.

The local population of Three Rivers and Watford Districts

The sub-population vulnerable due to:

- Young age vulnerability (children and young people are potentially more vulnerable road users)
- Old age vulnerability (older people are potentially more vulnerable road users)
- Poor health vulnerability (people with existing poor physical and mental health in relation to health trip journey times)
- Access and geographical vulnerability (people who experience existing access barriers or who rely on the affected routes, including for healthcare and other amenities).

Sensitivity of the receptor

11.2.38 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account and are listed in section 7.2. This reflects that most people in the local area (Three Rivers and Watford districts) are unlikely to make regular use of the new active travel routes, bus and parking services being provided by the Proposed Development and would likely have alternative options to these active and sustainable travelling opportunities of the Proposed Development. In relation to disruption and increased traffic volumes on the road network, most people in the local area would also have many alternative options to the affected road network in terms of traffic volumes and delays. It also includes those who would only make occasional use of the affected sections of the road network. The general population comprise those members of the community with a high capacity to adapt to changes in access, including changes in healthcare access, for example due to greater resources and good physical and mental health.

11.2.39 The sensitivity of the vulnerable group is **high**. This reflects that the sub-population includes a high representation of those receiving care due to *poor* health who may benefit from the improved active travel facilities including improved cycleways and pedestrian facilities that may facilitate walking/cycling. This also includes members of the new residential community who would make *regular* use of the new bus service and the parking services being offered by the Proposed Development. The sub-population also includes dependants, such as children, elderly and those receiving care due to poor health who may benefit from the junction improvements facilitated by the Proposed Development including signalled pedestrian crossings. These may also come to be more *reliant on the* improved road network (e.g. traveling to schools).

11.2.40 In relation to disruption and increased traffic volumes on the road network, the vulnerable sub-population also includes dependants, such as children, elderly and those receiving care

due to poor health who may have *fewer resources* and *less* capacity to adapt to changes. The population may therefore be more *reliant on the affected routes* (e.g. traveling to schools) with greater likelihood that any disruption or disturbance could affect safety or access to health supporting services. Vulnerability is linked to mode of travel, including pedestrians and cyclists being more sensitive to road safety changes. Deprived populations may already face more access barriers compared to the general population and therefore be more sensitive to access changes. Low incomes may compound access barriers by *limiting the ability* to adapt. Vulnerability also includes those accessing health services (emergency or non-emergency) at times and locations affected by congestion. Ambulance services (and the recipients of their care) are particularly sensitive to delays in response times (time taken to arrive and stabilise the patient). People in poor or very poor health may be more frequent users of healthcare service and therefore be more sensitive to access changes.

Magnitude of impact

- 11.2.41 During operation and maintenance, the Proposed Development includes opportunities for active travel across the site including circular pedestrian and cycle ways. The new streets, including the primary, secondary and tertiary streets, would be designed to optimise connectivity, promote active travel with pedestrian and cyclist priority and encourage healthy lifestyles. The Proposed Development also includes a new bus service through the site, a new car park and junction upgrades at various roundabouts on the road network near the Proposed Development. The proposal includes appropriate designated points for vehicular and pedestrian access to the site.
- 11.2.42 There is also potential for increases in vehicle movements during the operational phase, relating to the movement of people to and from the new residential site, which may cause delays in local vehicle traffic and health-related journey times and disruptions in active travel.
- 11.2.43 The magnitude of impact due to the Proposed Development is considered to be **low**.
- 11.2.44 In relation to improvements and additional infrastructure due to the Proposed Development:
 - For active/sustainable travel, the scale of change over the *long-term* is anticipated to be *small*. Any changes relate to those making *frequent* or *occasional* use of active travel or public transport modes. Any changes, slight incentivising the use of these modes, would be expected to make only a *minor* beneficial change to quality-of-life and morbidity for cardiovascular and mental health outcomes for a *large* minority of the population.
 - In relation to road safety, the scale of change is likely to be *small*, with *occasional* events over the *long-term*. Signalled pedestrian crossing facilities on Durrants Drive and Links Way would ensure safety on the road network for pedestrians. Each of the access junctions into the site would be formed by a raised table with a change of surface as traffic calming measures. Little Green Lane would also be de-prioritised as a traffic route, making it a more pedestrian friendly and cycle route. Severity therefore relates to a *minor* change in reduction of risk of injury or mortality. Only a *small minority* of the population would benefit from the improvements, with no or slight implications for healthcare services.

In relation to increases in vehicle movements and the related delays and disruptions in journey times and active travel:

- For health-related travel times and accessibility, the scale of change in delays is expected to be *negligible*, with the duration of such change *long-term*. As reported in the Transport Statement, all junctions near the Proposed Development are anticipated to operate well within capacity, with minimal delays on the road network. The development will also be providing additional highway improvements including signalised junctions at Baldwins Lane to both Links Way and Durrants Drive, and a widening of path to facilitate

a dedicated cycleway along Links Way. If any delays, these would not affect health outcomes, though for a *very few people*, severity could relate to a *small* change in risk for morbidity or mortality. Any health service implications are likely to be *slight*.

- For active/sustainable travel, the scale of change over the *long-term* is anticipated to be *negligible*. Any changes relate to those making *frequent* or *occasional* use of active travel or public transport modes. Any changes would be expected to make only a very *minor* contribution to quality-of-life and morbidity for cardiovascular and mental health outcomes for a *small* minority of the population. Sustained behavioural change due to the Project change is not expected.
- In relation to road safety, the scale of change is likely to be *negligible*, with *occasional* events over the *long-term*. Severity relates to a *very minor* change in risk of injury or mortality (with outcome reversal gradual or permanent). *Very few people* would be affected, with no or slight implications for healthcare services.

Significance of effect

- 11.2.45 The significance of the population health effect due to this Proposed Development is **minor beneficial** which is not significant. The magnitude of the impact is low, and the sensitivity of the vulnerable group population is high.
- 11.2.46 The professional judgment is that there would, be a *slight beneficial* change in the local health baseline. This conclusion reflects that active travel is encouraged, road safety is appropriately addressed and access to health supporting services is supported, including to new NHS health and social care services in the local centre. The change is unlikely to result in significant differential or disproportionate effects between the general population (low sensitivity) and the vulnerable sub-population (high sensitivity). Consequently, *no widening of health inequalities* would be expected, and the influence on the ability to deliver local health policy is marginal.

Further Mitigation

- 11.2.47 No additional mitigation is considered to be required.

11.2.4 Safe and cohesive communities: Community identity and society

- 11.2.48 This section considers the potential implications for community identity and community cohesion associated with the Proposed Development including due to an influx of a new population into the area.
- 11.2.49 The Proposed Development provides an opportunity to deliver a distinctive new residential community in a highly sustainable manner. It includes a wide range of new community infrastructure that promote social interaction and builds community identity for both existing and new residents. These include a new community hall, sports pitch and pavilion, equipped children's/youth play. The proposal would provide safe, attractive and secure neighbourhoods and places which promote social interaction and connectivity in the community.
- 11.2.50 The proposal would enhance the attraction of Croxley Green as a place to live, incorporating aspects of local character, landscape, heritage, visual amenity and biodiversity. The Proposed Development would preserve and highlight the unique identity of Croxley Green, fostering a connection amongst existing and new residents to the community's history and environment. In addition, the emerging indicative masterplan includes affordable housing across the development of 50%. Integrating affordable housing ensures a diverse community, promoting inclusivity and equality. Diversity may lead to a stronger collective identity in the existing and new community.

- 11.2.51 The scientific literature identifies the following associations relating to community identity and society and human health. The availability of a natural environment and attractive views of nature within an individual's living environment are important contributors to physical activity. People's experiences in using the natural environment can enhance attitudes toward physical activity and perceived behavioural control via positive psychological states and stress-relieving effects, which lead to firmer intentions to engage in physical activity (Calogiuri and Chroni, 2014). Places and locations hold meanings and memories for people. The ways in which people are able to relate to, access and enjoy these places and locations are important for mental health and well-being (Baldwin, 2015). Cognitive social capital (i.e. shared norms, values, attitudes, and beliefs, predisposes people towards mutually beneficial collective action) is protective, at the individual and community level, against developing common mental disorders (Ehsan and De Silva, 2015).
- 11.2.52 Neighbourhood context contributes to help-seeking intentions for mental illness. Living in a neighbourhood with a communicative atmosphere and having adequate health literacy facilitate informal and formal help-seeking for mental illness (Suka et al., 2015). Favourable psychosocial environments support positive social interactions, reducing stress and promoting healthy behaviours. Children and young people from neighbourhood environments that are considered to have fewer psychosocial advantages (such as low social capital, social resources and social cohesion) may shoulder a disproportionately high burden of physical and psychological ill health (Egan et al., 2008).
- 11.2.53 The potential effect is considered plausible as there is a theoretical source-pathway-receptor relationship:
- The source is spaces and facilities that promote social interaction and build community identity.
- The pathway is factors that contribute to community cohesion, behaviour and a sense of identity
- Receptors are residents in the local communities.
- 11.2.54 Furthermore, the theoretical effect is considered applicable in the context of this Proposed Development.
- 11.2.55 The population groups relevant to this assessment are:
- The site-specific population of Chorleywood North and Sarratt; Durrants, Dickinson, Holywell and Park wards.
- The local population of Three Rivers and Watford District
- The vulnerable sub-populations including young and old people, people with low incomes, people with poor health, and people experiencing social disadvantage.

Sensitivity of receptor

- 11.2.56 The sensitivity of the general population is considered to be **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account and are listed in section 7.2. This reflects that the general population are in *good* mental health. The general population also have *low levels* of deprivation including in housing, health and social care services, living environment and crime. This also reflects that most people in the local area would have access to *many alternatives* to community assets being introduced by the Proposed Development that promote social interaction and build community identity. Local public health data on life expectancy suggests that inequalities between the most and least healthy are *narrowing*.
- 11.2.57 The sensitivity of the vulnerable group population is therefore considered to be **high**. This reflects that the vulnerable population are in *poor* mental health including those with a high

self-reported anxiety score. This also reflects the pockets of *moderate* or *high* levels of deprivation in the study area. The sub-population may also have limited access to other alternative opportunities that promote social interaction and therefore these may greatly benefit from the project and may come to *rely* on those community assets being introduced by the Proposed Development. Vulnerability is also linked to the proportion of people who have expectations that their community or way of life would be changed to a large degree, by the Proposed Development.

Magnitude of impact

- 11.2.58 As reported in the DAS, the site represents a small portion of the much wider Landscape Character Areas and development would not result in the loss of the most valuable, intact or notable elements of the landscape which the published character assessment identifies. Within the site, the historic field boundaries would be retained and reinstated where appropriate and the north of the site will be retained as a combination of undeveloped informal open space area and an ecological enhancement, to provide an open transition between the proposals and the area of Whippendell Wood identified as a SSSI and ancient semi-natural Woodland and the Cassiobury Park Registered Park and Garden beyond. Integrating affordable housing ensures a diverse community, promoting inclusivity and equality. Diversity may lead to a stronger collective identity in the existing and new community. The wide range of new community infrastructure being proposed would also promote social interaction and build community identity for both existing and new residents.
- 11.2.59 The magnitude of the impact is therefore considered to be **low**. The change would be of *medium* scale, over the *long-term* duration and *continuous*. There is potential for *minor* adverse changes in morbidity and *moderate* change in quality of life for a large minority of the population. Most beneficial effects on health behaviours and outcomes would be expected to be *permanent* with slight service quality implications.

Significance of effect

- 11.2.60 Overall, the magnitude of the impact is deemed to be low, and the sensitivity of the vulnerable population group is considered to be high. The conclusion of the assessment for human health is that the effect would be **minor beneficial**. The effect is characterised as being beneficial in direction, reflecting the subjective nature of community identity. The improvements to the psychosocial environment within Croxley Green are likely to positively influence community identity with long-term benefits to community cohesion and mental health. The level of change in sense of place and community cohesion is likely to influence health policy delivery or inequalities. Any change to the population health baseline would be slight and comprised of a beneficial influence. Across both the general population and vulnerable group population there are expected to be **minor** beneficial effects.

Further Mitigation

- 11.2.61 No additional mitigation is considered to be required.

11.2.5 Socio-economic conditions: Education

- 11.2.62 This section discusses changes to education and training during the operational stage of the Proposed Development, including any consequent population health effects resulting from changes in demand associated with the project. The influx of new and permanent residents into the development would impact local education capacity.
- 11.2.63 Changes in training opportunities have socio-economic effects that impact upon health and mental well-being.

11.2.64 The scientific literature identifies the following associations relating to socioeconomic opportunity and human health. Increased educational attainment is associated with better health outcomes and delayed mortality. Education is associated with life expectancy, morbidity, health behaviours and educational attainment plays an important role in health by shaping opportunities, employment and income (The Lancet Public Health, 2020). Yu-Tzu Wu and colleagues show in their study that, differences in educational attainment and wealth are strongly associated with disparities in healthy ageing across a large population of older people (Wu et al., 2020)). Education is therefore an important indicator of socioeconomic status that plays an important role in reducing inequalities and in improving income, employment, social networks, and behaviours (Byhoff et al., 2017).

11.2.65 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:

The source is influx of new residents into the proposed development.

The pathway is impact on local educational infrastructure and resources.

Receptors are local communities particularly children and young people.

11.2.66 Furthermore, the theoretical effect is considered applicable in the context of this Proposed Development.

11.2.67 The population groups relevant to this assessment are:

The site-specific population of Chorleywood North and Sarratt; Durrants, Dickinson, Holywell and Park wards.

The local population of Three Rivers and Watford Districts;

The regional population of East of England

The sub-population vulnerable due to:

- Young age vulnerability (young people), particularly young adults early in their career.
- Poor health vulnerability (people with existing poor physical and mental health) who would disproportionately benefit from access to opportunities.
- Low-income vulnerability (people living in deprivation, including those on low incomes for whom upskilling, and career development may be particularly beneficial).

Sensitivity of receptor

11.2.68 The sensitivity of the general population is **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account are listed in section 7.2. This reflects that most people in the local area would not be affected by the changes in capacity being driven by the Proposed Development. The general population comprise members of the community who have existing allocations to schools, and this would not be affected by this Development. The general population also comprise those members of the community who have a high capacity to adapt to changes in access, such as due to greater resources and good physical and mental health. As shown in Table 7-10, there are a suitable range of existing schools located in proximity to the Proposed Development.

11.2.69 The sensitivity of the vulnerable group population is **high**. Vulnerability in this case relates to those reliant on educational services affected by the Proposed Development including both the new and existing residents. Deprived populations may face more access barriers compared to general population and therefore be more sensitive to any constraints in access to local schools. Low incomes may compound access barriers by limiting adaptive response.

Magnitude of Impact

- 11.2.70 As reported in the Education Report, the Proposed Development will yield an estimated 37 children of early years age, 150 children of primary school age and 85 children of secondary school age. In relation to primary schools, there are 92 spare places in the closest schools to the proposed development (51 spare spaces in the Croxley Green schools) which is not sufficient to accommodate the expected child yield of 600 dwellings. The nearby secondary schools should be able to accommodate the pupils from the development without the need for expansion. Croxley Danes School is on a site large enough to accommodate any expansion if needed.
- 11.2.71 The magnitude of change due to the Proposed Development is **low**. It is anticipated that the Proposed Development would support and meet the demands on capacity and access to local schools. The Proposed Development includes a new primary school and additional land to facilitate the expansion of the new school if needed, to meet the need and demand arising from the proposed residential development. The Proposed Development would also support education in the local area through the provision of play spaces and green space accessible to the nearby Little Green Junior School, promoting physical activity in children. These benefits would be *long term* and *continuous*. This reflects that the changes in access to local schools are likely to be associated with *minor* changes in quality of life for a *small minority* of the population with *no service quality* implication.

Significance of effect

- 11.2.72 The significance of the population health effect for this determinant of health is **minor beneficial (not significant)**. The professional judgment is that there would be a slight beneficial change in the health baseline for the local population. This conclusion reflects that the scientific literature establishes a clear relationship between education and health as education has a protective effect against poor health, particularly mental health. The scale and nature of changes is expected to be marginal in narrowing health inequalities locally, and more generally supporting delivery of health policy to improve local population health.

Further Mitigation

- 11.2.73 No additional mitigation is considered to be required.

11.2.6 Socio-economic conditions: Employment (including quality)

- 11.2.74 This section discusses changes to employment and income during the operational phase of the Proposed Development. The Proposed Development provides opportunities for small businesses and commerce, and employment opportunities.
- 11.2.75 Changes in direct and indirect employment opportunities have socio-economic effects that impact upon health and mental well-being. There is strong evidence for a protective effect of employment on depression and general mental health (van der Noordt et al., 2014). The long-term unemployed carry a markedly higher burden of disease, particularly mental illness, than employed persons and those who are unemployed only for a short time. The burden of disease increases with the duration of unemployment (Herbig et al., 2013). The evidence that large income differences have damaging health and social consequences is strong and, in most countries, inequality is increasing. Narrowing the gap will improve the health and wellbeing of populations (Pickett and Wilkinson, 2015).
- 11.2.76 Improvements in socioeconomic determinants positively impact population health. Income inequality, measured mainly as median household income, has a strong impact on health. Improvements in indicators like income, education, employment status and racial inclusion,

could result in a reduction in mortality and morbidity outcomes improving overall population health. Improving more than one indicator simultaneously results in a greater health improvement (Salgado et al., 2020). Socioeconomic position is consistently associated with children's nutrition knowledge, parent modelling, home food availability and accessibility. Socioeconomically disadvantaged children are at higher risk of consuming poor diets, in particular less fruits and vegetables and more non-core foods and sweetened beverages (Zarnowiecki et al., 2014).

- 11.2.77 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:

The source is changes in direct and indirect jobs and economic activity.

The pathway is good quality businesses, employment and income providing more health supporting resources.

Receptors are people of working age (and their dependants).

- 11.2.78 Furthermore, the theoretical effect is considered applicable in the context of this Proposed Development.

- 11.2.79 The population groups relevant to this assessment are:

The local population of Three Rivers and Watford Districts;

The regional population of East of England

The sub-population vulnerable due to:

- Young age vulnerability (children and young people who are dependants, as well as young adults early in their careers)
- Old age vulnerability (older people who are dependants)
- Poor health vulnerability (people with existing poor physical and mental health, including for employment opportunities and as dependants)
- Low-income vulnerability (people living in deprivation, including those on low incomes for whom good quality employment may be particularly beneficial)
- Access and geographical vulnerability (people for whom other job opportunities may be limited due to access and geographical limitations).

Sensitivity of receptor

- 11.2.80 The sensitivity of the general population is low. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account are listed in section 7.2. This reflects that most people would already be within stable employment that would be unaffected by the Proposed Development (or being a dependant of such a person).
- 11.2.81 The sensitivity of the vulnerable group population is high. Vulnerability in this case relates to people and their dependants who are on low incomes, have poor job security, poor working conditions or who are unemployed. Future young or older people may also come to rely on those employed.

Magnitude of Impact

- 11.2.82 The Proposed Development would provide employment associated with the new primary school, the new doctor's surgery and local centre. Overall, as stated in the Planning Statement, there would be 2,085 direct, indirect and induced jobs created by the Proposed Development.

- 11.2.83 The magnitude of change due to the Proposed Development is **low**. This reflects a *small scale* of change within the context of the study area employment market. The Local Centre would provide opportunities for small businesses and commerce, and employment opportunities. There would be an increase in disposable expenditure to spend in local shops and facilities. Obligation or the Community Infrastructure Levy (CIL) would be available to spend on upgrading local infrastructure and this would be supplemented by the New Homes Bonus monies.
- 11.2.84 The business opportunities and employment would *be long-term* for operation and maintenance and on a continuous basis, whether full-time or part-time. Such opportunities are likely to be associated with *minor changes* in morbidity and quality of life for a *small minority* of the population due to improved socio-economic status and increased spending on health supporting resources and activities (including through indirect benefits to dependants).

Significance of effect

- 11.2.85 The significance of the population health effect for this determinant of health is **minor beneficial (not significant)**. The effect is characterised as being beneficial in *direction*, *temporary* and due to *direct* and *indirect* health pathways. The professional judgment is that there would be a *slight* beneficial change in the health baseline for the local population. This conclusion reflects that the scientific literature establishes a clear relationship between good quality employment and factors that promote health or are protective against poor health, particularly mental health. The scale and nature of business opportunities and employment is expected be marginal in narrowing health inequalities locally, and more generally supporting delivery of health policy to improve local population health.

Further (secondary) mitigation and residual effect

- 11.2.86 No further mitigation is proposed.

11.2.7 Health and social care services

Operations and maintenance

- 11.2.87 This section of the HIA presents findings on the potential implications for NHS routine service planning, and any consequent population health effect, of changes in population numbers in the local area, as well as demand associated with the Proposed Development.
- 11.2.88 This section has regard to the potential for impacts to ambulance services, accident and emergency (A&E), primary care, secondary care and the broader integrated care system (ICS).
- 11.2.89 In general terms, emergency department crowding in England is a major patient safety concern associated with poor patient outcomes (Carter et al., 2014). Inappropriate attendances may account for up to 40% of presentations at accident and emergency (A&E) departments (Ismail et al., 2013). Healthcare professionals with poor wellbeing and moderate to high levels of burnout are associated with poor patient safety outcomes such as medical errors (Hall et al., 2016). Accessibility of primary health care, mostly measured through the availability of GPs in a given area and the entitlement of patients to access to GP visits, reduces avoidable hospitalisation (Rosano et al., 2013).
- 11.2.90 Transportation barriers are an important barrier to healthcare access, particularly for those with lower incomes. Transportation barriers lead to rescheduled or missed appointments, delayed care, and missed or delayed medication use. These consequences may lead to poorer management of chronic illness and thus poorer health outcomes (Syed et al., 2013).

11.2.91 This section has also been informed by the Healthcare Needs Assessment (HNA) undertaken for this project in 2023 (RPS, 2023) (see Appendix A.1). Based on NHS routine data on workforce, the HNA found there was sufficient capacity to meet current demand for primary health care services including capacity to accommodate any increase in health services associated with the Proposed Development. However, the NHS workforce data did not provide a comprehensive picture of the constraints on healthcare delivery in the local area. Consultation with a local GP demonstrated that the infrastructure of many local surgeries including New Road Surgery, are at their maximum capacity in terms of the number of appointments they can offer due to space limitations also including that facilities do not meet current specifications for healthcare facilities. There is an increasing priority by the NHS to offer community-based outpatient services within GP surgeries, such as ultrasounds, and many of the existing practices do not have the specifications to be adapted to offer these services.

11.2.92 The HNA also noted that the population of Hertfordshire and Croxley Green is ageing and whilst the GP to patient ratio of the local area may be within recommended capacity, there may be an increase in healthcare utilisation by future populations and healthcare facilities will need to be able to accommodate this increase in demand. The relocation of Breakspeare School and increase in student placements may increase the need for additional health services. Ensuring adequate care for this student population will require coordination between local health services and the school to coordinate and implement the Education, Health and Care Plan for children relocating to the area.

11.2.93 With regard to ancillary services, the HNA concluded that there are many dental practices in the local area but it is unclear what capacity these have to take on new patients. There also appear to be a sufficient number of pharmacies within the local area. Whilst the local GP practices do offer some ancillary services, including specialist nurses, pharmacists, physiotherapists and physician associates, the HNA found a marked lack of ancillary specialists such as podiatrists, therapists or nutritionists in the study area.

11.2.94 A potential population health effect is considered plausible as there is a theoretical source-pathway-receptor relationship:

The source is influx of a new population into the local area resulting changes in demand for medical and healthcare facilities.

The pathway is a change in capacity, staffing and resources of the local NHS.

Receptors are the local community populations accessing these services or facilities.

11.2.95 Furthermore, the theoretical effect is considered applicable in the context of this Proposed Development.

11.2.96 The population groups relevant to this assessment are:

The local population of Three Rivers and Watford Districts;

The regional population of East of England

The sub-population vulnerable due to:

- Young age vulnerability (including children, young people and pregnant mothers as higher users of healthcare)
- Old age vulnerability (including older people as higher users of healthcare)
- Poor health vulnerability (people with existing poor physical and mental health as higher users of healthcare)
- Access and geographical vulnerability (people who experience existing access barriers to healthcare).

Sensitivity of receptor

- 11.2.97 The sensitivity of the general population is considered to be **low**. Common factors that differentiate the sensitivity of the general population and the vulnerable group population have been taken into account and are listed in section 7.2. There are a suitable range of existing primary healthcare services located in proximity to the Proposed Development. Most residents in the study area would have existing NHS entitlements and access healthcare services, without implications for healthcare capacity changes. This also includes those with a high capacity to adapt in terms of access to health and social care services.
- 11.2.98 The sensitivity of vulnerable groups is considered **high**. This reflects the presence of people who require regular health care, e.g., older people with multiple long-term conditions, the new vulnerable Breakspeare population group including children and young people with special needs and those with particular health needs, e.g. chronic long-term conditions. Health professionals who may face increased demand due to the additional population are also considered to be highly sensitive. These would benefit to a greater extent from the new healthcare service being provided by the Proposed Development.

Magnitude of Impact

- 11.2.99 This section has been informed by the healthcare capacity analysis undertaken below. An indicative reference point (postcode: WD3 3SR) from which residents may access healthcare services has been selected. This is situated within the central section of the Proposed Development and is used as a conservative approach to analysing primary healthcare capacity, i.e. gives a catchment with fewer services. If measured from the site boundaries, work compounds or access roads, the distance to GP practices in the vicinity will be shorter, and a larger number of practices would likely be included in the catchment area.
- 11.2.100 Both local context and the scientific literature (Santos et al., 2017) are informative in determining appropriate distances over which to assess primary healthcare capacity. The 2017 study by (Santos et al., 2017) based in the East Midlands of England, found that the average (mean) distance to a patient's chosen practice was 1.877 km (1.2 mile), which was further than the average of the nearest GP practice, 1.197 km (0.74 mile). The difference reflected patient choices and preferences, including driven by clinical quality. Santos et al. note that 91.5% of those in urban areas choose a GP practice within 3 km (1.9 mile) and 91.9% of residents in rural areas choose a practice within 7 km (4.3 mile).
- 11.2.101 The NHS Digital General Practice Workforce October 2024 (NHS Digital, 2024) data release provides information on existing capacity. Table 11-3 below provides an overview of GP primary care capacity close to the Project. As shown in Table 11-3, there are three³ GP practices within the 3 km distance identified by Santos et al., of the aforementioned location⁴ (Table 11-3). All are currently accepting new patients. However, only one of these (Bridgewater Surgeries) is within the recommended patient to GP ratio of 1,800 patients per FTE GP (a commonly applied benchmark that is indicative but often exceeded in practice** (HUDU, 2019). The Elms Surgery is above this ratio. It is noted that GP to patient ratios may not always reflect particular local context in terms of capacity. The data does however give a broad indication of sensitivity to any changes in demand.

³ There are 4 GPs identified within the 3km distance, however two of these come under New Road Surgery which is available as an aggregated entry in the NHS Digital GP workforce. It is therefore reflected as 3 GP Practices instead of 4.

⁴ Using NHS service search for postcode WD3 3SR.

** London's Healthy Urban Development Unit (HUDU) uses the 1,800 people per GP as a default benchmark, based on guidance from the Royal College of GPs.

Table 11-3: GP Primary care capacity close to the Proposed Development – October 2024 data release

GP Practice	Patients	GP FTE	GP Patient ratio	Distance (km)	Accepting new patients?
New Road Surgery (including Baldwins Lane Surgery)	14,073	8.5	1,662.2	1.1	Yes
Bridgewater Surgeries	35,212	33.4	1,055.3	1.8	Yes
The Elms Surgery	8,960	1.48	6,054.1	2.9	Yes
Total	58,198	43	1,343.7	-	-

- 11.2.102 Data suggests that an additional 26,777 patients could be registered before reaching the benchmark ratio of 1,800 patients per GP at New Road Surgeries and Bridgewater Surgeries, the practices that are still below the recommended patient to GP ratio. However, this data cannot be used to infer capacity in the study area as Bridgewater surgeries comprises of three surgeries in Hertfordshire and only one of these (surgery at Bridgewater House) falls within 3km of the Proposed Development. The NHS Digital General Practice Workforce October data does not provide separate capacity data for each of these three practices; hence it is not possible to determine specific capacity for the surgery within study area. However, the New Road Surgeries (Baldwins Lane Branch and New Road Branch) are both within the 3km catchment area of the Proposed Development. Three hospitals are also located within 5.5 miles of the Proposed Development and include Watford General, Mount Vernon and Harefield Hospital.
- 11.2.103 The Proposed Development includes space in the local centre for new NHS health and social care services. This would increase capacity in the study area, reducing demand on services. The HNA for the Proposed Development (RPS, 2023) noted that many of the local surgeries, including New Road Surgery, are at their maximum capacity in terms of the number of appointments they can offer due to space limitations. Furthermore, facilities do not meet current specifications for healthcare facilities. There is also an increasing priority by the NHS to offer community-based outpatient services within GP surgeries, such as ultrasounds, and many of the existing practices do not have the specifications to be adapted to offer these services. Ongoing discussions with the local GP and ICB are exploring feasible options for the most appropriate NHS health and social care services that could be supported by the Project. Options under consideration include a new GP medical centre with potential colocation of a pharmacy or other allied healthcare services creating a health hub within the Local Centre. This provision of space in the local centre for new NHS health and social care services offers a substantial public health benefit for both existing and future community. The new NHS health and social care services located within the Local Centre would serve both the current and new populations effectively.
- 11.2.104 The magnitude of change due to the Proposed Development is **medium**. There would be a *small* scale of change in NHS demand due to the additional population and a *medium* scale of change due to the additional NHS health and social care services provided by the scheme. This change would be over the *long-term*. Any impact on healthcare capacity is likely to equate to a *minor change* in morbidity related outcomes for a *large minority* of the study area community populations. The effect on routine health service planning is likely *slight*.

Significance

- 11.2.105 The professional judgement is that the significance of the population health effect would be up to **moderate beneficial (significant)**. The score reflects a clear association in the scientific literature as to the importance of appropriate health care access, but also that there is some uncertainty as to the efficacy of occupational health interventions in avoiding

inappropriate A&E attendance and other healthcare service usage. The level of change in the study areas health baseline due to the Proposed Development is likely to be very limited, with at most a marginal effect on the delivery of health policy and inequalities.

Further Mitigation

11.2.106 No additional mitigation is considered to be required.

12 CUMULATIVE EFFECTS AND INTERACTIONS

12.1 Cumulative Effects

- 12.1.1 Cumulative health assessment extends the analysis of each determinant of health. This means for each determinant of health the relevant reasonably foreseeable cumulative projects are listed and a professional judgement is made as to the combined level of effect and its implications for public health. Following IPH 2021 guidance for human health, sensitivity of the relevant populations is unchanged from the main assessment in Section 10. Magnitude is however appraised in light of the combined effect of multiple projects.
- 12.1.2 As set out in IPH 2021 guidance, a combined public health effect is most likely where a population is affected by multiple determinants of health and a large proportion of the same individuals within that population experience the combination of effects.
- 12.1.3 A high degree of spatial proximity is required for there to be the potential for cumulative effects for localised changes in determinants of health, e.g., dust from a construction site. In contrast, where there are more far-reaching effects in a determinant of health, e.g., job creation or noise along shared transport corridors, there is greater opportunity for cumulative interactions between projects.
- 12.1.4 For each of the determinants in the assessment, the cumulative assessment considers the potential for pathways to the same population from other developments that are similar in location and timing. The assessment is qualitative, following the approach set out in Section 7.4, and considers the potential for combined magnitudes of effect to the same populations.
- 12.1.5 This section assesses the potential for cumulative effects for the Proposed Development with projects listed within Appendix 1 of Three Rivers District Council Housing Land Supply Report (Three Rivers District Council, 2023b).

12.1.2 Healthy lifestyles: Open space and physical activity

- 12.1.6 No significant cumulative effects relating to open space and physical activity have been identified. Whilst Appendix 1 of Three Rivers District Council Housing Land Supply Report lists other proposed developments which contain elements of landscaping and public realm, the magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.2.7.
- 12.1.7 The magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.2.7. No new or materially different significance conclusions in relation to open space and physical activity and population health effects are therefore expected due to cumulative projects.

12.1.3 Safe and cohesive communities: Housing

- 12.1.8 No significant cumulative effects relating to housing have been identified. Whilst Appendix 1 of Three Rivers District Council Housing Land Supply Report lists other proposed developments which contain elements of housing, the magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.2.2.
- 12.1.9 The magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.2.2. No new or materially different significance conclusions in relation to housing and population health effects are therefore expected due to cumulative projects.

12.1.4 Safe and cohesive communities: Transport

- 12.1.10 No significant cumulative effects relating to transport have been identified.
- 12.1.11 The magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in sections 11.1.3 and 11.2.3. No new or materially different magnitude or significance conclusions in relation to transport and population health effects are therefore expected due to cumulative projects.

12.1.5 Safe and cohesive communities: Community identity and society

- 12.1.12 No significant cumulative effects relating to community identity and society have been identified.
- 12.1.13 The magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.2.4. No new or materially different magnitude or significance conclusions in relation to community identity and population health effects are therefore expected due to cumulative projects.

12.1.6 Socio-economic conditions: Education

- 12.1.14 No significant cumulative effects relating to education have been identified.
- 12.1.15 The magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.1.4 and 11.2.5. No new or materially different magnitude or significance conclusions in relation to noise and vibration and population health effects are therefore expected due to cumulative projects.

12.1.7 Socio-economic conditions: Employment (including quality)

- 12.1.16 No significant cumulative effects relating to employment, training and income have been identified.
- 12.1.17 The magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.1.5 and 11.2.6. No new or materially different magnitude or significance conclusions in relation to employment and population health effects are therefore expected due to cumulative projects.

12.1.8 Environmental conditions: Air Quality

- 12.1.18 No significant cumulative effects relating to air quality (dust and combined emissions related to construction activities) have been identified.
- 12.1.19 The magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.1.6. No new or materially different magnitude or significance conclusions in relation to air quality and population health effects are therefore expected due to cumulative projects.

12.1.9 Environmental conditions: Noise and Vibration

- 12.1.20 No significant cumulative effects relating to noise and vibration have been identified.
- 12.1.21 The magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.1.7. No new or materially different magnitude or significance conclusions in relation to noise and vibration and population health effects are therefore expected due to cumulative projects.

12.1.10 Health and social care services

- 12.1.22 No significant cumulative effects relating to health and social care services have been identified. Combined beneficial impacts of the provision of space in the local centre for new NHS health and social care services from the Proposed Development and the recently appealed Sarratt application Ref. 22/0601/OUT in the study area are noted. The provision of space in the local centre for new NHS health and social care services represents a significant local public health benefit for the existing and future communities.
- 12.1.23 The magnitude of such cumulative projects is not expected to be materially different to the conclusions set out in section 11.2.7. No new or materially different magnitude or significance conclusions in relation to noise and vibration and population health effects are therefore expected due to cumulative projects.

12.2 Interactions

- 12.2.24 Inter-relationships are the impacts and associated effects of different aspects of the Proposed Development on the same receptor. These are considered to be:

Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Proposed Development (construction and operations), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these two phases.

- 12.2.25 Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on human health, such as changes in access, changes in community identity, and changes in employment, may interact to produce a different, or greater effect on a given population than when the effects are considered in isolation. Receptor-led effects may be short term, temporary or transient effects, or incorporate longer term effects.
- 12.2.26 The population health effects identified and assessed in this chapter have the potential to interact with each other. The areas of potential interaction between effects for a given geographic population are presented in Table 12-1. Vulnerable group effects are expected across all geographic populations, so are not listed separately.
- 12.2.27 Table 12-2 lists the inter-related effects (project lifetime effects) that are predicted to arise during the construction, operational and maintenance and decommissioning phases of the Proposed Development, and also the inter-related effects (receptor-led effects that are predicted to arise for human health receptors).

Table 12-1: Interaction between health determinants by geographic populations.

	Site specific	Local	Regional	National	Inter-national
Housing	Π	Π			
Transport	Π	Π			
Community identity	Π	Π			
Open space and physical activity	Π				
Education	Π	Π			
Socioeconomic status including employment	Π	Π			

Noise and vibration	II				
Air Quality	II				
Health and Social Care Services	II	II			

Key:	Positive (green)	Positive as an influence of site-specific effects on the wider local area (light green)	Negative (blue)	Positive and negative (orange)
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Table 12-2: Summary of likely significant inter-related effects on health for individual effects occurring across the construction and operational and maintenance of the Proposed Development and from multiple effects interacting across all phases (receptor-led effects).

Description of impact	Phase		Likely significant inter-related effects	Significance
	C	O		
Combined Transport access effects across project phases.	II	II	Effects relating to ongoing disruption to access across construction, operations and maintenance are already taken into account by the health assessment, including where effects are characterised as 'long-term'.	No change.
Combined Open Space and Physical Activity effects across project phases	II	II	Effects relating to ongoing changes in access across construction and operations and maintenance are already taken into account by the health assessment, including where effects are characterised as 'long-term'.	No change.
Combined construction air quality, noise and transport impacts during operation due to phasing.	II	II	Partial occupancy of the site has the potential to result in new residents and users of the Local Centre and 1FE school being exposed to ongoing construction impacts from the remaining site work.	No change.
Receptor Led Effects				
Potential reduction in use of open spaces for recreation, physical activity and play due to a combination of reduced access to such spaces or connecting active travel routes (including PRow) and additional noise disturbance	II	II	Changes in access to open space (e.g. at the Site) are not expected to overlap with issues of any active travel disruption (e.g. along the road network near the Site) or with issues of noise. Construction noise and any disruption of active travel routes or open space are temporary, this limits the potential for effects, even in combination to be significant public health effects.	No change.
Combination of housing and increased access to open space and physical activity during operation for the population of Croxley Green		II	A large minority of the population would have access to good quality housing and improved access to new footpaths, open green space, play areas and recreational opportunities. Combined effects would be during the operational phase, once the residential development is complete benefitting both the new and existing residents. The combined effects may particularly benefit vulnerable groups including children with special needs at the new Breakspere School. The housing and open spaces would be inclusive to cater for the needs of this population. At a population level it is not expected that the combination of effects would interact in a way that would significantly reinforce health outcomes. No greater effect is therefore likely.	No change.

13 CONCLUSION AND RECOMMENDATIONS

13.1.1 Conclusion

- 13.1.1 A comprehensive health impact assessment has been undertaken following methods agreed with the local authority public health team.
- 13.1.2 The Proposed Development would provide important public health benefits due to the way the site is sensitivity developed, including through the incorporation of health place making principles.
- 13.1.3 Significant local health benefits are expected due to the new homes, 50% of which would be affordable housing; and due to space in the local centre for new NHS health and social care services, which would benefit not only residents of the Proposed Development but also the 14,082 existing local patients whose medical facilities would be improved.
- 13.1.4 The Project aligns with delivering local health priorities of the Hertfordshire Health and Wellbeing Strategy 2022-2026 and local JSNA. It also aligns with health policy of the existing Three Rivers Local Development Framework Core Strategy and with the NPPF health policy expectations by creating additional housing, including affordable housing, public green space, a community centre, space in the local centre for new NHS health and social care services, new school and employment opportunities.

National and local policy on healthy, inclusive and safe places

- 13.1.5 The Proposed Development provides strong active travel incentives with consequent co-benefits for physical activity and reduced air pollution, which also links to tackling climate change.
- 13.1.6 The provision of the sports pitches, country park, cycling infrastructure, and local centre are considered positive for narrowing inequalities and are likely to promote physical, mental and social health and wellbeing. The high incentivisation of walking and cycle use, as well as provisions supporting inclusive mobility, are also considered positive and supportive of public health.
- 13.1.7 The Proposed Development also incorporates design features that reduce crime, such as pedestrian street lighting, promoting safety in the community.

National policy on services provision

- 13.1.8 NPPF Policy 98 states “To provide the social, recreational and cultural facilities and services the community needs, planning policies and decisions should ensure an integrated approach to considering the location of housing, economic uses and community facilities and services”.
- 13.1.9 The recently updated NPPF Policy 101 states “To ensure faster delivery of other public service infrastructure such as health, blue light, library, adult education, university and criminal justice facilities, local planning authorities should also work proactively and positively with promoters, delivery partners and statutory bodies to plan for required facilities and resolve key planning issues before applications are submitted. Significant weight should be placed on the importance of new, expanded or upgraded public service infrastructure when considering proposals for development.”
- 13.1.10 The Proposed Development provision of space in the local centre for new NHS health and social care services would deliver new public service infrastructure to support local community needs.

Local policy on affordable housing and local housing needs

- 13.1.11 The extent to which the development supports existing communities and housing needs is particularly important for public health and health inequalities. The Proposed Development includes a proportion of affordable housing, which is expected to benefit local need. There is also a provision of adaptable homes that support an aging population to stay in their homes for longer and in better health. This is critical to the long-term sustainability of the local NHS and social care services in Hertfordshire.
- 13.1.12 The Proposed Development would support many existing members of the Croxley Green community due to the way the scheme responds to local housing needs. This supports community cohesion through the district, helping young people to stay in the area and provide inter-generational support both to children and older adults. This also includes the provision of a 5-bed unit to support vulnerable young people in the community.

HIA inputs to proposed development master planning.

- 13.1.13 Recommendations arising from the HIA that have informed the development of the current Masterplan:

High quality accessible public green and blue space integrated within residential and employment areas.

Routes to schools that promote and prioritise safe active travel and healthy diets, e.g. passing allotments rather than convenience stores.

A mix of good quality employment opportunities supporting a diversified local economy that provides a range of services and opportunities for the community.

Community cohesion underpinned by prioritised active travel, supported by frequent public transport, linking current and future homes to each other, as well as amenities and jobs.

20-minute neighbourhood principles, layouts and lighting that promote safe inclusive linkages between communities, designing out severance, crime and the fear of crime.

A housing mix responding to local need with affordable housing equitably distributed, as well as lifetime and adaptable housing for those with extra-care or disability needs.

Home-working space for adults and home-study space for all ages to support strong educational and employment outcomes now and in the future.

Dementia friendly design principles within layouts and use of landmark buildings. As well as provision for care home accommodation close to amenities and services.

Anchor NHS health and social care services, linked with allied services and co-located with key public services (community centre).

Climate resilience to avoid residential tensions with flood risk and habitats that could support future disease vectors in a changed climate.

13.1.2 Further mitigation (recommendations)

- 13.1.14 The following further mitigation measures are proposed to extend the public health opportunity:

Within the commercial allocation, avoid hot-food takeaways.

The Proposed Development adopts a 'healthy ethos', prioritising affordable healthy food allocation over unhealthy food where practicable during the commercial letting of the operational development.

Any off-site contribution made to have particular regard to addressing deprivation in Chorleywood North and Sarratt (Three Rivers 003D) and Holywell (Watford 011D). This recommendation would be for the local planning authority to implement.

The design of play spaces should include suitable seating and areas of shade. Public realm enhancements could include information boards and outdoor gym facilities suitable for a wide range of ages and levels of ability. The provision to be accompanied by commitments on maintenance to maintain a high-quality offer.

During construction, early and ongoing sharing of information with road users, and emergency and healthcare services with regard to any temporary road closures, diversions or lane closures, as secured through the CTMP.

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15 APPENDICES

APPENDIX A.1

CROXLEY GREEN HEALTHCARE NEEDS ASSESSMENT

REPORT

Document status

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Ryngan Pyper

RP

2 November 2023

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1 EXECUTIVE SUMMARY

An extension to the Croxley Green community of 500 to 800 homes is proposed on Land North of Little Green Lane (hereafter referred to as the Proposed Development). The site falls within the planning authority area of the Three Rivers District Council, part of Hertfordshire County Council. A healthcare needs assessment was conducted to determine what demand the Proposed Development might add on existing healthcare and what capacity there is for current GP and allied health services to address current and future demand.



Source: CDC on Unsplash.com

A range of routine NHS data was used to establish a health baseline of the local population as well as current healthcare capacity. Additional routine and publicly available data were used to consider local provision of other primary healthcare services including dental, optical and pharmaceutical.

Based on NHS routine data on workforce capacity, there appears to be sufficient capacity to meet current demand for primary health care services. There also appears to be capacity to accommodate any increase in health services associated with the Proposed Development.

“You could give us a free doctor and we can’t use them”

However, the NHS workforce data does not provide a comprehensive picture of the constraints on healthcare delivery in the local area. Consultation with a local GP demonstrated that the infrastructure of many local surgeries has put constraints on services, maxing out the number of appointments that can be offered currently, and restricting the ability of offering additional community-based services. Even in cases where the surgery has funding for provision of additional services (e.g. a mental health worker), there is no space within the current facility to accommodate more staff. Unlike other parts of the country where it may be difficult to attract healthcare workers, the local area has an abundance of qualified healthcare professionals, with many living locally. Therefore, if more space were to become available new staff could be easily brought in.

A new healthcare facility at the Proposed Development could greatly support capacity constraints in the local area. Furthermore, the provision of space for allied services such as pharmacy, dental, optometry, podiatry, physiotherapy and other community-based services would ensure better integration of care and access for the ageing patient population.



Source: Markus Winkler on Unsplash.com

2 INTRODUCTION

2.1 Project Description

An extension to the Croxley Green community of 500 to 800 homes is proposed on Land North of Little Green Lane (hereafter referred to as the Proposed Development). The site falls within the planning authority area of the Three Rivers District Council, part of Hertfordshire County Council.

The Proposed Development provides opportunities for improved services in the area including new walking routes, cycle routes, recreational open space, and a new local centre, which may include provision of healthcare and other services. There will be a mix of housing sizes within the Proposed Development allocated as Market and Affordable Housing, including approximately 50% of which will be 3- to 4- bedroom homes.

This healthcare needs assessment assesses the capacity of existing GP surgeries and thus the case for a new surgery as part of the Proposed Development. Additionally, a desktop assessment has been conducted of other local primary healthcare provision, including pharmacy, dentistry and optometry, as well as allied health services.

2.2 Methods

The healthcare needs assessment is informed by relevant scientific literature on healthcare catchment distances and models of care, such as the benefits of a new healthcare centre that incorporates a new GP surgery as well as pharmacy and other allied healthcare outlets. A range of routine NHS data is used to establish a health baseline of the local population as well as current healthcare capacity (see Table 2.1). Additional routine and publicly available data are used to consider local provision of other primary healthcare services including dental, optical and pharmaceutical.

Table 2.1: Data Sources

Data Source	Date	Justification
Fingertips Public Health Data, Office for Health Improvement and Disparities	Varies depending on the indicator (accessed October 3 2023)	Collection of large public health routine data. Different indicators are available at variable geographic levels with some data available at the ward level.
English Indices of Deprivation	2019 (accessed 3 October 2023)	Provides statistics on relative deprivation in small areas in England including indices of multiple deprivation.
Nomis, official census and labour market statistics	2021 (accessed 3 October 2023)	Provides most recent census statistics on population indicators.
NHS Digital General Practice Workforce	31 August 2023 (accessed September 28 2023)	The General Practice Workforce series of Official Statistics presents a snapshot of the primary care general practice workforce including full-time equivalent (FTE) for staff and total number of patients registered at individual general practices.
NHS Health Services	Accessed 3 October 2023	Locates NHS GP, pharmacies and dentists according to distance from an entered postcode.

Local health context and key priorities have also been considered. The healthcare needs assessment has had regard to the Hertfordshire Health and Wellbeing Strategy 2022-2026 and Joint Strategic Needs Assessment (JSNA), which identifies particularly vulnerable population groups that may benefit from how local healthcare is planned and delivered. A key document that has been considered from the JSNA is the Ageing Well report (2023) which assesses whether current services adequately meet the needs of an ageing population. Furthermore, the Hertfordshire Pharmaceutical Needs Assessment (2022) has been considered which assesses pharmaceutical services in the context of local health priorities.

To inform the assessment, consultation has been undertaken with health stakeholders including a local GP, Dr Kunal Patel at the New Road Surgery, 166 New Road, Croxley Green. The meeting discussed: existing healthcare estates constraints on expansion within existing premises; how healthcare demand in the area is anticipated to change in the short to medium term; and the capacity, logistical and financial implications of the surgery seeking new premises. The barriers and facilitators to new premises as part of the development was also discussed.

A meeting has also been requested with NHS Hertfordshire and West Essex Integrated Care Board, as the relevant strategic healthcare planning function for the District of Three Rivers.

Regard has also been had to the potential healthcare needs associated with relocation of Breakspeare School, Abbots Langley, WD5 0BU, to the Durrants School Former Playing Field site, Manor Green, Croxley Green, WD3 3LU.

3 HEALTH PROFILE

Publicly available health data is available for different indicators at different geographic levels. The lowest level for general health data is electoral ward data. The health data is presented according to the following study areas:

Site specific study area: Durrants ward

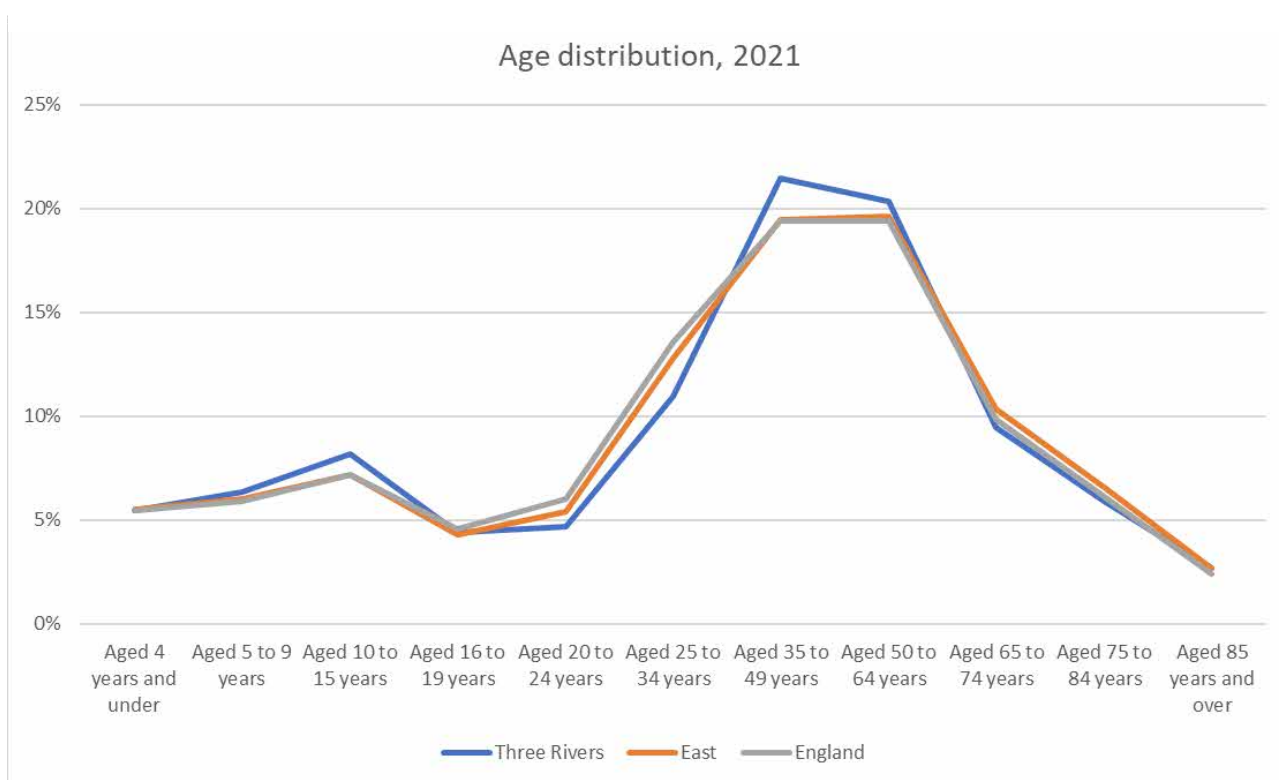
Local study area: Three Rivers District

Regional study area: Hertfordshire County

National study area: England.

3.1 Population

Figure 3-1 Age distribution, Three Rivers (2021)



Using the most recent 2021 census data, **Error! Reference source not found.** shows the age distribution in Three Rivers (representative of the local area) compared to the East of England (regional) and England (national). Three Rivers has a slightly higher percentage of children 19 and under (24%) compared to regional and national percentages (23%). The percentage of working-age adults (25-64) is also slightly higher in Three Rivers (53%) compared to regional and national percentages (52%). The older population (aged 65 and over) is slightly lower in Three Rivers (18%) compared to East of England (20%) but the same as England.

3.2 Health Baseline

Table 3.1 General Health and Disease Baseline

Population		Site specific ward	Local	County	National
Indicator Name	Time period	Durrants	Three Rivers	Hertfordshire	England
Life expectancy at birth (Male)	2021	n/a	81.2	80.7	78.7
Life expectancy at birth (Female)	2021	n/a	84.9	84.1	82.8
Healthy life expectancy at birth (Male, All ages)	2018 - 20	n/a	n/a	66.3	63.1
Healthy life expectancy at birth (Female, All ages)	2018 - 20	n/a	n/a	66.3	63.9
Deaths from all causes, under 75 years, standardised mortality ratio	2016 - 20	69.3	80.2	n/a	100.0
Deaths from causes considered preventable, under 75 years, standardised mortality ratio	2016 - 20	59.6	76.7	n/a	100.0
Deaths from circulatory disease, under 75 years, standardised mortality ratio	2016 - 20	84.2	77.6	n/a	100.0
Deaths from all cancer, under 75 years, standardised mortality ratio	2016 - 20	81.0	83.8	n/a	100.0
Deaths from respiratory diseases, all ages, standardised mortality ratio	2016 - 20	60.1	90.2	n/a	100.0
Deaths from stroke, all ages, standardised mortality ratio	2016 - 20	63.2	92.0	n/a	100.0
Under 75 mortality rate from all cardiovascular diseases (per 100,000)	2021	n/a	40.3	58.4	76.0
Under 75 mortality rate from cancer (per 100,000)	2021	n/a	87.1	104.7	121.5
Under 75 mortality rate from respiratory disease (per 100,000)	2021	n/a	20.2	20.4	26.5
Legend					
	Better than England average				
	Similar to England average				
	Worse than England average				

As shown in Table 3.1, the health of people in the site-specific ward (Durrants) is generally better than the England average. Male life expectancy at birth in Three Rivers was 81.2 years, while female life expectancy was 84.9 years, which is higher than the England averages. In Durrants, under 75 deaths from all causes, causes considered preventable, circulatory disease, cancer, respiratory disease and stroke is similar or better to the England average. Within Hertfordshire, under 75 mortality rates for cardiovascular disease, cancer and respiratory disease are better than the England average.

English Indices of Deprivation (2019) (Ministry of Housing, Communities & Local Government, 2019) ranks every lower super output area (LSOA) in England according to an index of multiple deprivation as well as individual domains of deprivation. Overall, Durrants ward (Three Rivers 003) ranks in the 20% least deprived neighbourhoods in the country. However, there are areas of higher deprivation nearby (approximately 4 miles from the Proposed Development). Chorleywood North and Sarratt ward (Three Rivers 003D) is amongst the 30% most deprived in barriers to housing and services; Holywell ward (Watford 011D) is amongst the 30% most deprived for multiple deprivation and the 10% most deprived for income deprivation affecting children.

3.3 Dental services

Table 3.2 Dental Services Baseline

Population		Site specific ward	Local	County	National
Indicator Name	Time period	Durrants	Three Rivers	Hertfordshire	England
Hospital admissions for dental caries (0 to 5 years) (per 100,000)	2018/19 - 20/21	n/a	n/a	98.6*	223.1
Percentage of 5 year olds with experience of visually obvious dentinal decay	2021/22	n/a	11.0	12.9	23.7

*Data for this indicator is only available for the Clinical Commissioning Group (CCG). Up until 2021, the CCG for the Proposed Development was Herts Valley CCG.

The local area performs better than England for indicators of dental health. Hospital admissions for dental caries in children (age 0-5) in Herts Valley CCG is 98.6 per 100,000, significantly lower than England (223.1 per 100,000). The percentage of 5 year olds with dentinal decay is also lower in the Three Rivers (11%) than in Hertfordshire (12.9%) or England (23.7%).

3.4 Pharmaceutical Services

According to the 2022 Pharmaceutical Needs Assessment (PNA) (Hertfordshire County Council, 2022a), in Hertfordshire the number of community pharmacies is 20.1 per 100,000, including seven distance selling pharmacies (DSPs). This is similar to the England average which is 20.6 community pharmacies per 100,000 and the regional average for East of England which is 19.4 per 100,000. Hertfordshire Health and Wellbeing Board (HWB) area has 12 dispensing GP practices providing pharmaceutical services. Combining these, Hertfordshire has an average of 21.2 community pharmacies and dispensing GP practices per 100,000 population.

According to the PNA, access to community pharmacies in Hertfordshire is good:

Using average drive time, 99.3% of residents can access a pharmacy by car within ten minutes and 100% within 15 minutes off-peak; 100% of residents can reach a community pharmacy in 20 minutes or less at peak driving times.

Using average walking times, 87.0% of residents can access a pharmacy within 20 minutes, increasing to 93.9% of residents within 30 minutes.

According to the PNA there is no current gap in the provision of essential or advanced services during or outside normal working hours across Hertfordshire to meet the needs of the population. There are also no gaps identified in the need for pharmaceutical services in specific future circumstances across Hertfordshire. Furthermore, there are no current gaps in pharmaceutical services in respect of securing improvements or better access to existing locally commissioned services now or in the future to meet the needs of the Hertfordshire population.

The PNA considers opportunities for further community pharmacy provision. In light of the advanced services that are currently commissioned and the impact of the COVID-19 pandemic the PNA suggests that consideration is given to the following examples that may reduce demand on other settings whilst supporting patients:

- Long COVID opportunities

- Walk-in minor illness service

- Independent prescribing or Patient Group Directions (PGDs) for minor illness in community pharmacy where training has been provided to reduce demand on other settings such as general practice.

Furthermore, further provision of advanced and locally commissioned services could be beneficial to the population of Hertfordshire based on the identified health needs within the JSNA, including:

- Hypertension case-finding service

- Smoking cessation advanced service

- Disease-specific services (including obesity, alcohol, respiratory, diabetes, point-of-care testing, cardiovascular, health checks).

3.5 Future Baseline

Without the Proposed Development there remains an increasing demand on health services due to an ageing population in Hertfordshire.

According to the Hertfordshire Joint Strategic Needs Assessment (JSNA) (Hertfordshire County Council, 2023a), between 2020 and 2040 the number of people aged 55 and over in Hertfordshire is projected to increase by 23.5% (from 351,500 to 434,000 people). People aged 55-64 are expected to contribute the greatest number of people aged 55+ in every year until 2040. However, between 2020 and 2040, the greatest percentage increases in the number of adults aged over 55 are projected to occur in those aged 75-84 (+47.6%) and 85+ (+55.7%).

It is noted that Hertfordshire County Council has made a prescribed alteration to Breakspeare School, Abbots Langley, a special school, to relocate to the Durrants School Former Playing Field site, Manor Green, Croxley Green, WD3 3LU and to permanently enlarge the school from 97 to at least 200 places with effect from January 2024 (Hertfordshire County Council, 2022b). The School will be located 0.4 miles from the Proposed Development. Breakspeare School is a community special school for children with severe learning difficulties (SLD) and the proposal supports an increase of up to 113 places. The proposal will relocate the School to Croxley Green in a new, purpose-built accommodation which will fully meet the needs of both existing and new children.

Breakspeare School caters to the educational needs of students in the early years with severe or profound learning difficulties in addition to which many have a complex medical, physical or sensory impairment;

autism or speech, language and communication needs. The curriculum is individualised and designed to be delivered in consultation with parents and other professional agencies (Breakspeare School, 2023).

Families of children with special education needs and/or disability (SEND) often experience additional barriers to accessing appropriate, specialist educational, medical and early intervention services for their children (Hock et al., 2012). The process of diagnosis for certain conditions can take many years and is often complex, involving multi- agency and multi- disciplinary input. Even once a diagnosis is reached, the disparity in SEND services between different regions can lead to difficulties in finding appropriate school placement and treatment for families relocating to different areas (House of Commons Education Committee, 2019). It is not known how many families of children at this school will be within the catchment for GP services near the Proposed Development, however, it is possible that some families will relocate to be near the school and therefore require healthcare.

3.6 Health Priorities

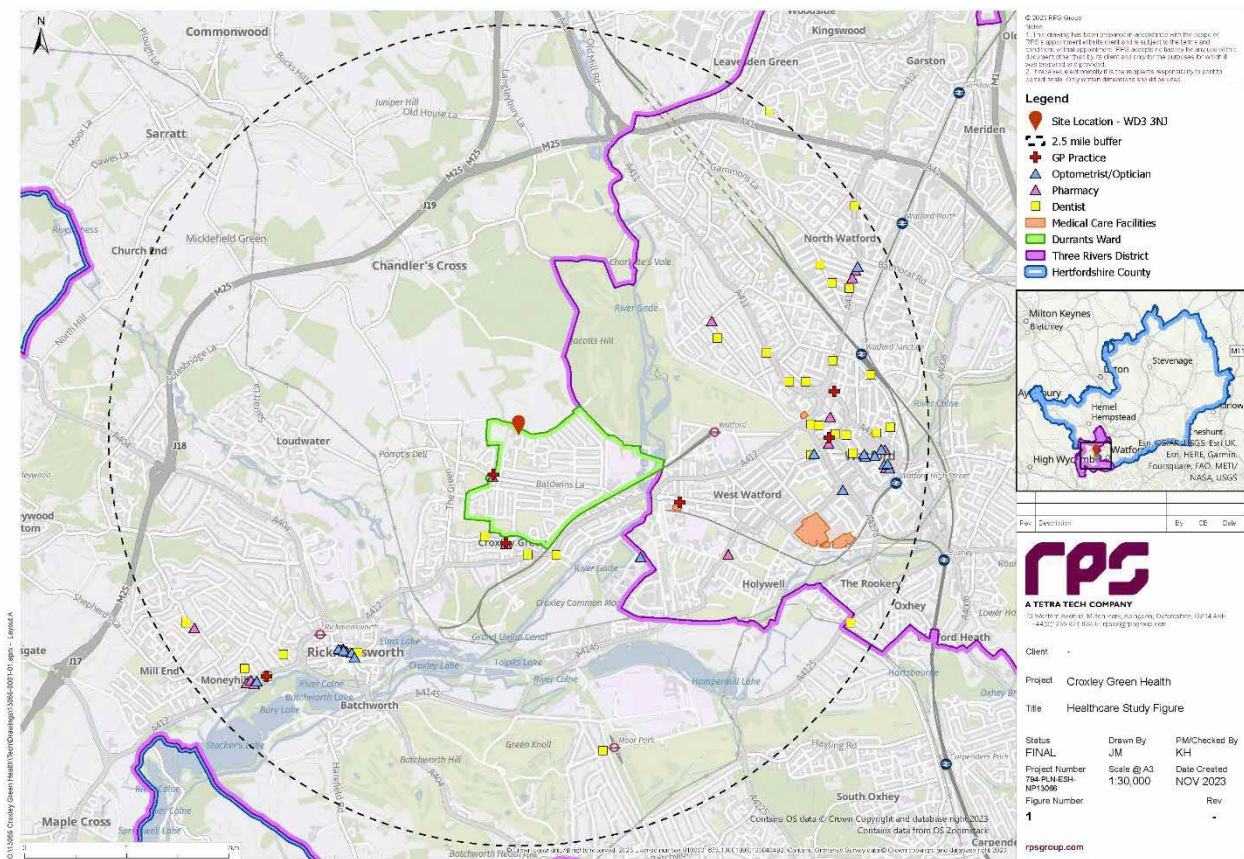
The Hertfordshire JSNA examines the current and future health and social care needs of the local community according to four key life stages. The JSNA helps to develop an evidence base for priorities and actions of local authorities, the local NHS Integrated Care Board (formerly Clinical Commissioning Group) and other partners and helps to inform the local Health and Wellbeing Strategy. Given that Hertfordshire has an ageing population, The JSNA on Ageing Well (Hertfordshire County Council, 2023a) is further explored in relation to healthcare needs.

The Ageing Well JSNA identifies a lack of preventative healthcare and annual health checks alongside missed diagnoses for people with a learning disability. The report also identifies that older adults with the poorest health and lowest incomes find it most difficult to attend their GP. Poor transport routes and lack of convenience contributed to older adults being unable to use public transport. The JSNA also refers to the Global Strategy and Action Plan on Ageing and Health (WHO, 2017) which states as a key objective the need for building capacity in healthcare and ensuring integrated long-term care for developing sustainable and equitable systems of long-term care. Lastly, the Barriers to Accessing Ageing Well Services JSNA Lite Bite (Hertfordshire County Council, 2023b) states that links between healthcare services and voluntary organisations should be strengthened to enable early identification of declining health and onward referral.

4 HEALTHCARE CAPACITY

A map of the site location and nearby primary healthcare services (within 2.5 miles) is provided in Figure 4-1.

Figure 4-1: Primary healthcare services within 2.5 miles of Project site



4.1 GP Services

Public healthcare services for Three Rivers is coordinated by the Hertfordshire and West Essex Integrated Care Board (ICB). Across this area there are 135 GP practices serving 1.6 million people and 295 community pharmacies. Three Rivers is included in the Herts Valley sub group of the ICB (formerly the Herts Valley Clinical Commissioning Group).

As of August 2023, Herts Valley has approximately 386.5 FTE GPs caring for 683,175 patients. On average, this is 56.6 FTE GPs per 100,000 patients, or 1,767.8 patients per FTE GP which is under the target patient list size of 1,800 per GP as recommended by the NHS Healthy Urban Development Unit (HUDU, 2009) (a commonly applied benchmark that is indicative but often exceeded in practice¹).

Both local context and the scientific literature are informative in determining appropriate distances over which to assess primary healthcare capacity. The 2017 study by Santos et al., based in the East Midlands of England, found that the average (mean) distance to a patient's chosen practice was 1.877 km (1.2 mile), which was further than the average of the nearest GP practice, 1.197 km (0.74 mile). The difference reflected patient choices and preferences, including those driven by clinical quality. Santos et al. note that

¹ London's Healthy Urban Development Unit (HUDU) uses the 1,800 people per GP as a default benchmark, based on guidance from the Royal College of GPs.

91.5% of those in urban areas choose a GP practice within 3 km (1.9 mile) and 91.9% of residents in rural areas choose a practice within 7 km (4.3 mile).

Based on the Santos et al. (2017) mean distance to a patient's chosen practice, it is considered reasonable for residents to seek to register with a local surgery that is within a distance of up to 1.2 miles (1.87 km). While patients may travel longer distances for secondary and specialist health services (Aggarwal et al., 2017), an estimate of up to 2 miles (3.2 km) has been used to determine access for other primary and ancillary services. As shown in Table 4.5, there are three GP practices within 1.2 miles of the Proposed Development and all of these practices are currently accepting new patients. All but one of these practices are below the recommended patient to GP ratio of 1,800 patients per FTE GP with a combined average of 1,260 patients per FTE GP; which is below the average for the Herts Valley ICB sub group. Collectively these practices serve 48,135 patients with 38.2 full time equivalent (FTE) GPs. It is noted that Baldwins Lane Surgery is above this ratio and that GP to patient ratios may not always reflect particular local context in terms of capacity. The data does however give a broad indication of sensitivity to any changes in demand.

Whilst the Proposed Development does not rely on local primary care capacity, it is noted that the data suggests that 20,645 additional patients could be registered before reaching the 1,800 patients per GP ratio benchmark. Using an average household size of 2.4 people per house (Global Data, 2023), and up to 800 houses within the Proposed Development, approximately 1,920 people would need to register for GP services in the local area. This is well within the indicated capacity of existing GP practices.

Table 4.1: GP capacity within 1.2 miles of the Proposed Development – September 2023 data release

GP Practices	Patients	Number of GPs (FTE)	GP Patient Ratio	Distance (miles)	Currently Accepting New Patients (Y/N)
Baldwins Lane Surgery	3,469	1.73	2,001.3	0.3 (0.48 km)	Yes
New Road Surgery	10,712	7.28	1,471.4	0.7 (1.13 km)	Yes
Bridgewater Surgeries	33,954	29.2	1,162.9	1.1 (1.78 km)	Yes

Source: NHS Digital, General Practice Workforce Aug 2023 (published 28 Sept 2023) (NHS Digital, n.d.)

NHS workforce data for the local area shows an excess of capacity surrounding the site, as the GP to patient ratio is currently lower than the recommended threshold. As show in Table 4.1, the surgeries near the Proposed Development perform well for customer satisfaction (percentage satisfied with phone access or have had a positive experience of their GP practice). However, the data indicates a growing demand on health services with regards to an ageing population. All of the practices considered have a higher prevalence of dementia than the local ICB and England data, and both Baldwins Lane Surgery and New Road Surgery have higher proportions of elderly patient population (over 65) than the local ICB. However, long-term mental health problems (which can lead to added demand on GP services) in the GP practices considered is similar to the ICB or lower than the England percentages.

Table 4.2 Individual GP practice baseline

GP Practices	Year	Baldwins Lane Surgery	New Road Surgery	Bridgewater Surgeries	Hertfordshire and West Essex ICB (06N)	England
Percentage satisfied with phone access	2022	72.5	52.8	61.7	n/a	52.7
Percentage who have had a positive experience of their GP Practice	2022	70.2	80.4	87.7	75.2	72.4
Dementia: QOF prevalence (all ages)	2021/22	1.03	1.0	.74	.68	.72
Long-term mental health problems (GP patient survey % of respondents)	2018/9	7.6	8.2	6.8	7.2	9.9
Proportion of GP registered populations by age group (65-85+)	2022	39.5	34.2	19.9	26.7	n/a

Source: Fingertips Public Health Data (OHID, 2023)

4.2 Allied Health Services

Allied health services are important for ensuring comprehensive routine primary care for patients and are being more commonly used to supplement demand for GP services (NHS England, 2023), including dentistry, pharmacies, opticians, specialist nurses and other ancillary service providers².

As presented in

Table 4.3 – 4.4, within 2 miles of Proposed Development there are:

14 dental practices

11 pharmacies, and

1 optician/optometrist (5 within 2.5 miles).

As shown in Table 4.6, within the three GP practices within 1.2 miles of the Proposed Development there are also a range of primary care services provided which support healthcare delivery and may reduce demand of FTE GPs. There are 7.08 FTE nurses of which 5.84 FTE are specialist nurses, and 10.84 FTE allied service providers which include pharmacists, physiotherapists, and physician associates.

² Includes Pharmacist, Physiotherapist, Podiatrist, Counsellor, Occupational Therapist, Physician Associate

Table 4.3: NHS Dentist capacity within 2 miles of the Proposed Development – September 2023 data release

Dental Practices	Distance (miles)	Currently Accepting New Patients (Y/N)
Croxley Dental Clinic	0.7	unknown
Cartwell Dental Clinic	0.8	unknown
Cassiobury Dental Surgery	1.3	Only taking NHS patients referred by another dentist
Mullish Mr AR	1.6	Unknown
Deutsch Dr AE	1.7	Unknown
Watford Orthodontic Practice	1.7	Only taking NHS patients referred by another dentist
Cassio Dental Practice	1.8	Yes
Novocare Dental	1.8	Yes
Refresh Dental Care	1.8	Only taking NHS patients referred by another dentist
Berkeley Dental Clinic	2.0	Unknown
Bupa Dental Care	2.0	No
Bluecross Dental Care	2.0	Unknown
Watdord Orthodontics	2.0	Unknown
Mr D Ghamari Sair	2.0	Yes

Source: NHS Find a Dentist (NHS, 2023)

Table 4.4: Pharmacies within 2 miles of the Proposed Development – September 2023 data release

Pharmacies	Distance (miles)
Wilyman Chemist	0.3 (0.48 km)
New Road Pharmacy	0.7 (1.13 km)
Bridgewater Pharmacy	1.1 (1.78 km)
Cassiobury Pharmacy	1.4
Greenfield Pharmacy	1.5
Boots	1.7
Md Pharmacy	1.7
Riverside Pharmacy	1.7
Hintons Pharmacy	1.9
John Davis Pharmacy	1.9
Loomrose Pharmacy	2.0

Source: NHS Find Pharmacy Services (NHS, 2023)

Table 4.5: Optical Services within 2.5 miles of the Proposed Development

Optician/Optomtrist	Distance (miles)
Croxley Green Opticians	1.2
Specsavers Opticians and Audiologist - Rickmansworth	2.3
Anthony Gasson Opticians	2.3
Lamertons Opticians Rickmansworth	2.4
Boots Opticians Rickmansworth	2.3

Source: Google Maps (Google Maps, 2023)

Table 4.6 Nurses and Ancillary service providers FTE

GP Practices	Number of Nurses (FTE)	Number of Specialist Nurses (FTE) ³	Number of Ancillary Service Providers (FTE) ⁴
Baldwins Lane Surgery	0.29	0.29	.96
New Road Surgery	1.36	1.36	1.4
Bridgewater Surgeries	5.19	4.19	8.48

Source: NHS Digital, General Practice Workforce Aug 2023 (published 28 Sept 2023) (NHS Digital, n.d.)

4.3 Community Pharmacies

The Hertfordshire County Health and Wellbeing Board (HWB) produces a Pharmaceutical Needs Assessment 2023 (PNA) every three years (Hertfordshire County Council, 2022a). This mapping of pharmaceutical services against local health needs provides Hertfordshire HWB with a framework for the strategic development and commissioning of services.

Community pharmacy plays a vital role in the management of minor ailments and selfcare in addition to essential services such as dispensing of medicines. Community pharmacists are potentially the most-accessed healthcare professionals in any health economy and are an important resource in supporting people in managing their own self-care and in directing people to the most appropriate points of care for their symptoms (Hertfordshire County Council, 2022a).

Pharmaceutical Essential and Advanced Services provide an opportunity to identify issues with side effects, changes in dosage, confirmation that the patient understands the role of the medicine or appliance in their care, and opportunities for medicine optimisation. Appropriate referrals can be made to GPs or other care settings, resulting in patients receiving a better outcome from their medicines and, in some cases, cost-saving for the commissioner. Advanced Services are not mandatory for pharmacies to provide. In Three Rivers (2020-2021 data) community pharmacy providers offer advanced services in: new medicine service (70%), seasonal flu vaccine (77%), community pharmacist consultation service (81%), hypertension case-finding service (40%), and smoking cessation (11%).

In addition to providing access to pharmaceuticals, community pharmacies are increasingly commissioned to provide other services. These are not considered 'pharmaceutical services' under the Pharmaceutical Regulations 2013 and may be either free of charge, privately funded or commissioned by the Local Authority or ICB. Examples of such services include delivery services, allergy testing, care home services and sexual health services. In Hertfordshire, community pharmacies are commissioned to offer:

- Sexual health
- NHS health checks
- Flu vaccination

³ Includes Practice Nurse, Advanced Nurse Practitioner, Nurse Specialist

⁴ Includes Pharmacist, Physiotherapist, and Physician Associate

- Stop smoking
- Varenicline Patient Group Direction
- Supervised consumption service
- Needle and syringe exchange service
- Immediate access to emergency medicines
- Palliative care service
- Care home reviews
- Reducing waste.

According to a survey with Hertfordshire HWB area community pharmacies, there are also a range on non-commissioned services that they provide including:

- Collection of prescriptions from GP practices (95%)
- Delivery of dispensed medicines free of charge on request (77%). In addition, many provide delivery to specific patient groups such as the elderly and housebound.

The PNA states that there is often a lack of awareness that these free-of-charge services take up pharmacy resources to provide, which should be considered when looking at extending the portfolio of services on offer.

5 STAKEHOLDER CONSULTATION

Whilst NHS Workforce data provides an overview of healthcare capacity based on the workforce utilisation, it may not represent contextual constraints such as expansion or adaptability of existing premises. In order to understand these capacity issues, consultation was undertaken with a local GP, Dr Kunal Patel at the New Road Surgery, 166 New Road, Croxley Green.

In the meeting with Dr Patel, the methods and approach of the healthcare needs assessment were agreed. The current capacity constraints in the local area were discussed. Dr Patel explained that the premises of New Road Surgery are at their maximum capacity and they are unable to increase the number of appointments or services offered due to this constraint. The physical infrastructure is already fully utilised to accommodate their current patients.

The physical infrastructure not only limits the capacity to increase appointments but is no longer suitable as a healthcare facility. The ICB has designated the premises on 'red alert' as it does not meet current specification for health care facilities. Therefore, even if they were given funding to increase service provider FTE, they would have no space to accommodate this increase. Furthermore, the demand for appointments, including GPs, pharmacists and physiotherapists is currently higher than they can meet and the ICB has discussed moving the surgery if a new suitable site can be identified.

Dr Patel explained that the NHS has prioritised shifting to community-based services for most out-patient procedures. This means that many previously hospital-based services (including services for dermatology, gynaecology, ultrasounds, etc.) should now be provided within GP surgeries. This is a cost saving approach as providing these services in a GP surgery is less expensive, and more accessible to patients, than providing them within a hospital. Currently, without community-based provision of these services in the local area patients have to travel to other GP practices or hospitals to receive care.

Furthermore, New Road Surgery has funding to provide additional services, such as mental health services, that they cannot currently offer due to the space limitations.

New Road Surgery is also a training practice. This has led to a pipeline of qualified GPs who want to stay in the local area, however, due to current space constraints the surgery can no longer retain any of these GPs. Furthermore, some of the room in the surgery is used for trainees, further limiting the ability to offer additional appointments.

It was discussed that the patient population is ageing and this adds pressure which is not necessarily reflected in the workforce data. Many of the elderly patients are considered 'high service users' meaning that they require more or longer appointments. Additionally, many of the elderly patients are house-bound or in a care home and require home visits. These appointments take longer and GPs are therefore able to see fewer patients.

With regards to a new healthcare facility at the Proposed Development, Dr Patel agreed that this would greatly support the need for added healthcare capacity. He explained that providing multiple services under one roof can help to ensure seamless integrated care. He said it would be ideal for the facility to include adequate space for a GP practice, but also include provisions for relocating an NHS dentist, optometrist, podiatrist, physiotherapist and community pharmacy into the facility. Furthermore, having a GP surgery that can provide more community-based services, such as ultrasounds, would ensure ease of access particularly for elderly patients. He added that having capacity to offer vaccination programs (particularly in the event of another pandemic) would be important, as they were unable to offer this during the Covid-19 pandemic.

Additional services could also be co-located in a new healthcare facility including a mental health worker (which they already have funding for), district nurses, or health visitors (who currently operate out of the schools).

Lastly, with regards to the current local capacity, Dr Patel shared that Baldwins Lane Surgery has recently experienced a catastrophic flood and the surgery is practicing out of portacabins. It is likely, due to the time it will take to complete remedial works, that other surgeries in the area will need to take on the Baldwins Lane

patient load. This illustrates not just the added demand on existing practices, but the precariousness of the infrastructure of many current NHS healthcare facilities.

6 CONCLUSION

The healthcare needs assessment has considered the existing health profile of the local area, current healthcare capacity, local health priorities and the input of health stakeholders to assess the current needs for healthcare with regards to the Proposed Development.

Whilst the GP practice closest to the project site is currently above the recommended GP to patient ratio (1:1800), based on NHS workforce capacity there is considered to be capacity within 1.2 miles of the project site to accommodate an increased patient population. The estimated population growth associated with the maximum housing increase of the Proposed Development would be well within the capacity of existing practices.

However, the NHS workforce capacity data does not provide a comprehensive understanding of other constraints in the local area. Many of the local surgeries, including New Road Surgery, are at their maximum capacity in terms of the number of appointments they can offer due to space limitations. Furthermore, facilities do not meet current specifications for healthcare facilities. There is also an increasing priority by the NHS to offer community-based outpatient services within GP surgeries, such as ultrasounds, and many of the exiting practices do not have the specifications to be adapted to offer these services.

With regard to ancillary services, there are many dental practices in the local area but it is unclear what capacity these have to take on new patients. There also appear to be a sufficient number of pharmacies within the local area. Within 2 miles of the project site there is only one optician, however it is considered reasonable for patients to travel longer distances for ancillary care and there are additional optical services within 2.5 miles of the project site. Whilst the local GP practices do offer some ancillary services, including specialist nurses, pharmacists, physiotherapists and physician associates, there is a marked lack of ancillary specialists such as podiatrists, therapists or nutritionists.

The population of Hertfordshire and Croxley Green is ageing and it is reasonable to expect that healthcare practices will need to accommodate an increase in demand. Therefore, whilst the GP to patient ratio of the local area may be within recommended capacity, it should be noted that there may be an increase in healthcare utilisation by future populations and healthcare facilities will need to be able to accommodate this increase in demand. Furthermore, the physical infrastructure of existing GP surgeries in the area means that they are already at capacity and will be unable to accommodate an increase in patients or to offer additional services.

The relocation of Breakspeare School and increase in student placements may increase the need for additional health services. Ensuring adequate care for this student population will require coordination between local health services and the school to coordinate and implement the Education, Health and Care Plan for children relocating to the area.

An integrated care hub within the Proposed Development could be offered to address the need for increased healthcare services for current and future populations. This health centre could offer GP services as well as ancillary care (pharmacy, optical, physiotherapy, podiatry) to help meet the need for these services in the local area as well as the demand for such services associated with an ageing population. Offering primary care and ancillary care services within a single dedicated healthcare facility helps to ensure seamless, integrated care and provides better access particularly for elderly patients. Also, providing facilities with out-patient services (ultrasounds, dermatology, gynaecology) within a community-based practice rather than within a hospital not only ensures better access for patients but is also a significant cost saving for the NHS.

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**Self Review against the WHIASU Quality Assurance Review Framework
for Health Impact Assessment**

Criteria		Grading	Comments
1 Section 1: Information about the project, policy, plan or proposal			
1.1	There is a clear description of the project or plan being assessed including: Aims and objectives Organisational relationships Funding The context in which the project or plan 'sits' Timeframes Links or distance to other neighbouring projects if relevant (as there may be cumulative impacts) The national and/or local policy context	Good	A clear description of the project under assessment has been provided including aims and objectives, study area and any related cumulative impacts. The Applicant for the proposed development is clearly defined in chapter. Aims and objectives are in section 2 (Introduction) Organisational relationships are in section 1 (Introduction) Oof the HIA That HIA has been commissioned by the applicant is set out in section 1 (Introduction) of the HIA The context is set out in 1 (Introduction). Links with other projects is set out in section 2 (Introduction) The policy context is set out in section 3
2 Section 2: Methodology: Is it an HIA? Has it followed a recognised HIA methodology?			
2.1	There is a clear explanation of the HIA methodology used including: Screening Scoping - any geographical, population or other limits, and how and why these were agreed. Assessment/appraisal	Good	Screening is implicit to the HIA being undertaken following the Council's HIA position paper. The HIA scoping follows methodology set out in guidance (IPH, 2021) and (IEMA 2022). Scoping is covered in section 6 (Scope of the assessment) The assessment follows methodology set out in guidance (IPH, 2021) and (IEMA 2022). The methodology is set out in section 8.2 (Impact assessment methodology) of the HIA.
2.2	The HIA is planned and timed to inform the relevant decision making/project management processes	Good	HIA is timed to inform the relevant decision making relating to the residential development. The HIA is prospective and submitted as part of the outline planning application. It has informed the master planning as set out in section 10 (HIA inputs to proposed development master planning) of the HIA.
2.3	The aims and objectives for the HIA are clear and relevant.	Good	The aims and objectives are to assess the impacts of the project on the wider determinants of population health. This is set out in section 2 (Introduction) of the HIA.
2.4	The HIA has been framed around a definition of health and wellbeing that is holistic (physical and mental) and includes the social (wider) determinants of health	Good	The HIA has been framed around the agreed WHO definitions of health, mental health and the wider determinants of health, as set out in section 8.2 (Impact assessment methodology) of the HIA.
2.5	The assessment tools/frameworks/checklists used are included in the report and they include physical, mental, and social health and wellbeing along with the wider determinants of health.	Good	The assessment follows methodology set out in guidance (IPH, 2021) and (IEMA 2022). The methodology is set out in section 8.1 (Impact assessment methodology) of the HIA. These include the wider determinants of health.

2.6	The screening and scoping process identifies the people and vulnerable groups who may be impacted on by the proposal and how they will be engaged in the HIA process	Good	Scoping followed the methodology set out in guidance (IPH, 2021) and (IEMA 2022) which includes specific regard to lists of vulnerable groups. Vulnerable groups identified through scoping are set out in section 8.2 (Impact assessment methodology). Stakeholder consultation in relation to relevant vulnerable groups is set out in section 4 (Consultation and engagement)
2.7	The report identifies all the stakeholder groups who are relevant to making an assessment of health impact for this project and how they were to be engaged in the HIA.	Good	Section 4 (Consultation and engagement) of the report identifies relevant stakeholders to the assessment of health impact for the project including how these were engaged. Vulnerable groups are assessed throughout the assessment in section 11 (Assessment of Effects).
2.8	There is a clear explanation of the roles and responsibilities in the HIA and the organisations they represent.	Good	The HIA has been undertaken by RPS, as set out in section 1 (Introduction). Other stakeholders who have been consulted as part of the HIA are set out in section 4 (Consultation and engagement)
3 Section 3: Evidence: Is the evidence used to identify and assess impacts robust?			
3.1	The HIA report includes the key types of evidence required. Community /population health and socioeconomic data profile Literature/evidence review. Stakeholder opinion and experience Technical data (if relevant) i.e. air quality statistics or health outcome projections	Good	Population health baseline information is provided in section 7 of the HIA report. This includes population health data profiles, with baseline data specific to the wider determinants of health being assessed in the report. Literature review is set out in section 11 (Assessment of Effects). Stakeholder consultation is set out in section 4 (Consultation and engagement) Technical data is set out in section 7 (Baseline environment)
3.2	Community /population health profile (quantitative and qualitative). This should provide sufficient information on the physical and mental health and wellbeing and social determinants of health for the affected populations and any vulnerable groups identified in order to assess possible impacts. The profile should contain indicators of physical and mental health and wellbeing relevant to the project under assessment. There should be a narrative which interprets the data collected in the context of the HIA. A list of tables and data is not sufficient.	Good	The HIA provides sufficient information on the physical and mental health and wellbeing of the affected populations in Section 7, including general health and life expectancy data, data on the relevant protected characteristics of the community, and data specific to the various wider determinants of health being assessed in the report. The profiles are based on a selection of relevant physical and mental health indicators. The HIA includes narratives that interpret the collected data in Section 7, in addition to the data tables.
3.3	Literature/evidence review. The search strategy is clear. The methodology and sources used are relevant to the project and scale of the HIA.	Good.	The literature methodology is set out in section 8.1 (Evidence review). The search strategy used for literature review and evidence review is clear including data collection for baseline statistics. Methodologies and sources used are relevant to the project and scale of the HIA. Summaries of all reviewed literature are provided in the assessment section (Section 11 of the HIA).

	The quality and depth of evidence is sufficient to inform the assessment of likely impacts. There is some critical assessment of the literature used.		
3.4 Stakeholder knowledge and experience (qualitative).	The methods of engagement were appropriate, and their effectiveness evaluated. The range of stakeholders and how many people from different groups were engaged is recorded.	Good.	Feedback from consultation held for the project are provided in Section 4 of the HIA report. This includes details on all the engaged stakeholders. The methods of engagement were appropriate and effective. Additional detail on the consultation methods and profile of those engaged is set out in the statement of community involvement included in the planning application. This is cross-referred to by the HIA in section 2 (Introduction), but not repeated to avoid duplication.
3.5 Technical data	The HIA uses robust data sources on air quality, noise, transport or from other key environmental, economical or technical disciplines where relevant to the proposal and possible impacts.	Good	The HIA also considers findings from other technical reports of the Project including air quality, noise, transport and landscape assessment reports. These are repeated or cross-referred to in the HIA analysis within section 2 (Introduction).
3.6	Any limitations of the evidence collected are highlighted and a rationale provided.	Good	The report highlights any limitations of the collected evidence including rationale to the limitations. The limitation section is set out in section 7.4 (Assumption and limitations of the assessment).
4 Section 4: Appraisal, Assessment and the identification of impacts			
4.1	Any positive impacts or opportunities to maximise health and wellbeing outcomes are identified and how they were identified is presented clearly.	Good	The HIA highlights the positive impacts of the project. These have been identified through the Design Access statement/Project Description, masterplans and technical assessment reports provided by the Project Team. Positive impacts are set out in the HIA analysis within section 11 (Assessment of effects).
4.2	Any negative impacts, gaps or unintended consequences are identified and how they were identified is presented clearly.	Good	The HIA highlights the negative impacts of the project, informed by the Design Access statement/Project Description, masterplans and technical assessment reports provided by the Project Team. Negative impacts are set out in the HIA analysis within section 11 (Assessment of effects).
4.3	There is a balanced approach to the understanding and reporting of impacts i.e. no under-reporting of negative impacts or overstating of positive impacts	Good	Careful consideration has been given to all the conclusions given in the report. There is a balanced approach to the understanding and reporting of impacts. Both positive and negative effects are assessed using the same methodology, which is set out in section 8.2 (Impact assessment methodology) of the HIA.
4.4	Possible cumulative impacts of related policies or projects in the vicinity are considered.	Good	The HIA considers cumulative impacts of related projects near the proposed development in Section 12 of the report. There are no cumulative impacts identified by the HIA that have the potential to give rise to significant public health effects in combination with this Project.

4.5	All sources of evidence are triangulated and used to inform the assessment and identifications of impacts.	Good	Methods set out in section 8.1 (Evidence review) have been used that triangulate evidence sources and professional perspectives to inform the assessment. The data and evidence triangulated is set out in section 11 (Assessment of effects). The professional judgements reached, based on that triangulate evidence, are set out in section 11 (Assessment of effects).
4.6	It is made clear how each impact identified is supported by the evidence gathered. The strength and sources of evidence for each impact is clearly communicated.	Good	Evidence for the HIA was collected per each determinant of health and is listed accordingly in sections 11.1.1 to 11.2.7. The report structuring indicates how evidence informs the professional judgements on each relevant determinant of health. The assessment conclusions in section 11 are presented in HIA categories of significance, such as major, moderate, minor or negligible, and a narrative explaining this 'score' was made with reference to evidence, local context and any inequalities. Sources of evidence are provided in the form of citations and bibliography in Sections 11 and 14
4.7	It is clear who will be impacted and any potential inequalities in the distribution of impacts are identified.	Good	The HIA distinguishes between the general population and the vulnerable people in the community, to cater for and highlight any potential inequalities in the distribution of impacts across the population. This is set out in section 8.3 (population health approach and vulnerable groups).
4.8	The degree of likelihood and severity of specific impacts is distinguished	Good	The scoping exercise has identified which of the determinants of health listed within the IPH 2021 and IEMA 2022 guidance is 'likely'. Those that are unlikely have been scoped out of the assessment. The source-pathway-receptor linkage for plausible effects, as well as a consideration of their probability in the particular context of the project is set out in the assessment, section 11. Severity is one criteria of the IPH 2021 and IEMA 2022 magnitude methodology that has been used. Statements of severity and their relationship with population extent and other criteria is set out within the assessment section of the HIA, section 11.
4.9	Has the scope of the HIA been fulfilled?	Good	The HIA fulfils the identified scope for the project. Each of the relevant determinants of health and vulnerable groups identified at scoping has been assessed.
4.10	A summary of the appraisal/assessment is provided.	Good	Section 12 provides a non-technical summary of the assessment.
5 Section 5: Recommendations, Conclusions and Monitoring			
5.1	There is a clear link between the evidence gathered, assessment and recommendations.	Good	There is a consistent structure to the HIA whereby the evidence informs the assessment, which in turn informs the recommendations. This is evident from the table of contents and from the reporting across the HIA through sections 7 (evidence), 11 (assessment) and 13 (recommendations).
5.2	There should be an explanation of how the findings will be used to inform the decision-making processes within the project/ programme.	Good	Sections 10 and 13 on recommendations explains that the HIA's findings will inform the planning determination process and the refinement of the development proposals.

5.3	Recommendations should: - Be specific, measurable, appropriate, realistic and time bound. - Be clearly linked to the impacts identified. - Prevent or mitigate potential negative impacts or unintended consequences. - Maximise the benefits and opportunities of positive impacts. - Be clear on who is expected to take action	Good	All recommendations have been carefully considered and clearly linked to the identified impacts. These are specific and realistic and have been tailored to prevent potential negative impacts and maximise benefits where proportionate. To ensure they can be adopted, the HIA recommendations have sought to meet relevant planning tests as being: necessary; relevant to planning and to the development to be permitted; enforceable; precise; and reasonable in all other respects.
5.4	If recommendations are prioritised the rationale for this should be clearly stated	Good	Prioritisation is linked to the significance methodology set out in section 8.2. That methodology means that recommendations relied on to avoid significant adverse population health effects are of greater priority than those that do not. Similarly, those recommendations that can enhance beneficial effects to be significant for public health are of greater priority than those that provide only minor benefits.
5.5	Best practice: a process is in place for monitoring the implementation of recommendations and indicators have been identified to monitor key health and wellbeing impacts	N/A	Monitoring is resource intensive and must therefore always be proportionate. In general, only recommendations that are relied on to avoid significant adverse population health effects requiring monitoring (IPH 2021, IEMA 2022). That is not anticipated to be the case for this Project so, whilst monitoring has been considered, no monitoring is proposed.
5.6	Plans for dissemination of the report and communication of findings are specified.	Good	The HIA is a publicly available document published as part of the Project's planning application on the Council's planning portal website. The local authority public health team have been engaged during the HIA and will be made aware of its publication by the HIA team.
5.7	The intended audience for the report is clear and the language, information and tone of the report are suitable for this audience.		The report audience is set out in section 1 (Introduction). The primary audience for the HIA report includes the public, the local authority public health and planning teams and elected members representing the community. The language use is non-technical where appropriate with key findings and recommendations summarised at the start and end of the report (section 1 and 13).
5.8	The structure of the report is clear and there are relevant and logical sections.	Good	As set out in the table of contents, the report is divided into logical sections including Summary, Introduction, Policy Review, Consultation and Engagement, Study Area, Scope of the Assessment, Baseline environment, Impact Assessment Methodology, Key parameters for assessment, HIA inputs to Proposed Development master planning, Assessment of Effects, Cumulative Effects and Interactions, Conclusion and Recommendations and References
5.9	All appendices or additional documents containing data, evidence, records and details of methodology are signposted /cross referenced and easy to locate and access.	Good	References to methodology and evidence used in the HIA are included throughout the report where relevant. Cross references to other sections of the same report are provided throughout the report for seamless navigation with hyperlinks for digital copies. A reference list is set out in section 14 and the appendices are appended and listed in the table of contents.
5.10	All sources are clearly and accurately referenced.	Good	All data sources are clearly and accurately referenced according to Harvard citation style. A reference list is set out in section 14

5.11	Any technical terms used in the HIA are explained in the document or a glossary.	Good	A glossary explaining technical terms has been provided in page 3.
5.12	Best practice: An executive summary or non-technical summary is provided summarising the key messages, recommendations and the supporting evidence	Good	A concise and short summary of the report has been provided in Sections 1 and 13 of the report.
5.13	Additional criteria for capital/ construction/development type projects: Is there a proposed plan for monitoring the implementation of the recommendations and a clear line of accountability for reporting ongoing outcomes? This could include: Identifying indicators for the ongoing measurement of health and wellbeing impacts. i.e. emissions and noise levels A Health Management Plan	Good	The HIA was undertaken early and therefore informed the masterplanning of the Project. Many of the HIAs recommendations are therefore already embedded within the design and plans for the Project, as set out in section 10. Being adopted already no Health Management Plan is required. Monitoring is resource intensive and must therefore always be proportionate. In general, only recommendations that are relied on to avoid significant adverse population health effects requiring monitoring (IPH 2021, IEMA 2022). That is not anticipated to be the case for this Project so, whilst monitoring has been considered, no monitoring of indicators in relation to HIAs recommendations that are not embedded within the design are proposed. Planning consenting, including setting of conditions around further detail to be developed at a later stage, would fulfil this role if required.
6 Section 6: Principles and Governance: Has it been conducted in a way that meets the principles and values of HIA?			
6.1	Equity – A focus on contributing to achieving equity and reducing inequalities is considered throughout the HIA	Good	The HIA identifies and addresses health inequalities and inequities among vulnerable populations in the study area (see section 8.3) such as low-income households, minority groups and those in poor health. Recommendations have been tailored to promote health equity by targeting measures to particularly benefit vulnerable groups (see section 13).
6.2	Transparent & open – The governance of the HIA is clear and appropriate to ensure that the HIA was carried out in an effective and balanced way.	Good	Governance is covered in the methods section of the HIA (section 8.2). Decision making on the HIA has been with the HIA authors, informed by client technical and legal reviews, as well as discussion with stakeholders. The HIA has used competent experts under the IEMA 2024 definition, which includes that “A competent expert adheres to relevant codes of professional conduct” (IEMA 2024). The HIA methods also reference that the HIA adopts and aligns with the principles of HIA, which include ethical use of evidence (IAIA 2021). The HIA confirms that the project has been commissioned by the applicant and undertaken by RPS (section 1). The scope and methods of the assessment have been discussed with the local authority public health team (section 4), which included meeting minutes being shared for accuracy. The HIA authors have advocated for measures that promote public health as part of the HIA process, including input to masterplanning and making of recommendations (sections 10 and 13). Stakeholders have been provided with access to the HIA report via the local authority planning portal and comments on the HIA will inform the planning determination.
6.3	Democratic – This emphasises the rights of people to participate in major decisions that affect their lives. The stakeholders engaged reflect the diversity of all those who are likely to be affected by the proposal, involved in the	Good	The HIA has been undertaken in the context of a planning application that has a formal process that seeks the participation of relevant local authority representatives and the community. The HIA is a document that is formally included as part of the planning application and is available for review by these parties. The production the HIA has included identifying and involving relevant stakeholders, as set out in Section 4.

	development of the proposal or involved in the implementation of the proposal.		
6.4	Sustainable – The HIA set out to maximise health and wellbeing benefits/impacts and minimise unintended consequences by considering both short and long-term impacts	Good	Short-term, medium-term and long-term considerations are defined in section 8.2, inform the magnitude methodology in Table 8.1, and are reflected appropriate in the assessment conclusions, section 11. The wider determinants of health approach sets population health within the context of wider environmental considerations for the project. This aligns with the principles of HIA (IAIA 2021) cited in the methodology section 8.2. The HIA masterplanning inputs, analysis and conclusions have regard to both the future and existing community (section 10).
6.5	Participatory - The HIA used appropriate, effective and accessible methods of engagement for the stakeholders who were relevant for this assessment.	Good	As set out in section 4, the HIA was conducted with a participatory approach by engaging a wide range of stakeholders including community members, public health experts, the healthcare providers and commissioners, and the Local Authority. Proportionate to the project, input was gathered through online meetings, online surveys, a webinar and email correspondence. All the findings and responses from these informed the HIA and its findings. The Project held a public consultation and this included questions from the HIA team relevant to vulnerability and concerns about health. Informed by the HIA the consultation included organisations representing vulnerable, seldom-heard and hard-to-reach groups. Responses from the community engagement informed the HIA including its recommendations. Additional detail on the consultation methods and profile of those engaged is set out in the statement of community involvement included in the planning application. This is cross-referred to by the HIA in section 2 (Introduction), but not repeated to avoid duplication.
Review summary of the HIA A compliant comprehensive HIA has been completed in line with good practice. Reviewed by: Ryngan Pyper (RPS) and Lisa Nelson (RPS) on 17/12/2024.			