Intermodal Logistics Park North Ltd

INTERMODAL LOGISTICS PARK NORTH (ILPN)

Intermodal Logistics Park North (ILPN) Strategic Rail Freight Interchange (SRFI)

Project reference TR510001

Preliminary Environmental Information Report (PEIR)

Chapter 18: Population and Human Health

October 2025

Planning Act 2008

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

This document forms a part of a Preliminary Environmental Information Report (PEIR) for the Intermodal Logistics Park North (ILPN) project.

A PEIR presents environmental information to assist consultees to form an informed view of the likely significant environmental effects of a proposed development and provide feedback.

This PEIR has been prepared by the project promoter, Intermodal Logistics Park North Ltd. The Proposed Development is described in Chapter 3 of the PEIR and is the subject of a public consultation.

Details of how to respond to the public consultation are provided at the end of Chapter 1 of the PEIR and on the project website:

https://www.tritaxbigbox.co.uk/our-spaces/intermodal-logistics-park-north/

This feedback will be taken into account by Intermodal Logistics Park North Ltd in the preparation of its application for a Development Consent Order for the project.

Chapter 18 ◆ Population and Human Health

INTRODUCTION

18.1 This chapter of the Preliminary Environmental Information Report (PEIR) has been produced by Savill's Environment & Infrastructure team who are members of the IEMA Health in EIA Working Group and contributors to the IEMA Guide to 'Effective Scoping of Human Health in EIA' and 'Determining Significance for Human Health in EIA'.

18.2 This chapter of the PEIR presents the findings of Environmental Impact Assessment (EIA) work undertaken concerning potential population and health effects of the Intermodal Logistics Park North Strategic Rail Freight Interchange (ILPN SRFI).

18.3 Population and health can be influenced (both adversely and beneficially) by a number of environmental and socio-economic determinants which can vary on a project-by-project basis, and are further modified by local community circumstance and existing health burden.

18.4 The purpose of this Population and Health chapter is to draw from and build upon the key outputs provided within each relevant ES topic chapter to further test potential risk to local communities, and where appropriate, to set such risk into context.

18.5 This chapter is supported by Appendix 18.1: Vulnerable Receptor Analysis and Appendix 18.2: Population and Health Baseline.

RELEVANT POLICY AND GUIDANCE

18.6 This subsection summarises relevant national and local policy requirements that are directly pertinent to the assessment of health. On the basis that a wide range of environmental, social and economic factors have the potential to influence health, many policies which relate to these determinants are also relevant to health. However, to ensure a focussed list of relevant policies and to avoid duplication of policies more directly relevant to the inter-related ES chapters, the policies referenced in this section have been selected only if they explicitly mention health and/or wellbeing, and are relevant to the Proposed Development.

National Planning Policy

National Policy Statement for National Networks (NPSNN)

18.7 As outlined in paragraph 2.1 of the NPSNN, national networks provide critical long-distance links between places, offering fast and reliable journey times and in doing so enable connectivity between people and communities, which in turn supports and stimulates economic growth. Amongst other things, they enable the effective movement of goods and

freight into, out of, and across the country, which is vital to UK prosperity, health, wellbeing, and security.

18.8 Paragraph 2.18 states that "Putting sustainability at the forefront of how national road, rail and SRFI developments grow and adapt, presents opportunities for the environment and the health and wellbeing of people, now and in the future". Paragraph 3.98 goes on to state that *"The government's vision for transport not only sets a path to net zero emissions, but it is also a vision for a sustainable transport system fundamentally better in every way, improving journeys, decarbonising the network, meeting the needs of freight and logistics at all links in the supply chain, driving growth and opportunity, and boosting the health of the nation. The government, therefore, believes it is important to facilitate the development of the rail freight industry including supporting growth areas such as intermodal where there is a high opportunity for modal shift"*.

18.9 In terms of criteria for good design for national network infrastructure, as outlined in paragraph 4.27, design principles include *"People – helping to improve the quality of life for local communities. It promotes inclusion, cohesion and increases accessibility. It creates safe spaces with clean air that improve health and wellbeing"*.

18.10 More generally, regarding pollution control and other environmental regulatory regimes, paragraph 4.45 states that *"The planning and pollution control systems are separate but complementary. The planning system controls the development and use of land in the public interest. It plays a key role in protecting and improving the natural environment, public health and safety, and amenity, for example by attaching conditions to allow developments, which would otherwise not be environmentally acceptable to proceed, and preventing harmful development which cannot be made acceptable even through requirements. Pollution control is concerned with preventing pollution through measures which prohibit or limit the release of substances to the environment from different sources to the lowest practicable level. It also ensures that ambient air, water and land quality meet standards that guard against impacts to the environment or human health"*.

18.11 Health is a key theme of the NPSNN, whereby paragraph 4.71 states that new or enhanced national network infrastructure may have direct impacts on health because of traffic, noise, vibration, air quality and emissions, light pollution, community severance, dust, odour, polluting water, hazardous waste and pests. They may also have indirect health impacts: for example, if they affect access to key public services, local transport, opportunities for walking, cycling and wheeling, or the use of open space for recreation and physical activity.

18.12 Paragraph 4.72 states that effects on human beings should be assessed, identifying any potential adverse health impacts, and identify measures to avoid, mitigate or as a last resort compensate for adverse health impacts as appropriate. Enhancement opportunities are also mentioned, and should be identified by promoting local improvements for active travel and horse riders driven by the principles of good design to create safe and attractive routes to encourage health and wellbeing; this includes potential impacts on vulnerable groups within society.

18.13 Paragraph 1.184 states that public rights of way, National Trails, and other rights of access to land (e.g. open access land) are important recreational facilities for walkers, cyclists and

equestrians. Applicants are expected to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other public rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve access. In considering revisions to an existing right of way consideration needs to be given to the use, character, attractiveness and convenience of the right of way. The Secretary of State should consider whether the mitigation measures put forward by an applicant are acceptable and whether requirements in respect of these measures might be attached to any grant of development consent.

18.14 Other references to health, reiterating the above, are provided in the following sections of the NPSNN: air quality; resource and waste management; dust, odour, artificial light, smoke, steam; land contamination and instability; land use, including open space, GI, green belt; and noise and vibration.

National Planning Policy Framework

18.15 The National Planning Policy Framework (NPPF) (December 2024, as amended February 2025), sets out the planning policies for England. The overarching purpose of the NPPF (paragraph 8) is to achieve sustainable development, which has three objectives, one of which is a social objective *"to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural wellbeing"*.

18.16 Promoting healthy and safe communities is a central theme, whereby the NPPF states that planning policies and decisions should aim to achieve healthy, inclusive and safe places which promote social interaction (including opportunities for meetings between people who might not otherwise come into contact with each other), are safe and accessible, and enable and enable and support healthy lifestyles (paragraph 96).

18.17 Furthermore, the NPPF (paragraph 98) states that to provide the social, recreational and cultural facilities and services that communities need, planning policies and decisions should:

- plan positively for the provision and use of shared spaces, community facilities and other local services to enhance the sustainability of communities and residential environments;
- take into account and support the delivery of local strategies to improve health, social and cultural well-being for all sections of the community;
- guard against the unnecessary loss of valued facilities and services, particularly where this would reduce the community's ability to meet its day-to-day needs;
- ensure that established shops, facilities and services are able to develop and modernise, and are retained for the benefit of the community; and
- ensure an integrated approach to considering the location of housing, economic uses and community facilities and services.

Local Planning Policy

St Helens Borough Local Plan (July 2022)

18.18 Policy LPA02 (Development Principles) states that new development in St Helens Borough will be required to (amongst other factors): contribute to the reduction of socio-economic inequality including health inequalities within St Helens Borough, and between the Borough and other parts of the UK; and promote healthy communities by improving access and opportunities for formal and informal recreation (including through the use of GI), improving cycling and walking routes, and minimising air, soil, and water pollution.

18.19 Policy LPA08 (Green Infrastructure) states that the Green Infrastructure (GI) network in St Helens Borough is capable of delivering a wide range of environmental and quality of life benefits for local communities, and the Council will work with other organisations where necessary to (amongst other factors) increase the accessibility of open space within walking distance of housing, health, employment and education establishments to promote healthy lifestyles.

18.20 Policy LPA12 (Health and Wellbeing) states that the Council will work with its health and wellbeing partners to promote public health principles, maximise opportunities for people to lead healthy and active lifestyles, and reduce health inequalities for residents within the Borough. Of specific relevance to the Proposed Development, the Council will:

- encourage improved access to a choice of homes and jobs that meet the needs of the area;
- encourage people to be physically active by providing opportunities for walking, cycling, outdoor recreation and sport; and
- manage air quality and pollution.

18.21 Policy LPD09 (Air Quality) states that development proposals must demonstrate that they will not (amongst other factors) lead to a significant deterioration in local air quality resulting in unacceptable effects on human health and local amenity.

Wigan Local Plan Core Strategy (September 2013)

18.22 A strategic objective of the Wigan Local Plan relates to health and recreation, whereby Objective HR 1 is to improve health and life expectancy, particularly in the most deprived neighbourhoods, by enhancing opportunities for walking and cycling as part of everyday life; providing more opportunities for people to participate in sport and physical recreation and cultural activities; and improving the environment where people live, and to improve accessibility to quality health care.

Places for Everyone Joint Development Plan Document (March 2024)

18.23 The Places for Everyone Joint Development Plan Document forms part of the adopted development plan for nine of the ten Greater Manchester authorities, including Wigan.

18.24 Policy JP-G2 (Green Infrastructure Network) states that a strategic approach will be taken to the protection, management and enhancement of GI in order to protect and enhance the ecosystem services which the GI Network provides, including flood management, climate change mitigation and adaptation. Alongside this primary function an enhanced GI network will support wider public health benefits, including promotion of active travel, food growing and recreational opportunities.

18.25 Policy JP-G7 (Trees and Woodland) aims to significantly increase tree cover, protect and enhance woodland, and connect people to the trees and woodland around them. Amongst many factors, this will be done by improving public access to woodland and trees particularly by sustainable travel models to capture the health and wellbeing benefits whilst managing the associated pressures.

18.26 Policy JP-P6 (Health) states that to help tackle health inequality new development will be required, as far as practicable, to:

- Maximise its positive contribution to health and wellbeing, whilst avoiding any potential negative impacts of new development;
- Support healthy lifestyles, including through the use of active design principles making physical activity an easy, practical and attractive choice; and
- Be supported by a Health Impact Assessment for all developments which require to be screened for an Environmental Impact Assessment, and other proposals which, due to their location, nature or proximity to sensitive receptors, are likely to have a notable impact on health and wellbeing.

18.27 Policy JP-C1 (An Integrated Network) states that in order to help deliver an accessible, low carbon Greater Manchester with world-class connectivity, a range of measures will be supported, including (amongst other factors) transforming transport infrastructure and services by securing investment in new and improved transport infrastructure and services that will meets customers' needs by being integrated, reliable, resilient, safe and secure, well-maintained, environmentally responsible, attractive and healthy.

Warrington Local Plan (December 2023)

18.28 Policy INF1 (Sustainable Travel and Transport) states that the Council will expect development to (amongst other factors) improve walking and cycling facilities (active travel) including, increase accessibility for all members of society through improvements to, and the provision of new, infrastructure to make the most of potential environmental, social and health benefits.

18.29 Policy DC3 (Green Infrastructure) states that the Council, in partnership with other agencies and stakeholders will adopt a strategic approach to the care and management of all the Borough's GI and seek to protect, enhance and extend the multifunctional network in order to maintain and develop the wider public health, active travel, flood management, climate change, ecological and economic benefits it provides.

18.30 Policy DC6 (Quality of Place) states that good design should be at the core of all development

proposals having regard to a range of principles, including "movement and accessibility", which states that places should be designed to meet the principles of active travel and promote a healthy active lifestyle.

18.31 Policy ENV8 (Environmental and Amenity Protection) states that the Council requires that all development is located and designed so as not to result in a harmful or cumulative impact on the natural and built environment, and/or general levels of amenity. There are specific references to health under the following topics: air quality, land quality and noise.

Guidance

18.32 The following guidance and best practice have been followed for the assessment of human health:

- National Planning Practice Guidance (NPPG) (Ministry of Housing, Communities and Local Government);
- IEMA Guide to Effective Scoping of Human Health in EIA (IEMA, 2022); and
- IEMA Guide to Determining Significance for Human Health in EIA (IEMA, 2022).

18.33 The NPPG supports the NPPF and provides guidance across a range of topic areas. As stated in the NPPG, 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 the relevant Director(s) of Public Health, will help ensure local public health strategies and any inequalities are considered appropriately.

18.34 The IEMA guidance on 'Effective Scoping of Human Health in EIA' (IEMA, 2022) defines the approach for scoping wider determinants of health in or out of an EIA and is derived from EU EIA Directive 2014/52/EU.

18.35 Furthermore, the IEMA guidance on 'Determining Significance for Human Health in EIA' (IEMA, 2022) responds to gaps and inconsistencies across existing guidance as to how health, particularly regarding significance (including sensitivity and magnitude classifications), is assessed in EIA. This promotes greater consistency in the assessment process; particularly in how EIA health conclusions are reached, interpreted, defended and applied to the greatest positive effect.

CONSULTATION TO DATE

18.36 Table 18.1 summarises the EIA Scoping Opinion from the Planning Inspectorate and any other informal consultation relevant to the population and human health topic, explaining how the assessment has taken the advice into account.

Table 18.1 Scoping and informal consultation summary

Consultee	Consultee comment	Response
EIA Scoping Consultation		
PINS	The Scoping Report explains that due to the nature of the Proposed Development the only people on-site during operation would be members of the workforce, who would remain on-site during the day. Therefore the potential for risk taking behaviour is minimal. The Inspectorate agrees that this matter can be scoped out of further assessment.	Agreement noted.
PINS	Given that the Proposed Development does not have a material impact on access to food, diet or nutrition, the Inspectorate agrees that this matter can be scoped out of further assessment.	Agreement noted.
PINS	The Scoping Report explains that the impact of the Proposed Development on local housing will be assessed in the socio-economic section of the assessment, due to the scale of the required construction and operational employment. This is accordingly scoped into Chapter 17 of the Scoping Report. The Inspectorate is content with this approach and agrees this matter can be scoped out of further population and human health assessment on the basis that the ES appropriately cross references to relevant other assessments.	Agreement noted and cross-references will be made to where this is addressed in the socio-economic assessment.
PINS	Given the nature and location of the Proposed	Agreement noted.

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	Development, only a small number of individual residential dwellings/farmsteads that are currently on site would need to be demolished. The Scoping Report states it is not considered to be of a level to have an impact on population. On this basis, the Inspectorate is content to scope this matter out of further assessment.	
PINS	The Scoping Report states that the Proposed Development site would be secure throughout the construction and operational phases of the development, and subject to security measures to deter the potential for anti-social behaviour and crime. The safety of workers on site will be ensured through measures required by the Health and Safety at Work Act. On the basis that appropriate safety measures are secured through the DCO, the Inspectorate agrees that this matter can be scoped out.	Agreement noted.
PINS	The Scoping Report proposes that this effect would be assessed as a permanent effect in the construction phase, including spanning the operation phase. On this basis, the Inspectorate agrees that effects during operation may be assessed as part of the effects during construction.	Agreement noted.
PINS	The Scoping Report proposes this to be assessed as part of the socio-economics ES Chapter. The Inspectorate agrees with this approach on the basis that the ES appropriately cross references to where it is assessed.	Agreement noted and cross-references will be made to where this is addressed in the socio-economic assessment.

Consultee	Consultee comment	Response
EIA Scoping Consultation		
PINS	The Scoping Report proposes this to be assessed as part of the hydrology ES Chapter. The Inspectorate agrees with this approach, provided that the ES appropriately cross references to where this matter is assessed.	Agreement noted and cross-references will be made to where this is addressed in the hydrology assessment.
PINS	The Scoping Report proposes this to be assessed as part of the geology, soils and contaminated land ES Chapter. The Inspectorate agrees with this approach on the basis that the ES appropriately cross references to where it is assessed.	Agreement noted and cross-references will be made to where this is addressed in the geology, soils and contaminated land assessment.
PINS	The Scoping Report does not identify any significant sources of radiation during construction and operation. On the basis that this is confirmed in the description of the Proposed Development in the ES, the Inspectorate agrees that this matter can be scoped out.	Agreement noted.
PINS	Impacts on the demand for health and social care services are scoped out on the basis that the operational workforce would commute on a daily basis. This does not explain why there would not be increased demand on the health and social care services. However, taking into account the nature of the operation of the Proposed Development, the Inspectorate considers it unlikely that significant effects are likely to occur during operation. Subject to confirmation in the ES of the number and likely location of the operational workforce, demonstrating that	Agreement noted on the basis that the number and likely location of the operational workforce is confirmed at ES stage.

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	significant effects are unlikely, the Inspectorate agrees to scope this matter out.	
PINS	The Scoping Report is unclear what is meant by 'built environment' in this context. The Inspectorate does not therefore agree that this matter can be scoped out on the basis that the Proposed Development would not influence the built environment. As the Proposed Development would influence the built environment through its existence ie alter the setting and economics of the environment in which it operates, the Inspectorate considers that this matter should be scoped in. The ES should also include a definition of what is included in 'built environment'.	Built environment is defined in the IEMA Guidance on Effective Scoping in EIA as: *"How the project affects the built features of the environment that contribute to health, including opportunities to contribute to local or neighbourhood design that fits positively into the wider spatial planning context to support physical, mental and social wellbeing. Explain as relevant:* • *the project's use classes (land uses) and how these relate to need without over supply that promotes risk taking behaviours or unhealthy lifestyles;* • *how buffer zones are used and maintained (e.g. between industrial uses or transport corridors and residential or public space uses);* • *how it extends or complements existing community provision of local retail, financial and commercial services, community assets, social infrastructure and green space;* • *how it minimises susceptibility to major accidents or disasters;* • *how it promotes recycling and manages waste to avoid nuisance or hazards;* • *how it extends or operates within capacity of*

Consultee	Consultee comment	Response
EIA Scoping Consultation		
		communications and sanitation systems and water and energy resources; • *how any utilities diversions or interruptions minimise disruption to end users;* • *how it incorporates principles of inclusive and age-friendly / life course design including in connecting to existing street, route and places; and* • *how any new built environment features due to the project will be managed and maintained."* The definition and points for consideration primarily relate to neighbourhood design. On the basis that the Proposed Development is for an SRFI, there is limited opportunity to influence the publicly accessible built environment beyond the proposed avoidance/mitigation measures (i.e. pedestrian/cycle infrastructure upgrades and Public Right of Way (PRoW) provision) which are considered under the 'physical activity' and 'open space, leisure and play' determinants. Similarly, major accidents and disasters would be assessed in its own ES chapter.
PINS	The Scoping Report is unclear what is meant by 'wider societal infrastructure and resources'. Due to the lack of clarity, the Inspectorate does not agree to scope this matter out. The ES should include a definition of what is	The IEMA Guidance on Effective Scoping in EIA states the following in relation to 'wider societal infrastructure': *"Reference as relevant how the project contributes to: energy infrastructure; transport*

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	meant by these terms and either explain why significant effects are not likely or provide an assessment of significant effects where they are likely to occur.	*infrastructure; waste management infrastructure; water infrastructure; communication and IT infrastructure; or other infrastructures on which society depends for good population health. Also consider its wider contribution to: economic development or GDP; climate change mitigation or adaption (including improved air quality and preparedness for extreme weather events such as heatwaves, storms and flooding); and protection or enhancement of the natural environment (e.g. biodiversity, access to natural spaces and habitats).”* As stated in the Scoping Report, the Proposed Development would not contribute to wider societal infrastructure and resources until operational. Impacts on some infrastructure/resources listed will be included in the relevant topic chapters, specifically: • traffic and transport (transport infrastructure); • energy and climate change (energy infrastructure, climate change mitigation or adaption); • hydrology (water infrastructure) • socio-economics (economic development or GDP); and • ecology (protection or enhancement of the natural environment).

Consultee	Consultee comment	Response
EIA Scoping Consultation		
PINS	This is proposed to be assessed within other ES Chapters, although these other chapters are not named. The Inspectorate agrees that this may be assessed in other relevant chapters in the ES. However, the ES should clearly cross reference where it is assessed. The ES should also clearly define what 'wider societal infrastructure and resources' are being assessed.	Using the definition of wider societal infrastructure and resources, the following ES chapters are relevant: • chapter 7: Transport and Traffic (transport infrastructure); • chapter 17: Energy and Climate Change (energy infrastructure; climate change mitigation or adaption); • chapter 14: Surface Water and Flood Risk (water infrastructure); • chapter 5: Land Use and Socio-economic Effects (economic development or GDP); and • chapter 11: Ecology and Biodiversity (protection or enhancement of the natural environment).
PINS	The Scoping Report states that baseline health related data will be collected from administrative areas within a 500m of the Proposed Development. Scoping Report paragraphs 18.36 and 18.37 go on to say that the study area will extend to the inter- related topic study areas. There is no explanation as to why a 500m study area has been applied. The ES should justify why the study area is appropriate and evidence any agreement with relevant consultation bodies. The baseline should be characterised	The administrative areas that are located within 500m of the Proposed Development comprise: Newton-le-Willows East ward; Lowton East ward; Burtonwood & Winwick ward; and Culcheth, Glazebury & Croft ward. In reality, the furthest extents of these wards are far beyond 500m; for example, the community of Burtonwood (located within Burtonwood & Winwick ward) is over 2.8km away from the Proposed Development. In our professional experience, the environmental impacts associated with the Proposed

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	for the identified study area.	Development (e.g. on noise, air quality and local transport routes) would be captured within these administrative boundaries. Socio-economic health determinants (such as employment and related income generation) have a wider geographic scope of influence than environmental health determinants due to the willingness to commute significant distances to work. The study area for employment impacts defined in Chapter 6: Land Use and Socio-economic Effects includes all local authority districts within a 30-minute drivetime catchment from the draft Main Order Limits.
PINS	Whilst Table 18.1 identifies the local health circumstance summary, it does not explain what sources have been used to gather these data. The ES should set out a methodology to explain how and where baseline data have been gathered.	All data in Table 18.1 of the Scoping Report has been obtained from the Office for Health Improvements and Disparities "Local Health" tool. The ES will build on this and include data from a wider range of sources which will be listed.
PINS	Where mitigation measures are proposed during operation, these should be set out in an operational management plan and secured through the DCO. This should be submitted with the application.	Mitigation measures proposed during operation will be set out in an operational management plan and secured through the DCO.
Halton Borough Council	Paragraphs 18.6 and 18.7 of the scoping report discusses the National Policy Statement for National Networks states that 'new or enhanced national network infrastructure may have direct impacts on health because	The impacts of the proposed development would be more concentrated across St Helens, Wigan and Warrington. Emissions to air from rail emissions are considered to

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	of traffic, noise, vibration, air quality and emissions, light pollution, community severance, dust, odour, polluting water, hazardous waste and pests' and so as such the applicant should 'identify measures to avoid, mitigate or as a last resort compensate for adverse health impacts as appropriate'. The scoping report however then only goes on to discuss the impacts on the boroughs of St Helens, Wigan and Warrington. On this basis we would also request the applicant to please confirm that their scope will include the study of the effects of increased freight rail traffic to the residents of Halton and where potential health impacts are identified, Halton Borough Council will be contacted to discuss the applicants proposals to mitigate against this.	be negligible in air quality terms at all locations and has been scoped out on this basis. Noise impacts due to operation of the Western Rail Chord have also been considered, where prior to mitigation there is potential for significant adverse effects at three receptors, all of which are located in St Helens. Furthermore, St Helens has a higher burden of poor health compared to Halton (established through a comparison of the average Health Deprivation and Disability Index of Multiple Deprivation (IMD) domain rank across all Lower Super Output Areas (LSOAs) in each Borough). Therefore, on the basis that the magnitude of impact and burden of poor health circumstance in St Helens would be higher compared to Halton, the assessment of St Helens is representative of the worst-case scenario and it is considered appropriate and proportionate to scope out the consideration of population and health impacts in Halton.
St Helens Borough Council	There are no objections or concerns raised in relation to the matters that have been 'scoped in' for the Population and Human Health Chapter. In terms of the matters that have been 'scoped out' e.g., the impact on wider societal infrastructure and resources, this should potentially be 'scoped in', or at least further justification provided as to	As outlined in the IEMA Guide to Effective Scoping of Human Health in EIA, "wider societal infrastructure" is defined as: energy infrastructure; transport infrastructure; waste management infrastructure; water infrastructure; communication and IT infrastructure; or other infrastructures on which

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	why it has been scoped out. It is considered that further justification should be set out in the final EIA in relation to the matters that have been 'scoped out in this Chapter. This is to ensure that all matters are fully considered relating to all relevant contexts rather than suggesting that they have been 'scoped out' as they would be considered in different chapters.	society depends for good population health. The guidance also states that this infrastructure should consider its wider contribution to: economic development or GDP; climate change mitigation or adaption (including improved air quality and preparedness for extreme weather events such as heatwaves, storms and flooding); and protection or enhancement of the natural environment (e.g. biodiversity, access to natural spaces and habitats). The contribution to transport infrastructure from the proposed development is clear, and associated benefits to economic development and climate change mitigation (through modal change from road to rail). These benefits will be discussed generally, and within the socio-economic and climate change assessments. On this basis, it is not considered necessary to provide a separate population and health assessment.
Planning Policy team on the Parkside East EIA Scoping Consultation	Chapter 18 (Population and Human Health) – Agree with the information around population and health for St Helens.	Agreement noted.
Planning Policy team on the Parkside East EIA Scoping	General Matters – It is noted that some of the matters shown as being 'scoped out' (for example, the impact on wider societal infrastructure and resources within the Population and Human Health chapter) should potentially	As outlined in the IEMA Guide to Effective Scoping of Human Health in EIA, "wider societal infrastructure" is defined as: energy infrastructure; transport infrastructure; waste management infrastructure;

Consultee	Consultee comment	Response
EIA Scoping Consultation		
Consultation	be 'scoped in', or at least further justification provided as to why they have been scoped out. This is to ensure that all relevant matters are fully considered relating to all relevant contexts rather than suggesting that they have been 'scoped out' as they would be considered in different chapters.	water infrastructure; communication and IT infrastructure; or other infrastructures on which society depends for good population health. The guidance also states that this infrastructure should consider its wider contribution to: economic development or GDP; climate change mitigation or adaption (including improved air quality and preparedness for extreme weather events such as heatwaves, storms and flooding); and protection or enhancement of the natural environment (e.g. biodiversity, access to natural spaces and habitats). The contribution to transport infrastructure from the proposed development is clear, and associated benefits to economic development and climate change mitigation (through modal change from road to rail). These benefits will be discussed generally, and within the socio-economic and climate change assessments. On this basis, it is not considered necessary to provide a separate population and health assessment.
UKHSA	We recognise the promoter's proposal to include a health section. We believe the summation of relevant issues into a specific section of the report provides a focus which ensures that public health is given adequate consideration. The section should summarise key information, risk assessments, proposed mitigation measures, conclusions and residual impacts, relating to	The population and health chapter will draw from and build key technical outputs (such as air quality, noise and transport), taking into consideration proposed inherent mitigation measures, to assess the potential impacts on human health and demonstrate compliance with national and local policy requirements.

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	human health. Compliance with the requirements of National Policy Statements and relevant guidance and standards should also be highlighted.	A summary of the relevant sections of NPS and guidance is included in the chapter.
UKHSA	UKHSA and OHID's predecessor organisation Public Health England produced an advice document Advice on the content of Environmental Statements accompanying an application under the NSIP Regime', setting out aspects to be addressed within the Environmental Statement. This advice document and its recommendations are still valid and should be considered when preparing an ES.	The population and health assessment will primarily use The Institute of Environmental Management and Assessment (IEMA) Guide to Determining Significance for Human Health in EIA, which responds to gaps and inconsistencies across existing guidance as to how health, particularly regarding significance (including sensitivity and magnitude classifications), is assessed in EIA. On the basis that the PHE guidance has informed the more recently published IEMA guidance, this approach is considered robust.
UKHSA	Please note that where impacts relating to health and/or further assessments are scoped out, promoters should fully explain and justify this within the submitted documentation.	Response noted by the Applicant. The rationale for potential population and health impacts that have been scoped out was included in the EIA Scoping Report.
UKHSA	Our position is that pollutants associated with road traffic or combustion, particularly particulate matter and oxides of nitrogen are non-threshold; i.e, an exposed population is likely to be subject to potential harm at any level and that reducing public exposure to non-threshold pollutants (such as particulate matter and nitrogen dioxide) below air quality standards will have potential public health benefits.	We acknowledge and agree that some pollutants associated with road traffic are non-threshold in nature. The population and health assessment approach complements the assessment to air quality objectives protected of health, where the relative change in hazard exposure is to be further assessed through a quantitative exposure response assessment, thereby

Consultee	Consultee comment	Response
EIA Scoping Consultation		
		assessing the effect of non-threshold emissions
UKHSA	The applicant has referenced in the Air Quality Assessment that there is an Interim Target of 12 µg/m3 for particulate matter 2.5 (PM2.s) to be achieved by the end of January 2028. This is prior to a proposed maximum concentration target value of 10µg/m3 which is due to come into effect across England by 2040. Given the longevity of the scheme it is recommended that the applicant should consider mitigations to facilitate the Development meeting the 2040 target which is likely to be within the Development's operation phase. In addition, there is a 2040 target for a population exposure reduction target (PERT) of 35% compared with 2018. The interim target for this is a reduction of at least 22% by the end of January 2028.	The focus of the population and health assessment is on the absolute change rather than whether the total concentration is above or below the relevant threshold/air quality standard.
UKHSA	Interim Planning Guidance issued by Defra states that the new approach for consideration of PM2.5 targets moves away from a requirement to assess solely whether a scheme is likely to lead to an exceedance of a legal limit and instead ensures that appropriate mitigation measures are implemented from the design stage, streamlining the process for planning and ensuring the minimum amount of pollution is emitted and that exposure is minimised. Pending publication of the new guidance, applicants are	The focus of the population and health assessment is on the absolute change rather than whether the total concentration is above or below the relevant threshold/air quality standard.

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	advised to provide evidence in their planning applications that they have identified key sources of air pollution within their schemes and taken appropriate action to minimise emissions of PM2.s and its precursors as far as is reasonably practicable. This applies to all developments which would normally require an air quality assessment.	
UKHSA	Reference is made to consideration of vehicle exhaust emissions. It is UKHSA's position that all vehicle emissions, including those from brake and tyre wear, should be included in any assessment.	The population and health assessment of changes in air quality will draw from and build upon air quality modelling outputs which take into consideration emissions from brake and tyre wear.
UKHSA	UKHSA's consideration of the effects of health and quality and life attributable to noise is guided by the recommendations in the Environmental Noise Guidelines for the European Region 2018 published by the World Health Organization, and informed by high quality systematic reviews of the scientific evidence. In 2023 UKHSA and the University of Leicester published a spatial assessment of the attributable burden of disease due to transportation noise in England. The scientific evidence on noise and health is rapidly developing, and UKHSA's recommendations are also informed by relevant studies that are judged to be scientifically robust and consistent with the overall body of evidence.	It is acknowledged and agreed that the scientific evidence on noise and health is rapidly developing. The population and health assessment will make appropriate use of relevant robust evidence in order to determine the mitigation required to meet the national policy requirements.
UKHSA	UKHSA believes that Nationally Significant Infrastructure Projects (NSIP) should not only limit significant adverse effects, but also explore opportunities to improve the	For noise, policy requires that significant adverse effects should be avoided in the context of Government policy on sustainable development. There

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	health and quality of life of local communities and achieve more equitable health outcomes.	is the associated requirement to "contribute to improvements in health and quality of life, where possible" both of which apply in the context of Government policy on sustainable development. The assessment of the impact and the identification of mitigation will meet these policy requirements.
UKHSA	UKHSA also recognises the developing body of evidence showing that areas of tranquillity offer opportunities for health benefits through psychological restoration. NSIP applications need to demonstrate that they have given due consideration to the protection of the existing sound environment in these areas.	The impact on any formally identified area of tranquillity or designated local green spaces regarded as special because of its tranquillity that might be affected by the Scheme will be determined and mitigation measures identified accordingly.
UKHSA	UKHSA encourages the applicant to present population noise exposure data in terms of the Lden metric (in addition to Leq and L10), to facilitate interpretation by a broad range of stakeholders. This is because most recent scientific evidence on the health effects of environmental noise is presented in terms of Lden. UKHSA believes that quantifying the health impacts associated with noise exposure and presenting them in health-based metrics allows decision makers to make more informed decisions.	The Lden metric is an annual average. As it would be disproportionate to measure the baseline situation for one year, any use of Lden in the assessment would by definition be approximate and may not robustly relate to the evidence base. Where appropriate the numbers of people affected by different changes in noise exposure will be determined. The consequential health effects will be identified and compared with the health benefits expected from the Scheme.
UKHSA	Reference should be made to the Public Health Outcomes Framework (PHOF) indicators for daytime noise (B14b) and night-time noise (B14c) and include a calculation of	The data in the PHOF is based on the results of strategic noise mapping, and covers transportation noise only. Furthermore, the PHOF provides data for the whole of a local authority area, e.g., St Helens and

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	the impact of the scheme on these indicators.	refers to the situation in 2021. It is unclear how referencing the PHOF would help with the decision-making process for this Scheme.
UKHSA	For transportation sources, UKHSA recommends the quantification of health outcomes using the methodology agreed by the Interdepartmental Group on Costs and Benefits – Noise subgroup [IGCB(N) [25] (currently under review), and more recent systematic reviews. For road noise UKHSA believes there is sufficient evidence to quantify the following health outcomes: long-term annoyance, sleep disturbance, ischaemic heart disease (IHD), and potentially stroke6 and diabetes. For rail noise UKHSA believes there is sufficient evidence to quantify the following health outcomes: long-term annoyance and sleep disturbance. Effects can be expressed in terms of number of people affected, number of disease cases, and Disability Adjusted Life Years (DALYs). The IGCB(N) guidance can also be used to translate these effects into monetary terms.	The approach to assessment of health impacts (quantitative or qualitative) will be dependent on the noise modelling outputs. A quantitative assessment will only be undertaken where it is proportionate to do so and will be determined at a later stage. Should a quantitative assessment be undertaken, the IGCB(N) methodology would be applied with impacts expressed across a range of health outcomes in terms of number of people affected. However, it is noted that the IGCB(N) approach is under review, raising a question of the validity of the approach currently set out. Furthermore, any such calculation must also be compared with the health benefits of this Scheme arising from increased employment etc.
UKHSA	Some health outcomes, namely annoyance and self-reported sleep disturbance, can be influenced by the local context and situation. In these cases, it would be preferable to use exposure-response functions (ERFs) / exposure-response relationships (ERRs) derived in a local context. However, UKHSA is not aware of any ERFs / ERRs for road or railway traffic being available for a UK context	The preference for use of ERFs presented in the WHO-commissioned systematic reviews and the UKHSA update in 2022 and Vienneau et al 2019/UKHSA 2023 are noted and will be taken into consideration if proportionate to undertake a quantitative health assessment in relation to changes in noise exposure

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	from data gathered in the last two decades. Therefore, in UKHSA's view the ERFs presented in the WHO-commissioned systematic reviews and the UKHSA update in 2022 offer a good foundation for appraisal of the health effects associated with road and rail traffic noise. For metabolic outcomes, no ERF was published in the WHO ENG 2018. A recent meta-analysis of five cohort studies of road traffic noise and incidence of diabetes was reported by both Vienneau et al. in 2019 and UKHSA in 2023.	from traffic. It is also worth noting that no such ERFs exist for operational noise from the DCO Site.
UKHSA	Where schemes have the potential to impact many people, UKHSA expects the Applicant to carry out literature scoping reviews to ensure that the most robust and up-to-date scientific evidence is being used to quantify adverse effects attributable to the scheme.	The population and health assessment will apply appropriate scientific evidence to quantify adverse effects attributable to the Scheme, where possible.
UKHSA	UKHSA expects to see a clear and transparent methodology how the Applicant will take into consideration effects on health and quality of life when making judgement of significance, including a description of local circumstances and modifiers anticipated, and how reasonably foreseeable changes in these circumstances will be dealt with during the assessment process.	The assessment of significance in the context of population and health will be informed by the IEMA Guide to Determining Significance for Human Health in EIA.
UKHSA	There is a paucity of scientific evidence on the health effects attributable to construction noise associated with large infrastructure projects where construction activities may last for a relatively long period of time. UKHSA	The population and health assessment associated with construction noise will be qualitative in nature and will take into consideration the nature and duration of

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	recommends that the Applicant considers emerging evidence as it becomes available and reviews its assessment of impacts as appropriate.	noise impacts.
UKHSA	UKHSA expects proposals to take into consideration the evidence which suggests that quiet areas can have both a direct beneficial health effect and can also help restore or compensate for the adverse health effects of noise in the residential environment. Research from the Netherlands suggests that people living in noisy areas appear to have a greater need for areas offering quiet than individuals who are not exposed to noise at home. Control of noise at source is the most effective mitigation for protecting outdoor spaces; noise insulation schemes do not protect external amenity spaces (such as private gardens and balconies or community recreation facilities and green spaces) from increased noise exposure. UKHSA expects consideration to be given to the importance of existing green spaces as well as opportunities to create new tranquil spaces which are easily accessible to those communities exposed to increased noise from the scheme. These spaces should be of a high design quality and have a sustainable long-term management strategy in place.	The impact on any formally identified area of tranquillity or designated local green spaces regarded as special because of its tranquillity that might be affected by the Scheme will be determined and mitigation measures identified accordingly We are not aware of any such areas within the DCO Site or within the vicinity of the DCO Site.
Warrington Borough Council	Outside of the Transport section of the EIA there is a concern that community safety has been scoped out of the Population and Human Health section. It is	Community safety has been scoped out of the population and health assessment on the basis that details of how crime and anti-social behaviour,

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	appreciated that the primary consideration of community safety relates to crime and injury risk but there is a strong relationship between fear of crime and active travel connectivity. It is considered that community safety should be scoped in.	including fear of crime) would be mitigated is detailed in the Planning Statement, Design Approach Document and outline Construction Environmental Management Plan (oCEMP).
Wigan Council	The Council is satisfied with the matters to be scoped in and out of the ES in relation to this topic area and the scope and methodology of the assessment of likely effects. The Council would however request that an independent comprehensive Health Impact Assessment (HIA) should be considered in addition, and to complement the population health impact identified by the EIA. A HIA will consider the negative and positive impacts of the proposal and will also consider the impact on population health inequalities. A comprehensive HIA will also involve an element of community consultation which can highlight areas of community concern, establish if features of the proposal relevant to the health outcomes are practical or useable and identify options to improve them.	It is proposed to embed the principles and methods of HIA within the regulatory EIA requirements, which includes the application of significance criteria. This is consistent with the IEMA Guide to Effective Scoping of Human Health in EIA, which states that *"Where an EIA is undertaken and there is also a requirement for HIA, projects should normally meet the HIA requirement through the EIA Report health chapter."* On the above basis, no separate HIA will be provided.
Informal Consultation		
Warrington Council public health team	Meeting took place via Teams on 20/08/25. Savills summarised what was included in the submitted Topic Paper; provided a progress update (i.e. background	n/a

Consultee	Consultee comment	Response
EIA Scoping Consultation		
	work being undertaken since scoping to feed into design and mitigation for the PEIR); and outlined the next steps up to PEIR and final ES submission. Savills also talked through the DCO process, explaining what to expect and when there are opportunities to submit formal consultation responses.	
Wigan Council public health team	Meeting took place via Teams on 21/08/25. Description of what was discussed is as above. In addition, Wigan Council public health team were keen to understand how vulnerable receptors have been identified, and whether the list provided as part of the Topic Paper will be updated to reflect the changes to the Draft Main Order Limits.	The list of vulnerable receptors to be assessed has been updated to reflect the current version of the draft Main Order Limits. Savills reassured Wigan Council public health team that the final list will reflect the Order Limits being submitted as part of the final ES and DCO.
St Helens Council public health team	Meeting took place via Teams on 01/09/25. Savills summarised what was included in the submitted Topic Paper; provided a progress update (i.e. background work being undertaken since scoping to feed into design and mitigation for the PEIR); and outlined the next steps up to PEIR and final ES submission. Savills also talked through the DCO process, explaining what to expect and when there are opportunities to submit formal consultation responses.	n/a

Table 18.2 Other consultation

Consultee	Date	Consultee comment	Response
n/a	n/a	n/a	n/a

METHODOLOGY AND DATA SOURCES

Study area

18.37 Environmental health determinants (such as changes to air quality and noise exposure) typically have a local distribution pattern, where the hazards are limited by their concentration and physical dispersion characteristics. Likewise, changes in transport nature and flow rate have a particular distribution on the local road network.

18.38 As baseline data is limited to administrative boundaries, the collection of health data (relevant to environmental health determinants) focusses upon all administrative wards that fall within 500m of the draft Main Order Limits. This comprises:

- Newton-le-Willows East;
- Lowton East;
- Burtonwood & Winwick; and
- Culcheth, Glazebury & Croft.

18.39 It should be noted that trend data is not readily available at the ward level and therefore data presented in the population and health baseline primarily relates to district-level data for the administrative areas of St Helens Borough Council, Wigan Council and Warrington Borough Council, which all of the above wards are located within and is therefore considered to be representative of the communities living in these wards. Despite district level data being used for presentation purposes, data at the lowest geographic level possible is used for any quantitative assessment to ensure the highest levels of accuracy possible.

18.40 Socio-economic health determinants (such as employment and related income generation) have a wider geographic scope of influence than environmental health determinants due to the willingness to commute significant distances to work. As such, the focus is on the districts that the ward study area covers, i.e. St Helens Borough Council, Wigan Council and Warrington Borough Council. For further information on employment and socio-economic data, the detailed baseline assessment provided in Chapter 6: Land Use and Socio-economic Effects should be referred to.

18.41 A study area of 500m from the draft Main Order Limits has been used in order to identify receptors that will be the focus of any vulnerable group analysis. Within this area, OS Address Base data will be analysed to identify community facilities that are primarily used by individuals with protected characteristics and could therefore experience disproportionate or differential effects (for example, schools, care homes and places of worship), consistent with the Equality Act 2010.

Receptor sensitivity

18.42 Within a defined population, individuals will range in level of sensitivity due to a series of factors such as age, socio-economic deprivation and the prevalence of any pre-existing health

conditions which could become exacerbated. These individuals can be considered particularly vulnerable to changes in environmental and socio-economic factors (both adversely and beneficially), whereby they could experience disproportionate effects when compared to the general population.

18.43 As an example, the elderly, young children and individuals with chronic pre-existing respiratory conditions would be more sensitive to adverse changes to air quality, with the potential for emergency admission to hospital more likely than for someone of working age who has good respiratory health. On the other hand, an individual who has been unemployed for a long period of time would benefit more from employment opportunities generated by the Proposed Development in comparison to an individual who is already employed.

18.44 The health sensitivity methodology criteria shown in Table 18.3 have been used to inform the assessment of significance.

Table 18.3 Sensitivity of Receptor Criteria

Category/level	Indicative criteria
High	High levels of deprivation (including pockets of deprivation); reliance on resources shared (between the population and the project); 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.

Source: IEMA Guide to Determining Significance for Human Health in EIA (IEMA, 2022)

18.45 Extensive baseline data has been collected in order to interpret local health circumstance and consequent population sensitivity. This information is provided in Appendix 18.2. Overall, it is concluded that baseline local health circumstance in the study area is generally similar to or worse than the relevant comparators.

18.46 As such, when looking at the population in general, the sensitivity of the population within the study area is "medium". However, this does not exclude the probability that there will be individuals within a defined population who are particularly sensitive and could experience disproportionate effects.

18.47 To identify any particularly vulnerable groups which should be considered in the population and health assessment a study area of 500m from the draft Main Order Limits has been used to identify all receptors using OS AddressBase data who are particularly sensitive and could experience disproportionate or differential effects (for example, those using schools and care homes), consistent with the Equality Act 2010.

18.48 The search results returned the following types of registered receptors: commercial, agricultural, ancillary building, community, education, hotel, industrial, leisure, medical, animal centre, office, retail, transport, utility, development, park, army, air force, Royal Mail infrastructure, parent shell, property shell, residential, dwelling, house in multiple occupation (HMO), residential institution, dual use, place of worship.

18.49 Of these receptor types, the following categories were shortlisted to be considered in more detail in: community, education, medical, residential institution and place of worship. The classifications excluded are on the basis that the primary users are not likely to be vulnerable receptors.

18.50 A full list of the shortlisted receptors is provided in Appendix 18.1: Vulnerable Receptor Scoping Analysis, including rationale for scoping out. The remaining scoped in receptors are summarised in Table 18.4.

Table 18.4 Summary of scoped in vulnerable receptors

Receptor name	Receptor type	Address	Rationale for scoping in/out
Nugent Care	Residential institution	Lime House Bungalow, 346b Newton Road, Lowton, Warrington, WA3 1HF	Care/nursing home – primary users are likely to be elderly (where age is a protected characteristic) or have existing health problems.

Receptor name	Receptor type	Address	Rationale for scoping in/out
Partnerships in Care Ltd	Medical	Arbury Court, Townfield Lane, Winwick, Warrington, WA2 8TR	Provides specialist mental health services, specifically medium and low secure care and Psychiatric Intensive Care (PICU) for women with personality disorders and other mental illnesses (disability is a protected characteristic).
Life Church Warrington	Place of worship	Bethel Free Church, Cotswold Road, Poplars And Hulme, Warrington, WA2 9SE	Place of worship – primary users follow a religion, which is a protected characteristic.
Lowton Surgery	Medical	208C Newton Road, Lowton, Warrington, WA3 2AQ	GP surgery – primary users are likely to be elderly (where age is a protected characteristic) or have existing health problems (disability is a protected characteristic).
Lowton Youth & Community Centre	Community	Newton Road, Lowton, Warrington, WA3 2BH	Youth centre – primary users are children, whereby age is a protected characteristic.
Lowton Junior & Infant School	Education	Newton Road, Lowton, Warrington, WA3 2AW	School – primary users are children, whereby age is a protected characteristic.
St. Catherines RC Primary School	Education	Cranham Avenue, Lowton, Warrington, WA3 2PQ	School – primary users are children, whereby age is a protected characteristic.
High Peak Nursing/Care Home	Residential institution	Main Lane, Croft, Warrington, WA3 4AZ	Care/nursing home – primary users are likely to be elderly (where age is a protected characteristic) or have existing health problems.
St. Lukes C of E School	Education	Church Lane, Lowton, Warrington, WA3 2PW	School – primary users are children, whereby age is a protected characteristic.

Receptor name	Receptor type	Address	Rationale for scoping in/out
Bright Futures Care	Residential institution	29 Fleming Drive, Winwick, Warrington, WA2 8XP	Deliver specialist care and education to young people and adults with autism.
St. Oswalds Church	Place of worship	Golborne Road, Winwick, Warrington, WA2 8LF	Place of worship – primary users follow a religion, which is a protected characteristic.
The Cheshire Day Nursery	Education	The Old Church, Hollins Drive, Winwick, Warrington, WA2 8RS	School – primary users are children, whereby age is a protected characteristic.
St. Oswalds Nursing Home	Residential institution	12 Golborne Road, Winwick, Warrington, WA2 8SZ	Care/nursing home – primary users are likely to be elderly (where age is a protected characteristic) or have existing health problems.
Church Hall	Community	Church Walk, Winwick, Warrington, WA2 8TA	Church hall – primary users are likely to be children or elderly people, where age is a protected characteristic.
Delph Park Nursing Home	Residential institution	Townfield Lane, Winwick, Warrington, WA2 8TR	Care/nursing home – primary users are likely to be elderly (where age is a protected characteristic) or have existing health problems.
Gilded Hollins Community School	Education	St Helens Road, Leigh, WN7 3PQ	School – primary users are children, whereby age is a protected characteristic.
Lowton Community Hub	Community	Community Premises Adjacent To, 167 Newton Road, Lowton, WA3 2BH	Community centre – primary users are likely to be children or elderly people, where age is a protected characteristic.
Winwick C of E Primary School	Education	Myddleton Lane, Winwick, Warrington, WA2 8LQ	School – primary users are children, whereby age is a protected characteristic.

Receptor name	Receptor type	Address	Rationale for scoping in/out
Croft Youth Centre	Community	Smithy Lane, Croft, Warrington, WA3 7JE	School – primary users are children, whereby age is a protected characteristic.
Croft Memorial Village Hall	Community	Mustard Lane, Croft, Warrington, WA3 7BQ	Village hall – primary users are likely to be children or elderly people, where age is a protected characteristic.
Croft Primary School	Education	Mustard Lane, Croft, Warrington, WA3 7DG	School – primary users are children, whereby age is a protected characteristic.
Starbright Nursery	Education	10 Laburnum Road, Lowton, Warrington, WA3 2NL	School – primary users are children, whereby age is a protected characteristic.
The Tru Abi Rehabilitation Centre	Residential institution	200 Ashton Road, Newton Le Willows, St Helens, Newton-Le-Willows, WA12 0HW	A specialist Acquired Brain Injury (ABI) rehabilitation facility which operates within residential units and community outreach – disability is a protected characteristic.
Scout Association	Community	Scout Hut, Birley Street, Newton Le Willows, St Helens, Newton-Le-Willows, WA12 9UP	Scouts – primary users are children, whereby age is a protected characteristic.
St. Peters C of E Primary School	Education	Birley Street, Newton Le Willows, St Helens, Newton-Le-Willows, WA12 9UR	School – primary users are children, whereby age is a protected characteristic.
Haydock English Martyrs Primary School	Education	Piele Road, Haydock, St Helens, St. Helens, WA11 0JY	School – primary users are children, whereby age is a protected characteristic.
St Peter's Church	Place of worship	1 Church Street, Newton Le Willows, St Helens, Newton-Le-Willows, WA12 9SR	Place of worship – primary users follow a religion, which is a protected characteristic.

Receptor name	Receptor type	Address	Rationale for scoping in/out
Patterdale Lodge Medical Centre	Medical	87 High Street, Newton Le Willows, St Helens, Newton-Le-Willows, WA12 9SL	GP surgery – primary users are likely to be elderly (age is a protected characteristic) or have existing health problems (disability is a protected characteristic).
English Martyrs RC Church Hall	Community services	Chapel Street, Haydock, St Helens, St. Helens, WA11 0JY	Church hall – primary users are likely to be children or elderly people, where age is a protected characteristic.
English Martyrs RC Church	Place of worship	Piele Road, Haydock, St Helens, WA11 0JY	Place of worship – primary users follow a religion, which is a protected characteristic.
Abbeyrose Court	Residential institution	Piele Road, Haydock, St Helens, St. Helens, WA11 0JY	Care/nursing home – primary users are likely to be elderly (age is a protected characteristic) or have existing health problems.
Cetra Community Centre	Community	22-24 Pimblett Road, Haydock, St Helens, St. Helens, WA11 0PZ	Community centre – primary users are likely to be children or elderly people - age is a protected characteristic.
Newton-Le-Willows Cp School	Education	Sanderling Road, Newton Le Willows, St Helens, Newton-Le-Willows, WA12 9UF	School – primary users are children, whereby age is a protected characteristic.
St Peters C of E Primary School	Education	Birley Street, Newton Le Willows, St Helens, WA12 9UP	School – primary users are children, whereby age is a protected characteristic.
Newton Le Willows Primary School	Education	Sanderling Road, Newton Le Willows, St Helens, WA12 9UF	School – primary users are children, whereby age is a protected characteristic.

Receptor name	Receptor type	Address	Rationale for scoping in/out
Willow Bank School	Education	Winwick Road, Newton Le Willows, St Helens, Newton-Le-Willows, WA12 8DE	School – primary users are children, whereby age is a protected characteristic.
The Hope Academy	Education	Ashton Road, Newton Le Willows, St Helens, Newton-Le-Willows, WA12 0AQ	School – primary users are children, whereby age is a protected characteristic.

18.51 The impacts at these specific receptors will be considered at ES stage when detailed modelling is undertaken by air quality and noise technical disciplines. The sensitivity of these vulnerable receptors for assessment purposes to establish significance of effects would be considered "high".

Magnitude of impact

18.52 The health magnitude methodology criteria shown in Table 18.5 have been used to inform the assessment of significance.

Table 18.5 Sensitivity of Receptor Criteria

Category/level	Indicative criteria
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

Category/level	Indicative criteria
	implication.

Source: IEMA Guide to Determining Significance for Human Health in EIA (IEMA, 2022)

Significance of effect

18.53 The significance of an effect is determined based on the sensitivity of a receptor and the magnitude of impact. The method employed for this assessment is presented in Table 18.6.

18.54 In all cases, the evaluation of receptor sensitivity, impact magnitude and significance of effect has been informed by professional judgement and is underpinned by narrative to explain and justify the conclusions reached. Where a range of significance levels are presented, the final assessment for each effect is based upon expert judgement.

Table 18.6 Level of effect

Magnitude	Sensitivity			
	High	**Medium**	**Low**	**Very low**
High	Major	Major/moderate	Moderate/minor	Minor/negligible
Medium	Major/moderate	Moderate	Minor	Minor/negligible
Low	Moderate/minor	Minor	Minor	Negligible
Negligible	Minor/negligible	Minor/negligible	Negligible	Negligible

18.55 Table 18.7 provides a description of each significance level. For this assessment, any effects with a significance level of minor or less are not considered to be significant in EIA terms.

Table 18.7 Significance conclusion and reasoning related to public health

Category/level	Indicative criteria
Major (significant)	The narrative explains that this is significant for public health because: • Changes, due to the project, 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 levels), 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 project, could result in a regulatory threshold or statutory standard being crossed (if applicable).

Category/level	Indicative criteria
	• 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 project 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 project.
Moderate (significant)	The narrative explains that this is significant for public health because: • Changes, due to the project, 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 project, 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 project 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 project.

Category/level	Indicative criteria
Minor (not significant)	The narrative explains that this is not significant for public health because: • Changes, due to the project, 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 project, 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 project 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 project.
Negligible (not significant)	The narrative explains that this is not significant for public health because: • Changes, due to the project, 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 project having no responses on this issue among stakeholders. • Change, due to the project, 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 project 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 project.

Source: IEMA Guide to Determining Significance for Human Health in EIA (IEMA, 2022)

Baseline environment

Current baseline

18.56 Individuals and communities have varying susceptibilities to adverse and/or beneficial

population and health effects associated with changes in environmental and socio-economic conditions as a result of: demographic structure (for instance, age); existing burden of poor health; behaviours (for instance, lifestyle choices which constitute risk factors); and socio-economic circumstance.

18.57 The current baseline is provided in full in Appendix 18.2: Population and Health Baseline. In summary, the population living in the ward study area is more elderly than the national average. Life expectancy and healthy life expectancy in the district study area is comparable to the regional average and lower than the national average. Consistent with this, mortality rates in the ward and district study area are comparable to or higher than the national average.

18.58 District-level hospital admissions for coronary heart disease are lower than the national average, while hospital admissions for respiratory disease are higher than the national average (data only available for the NHS Region). At the ward level, hospital admissions are also generally higher than the national averages.

18.59 Mental health statistics show that the district study area has worse mental health than the regional and national averages. Dementia diagnosis on the other hand is comparatively low.

18.60 Alcohol specific conditions (under 18s) and admission episodes for alcohol-related conditions in the district study area are either comparable to or higher than the regional and national averages. Smoking prevalence in adults in the district study area is generally lower than the regional and national averages.

18.61 Physical activity in adults is higher than the regional average and lower than the national average. The percentage of adults classified as overweight or obese in the district study area has been consistently higher than the regional and national averages. The prevalence of obesity in children has also been increasing in the district study area, consistent with regional and national trends, and is comparable to the regional average but lower than the national average.

18.62 Overall, the majority of indicators are either comparable to or better than the regional and national averages.

Future baseline

18.63 Consistent with recent local and national trends, the health of the population living within the study area is likely to improve over the lifetime of the Proposed Development. This will be the case with or without the Proposed Development.

18.64 While this is the case, any improvement is challenging to predict with high confidence and unlikely to be substantial. On this basis, it is considered appropriate and precautionary to use present-day statistics for the purpose of this assessment.

EMBEDDED MITIGATION MEASURES

18.65 Mitigation measures adopted as part of the construction and operation of the proposed

development focus on the environmental precursors that can lead to adverse population and health outcomes, thereby providing an opportunity for intervention to prevent any manifest health outcome.

18.66 During the construction phase, an outline Construction Environmental Management Plan (oCEMP), detailing best practice measures, would be implemented to control the generation or release of environmental pollutants (such as dust and noise) with the potential to cause adverse impacts on health and wellbeing.

18.67 Similarly, an outline Construction Traffic Management Plan (oCTMP) would be implemented to manage disturbances to the local community during the construction period from traffic. Measures are anticipated to include: construction phasing and timescales; restrictions on vehicle delivery hours; HGV routing strategy; and staff parking arrangements.

18.68 Mitigation planting would also be undertaken at the construction phase in order to reduce visual impacts, as planting matures.

18.69 During the operation phase, several PRoW enhancements are proposed. These include new PRoW provision; creation of accessible green corridors; improved local connectivity via new and improved active travel routes; and infrastructure upgrades.

POTENTIAL EFFECTS PRIOR TO ADDITIONAL MITIGATION

Construction phase

Health effects from access to open space and PRoW for physical activity and recreation

18.70 As outlined in Appendix 10.6: Draft Public Rights of Way Strategy, there are severa footpaths within the Main Site and a strong footpath network around the Main Site.

18.71 The Proposed Development will require modifications to the PRoW network across the Main Site. While three routes (St Helens 608; St Helens 621; and Wigan 006/101/10) will be stopped up within the Main Site, they are lightly used and alternative routes have been designed into the Proposed Development.

18.72 Where possible, access to PRoW will be maintained during the construction phase, with management in place to ensure that all routes can be safely used, including temporary diversions where necessary. Prior to earthworks to establish the platform level within each zone, footpaths will be diverted around the zone and diversions retained during construction within the zone. Footpaths and pedestrian access will be implemented within each zone during its construction.

18.73 Overall, while three PRoW within the Main Site will be stopped up, access to other PRoW will be maintained, with management in place to ensure that all routes can be safely used, including temporary diversions where necessary. Furthermore, the strong network of PRoW around the Main Site provides reasonable and accessible alternatives that can be used for physical activity and recreation during any temporary disruption. As a result, the magnitude of impact on population and human health is considered to be negligible, which in an area of

medium sensitivity would result in a negligible effect.

Health effects from changes in transport nature and flow rate

18.74 As outlined in Chapter 7: Transport and Traffic, in advance of the detailed assessment work required to identify potential locations where highway improvements may be necessary, a preliminary assessment of traffic routing to and from the Proposed Development has been undertaken. This has been the focus of transport assessment work undertaken to date, and will be built upon for the final ES.

18.75 On this basis, the population and health assessment in relation to changes in transport nature and flow rate will be revisited for the final ES.

Health effects from changes to the visual environment (on community identity, resilience and influence)

18.76 Of relevance to health and wellbeing, Chapter 10: Landscape and Visual Effects provides an assessment of the potential for visual effects on:

- residential receptors; and
- users of PRoW.

18.77 The visual assessment relating to people using roads has been excluded on the basis that any transient impacts while travelling by car would not impact health and wellbeing. Visual impacts for users of community facilities and people at employment sites is also not considered to be relevant on the basis people do not use these places on any permanent basis.

18.78 As outlined in Chapter 10: Landscape and Visual Effects, there is potential for significant adverse effects at 28 residential receptors within 2km from the Main Site. These are either individual properties or small groups of properties, and collectively represent a relatively small proportion of total properties within the 5km study area applied in Chapter 10: Landscape and Visual Effects. As a result, only a small number of people would be affected in the context of the total nearby population.

18.79 Similarly, while 15 PRoW in close proximity to the Proposed Development would experience significant adverse visual effects, this is largely due to the relatively dense network of PRoW in proximity to the Main Site which traditionally provided connections between farm, villages and former colliery sites. Furthermore, people use these resources in a transient way and therefore would only be subjected to such views temporarily.

18.80 Overall, the number of residential properties affected by significant adverse visual effects associated with construction of the Proposed Development is low in the context of the study area applied in Chapter 10: Landscape and Visual Effects. Additionally, potential impacts on users of PRoW would be transient, temporary and intermittent in nature. Several reasonable and accessible alternatives exist that can be used for physical activity and recreation and while the PRoW network will be affected during construction, diversions will be provided and the wider network will continue to provide this function. Therefore, impacts on identity, resilience

and influence at the community level would be limited, and the magnitude of impact on population and human health is considered to be negligible, which in an area of medium sensitivity would result in a negligible effect.

Health effects from the loss of community resources (on social participation, interaction and support)

18.81 Construction of the Proposed Development will result in the loss of Warrington Model Flying Club and the Lancashire Aero Club. The loss of these community resources is considered a permanent construction impact and therefore is not considered further in the operational assessment.

18.82 As stated in Chapter 6: Land Use and Socio-economic Effects, within the wider region, there are a range of other facilities which could provide comparable service and community uses, in particular 15 airfields and model flying clubs which advertise capacity for new members have been identified within a 30km radius of the draft Main Order Limits.

18.83 On the basis that comparable alternative resources exist in the region, the impact on social participation, interaction and support would be limited. As such, the magnitude of impact on population and health is considered to be negligible, which in an area of medium sensitivity would result in a negligible effect.

Health effects from changes in socio-economic factors

18.84 The construction process would include the range of occupational levels including unskilled or labouring jobs to more senior positions, as well as across a range of professional disciplines. On this basis, and due to the different stages involved with the construction of the Proposed Development, not all employment would be required permanently and some would be required for less time than others. Therefore, employment generation is considered to be temporary and could be short-, medium- or long-term in nature.

18.85 As stated in Chapter 6: Land Use and Socio-economic Effects, the construction phase is expected to support an average of 415 full-time equivalent (FTE) on-site direct construction jobs per annum over the 10-year construction period. On-site direct construction employment is expected to peak at 960 FTE in the first year of construction (2028).

18.86 Indirect and induced (off-site) employment is generated from trade linkages and increases in local expenditure. After accounting for leakage and displacement, an additional 195 FTE off-site jobs would be generated per annum over the 10-year construction period. Off-site employment is expected to peak at 460 FTE in the first year of construction (2028).

18.87 Overall, construction of the Proposed Development is likely to contribute to the projected growth in job availability locally, while also providing new employment opportunities to residents currently employed in the sector.

18.88 It is also considered that the existing construction labour force in the study area is deemed sufficient to meet the workforce need of the construction of the Proposed Development. Although some construction workers would be expected to commute on a daily basis to and from the Proposed Development, it is not expected that the construction of the Proposed

Development would require temporary relocation and housing of the workforce from outside of the study area (i.e. a non-home based workforce). On this basis, there is no further consideration on the potential impacts of the construction workforce on healthcare capacity or risk taking behaviour.

18.89 As a result, while the construction phase is considered long-term (10-years), taking into account the temporary and short- to medium-term nature of the majority of employment opportunities associated with this, health and quality of life benefits would be limited to the individual and is not anticipated to result in any measurable impact to baseline health outcomes at the population level. On this basis, the magnitude of impact is considered to be low in an area of medium sensitivity which would result in a minor beneficial effect (not significant).

Health effects from changes in air quality

18.90 As outlined in Chapter 8: Air Quality, there is the potential for changes in local air quality from demolition, earthworks, construction and trackout. Following the implementation of suitable mitigation measures, set out in the oCEMP, the resultant dust impacts would not be significant.

18.91 There is also potential for changes in local air quality associated with road vehicle exhaust emissions. However, as outlined in Chapter 8: Air Quality, traffic data was not available to inform the analysis at the time of reporting. As such, an assessment of construction phase road vehicle exhaust emissions was not undertaken as part of the PEIR. This will be revisited through the ES in time for submission of the Application.

18.92 Based on the potential impacts on population and health from dust only, the magnitude of impact is considered to be negligible in an area of medium sensitivity which would result in a negligible effect (not significant). Once the changes in air quality from vehicle exhaust emissions are understood, the magnitude of impact and significance of effect conclusion will be reviewed.

Health effects from changes in noise and vibration

18.93 As outlined in Chapter 9: Noise and Vibration, the assessment of changes in noise exposure from on-site construction is based on earthworks activities, which is considered the loudest phase of construction. The assessment will evolve as construction phasing becomes more detailed in nature.

18.94 Most of the external works are planned to take place during the daytime (core hours[1]). For all receptors assessed, noise levels associated with earthworks activities during the core hours do not exceed the Significant Observed Adverse Effect Level (SOAEL). While there are some exceedances of the Lowest Observed Adverse Effect Level (LOAEL), such impacts would be temporary and short-term in nature and would not persist for long enough for any material impact on health and wellbeing to occur.

18.95 There is also the potential for disturbance from vibration during the construction phase,

[1] Mon-Sat, 07:00-19:00 (12hr)

whereby the daytime LOAEL and SOAEL is 0.2 m/s and 0.8 m/s, respectively, and the night time LOAEL and SOAEL is 0.1 m/s and 0.4 m/s, respectively. As outlined in Chapter 9: Noise and Vibration, the predicted vibration dose value (VDV) level is above the daytime period LOAEL but below the SOAEL, resulting in some temporary and short-term disturbance. However, as stated above, such temporary and short-term impacts would not persist for long enough for any material impact on health and wellbeing to occur.

18.96 Where noise generating works take place outside of core hours, it is possible that both the relevant LOAEL and SOAEL thresholds for noise and vibration could be exceeded. However, the duration of any such works (in terms of the number of days they may take place at the same location) is expected to be limited. Similar to the analysis above, such temporary and short-term impacts would not persist for long enough for any material impact on health and wellbeing to occur.

18.97 There is also the potential for noise impacts from construction traffic. However, as stated in Chapter 9: Noise and Vibration, traffic data was not available to inform the analysis at the time of reporting. As such, an assessment of construction phase road traffic noise was not undertaken as part of the PEIR.

18.98 Overall (and excluding the potential for noise impacts from construction traffic), due to the temporary and short-term nature of potential changes in noise and vibration exposure during the construction phase, the magnitude of impact on population and health would be low, in an area of medium sensitivity, which would result in a minor adverse effect (not significant).

Operational phase

Health effects from access to open space and PRoW for physical activity and recreation

18.99 Post-construction, pedestrian and cycle access around, across and into the Main Site will be provided. As outlined in Appendix 10.6: Draft Public Rights of Way Strategy, key changes and enhancements to PRoW are summarised as follows:

- Diversions and closures: a small number of three footpaths will be stopped up or diverted on the Main Site. In addition, two level crossings on the Liverpool-Manchester railway line will be stopped up, however to mitigate this, a new pedestrian bridge will be constructed to replace the westernmost crossing, offering a safer and more secure crossing for footpath users.

- New links: a new PRoW will be introduced directly north of the railway line, east of route 006/88/10 and at the southern end of 006/95/10. This new east-west link will connect to Winwick Lane, creating an alternative path for users affected by the closure of the easternmost level crossing. In addition, a short new PRoW is proposed. In addition, a new east-west link will be provided between 006/85/10 and 006/86/10, to create connectivity between paths. 006/85/10 currently leads pedestrians south to the railway line, at which the footpath stops.

- Creation of green corridors: within the Main Site, new, continuous PRoW will be created within landscaped green corridors, offering scenic, accessible routes that can be used for active travel and tie into the broader local network. This includes the corridor beside

Winwick Lane which will be approximately 2km in length and set within native woodland planting on the shallow, eastern slopes of a newly created earth bund.

- Improved local connectivity: the enhancements will strengthen connections between the Main Site and nearby settlements including Winwick, Croft, Lowton, Golborne, and Newton-le-Willows, improving both leisure and commuter access.

- Infrastructure upgrades: Existing stiles will be replaced or upgraded to gates or chicanes within the Main Site and clear signage will be provided as part of the Proposed Development.

18.100 Overall, while there would be some diversions and closures of PRoW within the Main Site, several enhancement measures are proposed as described above. Furthermore, as previously stated, there is a strong network of PRoW around the Main Site which provides reasonable and accessible alternatives that can be used for physical activity and recreation. As a result, the magnitude of impact on population and health is considered to be low in an area of medium sensitivity which would result in a minor beneficial effect (not significant).

Health effects from changes in transport nature and flow rate

18.101 As outlined in Chapter 7: Transport and Traffic, in advance of the detailed assessment work required, to identify potential locations where highway improvements may be necessary, a preliminary assessment of traffic routing to and from the Proposed Development has been undertaken. This has been the focus of transport assessment work undertaken to date, and will be built upon for the final ES.

18.102 On this basis, the population and health assessment in relation to changes in transport nature and flow rate will be revisited for the final ES.

Health effects from changes to the visual environment (on community identity, resilience and influence)

18.103 The operational assessment of health effects from changes in the visual environment takes into consideration visual impacts at the year of opening (Year 0); and fifteen years following opening (Year 15).

18.104 As previously stated, the visual assessment relating to people using roads have been excluded on the basis that any transient impacts while travelling by car would not impact health and wellbeing. Visual impacts for users of community facilities and people at employment sites is also not considered to be relevant on the basis people do not use these places on any permanent basis.

18.105 The residential receptors and PRoW experiencing significant adverse visual effects in Year 0 are the same as those experiencing significant adverse visual effects during the construction phase.

18.106 At Year 15, the mitigation proposed would have established to a reasonable level of maturity such that the Proposed Development would be more suitably integrated into the view from the majority of visual receptors, including residential properties and users of PRoW.

18.107 As a result of the establishment of mitigation, the visual effects at ten residential properties would reduce to a level which is not significant, leaving 18 residential properties experiencing significant adverse visual effects; the visual effects at three PRoW would reduce to a level which is not significant, leaving 12 PRoW experiencing significant adverse visual effects.

18.108 Overall, there would be a reduction in impact between the construction phase and Year 15 of operation. The number of residential properties affected by significant adverse visual effects remains low in the context of the study area applied in Chapter 10: Landscape and Visual Effects. Additionally, potential impacts on users of PRoW would be transient, temporary and intermittent in nature. There are several reasonable and accessible alternatives exist that can be used for physical activity and recreation and the wider network will be enhanced. Therefore, impacts on identity, resilience and influence at the community level would be limited, and the magnitude of impact on population and human health is considered to be negligible in an area of medium sensitivity which would result in a negligible effect.

Health effects from changes in socio-economic factors

18.109 New operational employment opportunities are expected to result from the 590,000 sqm Gross Internal Area (GIA) of employment floorspace to be delivered.

18.110 Based on an average employment density per FTE worker of 95 sqm GEA (considered worst-case, as it is the upper end of the employment density range applied), and taking into consideration the average vacancy rate at similar facilities in the region, the Proposed Development would create up to 6,000 new FTE on-site jobs.

18.111 Taking into account a displacement rate of 30% (which accounts for occupiers or employees at the Proposed Development who would relocate from obsolete stock and therefore would not be considered to generate new employment, equating to a reduction of 1,800 jobs and therefore net on-site employment of 4,200) and applying regional multiplier rate of 1.59 to this number, to reflect new employment opportunities created in related supply chains, a further 2,475 FTE net additional employment opportunities would be generated off-site.

18.112 The total net additional employment opportunities equates to 6,675. While these would be long-term and permanent in nature, the size of the labour study area is large (capturing all local authority districts within a 30-minute drivetime catchment from the draft Main Order Limits) and therefore any health and wellbeing benefits would be considerably diffuse across the region and would not have a material impact on population health outcomes.

18.113 As a result, the magnitude of impact on population and health is considered to be low in an area of medium sensitivity, which would result in a minor beneficial effect (not significant).

Impacts on access to health and social care services

18.114 As stated in Chapter 6: Land Use and Socio-economic Effects, comparing the future unemployed people by occupation with the estimated on-site jobs (net of displacement) suggests that the future pool of unemployed people may be insufficient to fill all the jobs created by the Proposed Development.

18.115 In the absence of up-skilling and retraining programme it is anticipated that 1,563 workers

may be required to move from outside the study area to fill these jobs. Assuming that each worker would move with their family, and applying an average household size of 2.16 residents per household, the maximum increase in population would be 3,376.

18.116 However, as previously stated, the size of the labour study area is large (30-minute drivetime catchment from the draft Main Order Limits) and covers 3,312,800 people. Therefore, the movement of up to 3,376 people to the area (representative of a 0.1% increase in population) and associated impact on demand for health and social care would be diffuse across this area, and would not impact any health or social care facility disproportionately. As a result, the magnitude of impact on health and social care capacity would be negligible, in an area of medium sensitivity which would result in a negligible effect.

Health effects from changes in air quality

18.117 As outlined in Chapter 8: Air Quality, there is potential for changes in local air quality associated with road vehicle exhaust emissions. However, as outlined in Chapter 8: Air Quality, traffic data was not available to inform the analysis at the time of reporting. As such, an assessment of operation phase road vehicle exhaust emissions was not undertaken as part of the PEIR. This will be revisited through the ES in time for submission of the Application.

18.118 Additionally, the Proposed Development has the potential to impact on existing air quality as a result of rail emissions associated with diesel locomotives travelling to and from the DCO Site, as well as within the Proposed Development itself, during the operational phase. While this is the case, background NO_2 concentrations are substantially lower than 25 µg/m^3 (11.22 µg/m^3) and the Chat Moss Line and West Coast Mainline are not identified as tracks experiencing a high number of diesel train movements. On this basis, the impacts on NO_2 concentrations are anticipated to be negligible in air quality terms and have been scoped out of detailed assessment. The potential for secondary human health effects are assumed to also be negligible on this basis.

18.119 Based on the potential impacts on population and health from rail emissions only, the magnitude of impact is considered to be negligible in an area of medium sensitivity, which would result in a negligible effect (not significant). Once the changes in air quality from vehicle exhaust emissions are understood, the magnitude of impact and significance of effect conclusion will be reviewed.

Health effects from changes in noise and vibration

18.120 As stated in Chapter 9: Noise and Vibration, there is potential for changes in noise exposure associated with operational activity, fixed plant and substations, and operational road/rail traffic movements.

18.121 Following the implementation of embedded mitigation measures such as (an earth bund along Winwick Lane and a 3.5 m high acoustic barrier along the Western Rail), noise impacts from operational activity at the Main Site and Rail Chord would not exceed the SOAEL.

18.122 Target noise rating levels for fixed plant and substations have been defined for all relevant receptors and is established to be equal to the typical background sound level at each receptor, which is an indication of a low non-adverse impact. On this basis, there would be no

adverse associated impacts on population and health.

18.123 At this stage, data was not available to inform the analysis of road traffic and rail noise at the time of reporting. As such, an assessment of operation phase road traffic and rail noise was not undertaken as part of the PEIR. This will be revisited through the ES in time for submission of the DCO application.

18.124 Overall, noise impacts from fixed plant and substations is not considered to be material and would have no discernible impact on health or wellbeing. Operational activity at the Main Site and Rail Chord would not exceed the SOAEL, limiting the potential for significant adverse impacts on health and wellbeing. Based on the potential impacts on population and health from these sources only, the potential magnitude of impact on population and health would be negligible in an area of medium sensitivity, which would result in a negligible effect (not significant). Once the changes in noise exposure from vehicle movements are understood, the magnitude of impact and significance of effect conclusion will be reviewed.

PROPOSED ADDITIONAL MITIGATION MEASURES

18.125 Adverse effects on public health are by definition preventative in nature. Therefore, additional mitigation measures adopted as part of the Proposed Development will focus on precursors to health and wellbeing outcomes, thereby providing an opportunity for intervention to prevent any adverse impacts.

18.126 On the basis that no significant adverse population and health effects are reported, no additional mitigation measures are proposed.

RESIDUAL ENVIRONMENTAL EFFECTS

18.127 On the basis that no additional mitigation measures are proposed in relation to population and health, the residual effects remain the same as reported in the main assessment.

CUMULATIVE AND IN-COMBINATION EFFECTS

18.128 From a population and health perspective, there are potential for cumulative effects where a cumulative development is residential in nature and introduces new human receptors, or where a cumulative development contributes to changes in environmental and/or socio-economic determinants of health due to proximity to the Proposed Development.

18.129 Where there is potential overlap during the construction phase of the Proposed Development and cumulative developments located within 500m of the draft Main Order Limits, it is unlikely that significant cumulative dust or noise impacts would occur as each separate project would be required to control environmental pollution through standard mitigation measures. Any residual effects would be temporary, intermittent and short term in nature.

18.130 Similarly, traffic generated by cumulative developments during any potential construction

phase overlap would be short term in nature and not of a level which would result in significant cumulative impacts with the Proposed Development.

18.131 Once operational, the contribution to changes in environmental determinants of health would largely be limited to additional traffic and associated changes in air quality and noise. The potential cumulative population and health effects from these changes will be assessed when traffic data, and associated air quality and noise modelling is available.

18.132 There are 29 schemes and 31 land allocations identified in Chapter 6: Land Use and Socio-economic Effects that will be reviewed in detail for the final ES. These cumulative developments have the potential to contribute to changes socio-economic determinants of health, such as employment. As a key wider determinant of health, the cumulative impacts on the socio-economic environment will be taken into consideration in the context of population-level health outcomes.

IMPLICATIONS OF CLIMATE CHANGE

18.133 The likely ranges of change in climatic parameters including precipitation, temperature, wind speed, humidity and frequency of extreme weather are not considered to materially affect the future baseline described for population and human health or increase the sensitivity of receptors to impacts beyond that already described.

SUMMARY AND CONCLUSIONS

18.134 The assessment of population and human health has considered a wide range of environmental and socio-economic factors (informed by IEMAs Guide to Effective Scoping of Human Health in EIA) that can influence health outcomes. These comprise: access to open space and PRoW for physical activity and recreation; changes in transport nature and flow rate; changes to the visual environment (on community identity, resilience and influence); loss of community resources (on social participation, interaction and support); changes in socio-economic factors; changes in air quality; changes in noise and vibration; and changes in demand for healthcare services.

18.135 During the construction phase, the assessment identifies:

- negligible effects from temporary PRoW diversions, changes in the visual environment, and loss of community resources;
- minor beneficial effects from temporary employment generation; and
- negligible to minor adverse effects from air quality, noise and vibration, with mitigation secured through an outline Construction Environmental Management Plan (oCEMP).

18.136 During the operational phase, the assessment identifies:

- minor beneficial effects associated with enhanced PRoW; and

- negligible effects from changes in the visual environment, air quality, noise and vibration, and demand for healthcare services.

18.137 Overall, no significant effects on population and human health are anticipated at this stage. However, several areas of assessment are ongoing and will be completed for the final Environmental Statement (ES), including:

- detailed modelling of traffic-related air quality and noise impacts;
- detailed modelling of rail related noise impacts; and
- detailed assessment of cumulative and in-combination effects with other developments.

Table 18.8 Summary of effects

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Construction Phase						
Health effects from access to open space and PRoW for physical activity and recreation	Medium	Negligible	Stopping up of a small number of PRoW within the Main Site and provision of mitigation and management measures to maintain access.	Temporary diversions	Negligible	Not significant
Health effects from changes in transport nature and flow rate	Medium	n/a	n/a	n/a	n/a	n/a
Health effects from changes to the visual environment (on community identity, resilience and influence)	Medium	Negligible	Significant visual effects occurring at 28 residential receptors and 15 PRoW.	n/a	Negligible	Not significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Health effects from the loss of community resources (on social participation, interaction and support)	Medium	Negligible	Permanent loss of the Kenyon Hall Farm Airstrip which houses the Warrington Model Flying Club and the Lancashire Aero Club.	n/a	Negligible	Not significant
Health effects from changes in socio-economic factors	Medium	Low	Average of 415 full-time equivalent (FTE) on-site direct construction jobs per annum and an additional 195 FTE off-site jobs per annum.	n/a	Minor beneficial	Not significant
Health effects from changes in air quality	Medium	Negligible	Dust from demolition, earthworks, construction and trackout; construction traffic exhaust emissions.	Dust mitigation measures outlined in oCEMP	Negligible	Not significant
Health effects from changes in noise and vibration	Medium	Low	On-site construction activities; construction traffic.	oCEMP	Minor adverse	Not significant
Operation Phase						
Health effects from access to	Medium	Low	Some diversions and closures of PRoW within the Main Site	New PRoW provision; creation	Minor beneficial	Not significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
open space and PRoW for physical activity and recreation			with enhancements of the PRoW network.	of accessible green corridors; improved local connectivity; infrastructure upgrades.		
Health effects from changes in transport nature and flow rate	Medium	n/a	n/a	n/a	n/a	n/a
Health effects from changes to the visual environment (on community identity, resilience and influence)	Medium	Negligible	Significant visual effects occurring at 18 residential receptors and 12 PRoW.	Mitigation planting	Negligible	Not significant
Health effects from changes in socio-economic factors	Medium	Low	6,000 new FTE on-site jobs and a further 675 FTE net additional off-site employment opportunities.	n/a	Minor beneficial	Not significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Impacts on access to health and social care services	Medium	Negligible	An increase in demand for health and social care services of 0.1% across the entire labour study area.	n/a	Negligible	Not significant
Health effects from changes in air quality	Medium	Negligible	Traffic exhaust emissions; rail emissions.	n/a	Negligible	Not significant
Health effects from changes in noise and vibration	Medium	Negligible	Operational activity, fixed plant and substations; operational traffic/rail movements.	n/a	Negligible	Not significant