

HITCHIN INDUSTRIAL ESTATE

Health Impact Assessment

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REPORT

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Executive Summary

Introduction

This Health Impact Assessment (HIA) considers the public health implications of the Hitchin Industrial Estate.

Following a series of fires in 2024 at local recycling facilities, there was concern raised by the community about the impacts on local air quality. In early 2025, this issue was brought to the attention of Hertfordshire County Council and North Herts Council Officers as well as local Elected Members. It was determined that a HIA would be an important piece of evidence to commission to better understand the potential impacts of the Estate on the health of the community. Tetra Tech was commissioned to undertake this work in July 2025 with an approximate 6-month programme to complete the HIA.

Following established guidance by the Wales Health Impact Assessment Support Unit (WHIASU), this assessment adopts a population health approach. Population health refers to the health outcomes of a group of people, including the distribution of those outcomes within the group, rather than the effect on individuals. The assessment considers the potential for likely and significant health effects during the ongoing operations of the Estate. Physical health, mental health, and health inequalities are considered across a broad range of factors that influence health (called 'health determinants').

Baseline and study area

A baseline health profile was gathered from publicly available public health evidence sources for the local study area (Hitchin Bearton ward) using regional (East of England) and national (England) data as comparators. Data indicates that the general health of the local population is broadly better than the regional and national averages. A higher proportion of people with asthma is however reported in the local area. Generally, the area where the Estate is located is classified among the 40% least deprived areas nationally. However, some neighbouring areas show high deprivation including in the living environment. The presence of vulnerable groups has been identified, and the HIA considers the potential effects on these populations.

Community consultation

As part of the HIA, community and stakeholder engagement was undertaken. In November 2025, a workshop was held at a public venue in Hitchin to elicit input to the HIA. An online survey was also conducted which offered the opportunity for any member of the public to respond. The HIA engaged directly with key stakeholders including public health officials, Council Officers and Environmental Management officials. The HIA team also established a Steering Group comprising representatives from a range of stakeholders across Hertfordshire County who provided oversight of the HIA process. All the community concerns and recommendations were noted and informed the HIA process. Key concerns included air quality, noise and traffic associated waste transfer lorries and other activities on the Estate. A community feedback session was also held in Hitchin in March 2026 to report the findings of the HIA.

Impact assessment

The HIA identified a range of adverse and beneficial health effects associated with operation of the Estate. These effects are summarised below:

- **Physical Activity** - A minor adverse effect is identified on physical activity due to the operational activities of the Estate. These activities have resulted in air and noise pollution, fires, increased congestion on local roads and increased presence of heavy goods vehicles (HGVs). The increased presence of HGVs on local roads and debris falling off them have

REPORT

caused fear and intimidation. Together these impacts have reduced uptake of physical activity.

- **Transport** - A moderate adverse effect on population health is identified due to transport impacts related to the Estate. These impacts include fear and intimidation associated with the presence of HGVs, which can discourage active travel, as well traffic congestion on the road network posing accident risk.
- **Air Quality** - A minor adverse effect is identified on air quality due to fire incidents and the long-term operational activities of the Estate including the air pollution associated with road traffic and HGVs. Overall, air quality monitoring undertaken for the HIA found that elevated pollution levels in the area are likely caused by a variety of sources (the most common likely to be residential wood and coal heating). While there are occasional exceedances of limits, annual concentrations of pollutants (NO₂ and PM_{2.5}) are within UK recommended limits protective for health. Emissions to air from operational activities of the recycling facility on the Estate are within statutory standards set for health protection, as illustrated by their compliance with EA permit requirements. However, HGVs, as they regularly pass nearby residences, schools and other sensitive receptors, are considered to be the more substantial source of air pollution (and associated community concerns).
- **Noise and Vibration** - A minor adverse effect is identified in relation to noise and vibration emissions from HGVs and operational activities of the Estate. The effect is considered to relate to frequent exposure associated with a minor change in quality of life.
- **Community Safety** - A minor adverse effect is identified on community safety due to the potential for fires on the Estate, the injury risk posed by metal scrap falling from waste transfer lorries, and the fear of crime associated with long queues of lorries parked along the local roads at night.
- **Employment and Income** - A minor beneficial effect is identified due to the provision of good quality employment and economic activity from the businesses operating on the Estate. Employment and income can support access to health promoting services, healthy food and reduce financial stress, thereby supporting mental health.
- **Wider societal infrastructure and resources** - A minor beneficial effect is identified due to the contribution of recycling facilities to the circular economy through proper waste management and the reduction of greenhouse gas emissions. This provides a protective effect on population health and supports wider public health policies and goals.

Recommendations

The HIA recommends a range of mitigation measures to address impacts on physical activity, transport, air quality, noise, community safety, community identity and access to employment. These include improving road and pedestrian safety, managing HGV traffic and speeds, ensuring secure loads and reduced vehicle noise, and maintaining good air quality monitoring and fire prevention practices. The HIA also recommends ongoing communication and engagement with the local community, alongside measures to reduce disruption from HGV movements, idling, and parking in residential areas.

Contents

Executive Summary	i
1 Introduction.....	1
1.1 Overview.....	1
1.2 Health Impact Assessment	1
1.3 Report Structure	2
1.4 Statement of Competency	2
2 Approach and Methodology.....	4
2.1 Approach	4
2.2 Assessment Methodology.....	4
2.2.1 Evidence review.....	4
2.2.2 Impact assessment criteria	5
2.2.3 Population health approach and vulnerable groups.....	5
2.2.4 Assumptions and limitations of the assessment	6
3 Policy, Legislation and Guidance	7
3.1 Policy.....	7
3.1.2 National policy	7
3.1.3 Local Policy.....	8
3.1.4 Legislation.....	11
3.1.5 Guidance	11
4 Consultation and Engagement	13
4.1 Consultation Methodology	13
4.2 Results	14
5 Scope of the Assessment	18
6 Study Area.....	21
7 Baseline Environment	23
7.1 Sensitive receptors	23
7.2 Population profile	26
7.3 General health	27
7.4 Physical Activity	29
7.5 Transport	30
7.6 Air Quality	31
7.7 Noise and vibration	32
7.8 Socioeconomic factors.....	32
7.8.1 Employment and income.....	32
7.8.2 Deprivation.....	33
8 Assessment of Effects	35
8.1 Lifestyle: Physical activity	35
8.2 Access and quality of services: Transport.....	37
8.3 Environmental conditions: Air quality	44
8.4 Environmental conditions: Noise and vibration.....	49
8.5 Environmental Conditions: Community Safety	52
8.6 Social and community influences on health: Community identity, local pride, sense of belonging, social isolation, and social participation	59
8.7 Economic conditions: Employment and income	61
8.8 Wider societal infrastructure and resources	63
9 Conclusion and Recommendations	66

References	73
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Tables

Table 4.1: Workshop consultation results	14
Table 4.2: Online survey consultation results	15
Table 5.1: Issues scoped into the assessment	18
Table 5.2: Issues scoped out of the HIA	19
Table 7.1: Demographic indicators in the study area	26
Table 7.2: General health status in the study area	27
Table 7.3: Physical activity indicators in the study area	29
Table 7.4: Baseline transport related health outcomes in the study area	30
Table 7.5: Baseline air quality indicators in the study area	31
Table 7.6: Baseline noise related health outcomes in the study area	32
Table 7.7: Baseline socioeconomics health outcomes in the study area	32
Table 7.8: Deprivation breakdown in the study area	33
Table 8.1: Realtime monitoring results against UK Air Quality limits	47
Table 8.2: List of reported fire incidents in the past 3 years	55

Figures

Figure 2-1: Social (Left) and Ecological (Right) Determinants of Health	4
Figure 6-1: HIA Study Area	22
Figure 7-1: Sensitive Receptors within the local study area	25
Figure 8-1 HGV sightings along walking route 28 Nov 2025	40
Figure 8-2: Realtime (Zephyr) monitoring locations for air pollutants	46

Appendices

Appendix A – Workshop Consultation Results

Appendix B – Online Survey Responses

Appendix C – Field Visit Walking Tour – Traffic Route to Hitchin Industrial Estate via Wallace Way

Appendix D – Self-Review against the WHIASU Quality Assurance Review Framework for Health Impact Assessment

1 Introduction

1.1 Overview

- 1.1.1 This Health Impact Assessment (HIA) report presents the assessment of the potential impacts of the existing Hitchin Industrial Estate (hereafter the 'Estate') on health and wellbeing. The HIA Report has been prepared by Tetra Tech on behalf of Hertfordshire County Council and North Hertfordshire District Council (the 'Clients').
- 1.1.2 Hitchin Industrial Estate is a hub of businesses located within the town of Hitchin. The Estate comprises a diverse range of commercial and industrial uses, including the Global Ardour Recycling Facility (GA), National Gas, and a variety of businesses such as electrical and engineering services, vehicle repair and servicing, building trades, pharmaceutical services, and laboratory facilities. The Estate also offers a range of community and social infrastructure. These include a theatre, gym, place of worship, children's soft play facility, community centre, nursery, vocational training centre, a pool hall, restaurants and pubs. The Estate serves as a key employment hub as well as a location for recreation, education, and community activities. Access to the Industrial Estate is provided via Grove Road and Wilbury Way, which connect to the wider local road network. The surrounding area is characterised by a mix of land uses. Agricultural fields lie to the east of the Estate, Ickleford town to the north, Walsworth immediately to the south and residential areas of Hitchin to the west. Burymead Springs lies immediately to the west of the Estate.
- 1.1.3 Following a series of fires in 2024 at local recycling facilities, GA and Nationwide (located outside but adjacent to the Estate), there was concern raised by the community about the impacts on local air quality. In early 2025, this issue was brought to the attention of Hertfordshire County Council and North Herts Council Officers as well as local Elected Members. It was determined that a HIA would be an important piece of evidence to commission to better understand the potential impacts of the Estate on the health of the community. Tetra Tech was commissioned to undertake this work in July 2025 with an approximate 6-month programme to complete the HIA.
- 1.1.4 This HIA report:
- Presents the existing population health baseline established from desk studies.
 - Sets out a clear methodology for undertaking an HIA and identifies any assumptions and limitations encountered in compiling the health information.
 - Presents the impacts on health and wellbeing arising from the Estate, based on the information gathered and the analysis and assessments undertaken.
 - Highlights any necessary monitoring and/or mitigation measures which could prevent, minimise, reduce or offset the identified health and wellbeing effects of the Estate.

1.2 Health Impact Assessment

- 1.2.1 HIA encompasses the principles, process and approach used to identify and assess the potential effects (both adverse and beneficial) of a project on the health of a population. HIA generates evidence for appropriate actions to avoid or mitigate health risks and promote health opportunities.
- 1.2.2 Human health is a broad topic. The assessment considers how the Estate affects the wider determinants of population health. This includes changes to biological, behavioural, socio-economic, cultural or environmental factors which contribute to the health status of individuals or populations.

- 1.2.3 Health is defined ‘as a state of complete physical, mental and social wellbeing and not merely the absence of disease’ (WHO, 1948). Mental health is defined as a ‘state in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community’ (WHO, 2022). In this report, the terms health and wellbeing are used interchangeably, and equal consideration is given to considering both physical and mental health outcomes.
- 1.2.4 This HIA takes a public health approach, meaning it reaches conclusions on the health outcomes to defined populations, rather than the health outcomes of individuals. This is considered best practice and the guidance that explains this is the correct approach to take in an assessment is set out in 3.1.5.
- 1.2.5 Health and wellbeing are influenced by a range of factors, termed the ‘wider determinants of health’. Determinants of health span environmental, social, behavioural, economic and institutional factors. Determinants therefore reflect a mix of influences from society and environment on population and individual health.

1.3 Report Structure

- 1.3.1 The remainder of this HIA report is structured as follows:
- Section 2, Approach and Methodology, describing the overarching approach and methodology for the HIA;
 - Section 3, Policy and Guidance Review, outlining local and national policy and guidance directly relevant to the protection and promotion of health and wellbeing;
 - Section 4, Consultation, summarising the responses and feedback received from consultation that has been held for the HIA to date;
 - Section 5, Scope of the assessment describing impacts that have been scoped into the HIA and those scoped out including justification for scoping in or out;
 - Section 6, Study Area, outlining the relevant study area for assessing health impacts;
 - Section 7, Local Health and Wellbeing Baseline, defining local health and socio-economic circumstance, including identification of potential for disproportionate impacts to support the assessment;
 - Section 7.8.2, Assessment, describing the operational impacts of the Estate including the magnitude and significance of the impacts and the recommended measures to enhance positive effects and manage or mitigate any potential negative outcomes of the Estate on health and wellbeing;
 - Section 9, Conclusion and Recommendations, summarising the likely effects of the Estate and appropriate mitigation;
 - Appendices, provides a detailed summary of the community engagement conducted as part of the HIA, a photo summary of a field visit walking tour and a review of how the HIA meets the requirements for Quality Assurance from the Wales Health Impact Assessment Support Unit (WHIASU, 2017).

1.4 Statement of Competency

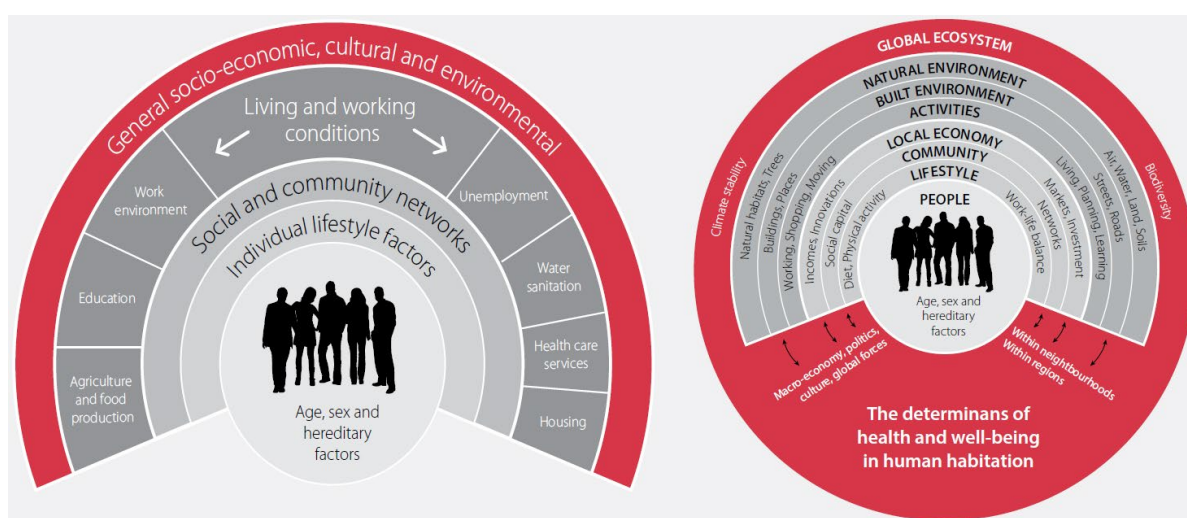
- 1.4.1 Our team are competent experts for HIA under the new 2024 requirement (Pyper et al., 2024). The health assessment has been overseen and reviewed for technical quality by Dr Katie Hiron.

- 1.4.2 Katie Hirono, Associate Director -- Health and Social Impact at Tetra Tech, Competent Expert for Health Impact Assessment (HIA) including Health in Environmental Assessments.
- 1.4.3 *Qualifications:* PhD, MPH, BA
- 1.4.4 *Professional memberships:* Faculty of Public Health; European Public Health Association; Past President, Society of Practitioners of Health Impact Assessment
- 1.4.5 *Experience:* Dr Hirono is a public health practitioner specialised in HIA, health inequalities, public participation and health policy. She has over 14 years' experience working in the US, Australia and the UK and has contributed to numerous (50+) HIAs throughout her career. Dr Hirono works with the private and public sectors to integrate health into decision-making, including for Environmental Impact Assessments (EIA) for major infrastructure schemes. She also advises professional bodies on good practice and has led capacity building on HIA for Public Health Authorities. She has authored HIAs using various methodologies including checklist approaches (Healthy Urban Development Unit), comprehensive HIAs, as well as integration within EIA. She is a leading expert in public participation within HIA.

2 Approach and Methodology

2.1 Approach

- 2.1.1 The assessment of health impacts applies a broad socio-economic model of health that encompasses conventional health impacts such as disease, accidents and risk, along with wider health determinants vital to achieving good health and wellbeing such as employment and local amenity. It addresses both physical and mental health outcomes and also considers equality and social impacts where possible. The assessment is therefore based on both ‘social’ and ‘ecological determinants of health as illustrated in Figure 2-1.



Source: Dahlgren & Whitehead (1991)

Figure 2-1: Social (Left) and Ecological (Right) Determinants of Health

2.2 Assessment Methodology

2.2.1 Evidence review

- 2.2.1 A scoping literature review of relevant determinants of health was undertaken to inform the professional judgments of the HIA. The Estate relates to health determinants and vulnerable groups that are relatively well established and understood by public health. Consequently, detailed bespoke literature reviews were not required. The literature reviews undertaken used PubMed and Google Scholar, focusing on literature from the past 10 years in English. A PICO search strategy was used focusing on determinant of health and vulnerable group terminologies from the IPH 2021 and WHIASU 2012 guidance as search terms. To ensure good quality studies were used, the review focused on findings from systematic reviews and meta-analyses where these are available. Grey literature was avoided. To ensure good strength of evidence the review focused on studies that reported good aetiology and strength of effect. To ensure external validity, UK context studies were favoured, although other high-income country contexts were also considered. The included literature were appropriate to a scoping review. The results were critically appraised by the HIA team to ensure a balanced representation of scientific consensus.

2.2.2 Impact assessment criteria

- 2.2.1 The scope and methods of this HIA have been established by applying the Wales Health Impact Assessment Support Unit (WHIASU) guidance (WHIASU, 2017) with regard to the Institute of Public Health (IPH) 2021 guidance (Pyper et al., 2021) as appropriate.
- 2.2.2 The aim is to identify any potential impacts of the Estate on the local community, mitigating negative impacts and maximising positive effects through evidence-based recommendations. The WHIASU guidance notes that not all the issues or assessment criteria may be relevant to a project, and as such responses and recommendations will not be provided for every criterion.
- 2.2.3 The WHIASU guidance reporting framework has been adapted to include, in line with HIA best practice, an assessment of: the predominant health outcomes of the Estate; the direction and certainty of the impact assessed; the vulnerable groups likely to be particularly sensitive to the Estate operations; recommended measures aimed at enhancing the Estate's benefits to human health and/or mitigating or managing any potential negative health impacts; and a characterisation of the likely residual effects of the Estate taking into account the measures recommended within the HIA.
- 2.2.4 Decision making on the HIA has been with the HIA authors, informed by community consultation, evidence, and discussion with the HIA Steering Group, composed of relevant stakeholders. The HIA adheres to relevant codes of professional conduct and best practice in HIA which include ethical use of evidence, consideration for health inequalities and public participation (European Centre for Health Policy, 1999). The scope and methods of the assessment have been discussed with the local authority public health team and officers of North Herts Council and Hertfordshire County Council.

2.2.3 Population health approach and vulnerable groups

- 2.2.1 In line with WHIASU and IPH guidance a population health approach has been taken.
- 2.2.2 The HIA has had regard for health inequalities through consideration of the following six broad population groups to inform a consistent narrative across the assessment. People falling into more than one group may be especially vulnerable:
- Young age: Children and young people (including unborn children);
 - Old age: older people (particularly frail elderly);
 - Low income: People on low income, who are economically inactive or unemployed/workless;
 - Health status: People with existing poor health; pregnant people; those with existing long-term physical or mental health conditions or disability that substantially affects their ability to carry out normal day-to-day activities;
 - Social disadvantage: People who suffer discrimination or other social disadvantage, including relevant protected characteristics under the Equality Act 2010 or groups who may experience low social status or social isolation for other reasons;
 - Access and geographical factors: People experiencing barriers in access to services, amenities and facilities and people living in areas known to exhibit high deprivation or poor economic and/or health indicators.
- 2.2.3 The following characterisations of how the general population may differ from vulnerable group populations were considered when describing sensitivity:
- The general population can be characterised as including a high proportion of people who are independent, as well as those who are providing some care; experiencing low

deprivation; comprising people with good health status; rating their day-to-day activities as not limited; having a high capacity to adapt to change (high resilience); less likely to rely on resources shared with the Estate.

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

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

2.2.4 Assumptions and limitations of the assessment

2.2.1 This assessment is based on publicly available statistics and evidence sources.

2.2.2 Whilst not all uncertainty can be removed, the following steps have been taken to allow confidence in the health assessment conclusions:

- Methods are used that triangulate evidence sources and professional perspectives.
- The scientific literature reviews undertaken give priority to high quality study design, such as systematic reviews and meta-analysis, and strength of evidence.
- Quantitative inputs for air quality and transport have been used.
- The HIA has been cautious, with conservative assessments, for example in taking account of non-threshold effects and vulnerable group findings.
- The need for monitoring and adaptive management has been considered.
- The HIA has been transparent in its analysis and follows good practice.

3 Policy, Legislation and Guidance

3.1 Policy

- 3.1.1 It is noted that this is an existing Industrial Estate and that no planning application or new proposals are involved. However, although the following national and local policies primarily relate to the planning of new proposals and associated considerations, they are considered relevant to this HIA, as the Estate affects wider determinants of health, including transport, air quality, active travel, accessibility, social interaction, and community cohesion. These policies inform healthy planning for the built environment including future uses of the Estate.

3.1.2 National policy

3.1.2.1 The National Planning Policy Framework

- 3.1.2 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2024) sets out the planning policies for England. Promoting healthy and safe communities is a central theme. Key provisions of the NPPF that guide the HIA are:
- 3.1.3 96. Planning policies and decisions should aim to achieve healthy, inclusive and safe places which:
- a) promote social interaction, including opportunities for meetings between people who might not otherwise come into contact with each other – for example through mixed-use developments, strong neighbourhood centres, street layouts that allow for easy pedestrian and cycle connections within and between neighbourhoods, and active street frontages;
 - b) are safe and accessible, so that crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion – for example through the use of well-designed, clear and legible pedestrian and cycle routes, and high-quality public space, which encourage the active and continual use of public areas; and
 - c) enable and support healthy lifestyles, through both promoting good health and preventing ill-health, especially where this would address identified local health and well-being needs and reduce health inequalities between the most and least deprived communities – for example through the provision of safe and accessible green infrastructure, [.....] and layouts that encourage walking and cycling.

3.1.2.2 National Planning Practice Guidance

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

3.1.3 Local Policy

3.1.3.1 North Hertfordshire Local Plan 2011-2031

- 3.1.1 The Local Plan notes in its key challenges and opportunities for North Hertfordshire the importance of physical activity and health and wellbeing and identifies the need for opportunities to improve existing facilities, social networks and infrastructure within the district [paragraph 2.78].
- 3.1.2 The Local Plan recognises that *“Public realm, publicly accessible space, creates the character and sense of place for our environment. Enhancing existing public realm or creating new using high quality materials, design and workmanship will result in a high quality environment that makes a positive contribution to a sense of place and healthy communities”* [paragraph 9.4].
- 3.1.3 In support, policy SP1 of the Local Plan aims to create high-quality developments that respect and improve their surroundings and provide opportunities for healthy lifestyle choices. In paragraph 4.122, it further notes that *“promoting sustainable growth is one of the priorities for the District. Achieving this objective depends on securing development that is of a high quality and inclusive design which reinforces local distinctiveness through fully addressing the creation of a sense of place and a safe and healthy environment”*.
- 3.1.4 In line with national planning guidance, the Local Plan also notes that *“Development proposals should consider the potential for minimising their impact on the environment both during construction and throughout the life of the development whilst creating development that responds to and enhances its surroundings”* (emphasis added) [paragraph 9.1].
- 3.1.5 In line with national objectives and indicators, paragraph 9.29 of the Local Plan notes that particulate matter air pollution is a public health concern and addresses the need for protection of the health of residents particularly, although not exclusively, those that live in close proximity to the Districts’ roads. The Local Plan also acknowledges the air quality problems in Hitchin that are associated with elevated nitrogen dioxide (NO₂) [paragraph 9.29].

3.1.3.2 Waste Core Strategy

- 3.1.4 One of the objectives of the Waste Core Strategy (WCS) is *“To promote the provision of well-designed and efficient facilities, that drive waste management practices up the waste hierarchy and are located to ensure no harm to human health and the environment, and which reduce waste volumes to be disposed in landfill”* [Strategic Objective 1 (SO1)].
- 3.1.5 In paragraph 4.82, the WCS recognises that *“...as Hertfordshire’s complex transport system means there is a high reliance on road transport, it is recognised that alternative modes of transport are not always feasible. This has implications on the location of waste management facilities, as facilities generally generate heavy lorry traffic. A shift to more sustainable modes of transport and implementing the proximity principle should also help minimise carbon emissions and help reduce air pollution and improve air quality”* (emphasis added).
- 3.1.6 The WCS also notes that *“Hertfordshire’s vision states that waste management facilities will reduce environmental and social impacts. Therefore, development should not have an unacceptable adverse impact on the environment and quality of life”* [paragraph 4.96].
- 3.1.7 Policy 12 of the WCS states *“Where appropriate new and existing development, including waste management facilities, must contribute to resource efficiency, the reduction of carbon emissions and the effective management of climate risk”*.

3.1.3.3 Emerging Mineral and Waste Local Plan

- 3.1.1 The Emerging Mineral and Waste Local Plan (the Draft Plan) for Hertfordshire also notes *“There is a clear link between human health issues and the need to manage waste effectively, if waste isn’t managed properly there is the potential for pollution and other environmental hazards, which might lead to an adverse impact on human health. Waste can also be used to create and improve landscapes which offer an improved access to nature and recreation”* [paragraph 5.163].
- 3.1.2 In relation to transport, the Draft Plan acknowledges in paragraph 5.195 that *“Hertfordshire has high levels of car ownership, with high levels of cross-boundary commuting and complicated movement patterns due to the high number of medium-sized towns. This along with the east-west connectivity issues, contributes to road traffic growth which can cause significant problems in relation to congestion, safety, health, quality of life, emissions and air quality”*.
- 3.1.3 Paragraph 5.197 also notes that *“With no dominant centre in Hertfordshire to act as a central point for transport, and many medium sized towns separated by only a few miles, Hertfordshire has a dense population which contributes to capacity problems on the county’s road network. This polycentric characteristic results in complicated movement patterns and complex transport interactions between these settlements on which residents rely for access to goods and services”*.
- 3.1.4 In paragraph 5.206 the Draft Plan concludes that *“Given the above it is important to consider other forms of transport for the movement of minerals and waste products”*.

3.1.3.4 Hertfordshire’s Local Transport Plan (LTP) 2018-2031

- 3.1.1 The County Council through the Local Transport Plan (LTP) are committed to reducing emissions from vehicles including nitrogen dioxide (NO₂) and particulates (PM₁₀ and PM_{2.5}) which impact on human health and wellbeing.
- 3.1.2 The LTP recognises that *“Transport can significantly impact on people and quality of life. Effective transport links enable more accessible services such as healthcare, leisure, education and employment – all vital to ensuring people can live successful, healthy and happy lives, and play an active part in society”* [page 41].
- 3.1.3 The LTP in Figure 5.4 identifies two ‘People’ objectives which include to *“make journeys and their impact safer and healthier”* and *“improve access and enable participation in everyday life through transport”*.
- 3.1.4 The LTP notes that *“By facilitating increases in walking and significantly increasing cycling activity these policies will deliver improvements in public health, air quality, road safety, the local economy, public realm, accessibility and the environment”* [page 63].
- 3.1.5 Policy 7 (Active Travel – Walking) of the LTP notes that *“The county council will seek to encourage and promote walking by: a) Implementing measures to increase the priority of pedestrians relative to motor vehicles, especially in town centres, and creating walking friendly town and neighbourhood centres. b) Delivering infrastructure to provide safer access to key services, and pedestrian facilities to enable and encourage walking. c) Identifying and promoting networks of pedestrian priority routes. d) Promoting walking as a mode of travel and for recreational enjoyment”*.
- 3.1.6 Policy 20 (Air Quality) of the LTP notes that *“The county council will seek to reduce the impact of poor Air Quality on human health, by: b) Working with district/borough councils to monitor and assess air pollution levels, and working in partnership with them to deliver any declared AQMA joint action plans”*.

3.1.3.5 Local Health and Wellbeing Strategy

- 3.1.1 The assessment is informed by Hertfordshire's Health and Wellbeing Strategy (HWS) 2022-2026 (Hertfordshire County Council, 2022a). The aim of the strategy is to tackle the many causes of poor health that are not equal across Hertfordshire, including lifestyle and environmental conditions such as air quality, noise, physical activity and how these affect the wider determinants of health.
- 3.1.2 The health and wellbeing priorities relevant to this assessment include:
- Every child has the best start in life: This priority notes the importance of supporting good maternal and quality services in the early years. The enduring effects of these factors on health, particularly for those from disadvantaged backgrounds, are highlighted. The aims of this priority for children and young people include to improve life chances, mental and emotional wellbeing for the most disadvantaged families, ensure they have access to information, advice and support that will enable them to maintain good health, and ensure they have access to a range of affordable recreational activities.
 - Good nutrition, healthy weight, and physical activity: This priority notes the importance of regular physical activity to physical, mental and emotional wellbeing. There is emphasis for vulnerable people to be encouraged and supported to live healthy lifestyles including taking part in regular physical activity to maintain and improve their independence.
 - Good emotional and mental wellbeing throughout life: This priority recognises the importance of having good mental wellbeing to people's quality of life and the capacity to cope with life's ups and downs. Lower levels of self-reported wellbeing and a high proportion of people with depressive disorders are reported in the County highlighting the need to reduce the risk factors of poor emotional and mental wellbeing in the area.
 - Healthy and sustainable places and communities: This priority recognises how the environment influences and shapes health and wellbeing outcomes. It emphasises the need to reduce levels of pollutants within the air and noise pollution, promote use of green space within Hertfordshire, promote more sufficient transport and protect the environment by reducing pollution and waste.
 - Healthy and sustainable places and communities: This priority aims to create healthy streets and places by promoting spaces where everyone feels welcome, people feel safe and relaxed, and where there are features that promote use by all.

3.1.3.6 Joint Strategic Needs Assessment

- 3.1.1 The Hertfordshire Joint Strategic Needs Assessment (JSNA) also informs this assessment. The following priorities have been considered:
- Young age:**
- 3.1.2 The Physical Activity JSNA (Hertfordshire County Council, 2022b) identifies the importance of green space and outdoor exposure in children and adolescent's mental health including emotional and behavioural difficulties and physical health including healthy weight and physical conditions.
- Old age: older people**
- 3.1.3 With regards to this population group, the assessment has given priority to: older people living with dementia; income deprivation; long term conditions; sensory impairments; frailty; and end of life care.

3.1.4 The Barriers and Enablers to Physical Activity JSNA in Older Adults identifies older people living in deprivation and those with cognitive and mobility disability as more vulnerable to physical inactivity (Hertfordshire County Council, 2022c).

3.1.5 The Physical Activity JSNA (Hertfordshire County Council, 2022b) identifies the importance of green space and outdoor exposure in increasing physical activity among older adults which in turn can increase mobility and help to prevent falls, in addition to reducing the risk of chronic conditions such as type 2 diabetes, musculoskeletal disorders, different types of cancer, and cardiovascular diseases.

Low income:

3.1.6 The identified priorities related to this area in the JSNA include: low-income families; Jobseeker's allowance claimants; unemployment; housing costs; and equitable opportunities for secure income and housing.

Poor health: Discrimination and/or isolation

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

3.1.4 Legislation

3.1.1 A number of legislations are applicable to this HIA. These include:

- The Waste Industry Safety and Health (WISH) guidance on reducing fire risk at waste management sites (Waste 28) -- The Waste 28 guidance aims to "*Reduce the likelihood and frequency of fires at solid waste management sites and where fires do occur, reduce potential safety, health, environmental, public health, property damage and business interruption impacts*".
- The Air Quality Standards Regulations 2010 (HM Government, 2010) – set out statutory health protection standards on ambient air quality.
- The Environment Act 1995 (HM Government, 1995) – sets out provisions for protecting certain environmental conditions of relevance to health in the UK. Part II covers contaminated land and Part IV covers air quality.
- The Environmental Protection Act 1990 (HM Government, 1990) - Part IIA covers contaminated land and Part III manages the control of emissions (including dust, noise and light) that may be prejudicial to health or a nuisance.
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (The Secretary of State and the Welsh Ministers, 2017) - sets out a commitment to protecting water bodies in England and Wales.

3.1.5 Guidance

3.1.1 WHIASU, Health Impact Assessment - A practical guide, 2012 (WHIASU, 2012) – Longstanding guidance on Health Impact Assessment (HIA) for Wales and applicable more broadly in the UK. The principles of HIA from this guidance have informed the approach taken in this report.

3.1.2 IPH 2021 guidance (Pyper et al., 2021), which sets out best practice for HIA. The IPH guidance was informed by the international consensus publication between impact assessment and public health practitioners, the IAIA/EUPHA Reference Paper 2020 (Cave et al., 2020).

3.1.3 International Association for Impact Assessment. Health Impact Assessment International Best Practice Principles, 2021 – Sets out HIA principles undertaken in this report.

- 3.1.4 The Department for Environment Food and Rural Affairs (Defra) Environmental Improvement Plan 2023 (DEFRA, 2023a) amends the national PM_{2.5} standards. The Environmental Improvement Plan includes a long-term target for reducing population exposure to PM_{2.5} concentrations to meet an annual mean of 10 $\mu\text{g}/\text{m}^3$, as recommended by the World Health Organization's (WHO) 2005 guideline. The Plan therefore aims to achieve a target of 12 $\mu\text{g}/\text{m}^3$ annual mean concentration by 2028 and a target of 10 $\mu\text{g}/\text{m}^3$ annual mean concentration by 2040.

4 Consultation and Engagement

4.1 Consultation Methodology

- 4.1.1 The approach to community engagement for this HIA is guided by the Institute of Public Health (IPH) 2021 guidance which recognises the right for locals to be informed about proposed developments and initiatives; be provided a platform to voice opinions and concerns regarding health, and influence the formulation of public health actions (Pyper et al., 2021, p. 16, Fig M02: Guiding principles for HIA).
- 4.1.2 The approach to this HIA is proactive and based on the International Association of Public Participation (IAP2) three pillars for effective public participation. This includes conducting participation across a spectrum that moves away from consultation towards more collaborative and empowering approaches; that is based on core values such as the belief that those who are affected by a decision have a right to be involved in the decision-making process; and code of ethics that includes trust and respect for communities (International Association for Public Participation, 2023).
- 4.1.3 Furthermore, the approach includes iterative engagement so that communities are also informed of how their input is integrated into planning thereby 'closing the feedback loop' in a manner that helps to empower participants and iteratively integrate feedback.
- 4.1.4 The IPH 2021 guidance highlights community engagement as a useful tool in data collection as the local community can be a valuable source of information, evidence and can provide insight not available elsewhere on how a development might affect health. This ensures informed and balanced results at the end of the HIA process (Pyper et al., 2021).
- 4.1.5 Community engagement, particularly for populations with marginalised members, leads to a more equitable process; a necessary precondition for equitable outcomes in any program, project, or policy (Pyper et al., 2021, p. 163, para. 2). As members of the public can help identify local issues, they can also help devise solutions, and build sustainable social action (Pyper et al., 2021, p. 164 Table 17).
- 4.1.6 As part of the HIA, a workshop was held on 27 November, 2025 at Hitchin Boys School (Grammar School Walk, Hitchin, Hertfordshire, SG5 1JB), a public venue in close proximity to the Estate. An online survey was also conducted which ran from 24 November 2025 to 15 December 2025, which offered the opportunity for any member of the public to respond.
- 4.1.7 The workshop and online survey were advertised through various media outlets. Initially, the workshop and survey were advertised via social media posts on Facebook groups relevant to Hitchin and the Estate. These were then also advertised in the local newspaper 'The Comet' as a news event. This was picked up and distributed by one additional local media source (Royston Crow). The combined audience of both these digital media sources (not including the social media audience) was approximately 100,000 people. Furthermore, the workshop and survey were advertised through social media and e-news distribution from North Herts Council. A total of 27 community members attended the HIA workshop. Whilst these participants' viewpoints cannot be taken to represent all of the community, they do provide an important perspective on some of the issues that had been raised by the community.
- 4.1.8 The consultation results from the workshop are summarised in Table 5-1. Appendix A provides further detail on the feedback received from the community during the workshop.
- 4.1.9 The online survey asked 14 questions, with a maximum of 3 responses per question. Overall, there were 258 online responses, and these are summarised in Table 5-2. **Error!**

Reference source not found. provides a full list of the anonymous survey responses including an analysis of the feedback received from the community engagement.

- 4.1.10 Between the workshop and online survey, a total of 286 people were directly engaged through the HIA.
- 4.1.11 Lastly, a community feedback session was held with local residents on 26 March 2026 to communicate the findings and recommendations of the HIA back to the community.
- 4.1.12 The HIA also engaged directly with key stakeholders. The HIA engaged early in the HIA process with members of Hertfordshire County Council Public Health. This resulted in meetings being convened with public health stakeholders to share our initial scope and elicit feedback and further recommendations. Stakeholders welcomed the HIA and agreed the approach being taken. Key issues and opportunities were identified.
- 4.1.13 The HIA team also established a Steering Group comprising representatives from a range of stakeholders across Hertfordshire County, including representatives from Strategic Development; Environmental Management; Transport and Active Places; Healthy Places; Housing and Environmental Health; and Air Quality teams. The Steering Group provided oversight throughout the HIA process, including advising on the scope and methodology, reviewing progress, discussing findings, and contributing to the development of recommendations.
- 4.1.14 Key informant interviews were also conducted with stakeholders when specific information or insight was needed for the assessment. The HIA Team conducted a virtual meeting for up to 1 hour each with a representative of the Environment Agency, Hertfordshire Fire and Rescue Service and Global Ardour.

4.2 Results

- 4.2.1 Table 4-1 provides a summary of the issues raised by participants in the workshop and how these have been addressed in the HIA

Table 4-1: Workshop consultation results

Issues raised	How or where addressed in the HIA
Attendees expressed concern about the impact of the Estate on physical activity due to air and noise pollution, congestion, fires and debris preventing safe access and disincentivising use of parks and outdoor play areas.	Impacts of the Estate on physical activity including due to disincentivised use of green and open space are noted and further discussed in section 8.1.
Attendees expressed concern about the impact of the Estate on indoor and outdoor air quality due to traffic emissions and diesel fumes including in homes, schools, and public spaces. Fires were noted as creating bad odours and smoke, affecting physical and mental health.	Impacts of the Estate on air quality including indoor and outdoor air quality are noted and further discussed in section 8.3.
Attendees expressed concern about road safety for local roads that lead to the Industrial Estate including Walgrove Road, Wilbury Road, Grove Road, and Cadwell Lane. Heavy Goods Vehicles (HGVs) (including volume of traffic) were noted as creating unsafe conditions for drivers, cyclists, pedestrians, school children, and vulnerable groups.	Impacts of the Estate on road safety including on pedestrians, cyclists and other drivers are noted and further discussed in section 8.2.
Attendees expressed concern about noise and vibrations from the HGVs and operational noise at the recycling centres affecting schools, social meeting places, homes, sleep, and general wellbeing.	Impacts of the Estate on noise and vibration are noted and further discussed in section 8.4.
Attendees expressed concern about light pollution from traffic at night disturbing sleep.	Impacts of the Estate on light pollution are noted, however are scoped out as these are not anticipated to be at a level with significant population health impacts.

Attendees expressed concern about unsecure debris falling from waste transfer trucks including metal pieces and sharp objects. These were noted as posing physical injury risks, reducing the attractiveness and cleanliness of the local area and in turn affecting housing prices; and affecting community pride and cohesion.	Impacts of the Estate on injury risks including falling debris from HGVs are noted and further discussed in section 8.5. Issues related to attractiveness of the local area which impact community pride are assessed in section 8.6.
Attendees expressed concern about lorries parking on residential roads and idling vehicles causing noise, blockages, and safety concerns (crime related).	Transport related issues of the Estate are noted and further discussed in section 8.2. Issues of community safety associated with lorries is assessed in section 8.5.
Attendees expressed concern about the rubbish overspill and oil leaks from HGVs contaminating local waterways.	Issues of rubbish overspill from waste transfer trucks are noted. Community safety issues posed by HGVs are further discussed in section 8.6.
Attendees also noted that delays in journeys on the road network due to the HGVs and waste transfer trucks may impact economic activity at other businesses within the Industrial Estate.	Transport related issues of the Estate are noted and further discussed in section 8.2.
Attendees expressed concern about the impact of the Estate on physical and mental healthcare services due to cumulative impacts of risk perception, air pollution and noise pollution.	Concerns raised on the potential impacts of the Estate on healthcare service demand within the county are noted. However, this issue has been scoped out at this stage, as any potential health effects are not anticipated to be at a level as to affect health service delivery.
Attendees highlighted the benefits of the Industrial Estate and Recycling centres including provision of waste management; provision of employment; and provision of infrastructure that supports community cohesion and identity such as gyms, religious places, and adult skills development centre.	The benefits of the Industrial Estate and recycling centres in waste management within Hertfordshire County and neighbouring communities are noted and further discussed in section 8.8. The benefits of the Estate with regards to employment and income are assessed in Section 8.7.

4.2.2 Table 4-2 summarises the responses from the online survey and how these have been addressed in the HIA.

Table 4-2: Online survey consultation results

Issues raised		How or where addressed in the HIA
Issues and concerns		
82% of the survey respondents reported being extremely concerned or very concerned about the safety risks associated with the Estate and its activities.		Issues of perceived and actual safety risks associated with the Estate, impacting physical and mental health are noted and further discussed in section 8.
The reported top 3 issues of most concern are traffic safety, air quality, and fire risk. Some concern is also shown regarding noise. With regard to all impacts, the percentage of survey respondents reported concern for: 27% about traffic safety; 26% about air quality; 21% about fire risk; 14% about noise; 9% about water quality and 3% about other issues that include vibration, nuisance, falling debris, odour, health implications, structural damage, flooding, and ground contamination.		Impacts from the Estate raised during the online survey are noted and have been considered in this assessment. These include: - Air quality, assessed in section 8.3 - Noise and vibration, assessed in section 8.4 - Traffic safety, assessed in section 8.2 - Fire risk, assessed in section 8.5 - Water Quality is scoped out as discussed in Table 5-2.
Experience of impacts		
60% of survey respondents reported experiencing health or wellbeing impacts related to the Estate. A summary of the concerns raised is provided below:		

REPORT

Concerns raised about noxious fumes, air pollution and related mental stress and impact on health. Concerns raised about impact on breathing on children's health.	Impacts of the Estate on air quality including indoor and outdoor air quality are noted and further discussed in section 8.3
Concerns raised about noise from traffic preventing people from opening windows. Concerns about early morning traffic noise disturbing sleep.	Impacts of the Estate on noise including traffic noise are noted and further discussed in section 8.4.
Concerns raised about the noise from the metal recycling centre outside of licence hours and from 'explosions' at the site.	Impacts of the Estate on noise including industrial noise are noted and further discussed in section 8.4
Concerns raised about recent fires causing fear around outdoor air quality. Concerns raised about health outcomes due to the fires and poor communication.	Impacts of the Estate on fire risks are noted and further discussed in section 8.5. Air quality effects are discussed in section 8.3.
Concerns raised about the volume of traffic, size of the lorries and speed on the roads described as 'intimidating' for pedestrians and causing road safety issues.	Transport related issues of the Estate are noted and further discussed in section 8.2
Concerns raised about journey delays on the road network due to long queues of heavy lorries on the roads leading to the Estate.	Transport related issues of the Estate are noted and further discussed in section 8.2
Concerns raised about pieces of metal falling from the waste transfer trucks.	Impacts of the Estate on injury risks including falling debris are noted and further discussed in section 8.5. Issues related to attractiveness of the local area which impacts community pride are assessed in section 8.6.
Fire Safety	
85% of the survey respondents reported not being confident (either not at all or not very confident) in the current fire safety measures that the Estate offers. 12% are somewhat confident and only 2% are very confident.	Issues of perceived and actual fire safety risks associated with the Estate, impacting physical and mental health are noted and further discussed in section 8.5.
Improvements that the surveyed residents expressed would make them feel safer are summarised below: • Relocation of Industrial Estate or the recycling centres • Better emergency communication and safety information • Full time onsite firefighting presence and fire suppression systems • Change access roads to reroute lorries away from residential areas • Rigorous monitoring of waste volumes and better handling of batteries (improved screening) • Official protocol/management plan for local residents that sets out what to do in the event of a fire. • Air quality monitoring and regular compliance checks • Reduce volumes of waste processed on site • Improved handling of lithium-ion batteries including incentivising safe disposal e.g. deposit return schemes • Improved access for Fire Rescue Services • Refusal of toxic waste such as battery recycling • Reduce volumes of trucks or introduce time restrictions on when the trucks can travel • Improved security in the Industrial area i.e. more CCTV	All recommendations from the community responses are noted and have been taken into account within the assessment in section 8 and the proposed recommendations of this HIA in section 9.
Opportunities for Positive Action	
Recommendations that the survey respondents expressed would improve health and wellbeing in relation to the estate are summarised below: • Improved traffic management (speed limits, caps on HGVs, weight restrictions, enforcement, safe crossings, time restrictions, parking controls)	All recommendations from the community responses are noted and have been taken into account within the assessment in section 8 and the proposed recommendations of this HIA in section 9.

• Debris control/load security/ street cleaning (netting, road sweeping) • Air quality monitoring (24/7 monitoring, shutdown triggers, dust concerns) • Relocation or closure of recycling centre • Alternative access route /Bypass/Relief Road (new access from Stotfold Road, Old Hale Way, Industrial only route) • Improved communication during fire incidents (alerts, fire warnings, transparency, emergency notifications) • Stronger enforcement and regulation (fines, monitoring breaches, health and safety enforcement, licensing review) • Green buffers/ Urban greening (trees, landscaping, screening) • Fire prevention or fire monitoring (fire safety standards) • Water quality monitoring/ river protection • Noise and vibration monitoring • Community engagement/Liaison • CCTV / Spot checks/ Surveillance	
Communication and Engagement	
74% of the survey respondents were not satisfied (either very or somewhat dissatisfied) with the information they receive about the Estate and activities. 22% are neutral, with only 4% being somewhat satisfied or very satisfied.	Communication is an important issue in mental health. These issues have been noted within the assessment in section 8.
The survey respondents reported the following preferable ways to receive updates about safety or environmental issues: Email – 58% Social media – 25% Local meeting – 5% Other – 11% (Including letters, policy, local newspaper, SMS updates, door knocking, poster, dedicated application, local meetings)	Preferred methods of communication by the community are noted within the assessment and these have been considered within the mitigation and recommendations listed in section 9.
General wellbeing	
The respondents reported the following benefits that come from the Industrial Estate: jobs, economic activity, childcare, leisure, recreation, retail, and flexible working spaces.	The benefits of the Estate on the community and population health are noted and further discussed in section 8.
Overall, 77% of survey respondents reported being negatively impacted by the Estate on their quality of life; 21% reported being positively impacted and only 3% reported that the Estate does not have an impact on their quality of life.	The perceived impacts of the Estate on general wellbeing within the community are noted. These have been taken into consideration in the assessment throughout section 8.

5 Scope of the Assessment

- 5.1.1 The scope of the assessment sets out the potential health effects that are both likely and significant. The assessment uses a social determinants of health approach to examine how changes in social, environmental and economic conditions affect health.

Table 5-1: Issues scoped into the assessment

Wider Determinant of Health	Justification
Lifestyles: Physical activity	Physical activity is scoped in due to conditions affecting opportunities for safe and regular participation in active behaviours in the vicinity of the Estate. Community engagement highlighted poor air quality as a key concern, reducing people's willingness to be physically active outdoors. Road safety issues and traffic-related severance further limit opportunities for walking, cycling and access to recreational open space, reducing both physical activity levels and opportunities for social interaction. Environmental hazards, including fallen debris such as sharp metal fragments, pose safety risks that discourage walking, play and other forms of physical activity, particularly for children. The HIA considers the implications of these factors for physical and mental health, including reduced levels of physical activity and associated wellbeing impacts, and assesses the potential for significant effects on population health.
Access and quality of services: Transport (Road safety; active travel – pedestrians and cyclists; access to public transport; community severance; parking; age, sensory and mobility considerations)	Issues related to access and quality of transport are scoped in due to traffic conditions associated with the Estate. Consultation responses highlighted that high volumes of HGVs create unsafe conditions for drivers, cyclists, pedestrians, school children and other vulnerable groups. Ongoing disruption to the local road network limits opportunities for active travel, including walking and cycling, particularly along footpaths and cycle routes located on or adjacent to the highway. Informed by transport monitoring data and healthy streets assessment, the HIA considers the potential for significant population health effects arising from impacts on road safety, accessibility and active travel opportunities. The assessment considers both site-specific and local health study areas.
Environmental conditions: Air quality	Air quality is scoped in due to existing traffic and operational activities on and around the Estate, which contribute to exposure to air pollutants, particularly nitrogen dioxide (NO₂), fine particulate matter (PM_{2.5}), and coarse particulate matter (PM₁₀). These pollutants have the potential to affect respiratory and cardio-metabolic health outcomes among residents, long-term occupiers of nearby properties, and users of community buildings and open recreational spaces. The HIA is informed by baseline air quality monitoring and considers the potential for significant population health effects arising from current pollutant concentrations and any changes over time. UK statutory air quality limits are used as benchmarks for health protection, and non-threshold health effects associated with some pollutants are also considered in the assessment.
Environmental conditions: Noise	Noise and vibration are scoped in due to ongoing traffic and recycling centre activities on the Estate, which generate sound and ground-borne vibration from operational processes and vehicle movements. These exposures have the potential to affect mental wellbeing, sleep quality, and educational outcomes, impacting residents, long-term occupiers of nearby properties, community buildings, and schools. Consultation responses also highlighted vibration from HGV movements causing rattling of windows, and occasional loud 'mini explosions' from recycling centre operations. The HIA considers the potential for significant population health effects from changes in daytime and night-time noise and vibration.
Environmental conditions: Community Safety (Fire risk, accidents)	Community safety is scoped in to consider issues including risks associated with lithium-ion battery fires at recycling facilities and the perceived risk of crime in the community.
Social and community influences on health: Community identity, local pride, sense of belonging, social isolation, and social participation	Issues related to community identity, influence, culture and resilience are scoped in. The Estate affects spaces that support social interaction and community cohesion. Consultation responses indicated that informal spaces used for community interaction are affected by activities of the Estate.

	Community severance arising from traffic is also identified as a factor reducing social connectivity and cohesion between neighbourhoods. This issue is acknowledged and assessed under 'Transport modes, access and connections' in Section 8.2. In addition, pollution, debris and traffic volumes may reduce pride in the local area, affecting community identity. The Estate also provides infrastructure that supports community identity and resilience, including gyms, places of worship and adult skills development facilities, which contribute positively to social cohesion and community capacity. These issues are scoped in to consider the potential for significant population health effects.
Economic conditions: Employment and income	The Estate provides employment opportunities for the local community, including roles with relatively good remuneration, working hours, working conditions and job security. Maintaining opportunities for employment and local businesses is a public health priority. This issue is scoped in to consider the potential for significant population health effects.
Wider societal effects (Waste management infrastructure; climate change)	The Estate plays an important role in providing essential waste management and recycling infrastructure, representing a positive contribution to the wider societal infrastructure and wider public health services. Recycling is a key factor of the waste management hierarchy and a key public health priority. This issue is scoped in for further assessment.

Table 5-2: Issues scoped out of the HIA

Wider determinant of health	Justification
Lifestyles: Diet	The Estate does not require agricultural land take and does not disrupt food-related production or transport. Future changes are not considered likely to affect the availability or price of food to a degree that could impact population health.
Living conditions: Housing (community cohesion and social isolation; indoor environment; residential segregation; outdoor environment; affordability; connectivity and access; loss of existing housing)	Housing as a wider determinant of health is scoped out. Consultation responses identified concerns regarding the reduced attractiveness of nearby residential areas, including debris falling from waste transfer vehicles, which is reported to affect housing attractiveness and property values. These issues relate to the condition and quality of the surrounding built environment and are therefore addressed under the 'Social and community influences on health' topic in Section 8.6. Issues relating to poor indoor and outdoor air quality are assessed under 'Air Quality', while noise effects are assessed under 'Noise and Vibration'. To avoid duplication of assessment, housing effects are not considered further within this topic. It is noted that there are issues relating to community severance arising from unsafe road conditions and high volumes of traffic on local roads that connect communities. This issue is acknowledged and is assessed further under 'Access and quality of services: Transport' in Section 8.2. To avoid duplication of assessment, this issue is scoped out here. There are no losses to existing housing allocations associated with the ongoing operations of the Estate. This issue is therefore scoped out.
Access and quality of services: Education	It is noted that the Estate affects accessibility to schools including through severance issues on the road network and disincentivising the use of active travel. However this issue is discussed under the relevant Section of 'Access and quality of services: Transport' as scoped in Table 5-1 and assessed further in Section 8.2. To avoid duplication this issue is scoped out here. It is also noted that there are noise related issues due to the Estate including those caused by HGVs. Noise disturbance may impact educational outcomes. This issue is discussed under 'Noise and Vibration', as scoped in Table 5-1 and assessed further in Section 8.4. To avoid duplication, this issue is scoped out here.
Environmental conditions: Water	This issue is scoped out of the HIA as appropriate standard good practice measures are in place to break pollution linkage pathways that pose a risk to population. Within GA, a self-contained water reserve is available to pump water

REPORT

	used during fire management back into a reservoir, ensuring containment and preventing offsite contamination. It is noted that the Environment Agency (EA) regularly monitors water quality in the event of fire.
Environmental conditions: Soil contamination	Materials handling and storage arrangements associated with ongoing activities at the Estate are managed to protect the soil environment and to comply with existing regulatory controls and planning conditions. Activities on the Estate are not anticipated to result in public exposure to contaminated soils, as potential pollution linkages to soil are minimised through established operational practices and site management measures. On this basis, risks associated with land pollution and soil contamination are scoped out of further assessment.
Access and quality of services: Health services	Effects on health and social care are scoped out. While the Estate affects local journeys on the road network, including delays and road safety, these issues are assessed under 'Access and quality of services: Transport' in Section 8.2. To avoid duplication of assessment, effects of the Estate on health-related journeys are scoped out of this topic.

6.1.1 The HIA study area has had regard to localised health effects and wider health effects. These are discussed below:

- Bio-physical health determinants (such as changes to air quality and noise exposure) are likely to have a localised impact as potential in hazard exposures are limited by physical dispersion characteristics. Social and behavioural determinants (such as lifestyle and community factors) are likely to have both localised and wider effects.
- For localised effects, the study area for baseline statistics relating to health effects focuses on wards, with East of England and England averages as comparators. Where data for wards has not been available, statistics relating to Hitchin Bearton Middle Super Output Area (MSOA) and North Hertfordshire District are collected using the England average as a comparator.

6.1.2 The HIA study area has been defined by the ward and district in which the Hitchin Industrial Estate is located. The HIA study area includes all populations with the potential to experience significant effects. In some cases, these may extend beyond the ward we have used to characterise worst-case impacts and sensitivity.

6.1.3 The following study areas are used in the assessment (illustrated in Figure 6-1 below):

- The site-specific population is defined using Hitchin Bearton Ward.
- The local population is defined using the district area of North Hertfordshire.
- The regional population is defined using the area of East of England.
- The national area is England.

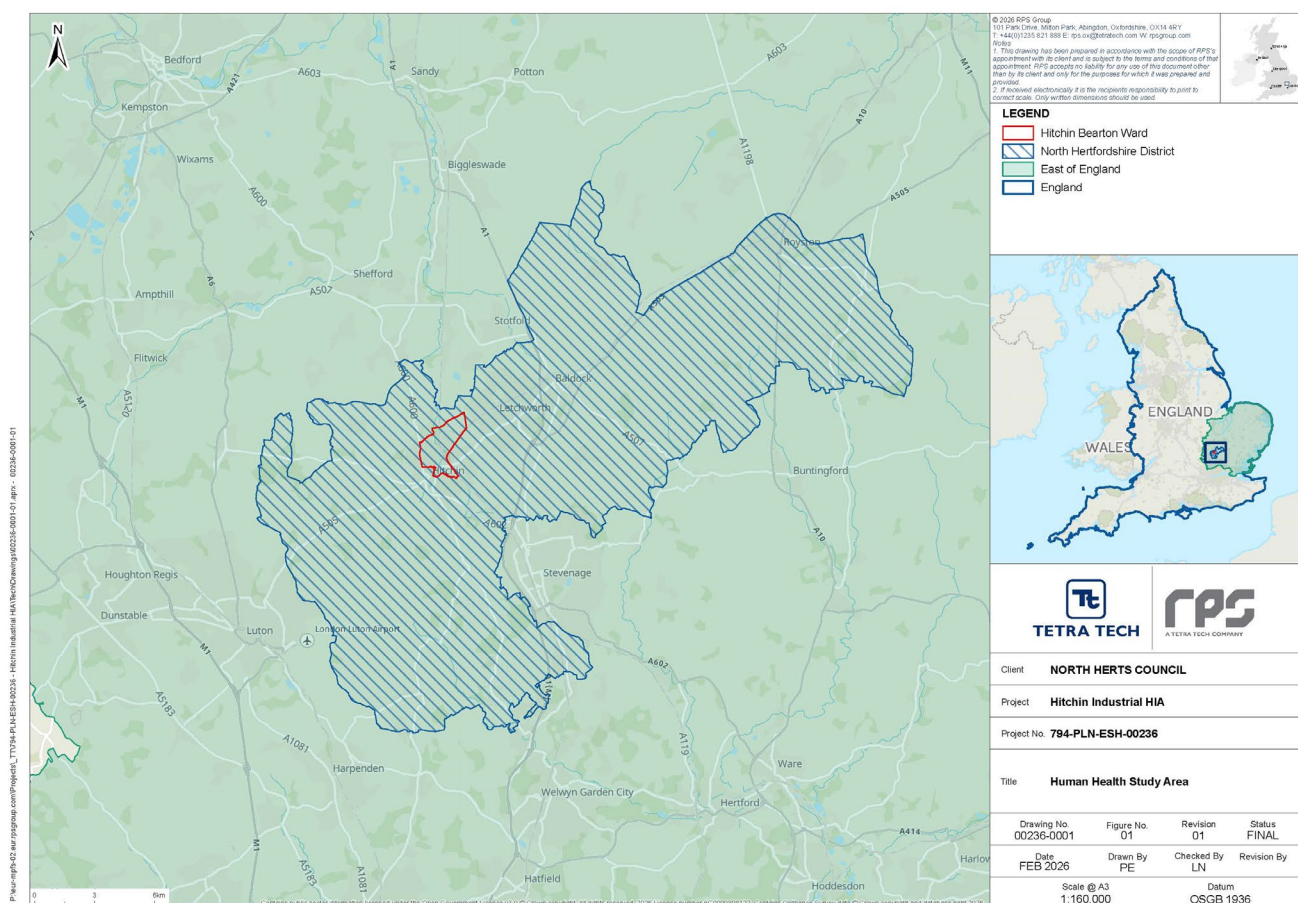


Figure 6-1: HIA Study Area

6.1.4 Deprivation statistics have been collected at the Lower Super Output Area (LSOA) level as an indicator of baseline health sensitivity for communities affected by the Estate. These are shown in Figure 6-2. The LSOAs used in the study area include:

- North Hertfordshire 010E
- North Hertfordshire 007B
- North Hertfordshire 010A
- North Hertfordshire 010B

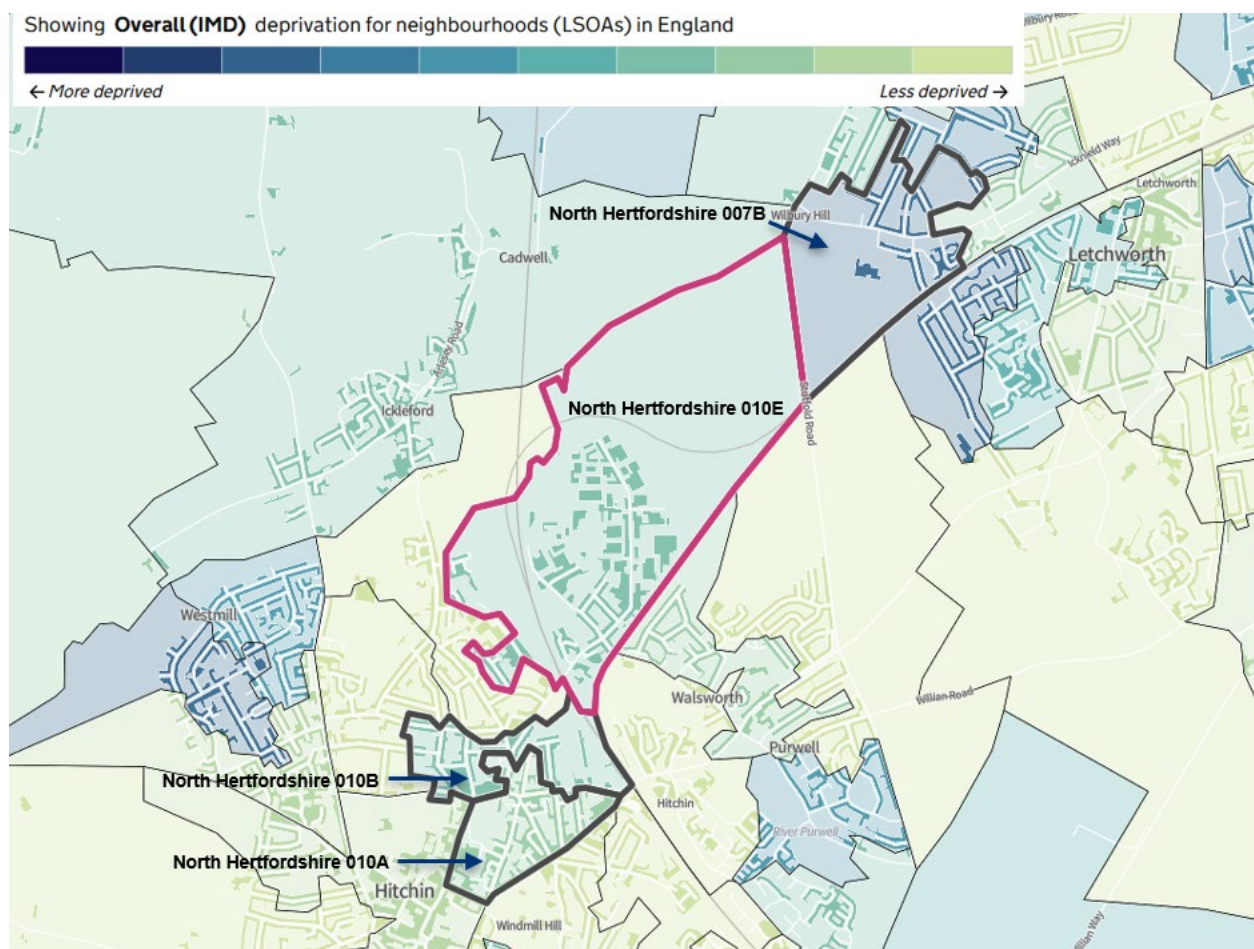


Figure 6-2: LSOAs used to define deprivation in the study area

6.1.5 As administrative boundaries do not necessarily define the boundaries of potential health effects, particularly mental health effects, the HIA uses the administrative boundaries to broadly define representative population groups, including in relation to sensitivity, rather than to set boundaries on the extent of potential effects. However, the HIA study area represents the locations that would drive any likely significant population health effect, i.e. where the great majority of the impact and community responses to them are anticipated to occur. Any effects beyond the study areas would not change the conclusions reached in relation to the likely population health effects of the Estate.

7 Baseline Environment

7.1 Sensitive receptors

7.1.1 The following sensitive receptors in the study area are noted:

Schools:

- The Priory school
- Our Lady Primary School
- Hitchin Boys High School
- Ickleford Primary School
- Hitchin Girls School
- Wilshire-Dacre Junior Academy
- St Andrew's Church of England Voluntary Aided Primary School, Hitchin

Nurseries:

- Hitchin House Day nursery
- Toad hall nursery
- Kiddi Caru Day Nursery and Preschool
- Oughton Primary and Nursery School
- Strathmore Infant and Nursery School
- Highover Junior Mixed and Infant School

Nursing homes:

- Benslow nursing home
- 17 walsworth road
- Highbury rise care home
- Elmside care home
- Westbourne care home

Places of worship:

- Sri Guru Songh Sabha Gurdwara Temple
- The Church of Jesus Christ Latter Day Saints Hitchin
- Hitchin Jaami' Masjid & Islamic Centre

Open spaces:

- Ransoms recreational park
- Triangle community garden
- Hitchin Rugby Football Club

- Watsworth common and playground
- Purwell Meadows
- Burymead Springs
- Pinehill park
- Bancroft splash park/play area
- Hitchin Tennis Club
- Butts Close/ Butts Close Pond
- Hitchin Swimming centre
- Youth football academy (on Fishponds Road near the Hitchin swimming centre)
- Grays Lane Play Area

Health and Community spaces:

- Ravidassia Community Centre
- Space2play Herts
- Halycon Doctors
- Regal Chambers
- Bancroft Medical Centre
- Pinehill hospital

7.1.2 The following map in Figure 7-1 provides an overview of the sensitive receptors listed above and shows their locations in relation to the Estate and the affected local road network.

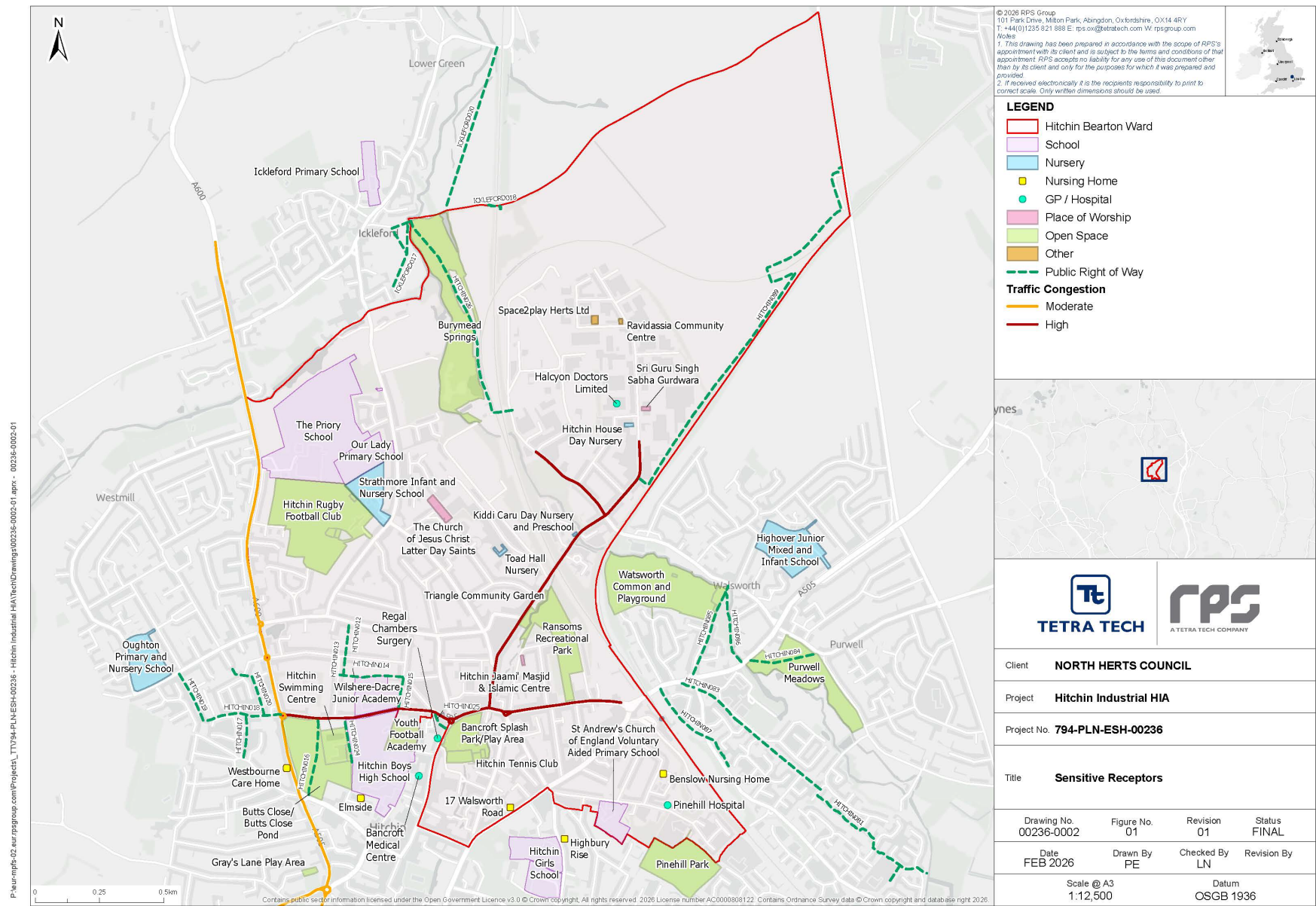


Figure 7-1: Sensitive Receptors within the local study area

7.2 Population profile

Table 7-1: Demographic indicators in the study area

Indicators	Year	Site Specific	Local District	County	Regional	National
		Hitchin Bearton MSOA	North Hertfordshire	Hertfordshire	East of England	England
Sex						
Female %	2021	50.5	51.4	51.2	51.0	51.0
Male %	2021	49.5	48.6	48.8	49.0	49.0
Age						
% age 0 to 15	2021	18.7	19.1	20.1	18.7	18.5
% age 16 to 64	2021	68.6	61.5	62.9	61.6	63.0
% aged 65 and over	2021	12.6	19.4	17.0	19.6	18.3
Long term health problem or disability						
Disabled under the Equality Act %	2021	13.8	15.9	14.4	16.6	17.3
Not disabled under the Equality Act %	2021	86.2	84.1	85.6	83.4	82.7
Language proficiency						
Population who cannot speak English well or at all (%)	2021	1.6	0.6	1.1	1.3	1.9
Ethnicity						
Asian, Asian British or Asian Welsh %	2021	10.5	5.2	8.6	6.4	9.6
Black, Black British, Black Welsh, Caribbean or African %	2021	3.5	2.4	3.7	2.9	4.2
Mixed or Multiple Ethnic groups %	2021	4.4	3.7	3.8	2.8	3.0
White %	2021	79.4	87.5	81.8	86.5	81.0
Other ethnic group %	2021	2.1	1.1	2.1	1.4	2.2

- 7.2.1 This section provides an overview of the population characteristics within Hitchin Bearton MSOA, compared with national (England) averages.
- 7.2.2 As shown in Table 7-1 above, the population of children and young people aged 15 and below in Hitchin Bearton MSOA is similar to the national average. The proportion of people aged 16 to 64 in Hitchin Bearton MSOA is higher than the national average and on the other hand, the proportion of people aged 65 and above in the MSOA is lower than the national average.
- 7.2.3 In terms of disability and limitations in daily activities, the proportion of people who are disabled and limited in activities in Hitchin Bearton MSOA is lower than the national average. The proportion of those who are not disabled nor have a long-term condition in the MSOA is higher than the national average.

REPORT

- 7.2.4 Considering English proficiency, the proportion of the population who cannot speak English well or at all in Hitchin Bearton MSOA is slightly lower than the national average.
- 7.2.5 Considering ethnicity in the site-specific study area, the proportion of White residents in Hitchin Bearton MSOA is lower than the national average. The proportion of Asian/Asian British or Asian Welsh residents in the MSOA is higher than the national average. The proportion of Black, Black British, Black Welsh, Caribbean, or African residents is lower in the MSOA than the national average.

7.3 General health

Table 7-2: General health status in the study area

Indicators	Year	Site Specific	Local District	County	Regional	National
		Hitchin Bearton MSOA	North Hertfordshire	Hertfordshire	East of England	England
General health						
'Very good' or 'good' health %	2021	86.6	84.6	85.5	82.9	82.2
Fair health %	2021	10.1	11.5	10.8	12.5	12.7
'Very bad' or 'bad' health %	2021	3.3	3.9	3.8	4.6	5.2
Healthy Life Expectancy						
Healthy Life expectancy at birth for males (year)	2021 - 23	n/a	n/a	65.42	62.87	61.52
Healthy Life expectancy at birth for females (year)	2021 - 23	n/a	n/a	66.05	63.18	61.88
Life expectancy at birth females (year)	2021 - 23	n/a	83.84	84.38	83.64	83.05
Life expectancy at birth males (year)	2021 - 23	n/a	81.02	80.85	79.99	79.11
Mental Health						
Depression: QOF prevalence (18+ years) %	2024/25	n/a	n/a	12.6	13.0	14.3
Emergency hospital admissions for intentional self-harm (SAR)	2023/24	n/a	84.2	90	108.1	117.0
Self-reported wellbeing: people with a high anxiety score (16+ years) %	2022/23	n/a	22.11	23.95	22.61	23.32
Self-reported wellbeing: people with a low satisfaction score %	2022/23	n/a	5.7	4.3	5.2	5.6
Mental Health: QOF Prevalence	2024/25	n/a	n/a	0.9	0.9	1.0
Heart disease						
Hypertension: QOF prevalence (Persons, All ages)	2024/25	n/a	n/a	14.2	15.6	15.2
CHD: QOF prevalence (Persons, All ages)	2024/25	n/a	n/a	2.6	3.0	3.0

REPORT

Hospital admissions due to coronary heart disease (Persons, All ages)	2024/25	n/a	n/a	367.2	n/a	386.6
Under 75 mortality rate from cardiovascular disease considered preventable	2022 - 24	n/a	21.0	22.5	26.0	30.2
Under 75 mortality rate from heart disease and stroke	2022 - 24	n/a	50.6	51.6	59.0	67.7
Respiratory disease						
Asthma: QOF prevalence	2024/25	n/a	7.2	6.1	6.9	6.6
COPD: QOF prevalence	2024/25	n/a	1.7	1.4	1.8	1.9
Under 75 mortality rate from respiratory disease considered preventable	2022 - 24	n/a	13.9	13.7	15.5	19.3
Under 75 mortality rate from respiratory disease	2022 - 24	n/a	21.5	24.8	27.1	32.4
All-Cause Mortality						
Under 75 mortality rate from causes considered preventable (per 100,000)	2022 - 24	n/a	110.4	116.1	131.0	151.2
Legend						
	Better than national average (England)					
	Similar to national average (England)					
	Worse than national average (England)					

- 7.3.1 In assessing **general health** within the MSOA, the majority of the population reported being in very good or good health, consistent with national averages. Specifically, 86.6% of residents reported being in very good or good health in Hitchin Bearton MSOA. This is slightly higher (better) than the regional average of 82.9%, and the national average of 82.2%. The proportion of individuals reporting fair health in Hitchin Bearton MSOA was 10.1%, which is slightly lower than the regional average of 12.5% and national average of 12.7%. The percentage of individuals reporting bad to very bad health was 3.3%, slightly lower (better) than the regional average of 4.6% and the national average of 5.2%.
- 7.3.2 **Healthy life expectancy** at birth is a critical indicator of overall health. Although specific data for Hitchin Bearton MSOA and North Hertfordshire District is not available, the healthy life expectancy for males in Hertfordshire is 65.42 years, which is higher (better) than the national average of 61.52 years. For females, the healthy life expectancy in Hertfordshire is 66.05 years, also higher (better) than the national average of 61.88 years. Additionally, life expectancy at birth for females in North Hertfordshire is 83.84 years, which is slightly higher (better) than the national average of 83.05 years, while males in the district have a life expectancy of 81.02 years, which is also slightly higher (better) than the national average of 79.11 years.
- 7.3.3 In assessing **mental health** within the site specific and local study area, the following indicators are relevant to health outcomes related to access to open space, leisure and play; transport modes, access and connections; and noise. The prevalence of depression among individuals aged 18 and over in Hertfordshire is 12.6%, which is lower (better) than the regional average of 13% and the national average of 14.3%. Similarly, emergency hospital admissions for intentional self-harm in the local area are recorded at 84.2 per 100,000 population in North Hertfordshire, significantly lower (better) than the regional average of 108.1 and the national average of 117. Regarding self-reported anxiety, 22.11% of individuals aged 16 and over in North Hertfordshire reported a high anxiety

score, which is lower (better) than the regional average of 22.61% and the national average of 23.32%. Data suggests favourable mental health outcomes and low sensitivity to changes in the study area compared to broader trends.

- 7.3.4 The percentage of individuals reporting low satisfaction scores (an indicator of wellbeing) is 5.7%, which is similar to the regional average of 5.2% and the national average of 5.6%. This indicator is relevant to community identity, resilience, influence and culture.
- 7.3.5 Regarding **cardiovascular and coronary health** within the study area, the following indicators are relevant to air quality, noise and physical activity opportunity health outcomes. The prevalence of hypertension in Hertfordshire is 14.2%, which is lower (better) than the national average of 15.2%. The prevalence of coronary heart disease in Hertfordshire is 2.6%, which is slightly lower than the regional and national average of 3.0%. Hospital admissions due to coronary heart disease are reported at 367.2 per 100,000, which is lower (better) than the national average of 386.6 per 100,000.
- 7.3.6 The under 75 mortality rate from cardiovascular diseases considered preventable in North Hertfordshire is 21.0 per 100,000, which is lower (better) than the national average of 30.2 per 100,000. The rate at county level, in Hertfordshire is 22.5, which is also lower than the national average. Similarly, the under 75 mortality rate from heart disease and stroke in North Hertfordshire is 50.6 per 100,000, which is lower (better) than the national average of 67.7 per 100,000. The rate in Hertfordshire is 51.6 per 100,000, which is also lower than the national average.
- 7.3.7 Regarding **respiratory health** within the study area, the following indicators are relevant to air quality. The prevalence of asthma in North Hertfordshire is 7.2%, which is higher (worse) than the national average of 6.6%. The prevalence of chronic obstructive pulmonary disease (COPD) in North Hertfordshire is 1.7% which is similar to the national average of 1.9%. The mortality rate from respiratory diseases considered preventable for people aged under 75 in North Hertfordshire is 13.9 per 100,000, which is lower (better) than the national average of 19.3 per 100,000. The mortality rate from respiratory diseases for people aged under 75 in the district is 21.5 per 100,000, which is also lower (better) than the national average of 32.4 per 100,000.
- 7.3.8 The mortality rate from causes considered preventable is 110.4 per 100,000 in the local study area which is lower (better) than the regional and national averages.
- 7.3.9 Overall, the data shows a mixed picture of health outcomes in the study area, with better performance across most indicators as compared to the regional and national comparators. However poorer performance than the national averages is noted for asthma. Asthma is an important indicator for assessing the health impacts of air quality, while acknowledging that factors other than poor air quality also contribute to this health outcome.

7.4 Physical Activity

Table 7-3: Physical activity indicators in the study area

Indicators	Year	Site Specific	Local District	County	Regional	National
		Hitchin Bearton MSOA	North Hertfordshire	Hertfordshire	East of England	England

REPORT

Percentage of physically active children and young people (5-16 years)	2023/24	n/a	47.7	51.9	49.8	47.8
Percentage of physically active adults (19+ years)	2023/24	n/a	69.8	70.1	68.2	67.4
Reception prevalence of overweight including obesity (4-5 years)	2024/25	n/a	19.4	20.6	22.2	23.5
Year 6 prevalence of overweight including obesity (10-11 yrs)	2024/25	n/a	29.1	31.1	33.9	36.2
Adults prevalence of overweight including obesity	2023/24	n/a	62.0	63.6	65.9	64.5

Legend

	Better than national average (England)
	Similar to national average (England)
	Worse than national average (England)

- 7.4.1 Regarding physical activity in the local study area, the proportion of children and young people who are physically active in North Hertfordshire is 47.7%, which is similar to the national average of 47.8%. On the other hand, the proportion of adults who are physically active in both North Hertfordshire (69.8%) and Hertfordshire (70.1%) is higher (better) than the national average of 67.4%.
- 7.4.2 The prevalence of overweight in children aged 4-5 years (including obesity) in North Hertfordshire is 19.4%, which is lower (better) than the national average of 23.5%. Similarly, for Year 6 students, the prevalence of overweight (including obesity) in North Hertfordshire (29.1%), is lower (better) than the national average of 36.2%. Regarding adult obesity, the prevalence of overweight (including obesity) in North Hertfordshire is 62.0%, which is lower (better) than the national average of 64.5%. This data is relevant to access to physical activity opportunity including open space, leisure and play and active travel.

7.5 Transport

Table 7-4: Baseline transport related health outcomes in the study area

Indicators	Year	Site Specific	Local District	County	Regional	National
		Hitchin Bearton MSOA	North Hertfordshire	Hertfordshire	East of England	England
Killed and seriously injured (KSI) casualties on England's roads (all ages) (per billion vehicle miles)	2023	n/a	n/a	56.1	72.4	91.9
Children killed and seriously injured (KSI) on England's roads (per 100,000)	2020-22	n/a	n/a	10.5	14.2	16.5
Percentage of adults walking for travel at least three days per week (16+ years)	2022/23	n/a	19.1	19.3	17.3	18.6

REPORT

Percentage of physically active children and young people (5-16 years)	2023/24	n/a	47.7	51.9	49.8	47.8
Percentage of physically active adults (19+ years)	2023/24	n/a	69.8	70.1	68.2	67.4
Legend						
	Better than national average (England)					
	Similar to national average (England)					
	Worse than national average (England)					

- 7.5.1 Table 7-4 shows a better performance in the local study area compared to England. It is also noted there are no statistics reported in the site-specific MSOA.
- 7.5.2 Considering road safety, the rate of people killed and seriously injured on roads (all ages) in Hertfordshire (56.1) is significantly lower than the regional average (72.4) and the national average (89.8). The rate of children killed and seriously injured on roads (10.5) is also lower than the regional (14.2) and national (16.5) rates.
- 7.5.3 Considering active travel, local public health data shows better performance in walking in the district compared to the regional and national averages. The percentage of people who walk for travel at least three times a week in North Hertfordshire District and Hertfordshire County is slightly higher than the regional and national averages. As reported above in Section 7.4, physical activity levels in children and young people in North Hertfordshire are similar to the national average and those in adults are higher than the national average. Data suggests average sensitivity to changes in active travel.

7.6 Air Quality

Table 7-5: Baseline air quality indicators in the study area

Indicators	Year	Site Specific	Local District	County	Regional	National
		Hitchin Bearton MSOA	North Hertfordshire	Hertfordshire	East of England	England
Estimated fraction of mortality attributable to particulate air pollution %	2023	n/a	5.4	5.5	5.4	5.2
Air pollution: fine particulate matter (new method - concentrations of total PM _{2.5}) (µg/m ³)	2023	n/a	7.1	7.4	7.2	7.0
Legend						
	Better than national average (England)					
	Similar to national average (England)					
	Worse than national average (England)					

Table 7-5 shows similar performance in air quality related health outcomes in the local population compared to the national averages.

The fraction of mortality attributable to particulate air pollution (PM_{2.5}) in North Hertfordshire District and Hertfordshire County is similar to the national average. Similarly, concentrations of fine

particulate matter (PM_{2.5}), as an indicator of air pollution in the local area, are similar to the national average.

7.7 Noise and vibration

Table 7-6: Baseline noise related health outcomes in the study area

Indicators	Year	Site Specific	Local District	County	Regional	National
		Hitchin Bearton MSOA	North Hertfordshire	Hertfordshire	East of England	England
The rate of complaints about noise	2023/24	n/a	5.42	3.99	4.09	5.89
The percentage of the population exposed to road, rail, and air transport noise of 65dB(A) or more, during the daytime	2021	n/a	2.85	3.24	2.47	4.34
The percentage of the population exposed to road, rail, and air transport noise of 55 dB(A) or more during the night-time	2021	n/a	6.10	6.76	5.64	8.42
Legend						
	Better than national average (England)					
	Similar to national average (England)					
	Worse than national average (England)					

7.7.1 As shown in Table 7-6, the rate of complaints about noise in North Hertfordshire is slightly lower (better) than the national average. Similarly, the percentage of the population exposed to transport noise during the daytime or night-time is notably lower (better) than the national average. Data shows better performance in the local study area in terms of noise.

7.8 Socioeconomic factors

7.8.1 Employment and income

Table 7-7: Baseline socioeconomic health outcomes in the study area

Indicators	Year	Site Specific	Local District	County	Regional	National
		Hitchin Bearton MSOA	North Hertfordshire	Hertfordshire	East of England	England
Inequality in life expectancy (males) (years)	2021-23	n/a	7.0	7.9	8.4	10.5
Inequality in life expectancy (females) (years)	2021-23	n/a	4.3	6.6	6.9	8.3

REPORT

16-to-17-year old's not in education, employment, or training (NEET) or whose activity is not known (%)	2023/24	n/a	n/a	4.0	5.1	5.4
Percentage of people in employment (16-64 years)	2023/24	n/a	78	79.4	77.1	75.7
Average Attainment 8 score (15-16+ years)	2023/24	n/a	48.1	50.03	45.9	45.9
Legend						
	Better than national average (England)					
	Similar to national average (England)					
	Worse than national average (England)					

- 7.8.1 Socioeconomic factors in the local study show better performance than the regional and national averages.
- 7.8.2 Inequalities in life expectancy in both male and female population in North Hertfordshire and Hertfordshire are lower (better) than the regional and national averages.
- 7.8.3 The proportion of 16-to-17-year old's who are not in education, employment, or training (NEET) or whose economic activity is not known in North Hertfordshire is lower (better) than the regional and national averages.
- 7.8.4 The proportion of people who are employed in North Hertfordshire is higher (better) than the regional and national averages.
- 7.8.5 The average attainment score in the local district is higher (better) than the regional and national averages.

7.8.2 Deprivation

- 7.8.1 Deprivation levels in the study area are shown in Table 7-8 below. Data is available at the Lower Super Output Area (LSOA). As shown in Figure 6-2, the Estate is located within LSOA North Hertfordshire 010E. LSOA North Hertfordshire 007B has been selected as representative of high deprivation in the study area. LSOAs North Hertfordshire 010A and North Hertfordshire 010B have been selected due to their higher levels of deprivation within the living environment domain, which is indicative of poor outdoor environment near the study area. These are located immediately to the south of the Estate.
- 7.8.2 Percentages show how each LSOA compares nationally. For example, 86% least deprived means the area is less deprived than 86% of all neighbourhoods (i.e. among the 14% least deprived) and 58% most deprived means the area is more deprived than 58% of all neighbourhoods.
- 7.8.3 The LSOA North Hertfordshire 007B which is indicative of the area of highest deprivation in the study area shows high deprivation (greater than 80% most deprived) for income and income deprivation affecting older people. It also shows relatively high deprivation (greater than 70% most deprived) for employment, education and income deprivation affecting children.

Table 7-8: Deprivation breakdown in the study area

Deprivation indicator	North Hertfordshire 010E	North Hertfordshire 007B	North Hertfordshire 010A	North Hertfordshire 010B
Overall	63% least deprived	70% most deprived	74% least deprived	68% least deprived

REPORT

Deprivation indicator	North Hertfordshire 010E	North Hertfordshire 007B	North Hertfordshire 010A	North Hertfordshire 010B
Income	58% most deprived	80% most deprived	62% least deprived	64% least deprived
Employment	50% most deprived	79% most deprived	72% least deprived	65% least deprived
Education	61% least deprived	76% most deprived	79% least deprived	92% least deprived
Health	52% least deprived	58% most deprived	72% least deprived	79% least deprived
Crime	86% least deprived	62% most deprived	64% most deprived	54% most deprived
Barriers to Housing and Services	87% least deprived	55% most deprived	98% least deprived	99% least deprived
Living Environment ¹	63% least deprived	93% least deprived	62% most deprived	90% most deprived
Income deprivation affecting children	64% most deprived	76% most deprived	70% least deprived	62% least deprived
Income deprivation affecting older people	67% most deprived	82% most deprived	68% most deprived	61% least deprived
Legend				
High	Medium	Low	Least deprived	
High	Medium	Low	Most deprived	

¹ This type of deprivation refers to the standard of housing and the quality of the outdoor environment.

8 Assessment of Effects

8.1 Lifestyle: Physical activity

- 8.1.1 This section considers the effects on active travel and physical activity due to the Estate.
- 8.1.2 Operational activities of the Estate have resulted in air and noise pollution, fires, congestion on access roads, and debris falling from HGVs travelling to and from the Estate. These, along with general fear and intimidation experienced by local residents due to the regular HGV movements on small local roads, have resulted in people being disincentivised from choosing active transport modes such as walking and cycling, and generally reduced opportunities for physical activity by disrupting safe access to nearby parks and outdoor play areas.
- 8.1.3 The scientific literature identifies the following associations relating to physical activity and human health.
- 8.1.4 In children and adolescents, there is a causal relationship between physical activity in line with WHO guidelines and improved physical fitness (cardiorespiratory and muscular fitness), cardiometabolic health (blood pressure, dyslipidaemia, glucose, and insulin resistance), bone health, cognitive outcomes (academic performance, executive function), mental health (reduced symptoms of depression and self-esteem); and short term reduced adiposity (excessive body fat) (Bull et al., 2020).
- 8.1.5 In adults, there is also a causal relationship between physical activity in line with WHO guidelines and improved all-cause mortality, cardiovascular disease mortality, incident hypertension, incident site-specific cancers, incident type-2 diabetes, mental health (reduced symptoms of anxiety and depression); cognitive health, and sleep; and evidence for weight loss is suggestive (Bull et al., 2020).
- 8.1.6 In older adults, there is a causal relationship between activity in line with WHO guidelines and improved all-cause mortality, cardiovascular disease mortality, incident hypertension, incident site-specific cancers, incident type-2 diabetes, mental health (reduced symptoms of anxiety and depression), cognitive health, sleep, falls and falls-related injuries, declines in bone health; and evidence for weight loss is suggestive (Bull et al., 2020).
- 8.1.7 There is the potential for a population health effect due air and noise pollutants, fires, debris and regular presence of HGVs on local roads as a result of the Estate, causing people to reduce their uptake of physical activity. These impacts have the potential to affect local residents and long-term occupiers of nearby properties and community buildings.
- 8.1.8 The population groups relevant to this assessment are:
- The site-specific population of Hitchin Bearton Ward
 - The local population of North Hertfordshire District
 - The sub-population vulnerable due to:
 - Young age, specifically children who are overweight or who have low physical activity levels.
 - Older age, specifically older people for whom regular exercise plays a role in the improvement of their health.
 - Low income, specifically people with limited access to alternative physical activity opportunities.
 - Health status, specifically conditions where physical activity would be beneficial to physical or mental health.

- Access and geographical factors, specifically the population who have limited access to natural green space or other places for physical activity.

Sensitivity of the receptor

- 8.1.9 The sensitivity of the general population is low. The general population comprise those members of the community in good physical and mental health. The majority of residents are either unlikely to make regular use of the open space affected by the Estate or would have a high capacity to adapt by selecting alternative spaces or physical activity opportunities and will not benefit from the any changes in the outdoor space quality.
- 8.1.10 The sensitivity of the vulnerable sub-population is high. This reflects that the sub-population includes a high representation of dependants including children, elderly and those receiving care due to poor health. Results of the community engagement has shown that this includes parents of young children, who's concerns about road safety are leading to changes in the uptake of physical activity opportunities. This sub-population may have fewer resources and less capacity to adapt to changes. The population may therefore be more reliant on the affected open spaces with greater likelihood that any improvement in air quality and aesthetics of the outdoor space could improve physical activity behaviours.

Magnitude of impact

- 8.1.11 Several data sources have been used to identify the effect, including community workshop and survey responses, and sources used within the Transport, Air Quality, and Noise and Vibration determinants (sections 8.2, 8.3 and 8.4) of this assessment.

Community Responses

- 8.1.12 The primary concern raised by the community is the impact of the presence of HGVs on the roads in disincentivising people from taking up opportunities for physical activity, such as walking and cycling on local roads and accessing local parks and recreational facilities. As two respondents to the survey stated:

"I cycle around town with my children and I'm really worried about the traffic and physical safety of the lorries but also if something falls off. It puts me off cycling".

"[I have] anxiety walking near roads with my small children so we drive more to avoid walking or cycling".

Operational impact on physical activity

- 8.1.13 The frequent movement of large HGVs on local roads, incidents of scrap metal falling from these trucks due to issues with netting, incidents of fire and associated air pollution and fear, and general noise and air pollution from operational activities and traffic associated with the Estate, may result in increased fear and intimidation amongst locals (particularly parents of young children) and reduce the uptake of physical activity. This includes both walking and cycling on local roads around the Estate, as well as using active travel means to access recreational amenities and local parks and open spaces. Further detail on these impacts and associated data analysed are provided in the Transport, Air Quality, and Noise and Vibration assessments (sections 8.2, 8.3 and 8.4, respectively) of this HIA.
- 8.1.14 For population health, the magnitude of impact is considered to be low. The impact would be minor, long-term in duration and continuous. There is potential for minor changes in quality of life and morbidity for a small minority of the population, primarily due to alterations to the environment.

Summary of effect

- 8.1.15 The impacts arising from reduced physical activity as a result of operational activities of the Estate are considered to be **minor adverse** to population health. The scale of the effect is long-term and would affect a small minority of the population. Operational activities of the Estate have resulted in air and noise pollution, fires, increased congestion on local roads, and increased presence of HGVs (and debris falling off them) on local roads causing fear and intimidation. The resulting reduced uptake of physical activity and active travel is likely to have a minor impact on morbidity. This conclusion reflects that physical activity is a local public health priority and the scientific literature on the benefits of physical activity to health are well established. As detailed in section 8.2 (Transport), local public health policies prioritise physical activity, children and young people, and emphasise the delivery of active travel including safe access. Operational activities of GA (primarily the presence of HGVs on local roads) have the potential to impact the ability to deliver these policies.

Proposed Mitigation

- 8.1.16 Relevant mitigation measures to address impacts on physical activity are addressed as part of the relevant health determinants in section 8.1: Transport, and section 8.3: Air quality and section 8.4: Noise and Vibration of this HIA.

8.2 Access and quality of services: Transport

- 8.2.1 This section considers the effects of traffic associated with the Estate.
- 8.2.2 The Estate includes an array of businesses, social services and community resources which generate traffic in the local area. Two industrial recycling facilities (Global Ardour and Nationwide Recycling) are operational near the Industrial Estate. Global Ardour (GA) is located within the Industrial Estate on Wallace Way. Nationwide Recycling is outside the boundary of the Estate but uses Cadwell Lane, which is the boundary road on the south east side of the Estate, as the primary access road. Cadwell Lane also provides the only access to Wallace Way.
- 8.2.3 Heavy Goods Vehicles (HGVs) carrying recyclable materials must travel through Hitchin to access the recycling centres. Outside Hitchin, HGVs may travel from various directions but they then converge onto one route: From the north and south, the route is from Bedford Road to Fishponds Road, then onto Grove Road to the junction of Woolgrove Road and Wallace Way. HGVs then follow Cadwell Lane to either Wallace Way for Global Ardour or continue on Cadwell Lane to Nationwide Recycling. Other vehicles can access the Estate from Grove Road to Wilbury Way. This route is shown in Figure 7-1.
- 8.2.4 Regular HGV movements on small local roads have the potential to increase congestion and impact the safety of road users and pedestrians, particularly vulnerable populations such as children walking to school.
- 8.2.5 Participants in the community survey raised concerns about the volume of traffic, size of the lorries and speed on the roads, describing it as 'intimidating' for pedestrians and causing road safety issues. Concerns were also raised about journey delays on the road network due to long queues of HGVs on the roads leading to the Estate.
- 8.2.6 Children are particularly vulnerable road users. One recent review suggests there is a negative association between parental traffic safety perception and the likelihood of children's active travel to school. While perception of safety differed by road type, traffic density and speed, the presence of walking or cycling paths were consistently perceived as safer (Wangzom et al., 2023). Another recent systematic review showed a clear

association between high traffic volume, high vehicle speed and injuries with consistent findings that pavements increased the safety of children (Amiour et al., 2022).

- 8.2.7 The leading barrier for adults to ride a bike for transport is the fear of travelling alongside motor vehicles and the lack of high-quality, protected cycling infrastructure (Pearson et al., 2023)
- 8.2.8 There is limited evidence about the health outcomes of routine journey times. One narrative review found that evidence suggests pathways through which commuting may impact on health: both during the journey, with stress induced by a lack of control, congestion, crowding and unpredictability, and the duration of commute, regardless of mode used. After the journey, there is some evidence that the commute experience “spills over” into how people feel and perform at work and home. However, a consistent link between commuting and wellbeing has not been established (Chatterjee et al., 2020).
- 8.2.9 People with sensory and mobility impairments may also be particularly sensitive to changes in road safety. For people with mobility issues, the quality of footpaths can be a barrier to access, and users with visual impairments are impacted by obstructions on footpaths (Park and Chowdhury, 2018).
- 8.2.10 The presence of HGVs on local roads may also create perceptions of risk. The term fear and intimidation (non-motorised user amenity) is broadly defined as the relative pleasantness of a journey and is affected by traffic flow, traffic composition and footway width and separation from traffic. The way risks are understood has important influences on health behaviour (Ferrer and Klein, 2015). Awareness of risk can affect mental, physical and emotional wellbeing. Perceptions of risk leading to stress are associated with ill health (e.g. headaches or hypertension) and can be exacerbated when there is uncertainty (Luria et al., 2009).
- 8.2.11 The Institute of Environmental and Sustainability Professionals (ISEP) guidance on Environmental Assessment of Traffic and Movement (2023) (Davis et al., 2023) sets out that fear and intimidation from traffic, in terms of vehicular criteria, encompasses total traffic movements, HGV movements and vehicle speeds. While a quantitative assessment of non-motorised user amenity and fear and intimidation has not been undertaken, this issue has been considered using other qualitative data.
- 8.2.12 There is the potential for a population health effect due to the presence of HGVs on local roads. HGVs may affect risk of injury for non-motorised road users, particularly for children and people with sensory or mobility impairments who be less aware or require more time, for example, when crossing intersections. The presence of HGVs can also change perceptions of safety leading to changes in the use of footpaths and active travel routes, leading to changes in physical activity and mental wellbeing (the subsequent health effects of this are presented in Section 8.1 Lifestyle: Physical Activity). These impacts have the potential to affect local residents as well as visitors and commuters (for example, people travelling to the Estate for work or other services).
- 8.2.13 The population groups relevant to this assessment are:
- The site-specific population of Hitchin Bearton Ward
 - The local population of North Hertfordshire District
 - The sub-population vulnerable due to:
 - Young age, specifically children who walk or bike to school.
 - Older age, specifically older people with limited mobility.
 - Health status, specifically people with mobility or visual limitations or pregnant people.

- Access and geographical factors, specifically the population who have limited access to alternative routes (such as those who live on the transport route or use the route for access to work or community services).

Sensitivity of the population

- 8.2.14 The sensitivity of the general population is low. The general population comprise those members of the community in *good* physical and mental health. The majority of residents are unlikely to make regular use of the transport routes to the Estate and would likely have a *high capacity* to adapt by selecting *alternative routes*.
- 8.2.15 The sensitivity of the vulnerable sub-population is high. This reflects that the sub-population includes a high representation of *dependants* including children and older people, and people with mobility or visual limitations. This sub-population may have *less capacity* to adapt (for example, there may be limited routes available for children travelling to school). The population may therefore be more *reliant* on the transport route with greater likelihood of safety risk and perception being impacted.

Magnitude of impact

- 8.2.16 Several data sources were used to identify the impact of traffic associated with the Industrial Estate. This included a traffic survey, walking tour, road safety review, and community workshop and survey responses. This evidence is presented below and is used to collectively present an understanding of the potential risks.

Traffic Survey

- 8.2.17 A traffic survey was conducted by HCC on 21 November 2025 on Wilbury Way between 7:00 – 19:00. The frequency of use was recorded for articulated trucks (HGVs over 60m), bicycles on roads, buses, cars, light goods vehicles, motorcycles, and single-unit trucks (HGVs over 10m). The traffic survey counted turning movement volume:
- 1,510 traffic movements via Cadwell Lane, of which 85 were single-unit trucks (HGVs over 10 metres) and 145 were articulated trucks (HGVs over 60 metres)
 - 4,716 traffic movements via Grove Road, of which 169 were single-unit trucks (HGVs over 10 metres) and 164 were articulated trucks (HGVs over 60 metres)
 - 3,319 traffic movements via Wilbury Way, of which 93 were single-unit trucks (HGVs over 10 metres) and 35 were articulated trucks (HGVs over 60 metres)
 - 2,797 traffic movements via Woolgrove Road, of which 52 were single-unit trucks (HGVs over 10 metres) and 4 were articulated trucks (HGVs over 60 metres) .
- 8.2.18 In total, there were 12,342 traffic movements within the 12-hour timeframe. During that time, there were a total of 399 single-unit trucks (HGVs over 10 metres) and 348 articulated trucks (HGVs over 60 metres) for a total of 747 HGV traffic movements within the 12-hour timeframe. Peak traffic times for all traffic movements were recorded at 7:45 – 8:45 and 15:45 – 16:45.
- 8.2.19 It should be noted that the traffic survey offers a snapshot of road usage during typical conditions in 2025. If operational activities on the Estate were to change, for example, if GA were to increase their operations up to their current permitted limit, these traffic patterns are likely to increase.

Traffic Survey - Speed

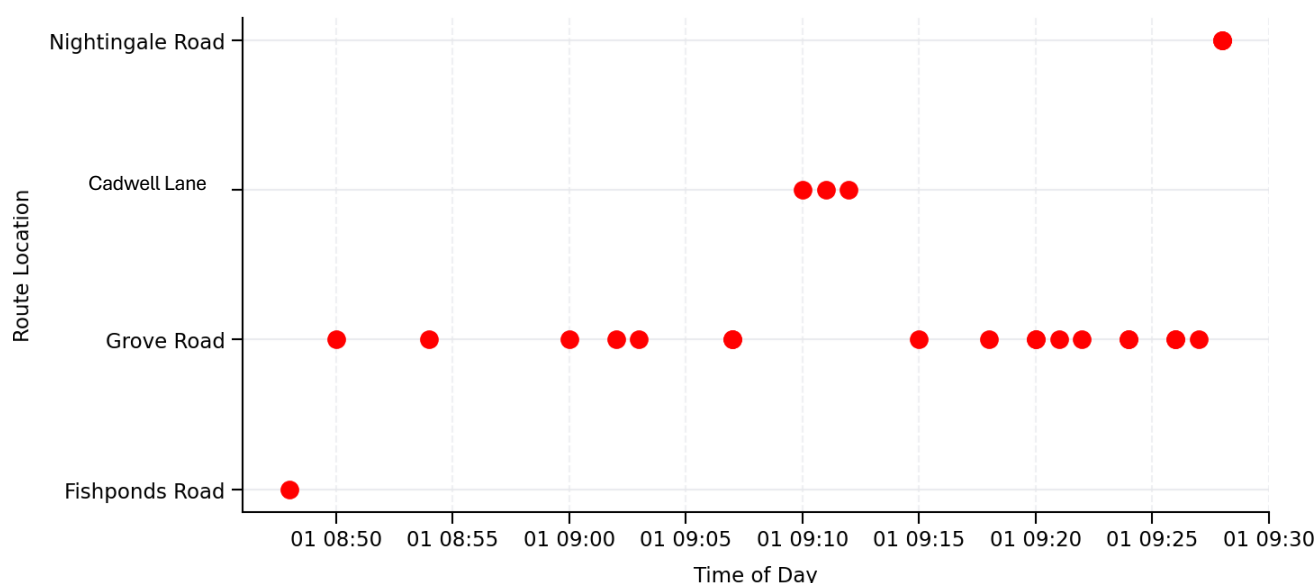
- 8.2.20 Vehicle speeds were also monitored on Wilbury Way from 12-18 November 2025. Results show that the majority of vehicles exceeded the 30 miles per hour (mph) speed limit. In the

northeast-bound direction, most vehicles (85th percentile) travelled at an average speed of 34.4 mph, while in the southwest-bound direction the majority travelled at an average speed of 33.3 mph. There were several exceedances during the monitoring timeframe, including 711 instances of speed exceeding 40 mph and 45 instances of speed exceeding 50 mph.

Walking Tour

- 8.2 The lead author of the HIA (KH) conducted a walking tour of the standard traffic route (as proposed at the Community Workshop) into Hitchin Industrial Estate on Friday 28 November, 2025. Qualitative observations were conducted and field notes were recorded. The route followed Bancroft Road onto Nightengale Road (headed east), to Grove Road (headed north), to Cadwell Lane (headed northwest) to the junction with Wallace Way (and then return following the same route).
- 8.3 The number of HGVs sighted between 8:51 am and 9:30 am is shown in Figure 4. A total of 25 HGVs were observed. This did not include recordings of regular traffic such as cars, motorbikes, bicycles and delivery vans. It should be noted that the field visit was conducted to coincide with higher use times, which were noted by community workshop participants as being in the morning (approximately 9:00 am).

Figure 8-1 HGV sightings along walking route 28 Nov 2025



- 8.2.1 Using indicators of pedestrian risk, including HGVs simultaneously in use of both traffic lanes, narrow footpaths, footpaths close to the road, and cars parked on one side of a two-lane road, Grove Road appeared to be the least safe. Pedestrian risk corresponds with a perception of risk, meaning there doesn't have to be an actual threat of injury for a pedestrian to feel unsafe. The field observer (KH) noted feeling unsafe on Grove Road, particularly at the pinch point of the footpath under the railway bridge.
- 8.2.2 Additionally, community responses indicate that there are concerns about debris falling out of HGVs and the had noted seeing recycling HGVs in use without appropriate netting. Although the field observer (KH) did not observe any unnetted HGVs, there did appear to be some potential debris on the footpath that may have fallen off an HGV previously (see Image 8 in Appendix C).
- 8.4 Additional field visit photos are provided in Appendix C.

Road Safety Review

- 8.5 A road safety review was conducted by a HCC road safety, environment and transport manager between January and February 2026. This included two site visits to Grove Road, Cadwell Lane and Wilbury Way in the Estate. The review identified several areas of concern relating to vehicle speeds, load security, pedestrian safety and general maintenance. Collectively, these concerns present avoidable risks to road users and pedestrians. The identified risks are presented below:

Vehicle Speed and Traffic Volume

- 8.6 Cadwell Lane serves as the only access and egress route for multiple commercial premises, including Nationwide Metal Recycling, Global Ardour Recycling Limited and the National Grid Depot located at the far end of the lane. As a result, the road experiences frequent movements of HGVs.
- 8.7 During both visits, vehicles travelling at excessive speeds were observed along Grove Road before turning into Cadwell Lane. A significant number of these were large HGVs.
- 8.8 There is limited visual reinforcement of the applicable speed limit. The 20-mph restriction ends on Grove Road, and drivers are expected to rely largely on the presence of street lighting to determine the speed limit. This may not be sufficiently clear.

Security of Loads

- 8.9 Many vehicles observed were carrying metallic scrap loads. While some were covered with netting, several were not.
- 8.10 There is visible evidence along Grove Road of debris having fallen from vehicles. During the review, some uncovered vehicles displayed the Nationwide Metal Recycling livery.
- 8.11 Unsecured loads present risks including injury to pedestrians, damage to vehicles, and road surface hazards.

Pedestrian Safety

- 8.12 Vegetation - Overgrown vegetation is encroaching onto footpaths, reducing usable width and visibility. Cutting back vegetation would significantly improve pedestrian access.
- 8.13 Footpath surface condition - There are uneven surfaces where utility works have been completed and reinstatement has been substandard. Additionally, tree root growth has caused surface distortion in places. These defects pose hazards to:
- Parents with pushchairs;
 - wheelchair users and Motability users;
 - elderly pedestrians; and
 - those with limited mobility.
- 8.14 Railway bridge footpath - At the railway bridge on Grove Road, the footpath passing beneath the bridge narrows significantly at both ends, in places to approximately six inches. There is an alternative footpath route around the bridge pillar which provides a safer option. However, many pedestrians continue to use the narrow internal section.

General maintenance and road markings

- 8.15 The overall condition of highway infrastructure in the area requires attention:
- Crossing points: Bollards require cleaning; some signage requires replacement.

- Road markings: Lines and markings are faded in several locations; at the junction of Grove Road and Nightingale Road, the paint on the mini roundabout is no longer visible; lane markings at this junction require clearer definition to reduce driver confusion.

Community Responses

- 8.2.1 Concerns about road safety were also raised by Workshop participants and in responses to the survey with 27% of survey respondents ranking traffic as a top concern (the highest ranked issue).
- 8.2.2 Respondents to the survey raised concern about the impacts of HGVs to road users, cyclists and pedestrians including intimidation. One respondent stated:
- "As a resident on Fishponds Road, the use of the road by large, heavy, waste vehicles has been of increasing concern. The size, weight and speed of the vehicles is noticeable within our house, is intimidating to pedestrians on the pavements and crossings. Given [the proximity to] schools, sports centres, other public amenities and residential properties, the area has busy footfall and heavy, industrial traffic adds to risk for the public. Frequent traffic jams, caused by heavy traffic flowing in both directions and unable to pass, is a frequent occurrence."
- 8.2.3 Several survey respondents raised concerns about the impact on children, as stated by two respondents:
- "I live on Grove Road and have very young children. Walking up and down that road with lorries coming past is not only terrifying, especially when they go with some speed, but we have nearly been hit by flying debris multiple times, the children have picked up sharp dangerous objects."
- "An example is this week when I walked down Grove Road with three small children a lorry came round the corner too fast, drove up on the curb and nearly ploughed into us. He was centimetres away from running us over. On the pavement."
- 8.2.4 Other respondents raised concerns about the safety for children travelling to school, as two respondents stated:
- "It is also extremely stressful walking our children to school along the road with these large scrap lorries careening down the road. We often see pieces of metal that have fallen off them and wonder how long it will be before someone is hit by one."
- "I definitely have anxiety about road safety as we have to cross roads busy with the lorry's twice on each school run. The danger of the lorries is of particular concern around the school when there are lots of children around and where the pavements narrow."
- 8.2.5 Recent data for the UK show that in 2024, 6,189 children under the age of 16 were killed or seriously injured as a pedestrian or pedal cyclist (Department for Transport, 2025). While better than national averages, in Hertfordshire County recent data show there were 56.1 casualties on roads (per billion vehicle miles) and 10.5 per 100,000 children killed and seriously injured (see Table 7-4).

- 8.2.6 For population health, the magnitude of impact is considered to be medium. The scale of the effect is medium, long-term, continuous and would affect a small minority of the population.

Summary of effect

- 8.2.7 The impact arising from traffic associated with the Estate is considered to be **moderate adverse**. As vehicle collisions pose risk of injury or death the severity of the effect is considered high. Fear and intimidation associated with the presence of HGVs affecting changes in active travel is also likely to have a minor impact on morbidity. The Local Health and Wellbeing Strategy sets out physical activity, children and young people, and healthy streets as key priorities, and the JSNA considers young age (including excess weight and mental health) and older people (including those with sensory and mobility impairments) as priority populations. It is also noted that Policy 7 of the LTP emphasises delivery of active travel including safe access. The presence of HGVs associated with the Estate may impact on the ability to deliver these policies. This conclusion is supported by clear evidence in the literature as well as consistent evidence gathered for this assessment.

Proposed Mitigation

- 8.2.8 The following mitigation is proposed to address this effect.

Vehicle speed and traffic:

- Installation of painted speed roundels on the carriageway to reinforce the speed limit.
- Consideration of extending the 20-mph zone further along Grove Road, including Wilbury Way, Cadwell Lane and the roads that run off them.
- Review speed limits during school drop-off hours.

Security of loads:

- Scrap metal hauler HGVs should consistently use required netting. Recycling centres should ensure compliance for their own fleet and actively monitor third-party operators. Police enforcement of load security requirements should be considered.

Pedestrian safety:

- Cut back vegetation that encroaches onto footpaths.
- Repairs and surface levelling of footpaths are required.
- Review the usage and safety of the narrow sections of the railway bridge on Grove Road for pedestrians and consider signing pedestrians towards the alternative pedestrian route on the southeast side of Grove Road where the bridge pier separates the carriageway from the footway.
- Investigate the feasibility and funding of two additional pedestrian crossing points on Grove Road. The first of these would be near to the entrance of Grove Road, at the junction with Nightingale Road, where there are effectively three lanes of traffic. The second of these would be to the north of the Grove Road railway bridge.
- Refreshing road markings (including at the Grove Road/Nightingale Road roundabout) and improving pedestrian crossings would improve clarity and road

safety. This could include adding new bollards at, for example, the Grove Road railway bridge, or new lighting if feasible.

- Conduct a Safe Routes to School Review.

8.2.9 Reducing vehicle speeds can improve pedestrian confidence, lower stopping distances and reduce the likelihood of debris or materials falling from vehicles due to excessive speed.

8.2.10 These measures would help to reduce the risk of injury as well as improve perceptions of safety.

8.3 Environmental conditions: Air quality

8.3.1 This section considers changes to air quality due to the Estate and related effects on human health.

8.3.2 Operational activities of the Estate have resulted in fires and may produce changes in air quality. The assessment takes into consideration air pollution (including dust) resulting from traffic emissions (particularly HGVs) and operational activities of the recycling centres giving rise to odours and emissions to air. It also considers fires that have occurred as a result of combustion of lithium-ion batteries in recycling waste.

8.3.3 Consideration has been given to physical, mental health and wellbeing effects from both actual and perceived risks associated with air pollutants and fires.

8.3.4 In general, the scientific literature suggests an association between air quality emissions and health and wellbeing effects. The link is primarily between particulate matter (PM) and health effects (particularly for PM_{2.5}, a subset of particulate matter). Exposures relating to nitrogen dioxide (NO₂) are also relevant. Whilst the literature supports there being thresholds set for health protection purposes, it also acknowledges that for PM and NO₂ there are non-threshold health effects (i.e. when there is no known exposure threshold level below which adverse health effects may not occur).

8.3.5 Environmental air pollution is associated with increased risk of respiratory and cardiovascular diseases. Air pollution exerts detrimental effects on the heart by developing pulmonary inflammation, systemic inflammation, oxidative stress, endothelial dysfunction and prothrombotic changes (related to vascular health) (Meo and Suraya, 2015). The adverse effects on health of PM and NO₂ indicates that the effects occur at air pollution concentrations lower than those in guidelines (WHO, 2021). Long term exposure to particulate matter is associated with incidence of coronary events, and this association persists at levels of exposure below the current limit values (Cesaroni et al., 2014). While PM_{2.5} is widely considered to have the greatest risk to human health, the long-term effects of NO₂ also account for a high mortality burden. (Cesaroni et al., 2014).

8.3.6 In this instance, the main health outcomes are likely to relate to exacerbation of existing conditions, such as asthma or chronic obstructive pulmonary disease (COPD) (i.e. airway inflammation by coarse PM) and to reductions in wellbeing associated with annoyance or reduced amenity. Other outcomes such as cardiovascular events may be relevant in the event of brief high concentrations (e.g. exposure to high concentrations during a fire event).

8.3.7 Odours are not inherently detrimental to human health. Odour is the attribute detectable by the nose on sniffing certain volatile substances. The characteristics of the odorous substance make them perceptible to the human sense of smell. The term odour relates to the stimuli from a chemical compound that is made more volatile in the air. Odour is a person's perception of that sensation, and an interpretation may be made what the odour means, including the perception of what risk a particular odour may indicate. Odour is not considered to be a substantial issue with the Estate, due to the nature of the waste being processed in the Global Ardour and Nationwide Recycling facilities (i.e. scrap metal).

- 8.3.8 The assessment has identified population groups that may be particularly sensitive to air quality effects. For example, young children are particularly susceptible to air pollution because of their developing lungs, high breathing rates per bodyweight, and amount of time spent exercising outdoors. Other vulnerable groups include the sick (e.g. people with type 2 diabetes), the elderly, and pregnant people.
- 8.3.9 There is the potential for a population health effect due to air pollutants associated with operational activities of the recycling facilities including HGVs (particularly NO₂, PM₁₀ and PM_{2.5}). The resulting changes in air quality have the potential to affect local residents; long-term occupiers of nearby properties and community buildings; and visitors to, and employees of, other businesses in the Estate.
- 8.3.10 The population groups relevant to this assessment are:
- The site-specific population of Hitchin Bearton Ward
 - The sub-population vulnerable due to:
 - Young age, particularly children with developing lungs.
 - Older age vulnerability.
 - Health status, particularly people with existing poor respiratory or cardiovascular health and pregnant people.
 - Access and geographical factors, specifically people for whom close proximity to the Estate increases sensitivity.

Sensitivity of the receptor

- 8.3.11 The sensitivity of the general population is low. The general population comprise those members of the community who live, work and study at a distance where high levels of dispersion and deposition would greatly limit the effects of any change in exposure due to the Estate. Furthermore, most people enjoy good respiratory health (e.g. do not have asthma), good mental health, and are not at a life stage (e.g. infant or frail elderly) with particular sensitivity to air quality.
- 8.3.12 The sensitivity of the vulnerable sub-population is high. This reflects that the sub-population includes a high representation of dependants including children, elderly and those receiving care due to poor health. For example, for physiological reasons young children are particularly susceptible to air pollution. Other vulnerable groups include people with existing respiratory conditions including asthma and chronic obstructive pulmonary disease (COPD), people with type 2 diabetes, older people and pregnant people. People likely to be most affected due to their proximity to the Estate's influences are residents of dwellings closer to the Estate. This sub-population may have less capacity to adapt to changes.

Magnitude of impact

- 8.3.13 Several data sources were used to identify the impact of changes to air quality associated with the Estate. This included air quality monitoring data, fire incident reports, Global Ardour management plans, Global Ardour permit compliance reports, and community workshop and survey responses. This evidence is presented below and is used to collectively present an understanding of the potential risks.

Air Quality Monitoring

- 8.3.14 Following a series of fires occurring within the Estate, air pollution monitoring has been undertaken by NHC Environmental Health in locations within the Estate, and in the area

around the Estate, where there are several residential properties. The purpose of the monitoring has been to carry out a short-term programme to investigate air quality concentrations across the industrial area, with particular reference to concentrations of nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}). Results from this monitoring enable comparisons to long term results of local monitoring for roadside NO₂, investigations of hourly particulate monitoring for short term incidents, and comparison to UK Air Quality Regulations and World Health Organisation Guidelines for Air Quality.

- 8.3.15 The report notes that background data (for 2025) from the UK National Emissions Inventory (NAEI database) for a 1km area encompassing the Estate, shows that the prime source of PM_{2.5} emissions in the area is commercial and domestic combustion (53% of total PM_{2.5} emissions).
- 8.3.16 Air pollution monitoring was undertaken for NO₂ between 2nd October 2025 and 7th January 2026, and continuous monitoring for PM_{2.5} has been reported from 25 September 2025 until 4th February 2026. Results show elevated NO₂ levels along the heavier road traffic areas of Cadwell Lane, Wilbury Way, Grove Road and Woolgrove Road junction, with raised roadside pollution levels between 2-3 µg m³.
- 8.3.17 Realtime monitoring was undertaken for 3 representative locations shown in Figure 8-2 below. These locations are Z1128 (a location within the Estate), Z1145 (a location near GA facility), and Z1054 (the Cadwell Lane and Wilbury Way junction).

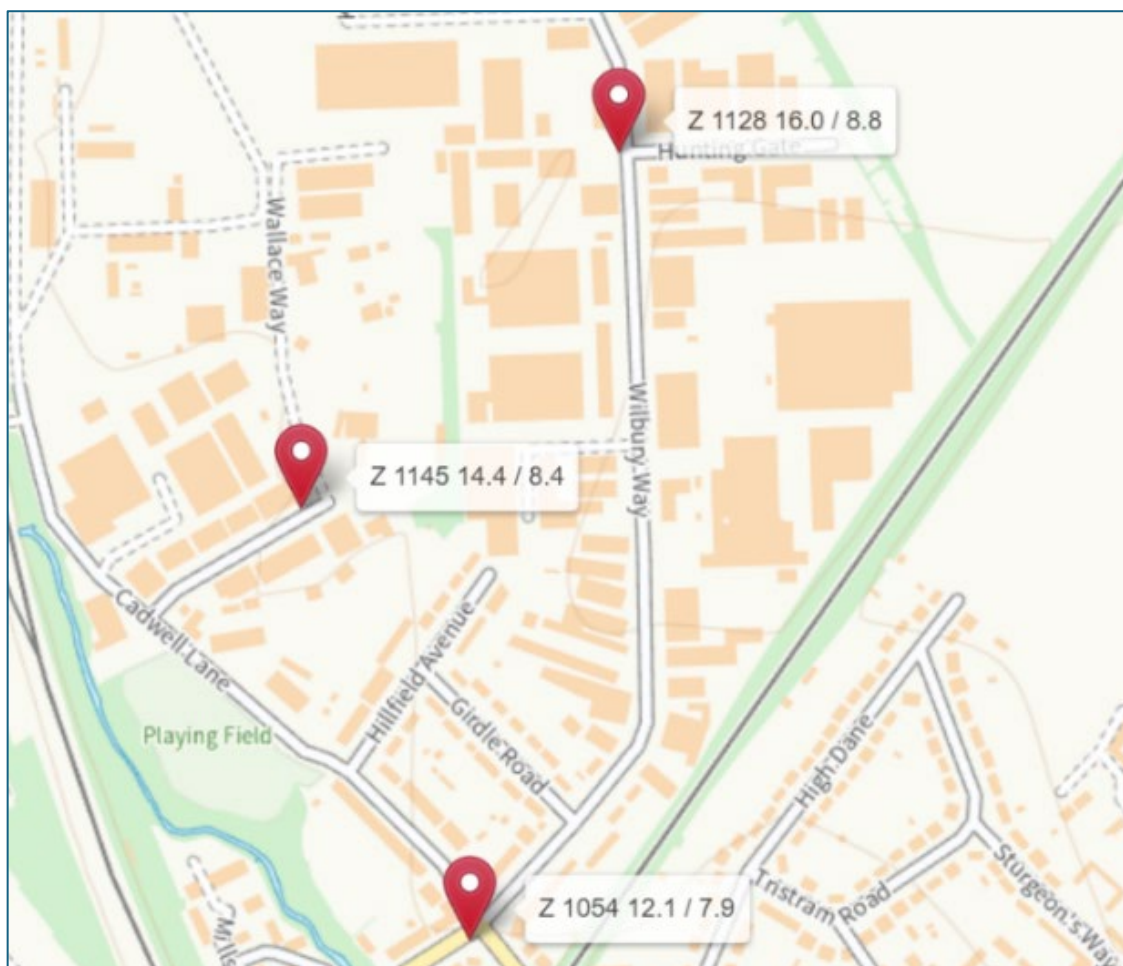


Figure 8-2: Realtime (Zephyr) monitoring locations for air pollutants

- 8.3.18 Following annualisation, it can be seen in Table 8-1 below that the representative locations are all below UK air quality limits for both NO₂ and PM_{2.5} for annual mean concentrations, set to be protective of health.

Table 8-1: Realtime monitoring results against UK Air Quality limits (DEFRA, 2023b)

Monitoring Location	Annual mean NO ₂ (µg m ³) results	Annual mean PM _{2.5} (µg m ³) results
Z1128	16.0	8.8
Z1145	14.4	8.4
Z1054	12.1	7.9
UK AQ Guideline (annual mean, µg m³)	40	20

- 8.3.19 It is also noted that when considering hourly mean concentrations, there are several instances where hourly mean concentrations are above 25 µg m³. It is acknowledged that hourly concentrations will exceed threshold values, and guidelines allow for this to occur for a limited number of times a year (DEFRA, 2023b). The air quality monitoring shows that the majority of the highest PM_{2.5} results are between the hours of 18:00 and 06:00, suggesting residential wood and coal heating being a significant contributor, along with nighttime secondary formation, enhanced by colder weather and temperature inversions. These higher levels of PM_{2.5} are cases where the hourly concentration has exceeded 25 µg m³. This is consistent with background data (for 2025) from the UK NAEI.
- 8.3.20 While these results suggest that elevated air pollution levels in the area are caused by a variety of different sources and levels are generally well below threshold limits set to be protective of health, it is also worth noting that this monitoring has not been undertaken during a fire incident.

Stack Emissions Monitoring for Permit Compliance

- 8.3.21 Three stack emissions monitoring reports undertaken in 2024 (February, May and August 2024) by an independent inspection company (Socotec) for Global Ardour's operations in the Estate have been reviewed. All three report compliance with the conditions set out in the Environmental Agency Permit that govern the site. This was further confirmed by the Environment Agency during an interview held with its Waste Management Environment Officer and the Tetra Tech Health and Social Impact Team on 10th November 2025, where the officer confirmed continued compliance with the EA permit conditions throughout their operations.

Community Responses

- 8.3.22 Air pollution and fires caused by the recycling centres were raised as concerns in the community workshop and survey responses with 26% of survey respondents listing air quality as a top concern. Respondents were concerned about mobilisation of air pollutants from operational activities, fires and HGVs movements to nearby residential areas, resulting in poorer indoor and outdoor air quality in homes, schools and public spaces. This was reflected in statements by three respondents:

“You can smell the air pollution next to and inside the house particularly in the summer. Lorries are hugely polluting”.

“Heavy traffic puts out emissions on a daily basis, passing through exhaust odour in residential areas across town”.

“People who live nearby worry about the air and water quality and the effect [it] has”.

- 8.3.23 Respondents were concerned in particular about the inability to use their gardens in their homes (particularly those with children) due to air pollution and odour of emissions. As two respondents wrote:

“[I am] worried about air quality in gardens ...”.

“Can’t open windows or use the garden [due to air pollution concerns]”.

Operational Emissions to Air

- 8.3.24 While GA is not the only business on the Estate to result in emissions to air, it is most likely the largest. Stack emissions associated with GA are regulated through EA permits. Emissions sources associated with operation of the recycling facility relate to plant machinery such as the fragmentiser and shredder, other plant, accidental fires and HGV emissions.
- 8.3.25 From stack emission permit compliance reports that have been reviewed for this HIA, it is shown that GA have been in continuous compliance with these permit requirements.
- 8.3.26 In terms of fires, details on the industrial fires reported in the last 3 years is given in Section 8.5: Community Safety. A total of eight fires were reported in the past 3 years (i.e. December 2023 to February 2026) (see Table 8-2 for further details). Only two of these incidents were reported in 2025, and there have been no fires at the GA facility in 2025 and 2026 so far. This is thought to be as a result of the Fire Prevention Plan developed in collaboration with the Environment Agency and Hertfordshire Fire and Rescue Service which details mitigation measures to minimise the likelihood of fires occurring, as well as a process to extinguish fires immediately and effectively when they do occur, minimising their potential to spread outside the site (which has not occurred since the plan was implemented).
- 8.3.27 It is noted that the Nationwide Metal Recycling Centre which is located nearby on Cadwell Lane, while not located within the Estate, is also responsible for fire incidents (as shown in the fire incident reports), as well as emissions to air from operational activities and HGV traffic, due to its operations being of the same nature as GA, and sharing the same local roads.

Summary of effect

- 8.3.28 The impacts arising from emissions to air associated with the operation of businesses on the Industrial Estate are considered to be **minor adverse**. The scale of the effect is long-term (both temporary from fires and permanent from operational activities) and would affect a small minority of the population. Both operation of plant and HGVs associated with GA produce emissions to air. Emissions to air from operational activities of GA are within annual statutory standards set for health protection, as illustrated by their compliance with EA permit requirements. However, HGVs, as they regularly pass nearby residences, schools and other sensitive receptors (see Figure 7-1), are considered to be the more substantial source of air pollution (and associated community concerns). The effect is

considered to relate to frequent exposure associated with a minor change in quality of life and/or morbidity risk for respiratory and cardiovascular conditions for a very few people. The scientific evidence on the health effects of changes in air quality and respiratory and cardiovascular health outcomes is causal. This may result in a very limited effect on the health baseline with the potential to worsen health inequalities.

Proposed Mitigation

8.3.29 The following mitigation is proposed to address this effect.

- Continue to monitor local air quality through continuous monitoring at a local representative of the Estate.
- Ensure continued compliance with fire prevention protocols, and review and update these as new technology is developed or changes to operational capacity occur.
- Ensure compliance with monitoring requirements and emission limits detailed within the recycling facility permits.

8.3.30 Given road traffic calming measures will contribute to improved air quality, mitigation measures set out in section 8.2: Transport of this HIA are also relevant.

8.4 Environmental conditions: Noise and vibration

8.4.1 This section considers the effects of noise and vibration associated with operational usage of the Estate.

8.4.2 The presence of HGVs associated with the recycling centres is associated with increased noise and vibration. Operational activities of the recycling centres may also result in noise and vibration emissions. Increased noise and vibration may interrupt normal sleep and affect educational attainment. Changes in the distribution of day-time and night-time noise are considered. This may include the levels of traffic noise near to residential communities and schools, the latter where educational outcomes for young people are considered.

8.4.3 Participants in the community workshop and survey raised noise and vibration as an issue of concern.

8.4.4 The scientific literature identifies the following general points relevant to potential exposures and health outcomes. The literature highlights cardiovascular effects, annoyance and sleep disturbance (and consequences arising from inadequate rest) as being the main pathways by which population health may be affected. Annoyance describes negative reactions such as disturbance, irritation, dissatisfaction, and nuisance (Guski, 1999). Environmental noise can initiate physiological stress responses in an individual that leads to a cascade of effects including a rise in heart rate and in levels of stress hormones (Guski et al., 2017). These responses influence risk factors for cardiometabolic health issues including blood pressure, blood sugar and blood fats and long-term exposure may affect mental health and lead to diseases such as diabetes, heart attack, and stroke (Münzel et al., 2017; Münzel, Schmidt, et al., 2018; Münzel, Sørensen, et al., 2018).

8.4.5 The literature also notes the potential for chronic noise to have a detrimental effect on learning outcomes (e.g. noise distracting and affecting communication within classrooms) (Peris & Fenech, 2020).

8.4.6 Whilst the literature supports there being thresholds at which effects (such as annoyance and sleep disturbance) are likely, it also acknowledges the subjective nature of responses to noise. In this regard noise effects can be considered to have non-threshold effects, with characteristics other than sound levels also determining the influence on health outcomes (Government of Ireland, 2021). The assessment had regard to the population groups

identified in the literature that may be particularly sensitive. For example, children, older people, people with a chronic disease, people with a hearing impairment, shift-workers, people with a mental illness (e.g., schizophrenia), and neurodivergent people.

8.4.7 There is the potential for a population health effect due to noise and vibration associated with operations of the recycling facilities and other industrial businesses within the Estate as well as HGVs transporting recycling materials. There is the potential for noise and vibration effects on sleep, mental wellbeing and educational attainment affecting local residents.

8.4.8 The population groups relevant to this assessment are:

- The site-specific population of Hitchin Bearton Ward
- The local population of North Hertfordshire District
- The sub-population vulnerable due to:
 - Young age, particularly school-aged children.
 - Older age, particularly older people with a hearing impairment.
 - Health status, specifically people with sensitivity to noise and people with existing poor physical or mental health.
 - Low-income vulnerability, specifically people living in deprivation, including those on low incomes who may have fewer resources to adapt (e.g. seek respite). Furthermore, those who are economically inactive may spend more time in affected dwellings.
 - Access and geographical factors, specifically people for whom close proximity to the Estate and transport route increases sensitivity.

Sensitivity of the receptor

8.4.9 The sensitivity of the general population is low. The general population comprise those members of the community in good physical and mental health and with resources that enable a high capacity to adapt to change. Additionally, most people live, work or study at a distance from the Estate and affected parts of the local road network where noise and vibration would be unlikely to be a source of concern.

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

Magnitude of impact

8.4.11 Several data sources were used to identify the effect including a noise impact assessment for GA, community workshop and survey responses, and a key informant interview with GA.

Community Responses

8.4.12 Noise associated with HGV movements was a concern raised in the community workshop and survey responses with 14% of survey respondents ranking noise as a top concern. In

particular, respondents raised concerns about sleep disruption associated with noise and vibration of HGVs. Several respondents to the survey stated:

"Frequent disturbances of young sleeping children by HGV traffic, including in the middle of the night when an HGV races past, clearly over the speed limit and outside of allowed operating hours".

"The rattling noise as scrap lorries travel down grove road at high speeds with large noisy loads in the morning disturbs the sleep of everyone in our house".

"The noise also bothers my son who is autistic and extra sensitive to noise. I worry that the pollution is affecting all of our health".

"I get woken in the morning by the lorries driving by. They're the only vehicles that pass my house and make the floor shake. They're make such a rumble and it's very disturbing".

- 8.4.13 Respondents also expressed concern about the vibration of the HGVs within their homes and on roads, as two respondents expressed:

"Heavy, noisy lorries travelling early mornings through Grove Road. They make houses and windows shake [at] times and cause excess road deterioration".

"Grove road is a very noisy road, constant rumbling of massive lorries going up and down. The road needs to be patched up constantly. Resurfacing, covers on manholes coming loose, horrible noises. Takes a few years to get resolved, then something else needs repairing. In the end we end up paying for the road repairs and we suffer the noise and pollution".

- 8.4.14 One respondent raised the issue of noise also impacting recreation:

"Excessive noise pollution from the lorries passing Ransoms Recreation Ground, affecting my ability to enjoy the park peacefully and its birdsong".

Operational Noise Emissions

- 8.4.15 While GA is not the only noise emitting business on the Estate it is most likely the largest. Noise associated with GA is regulated through EA permits. Emission sources associated with operations of the recycling facility relate to routine plant machinery (e.g. the fragmentiser/shredder). Occasionally, gas canisters that are within other scrap will pass through the fragmentiser causing what is called a 'deflagration' or a loud popping sound. This is monitored through a deflagrations management plan in force at GA.
- 8.4.16 A noise impact assessment of the GA recycling centre was conducted in 2022 by an external consultant. The daytime assessment indicated that the rating level is above the background sound level at the noise sensitive receptor by +22.0 dB. This indicates the potential for a significant adverse impact. The assessment provides possible mitigation strategies such as enclosing the pre-shredder, installing a roof over the fragmentizer/shredder, and installing an 8-meter noise barrier around the tipping area which could decrease the impact to only a 'slight' effect.
- 8.4.17 The noise impact assessment also examined the noise effects of HGVs entering and leaving the site. Based on operational capacity at the time, the noise assessment assumes 238 HGV movements per day which, averaged over the normal operating hours, equates

to 10 HGV movements per hour. The normal operating hours of GA are 7:30 am – 7:30 pm Monday-Friday and 8:00 am – 12:00 pm on Saturday. HGVs may arrive at GA from opening, meaning that the presence of HGVs on the road network may be earlier than 7:30 am. Community feedback suggested that there were instances where HGVs may arrive in the early morning hours and park and wait (or remain idle) on the roads until they are able to enter GA.

- 8.4.18 GA is required to maintain a noise and vibration management plan that outlines mitigation measures. These include a 4-meter wall around the site, earth burn and keeping the fragmentizer enclosed. A representative from GA confirmed that they are in the process of working with a sound engineer specialist to improve noise controls.

Summary of effect

- 8.4.19 The impacts arising from noise and vibration associated with the operation of businesses on the Estate are considered to be **minor adverse**. The scale of the effect is long-term and would affect a small minority of the population. While operations of GA produce noise and vibration emissions, the primary source of concern is associated with HGVs as these pass nearby residences, schools and other sensitive receptors (see Figure 7-1). The effect is considered to relate to frequent exposure associated with a minor change in quality of life. The scientific evidence on the health effects of noise and vibration is clear, for example in relation to sleep disruption, and suggestive in the case of educational attainment. This may result in a very limited effect on the health baseline with the potential to worsen health inequalities.

Proposed Mitigation

- 8.4.20 While GA is not the owner of the majority of HGVs that enter and exit the site (most are from third-party operators) the following mitigation is proposed to address this effect:
- Consider installing impact deadening in the HGVs holds or containers. HGV or container holds can be surfaced with abrasion-resistant rubber to reduce noise generated by material impact as waste is loaded. According to the Health and Safety Executive (HSE), impact noise can be reduced by approximately 10 dBA or more with this mitigation measure.
 - When at a stop, all HGV engines should be switched off.
 - Consider switching any tonal reversing alarms for broadband white noise non-tonal alarms.
 - The access route for HGVs should be well maintained and free of potholes.
 - Control and monitor noise in accordance with the issued permit or written management system.
 - Publish online advice to properties adjacent to access roads on planning (and other) rules on installing noise mitigation barriers.

8.5 Environmental Conditions: Community Safety

- 8.5.1 This section considers the implications for community safety associated with the Estate due to fire risk and perceived and actual crime within the local area.
- 8.5.2 Lithium-ion batteries pose a significant fire risk due to their hazardous materials such as fluorinated substances found in different components of the lithium-ion battery cell (Park et al., 2018; Willstrand et al., 2025). The Environment Agency's guidance states lithium-ion batteries need to be stored and handled safely to prevent damage, leakage, short-

circuiting or overheating which could cause battery fires (Park et al., 2018). However, increasingly, lithium batteries are found in waste transfer, recycling and recovery facilities that do not have the correct facilities or procedures in place to handle them, which poses a significant fire risk (WISH, 2019). As a result, research has shown that 58 thousand kg of mercury and 45 million kg of plastics containing brominated flame retardants are released into the environment every year as a result of non-compliant management of e-waste (Baldé et al., 2024).

- 8.5.3 In addition to increased high thermal energy, lithium-ion battery fires can generate significant amounts of combustible, toxic and corrosive gases and particulate emissions also known as PM_{2.5} (Claassen et al., 2024). Depending on people's exposure and individual susceptibility, exposure to PM_{2.5} can cause acute and chronic health effects (Claassen et al., 2024). Human exposure to fluorinated substances and other toxic gases has been linked to multiple adverse health effects such as decreased immunity, increased risk of thyroid disease, decrease in fertility, testicular and kidney cancer as well as liver damage (Velis and Cook, 2021; Willstrand et al., 2025). Reports have found that inhalation of hydrofluoric acid can result in serious toxic effects as it is corrosive to the skin and organs and in serious cases can lead to death (Mrozik et al., 2021). Dust from battery fires may contain particulates with arsenic, cadmium, chromium, cobalt, copper or lead which can cause adverse health effects such as cardiovascular and respiratory diseases (Mrozik et al., 2021).
- 8.5.4 Research from the WHO has identified children and pregnant people to be more susceptible during periods of exposure, which can cause the following health risks:
- Adverse neonatal outcomes, including stillbirth and premature birth.
 - Neurodevelopment, learning and behaviour outcomes.
 - Reduced lung and respiratory function and increased asthma incidence, which may be linked to high levels of contaminated air population from e-waste recycling sites (WHO, 2024).
- 8.5.5 In addition of the health risks relating to air pollution, research has shown that using water mist to manage battery fires can temporarily increase production rate of hydrogen fluoride at the time of use (Larsson et al., 2017). WISH state that any water or foam used to extinguish a fire is likely to be contaminated, therefore any firewater or foam should be considered as a pollution hazard (WISH, 2019). Firewater run-off can transport pollutants into drainage systems, rivers, lakes, groundwater and soil, potentially contaminating water supplies causing harm to public health, wildlife and recreational use (WISH, 2020). As a result, the Environment Agency requires that spill contingency procedures must be in place to minimise contamination of toxins (Environment Agency, 2025).
- 8.5.6 In addition to water, contamination, lead and other toxic substances can contaminate surrounding soils, with the ability to infiltrate to deeper layers into the ground (Mrozik et al., 2021; WHO, 2017). In this instance, wind can spread pollutants further, therefore it is difficult to determine the spread of exposure.
- 8.5.7 With regard to the incidence and fear of crime, these are associated with poor health outcomes for community residents. Fear of crime produces stress, anxiety and poor mental health. Adverse health outcomes associated with chronic stress include diabetes, heart disease and ulcers (Sinisi, 2004). The fear of crime also poorly impacts physical health through reduced outdoor physical activity and exercise and in part explains the association between high crime areas and obesity and other negative health outcomes (Rees-Punia et al., 2018).
- 8.5.8 The three protective characteristics of mental well-being are a sense of control, participation and resilience (Coggins et al., 2011). Control is a key factor in emergencies and unsafe events. Poor communication contributes to anxiety, feelings of a lack of control

and lack of preparedness in people. The ultimate goal of dialogue between regulators and communities is to produce an informed public (Sinisi, 2004). Trust, credibility, competence, fairness and empathy are of great importance (Sinisi, 2004) and the routine monitoring and clear communication of results can greatly increase trust, empower people and reduce fear (WHO, 2013), outcomes associated with chronic stress include diabetes, heart disease and ulcers.

8.5.9 There is the potential for a population health effect arising from fire incidents which may impact community safety. In addition, long queues of parked HGVs associated with the Estate may contribute to increased fear of crime. These impacts have the potential to affect local residents.

8.5.10 The population groups relevant to this assessment are:

- The site-specific population of Hitchin Bearton Ward.
- The local population of North Hertfordshire District.
- The sub-populations vulnerable due to:
 - Low income, specifically people who have fewer resources to adapt and limited capacity to obtain further information.
 - Health status, specifically people with existing health conditions.
 - Access and geographical factors, specifically the population in closest proximity to the Estate.

Sensitivity of receptor

8.5.11 Sensitivity of the general population is low. Community and stakeholder engagement indicates that most residents do not experience frequent direct exposure to serious fire incidents or perception of safety risk. The general population is also considered to have a high capacity to adapt, particularly in relation to awareness of local safety risks and ability to respond to fire warnings e.g., shutting windows.

8.5.12 Sensitivity of the vulnerable population is high. This reflects that this is an issue of concern to the local community, as established through community engagement. Vulnerability also includes children and young people (dependants), older people and people with a disability. This also includes people in poor mental health. Baseline data shows a proportion of people with existing anxiety (22.1% of the population with a high anxiety score) and mental conditions (12.6% with depression and 0.9% with other mental health conditions) within the study area. Issues of community safety may act as a source of stress and anxiety. This may particularly be the case for people who live in close proximity to the Estate. Low incomes or existing deprivation may contribute to a limited sense of control and reduced capacity to obtain further information.

Magnitude of impact

8.5.13 Several data sources, including a literature review, fire incident reports, review of permits, stakeholder interviews and community engagement were used to identify the impact of fire incidents and the fear of crime associated with the Estate. This evidence is presented below and is used to collectively present an understanding of the potential risks.

Frequency of fire incidents

8.5.14 A number of industrial fires have been reported at the Estate. A total of eight fires were reported in the past 3 years (i.e. December 2023 to February 2026) (see Table 8-2 for further details). Six of these incidents occurred between 2023 and 2024. Only two

incidents were reported in 2025. There were no casualties reported in all the fire incidents and all the fires were either limited to the item first ignited or building of origin.

Table 8-2: List of reported fire incidents in the past 3 years

FRS Incident Number	Date	Location (building)	Cause	Other information
GHGH021039-08092025	08.09.2025	Bob & Nik Unique Ltd, Cam Centre, Wilbury Way, Hitchin	Accidental – overheating, unknown cause	No hazardous materials involved, no casualties
GHGH006713-01042025	01.04.2025	Crane, 46-48 Wilbury Way, Hitchin	Accidental – faulty fuel supply (electricity-manufacturing equipment)	No hazardous materials involved, no casualties
GHGH025398-06122024	06.12.2024	CW Plant (Charles Wilson), Cadwell Lane, Hitchin	Accidental – combustible articles too close to heat source	No hazardous materials involved, no casualties
GHGH023217-08112024	08.11.2024	Global Ardour, Wallace Way, Hitchin	Accidental – overheating, unknown cause	No hazardous materials involved, no casualties
GHGH019257-19092024	19.09.2024	Metal and Waste Recycling Ltd, Wallace Way, Hitchin	Accidental – fault in equipment or appliance (lithium-ion batteries)	No hazardous materials involved, no casualties
GHGH020153-28092024	28.09.2024	Metal and Waste Recycling Ltd, Wallace Way, Hitchin	Accidental – faulty fuel supply (electrical fault)	No hazardous materials involved, no casualties
GHGH002714-07022024	07.02.2024	Nationwide Metal Recycling, Cadwell Lane, Hitchin	Accidental – accumulation of flammable material	No casualties
GHGH024333-11122023	11.12.2023	Nationwide Metal Recycling,	Accidental – fault in equipment or appliance (lithium-ion batteries)	No hazardous materials involved, no casualties

		Cadwell Lane, Hitchin		
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Permitting

- 8.5.15 GA is permitted under the Environmental Permitting (England & Wales) Regulations 2016, which set out requirements for the management, storage, and handling of lithium-ion batteries. There is no treatment of batteries allowed on site, other than sorting and separating from other wastes, and repackaging for third party processing. All batteries including lithium-ion batteries can be stored on-site for up to 6 months. Global Ardour also has in place a Fire Prevention Plan (FPP) which details measures to prevent fires at the site as well as management measures in the event of a fire. The FPP requires that all lithium-ion batteries are removed immediately from the source vehicle which may include electric scooters, electric bikes and other electric motorcycles to mitigate the risk of ignition and should be stored in a designated sealed metal or plastic drum with vermiculite to prevent any potential leaks and placed inside a shipping container. Vermiculite is a chemical with fire resistant and insulating properties commonly used to safely store and smother damaged lithium-ion batteries. The battery storages are also fitted with a water supply for fire service response, at a separation distance of 6m from any other waste. These measures minimise the risk of fire spreading.

Stakeholder Interviews

- 8.5.16 An interview with a representative from the Hertfordshire Fire and Rescue Service indicated that the primary source of lithium-ion batteries is small domestic appliance (SDA) waste. As it is not legally permitted to dismantle electrical appliances, batteries contained within these SDA items can inadvertently pass through collection systems and enter the recycling facility. Another noted source of lithium-ion batteries was confiscated electric scooters and bikes seized by the police, which are subsequently transferred to the recycling facility. To manage this risk, the operator employs measures such as triaging incoming waste and checking waste volumes for lithium-ion batteries and related appliances prior to processing as well as storing batteries in an enclosed container with vermiculite.
- 8.5.17 An interview was also held with a representative from GA. The interview indicated that there have been no fires reported since 2025 at the site, with the last incident reported in December 2024. Following this incident, GA worked with Hertfordshire Fire and Rescue Service and the Hertfordshire Environment Officer to develop a Fire Prevention Plan. GA now stores all lithium-ion batteries in containers with vermiculite in an enclosed building. In case a fire starts, the building is meant to contain the fire internally, reducing the risk of the fire spreading. The recycling facility has also implemented measures that allow potential fire events to be identified early through the building's venting system. If a fire occurs, gases released during thermal combustion can be detected through the venting system, enabling the Fire and Rescue Service to respond quickly. The interview confirmed that since implementing these measures there has not been a fire at GA.

Community responses

- 8.5.18 Residents who participated in the online survey and attended the community workshop identified the fire incidents as a notable safety concern. The online survey findings show that 21% expressed specific concern regarding fire risk and 85% reported a lack of confidence in the current fire safety measures that are in place to protect nearby communities. For example, a respondent indicated specific concerns about battery fires when asked about any impacts they had faced from the Estate:

“Battery fires leading to fears about going out”

- 8.5.19 Another respondent expressed concern about the health outcomes associated with previous fires:

“Every time there has been a fire, we’ve all had headaches and feel nauseous”.

- 8.5.20 Survey respondents also demonstrated the impact of the fires on the mental health of locals including stress and anxiety. As one respondent stated:

“When the recent fires happened at the scrapyards, I could not leave my home because I didn’t know what particulates were in the air. I do not know what impact this has had on me as no one has told me what the emissions contained.”

- 8.5.21 As mentioned above, poor communication also contributes to anxiety, feelings of lack of control and lack of preparedness in people. Control is a key factor in emergencies and unsafe events. The online survey respondents indicated poor communication with the local residents regarding fire incidents. For example, when asked about actions that could improve health and wellbeing in relation to the Estate, one survey respondent stated:

“Better communication with residents and local businesses. If we don’t see/hear the fire or emergency vehicles we read about it on social media with a lack of facts, often opinion. Our child’s nursery backs on to the estate and we receive information from them which they’ve received via social media”.

- 8.5.22 Some of the survey respondents raised concerns about the timing of communication. One survey respondent stated::

“Because there is no information that a fire is happening due to them being in the early hours so when we see a Facebook notification or see the fire it’s too late”.

- 8.5.23 One respondent noted that a lack of an emergency alert system has led to frequent concern about fire incidents, as they stated:

“[I would recommend] an emergency alert so I know not to leave the house rather than finding out on Facebook after I’ve been outside. At the moment if something smells odd when I go into the garden, I frequently worry one of the scrapyards is on fire because there is no way of knowing if they are”.

- 8.5.24 In relation to fear of crime associated with long queues of parked HGVs on residential roads and at night, the primary impact relates to residents’ perception of safety. The workshop and survey responses indicate that some residents are concerned that the presence of parked HGVs may encourage criminal activity and that travelling past these vehicles at night can feel unsafe. As one survey respondent stated:

“As a woman I find the lorries for the metal recycling parked up at night threatening to walk past and it worries me for my daughters when they are older”.

- 8.5.25 The actual level of exposure to fire risk is low. However, the incidents pose a safety risk due to the release of pollutants. The air quality impacts of the fire incidents are further discussed in Section 7.6. It is noted that in the past there have been more frequent fire events but improved fire mitigation strategies employed by GA have led to a reduction in incidents.

- 8.5.26 Fire incidents may also impact the population through anxiety and reduced sense of control experienced in the aftermath. Considering the low frequency of fire incidents that have occurred this is considered to have a minor impact on the quality of life of the local population. Community responses are likely to vary between individuals, with levels of concern ranging from occasional to frequent. These are likely to change over time, and may reduce, if there is notable and sustained reduction in fire incidents and improved communication with the community.

- 8.5.27 It is noted from literature that there may be water quality impacts associated with management of fires. As discussed in Table 5-2 'Water Quality', appropriate standard good practice measures during fire management are in place that break pollution linkage pathways to population health. A self-contained water reserve is available to pump water used during fire management back into a reservoir, ensuring containment and preventing offsite contamination. It is also noted that the Environment Agency (EA) actively monitors water quality in the event of fire.
- 8.5.28 For population health, the magnitude of impact is considered to be **low**. The impact would be minor, long-term in duration and continuous. There is potential for minor changes in quality of life and morbidity for a small minority of the population.

Summary of effect

- 8.5.29 The scale of the population health effect is considered **minor adverse**. Evidence of previous fire incidents indicate an ongoing issue that may influence population health and perceptions of safety within the study area. The continued presence of lithium-ion battery related fire risk has an influential effect on the ability to deliver local public health objectives relating to community health and safety, and environmental protection. The WCS aims to reduce environmental and social impacts associated with waste management infrastructures. The Health and Wellbeing Strategy aims to achieve healthy and sustainable places and good emotional and mental wellbeing for the people of Hertfordshire (see section 3.1.3.5). These effects are particularly relevant in the context of health inequalities as nearby residential receptors including vulnerable groups such as children, older people and those with chronic respiratory conditions may experience disproportionate exposure to air pollution including smoke. Community consultation indicated concern regarding fire safety and health impacts, showing mixed confidence in the effectiveness of current control measures. There is potential for a slight change in the local population health baseline if fire risks remain the same. Scientific evidence shows a clear relationship between exposure to fire pollutants and short term respiratory and cardiovascular effects and indirect mental health impacts including stress, anxiety and perceived risk.

Proposed Mitigation

- 8.5.30 The online survey respondents expressed a desire for different communication approaches in the event of a fire. Recommendations from respondents included:
- “An emergency alert so I know not to leave the house rather than finding out on Facebook after I've been outside. At the moment if something smells odd when I go into the garden I frequently worry one of the scrapyards is on fire because there is no way of knowing if they are”.
- “Clear and timely communication during incidents, especially fires or other events that may affect air quality, with guidance for residents on any health precautions”.
- 8.5.31 Several survey respondents also requested official protocol or guidance from the relevant authorities that could detail steps residents should take in the event of a fire in order to keep safe from exposure to pollutants. They also requested transparency in reporting on causes of the incidents, lessons learned and preventative measures applied.
- 8.5.32 The following mitigation is proposed to address this effect:
- Timely communication with local residents in the event of a fire. This could be achieved through using an existing Council AQ alert system, targeted outreach (e.g. through a listserv), and broad outreach via social media.

- Ongoing pro-active community engagement, with the recycling facility Liaison Officer to ensure transparency with the local residents, including sharing lessons learnt, and the preventative measures taken to reduce the likelihood of future events. Regular local community engagement would help to address concerns.
- Consider putting in place a no HGV long-stay or overnight parking policy on surrounding residential roads.
- Ensure regular review of the current Fire Prevention Plan to make sure it is up to date and reflects best practice.
- Given that one of the primary causes of fires at recycling facilities (and a risk for fires in general) is lithium-ion batteries, safer use and disposal of lithium-ion batteries by the public would help to reduce this risk. Increase communication and awareness of residents about the risks of lithium-ion battery fires and provide clear guidance on where to safely dispose of these batteries locally. Further actions to support legislation on lithium-ion battery use and disposal should be considered.

8.6 Social and community influences on health: Community identity, local pride, sense of belonging, social isolation, and social participation

- 8.6.1 This section considers issues related to community identity, local pride, sense of belonging, social participation and social interaction. The Estate affects spaces that support social interaction and community cohesion. Community severance arising from traffic also affects social connectivity between neighbourhoods. Pollution, debris and traffic volumes may reduce pride in the local area, affecting community identity.
- 8.6.2 The Estate also provides infrastructure that promote social interaction within Hitchin including a community centre, restaurants and pubs, pool hall, children's play facility, vocational training and a place of worship.
- 8.6.3 The scientific literature identifies the following associations relating to community identity and human health. There is growing evidence linking community identity to health concluding that strong community identity contributes to community-level pathways and processes that positively impact individual health. An individual's identification with a physical and social community can invoke feelings of inclusion and connection and lead to better physical and emotional health; while a sense of isolation can induce loneliness and depression and can negatively impact health. Places and locations hold meanings and memories for people. The ways in which people are able to relate to, access and enjoy these places and locations are important for mental health and well-being (Baldwin, 2015).
- 8.6.4 It has also been shown that positive attitudes of outsiders about a place can lead to positive attitudes of the residents about themselves and result in better lifestyle choices and consequently, better health. A prospective study showed that even after accounting for income, race, smoking, obesity, and exercise, individuals with fewer social contacts had twice the risk of early death. Favourable psychosocial environments support positive social interactions, reducing stress and promoting healthy behaviours. Children and young people from neighbourhood environments that are considered to have fewer psychosocial advantages (such as low social capital, social resources and social cohesion) may shoulder a disproportionately higher burden of physical and psychological ill health (Egan et al., 2008).
- 8.6.5 Community severance, where road traffic speed or volume inhibits access to goods, services or people, is associated with a range of poor health outcomes. Mitigation measures including traffic calming or separating children from traffic (e.g. placing playing

fields at a distance from the road network) were associated with both increased walking and less pedestrian injury.

8.6.6 There is the potential for a population health effect arising from high volumes of road traffic resulting in community severance, litter from unsecured waste transfer trucks and environmental pollution reducing attractiveness of area and community pride. These impacts have the potential to affect local residents.

8.6.7 The population groups relevant to this assessment are:

- The site-specific population of Hitchin Bearton Ward.
- The local population of North Hertfordshire District.
- The sub-populations vulnerable due to:
 - Older age, in particular older people who may be more vulnerable to social isolation.
 - Low income, specifically people on low income may have fewer resources to adapt to change (e.g. relocate).
 - Health status, specifically people with existing mental health conditions that make them more sensitive to factors affecting social interaction and community cohesion.
 - Access and geographical factors, specifically the population with the greatest impact due to proximity to the Estate.

Sensitivity of receptor

8.6.8 The sensitivity of the general population is low. This reflects that the local baseline population profile (see Section 7) characterises people living in the area as being in good health and generally having equal or higher self-reported wellbeing (e.g. in relation to happiness) than national averages.

8.6.9 The sensitivity of the vulnerable group population is high. This reflects that the sub-population includes those with existing poor mental health. People who are socially isolated may also be more sensitive to factors affecting community cohesion and social interaction in the area. People on low incomes or in areas of high deprivation are less able to adopt strategies for change (e.g. relocate). People living in homes adjacent to the industrial site boundary or those who experience litter from the waste transfer trucks more frequently may also be more sensitive.

Magnitude of impact

8.6.10 Operational activities at the Estate can influence the level of satisfaction that residents have with their neighbourhood, impacting on their sense of place and wellbeing. The incidents of metal scrap falling from waste transfer trucks (litter), combined with frequent movement of HGVs, can contribute to loss of amenity, pollution and reduced quality of the environment and elevated local air pollution levels. In combination, these factors may impact residents' sense of pride and positive perception of the local area. When survey respondents were asked to identify impacts that they have experienced related the Estate, one-fifth of all responses were related to metal scraps falling off the waste transfer trucks, for example:

“.....some are unnetted and pieces of metal fall off....”

“....Scraps that have fallen can often be seen on the pavement.”

“.....We often see pieces of metal that have fallen off them and wonder how long it will be before someone is hit by one.”

- 8.6.11 In addition, the high volume of waste transfer vehicles may contribute to community severance, reducing the ease and comfort with which residents can move around their neighbourhood, access local amenities, and interact with one another. Two of the workshop attendees wrote:
- “The heavy traffic makes roads difficult to use or cross to access green spaces”.
- “In order to access the shops in town you have to walk along the heavily polluted Grove Road”.
- 8.6.12 These elements (e.g. a changed sense of community identity or community influence) are likely to impact quality of life. Impacts to social and community influences on health may have wellbeing impacts that relate to the local community’s relationship with their environment. For population health, the magnitude of impact is considered to be low. The impact would be minor, but continuous over a long-term duration. There is potential for minor changes in quality of life and morbidity for a small minority of the population.
- 8.6.13 The Estate also provides spaces such as the Ravidassia Community Centre, Space2play Herts, Sri Guru Songh Sabha Gurdwara Temple, gymnasium, pool hall and other meeting places such as restaurants and cafes. These promote community cohesion within the study area. The effect is considered to relate to continuous availability of these spaces with a beneficial impact on quality of life and mental health. This benefits a small minority of the local population.

Summary of effect

- 8.6.14 The impact on community identity arising from the operation of the Estate is considered **minor adverse**. The scale of heavy vehicle traffic may have a marginal effect on wider policy objectives on healthy, liveable neighbourhoods and community well-being. The continued presence of debris, noise and emissions associated with vehicle movements contribute to negative perceptions of the area and may exacerbate existing inequalities particularly where communities already experience multiple environmental burdens. Consultation themes have highlighted concern among residents regarding cleanliness, safety and character of the area indicating that current conditions are affecting community cohesion and identity. This also reflects that evidence from the literature demonstrates a clear relationship between heavy traffic and environmental degradation and reduced neighbourhood satisfaction, social interaction and sense of belonging.
- 8.6.15 A **minor beneficial** impact is also identified in relation to provision of community infrastructure at the Estate. The scale of the effect is considered to be small. This is an acknowledgement of the positive influence that these provisions have on community identity with long-term benefits to community cohesion and mental health. The level of impact on community cohesion is likely to have a marginal effect on health policy delivery or inequalities.

Proposed Mitigation

- 8.6.16 Relevant mitigation measures to address impacts on social and community influences on health are included as part of the assessment for Section 8.1: Transport, Section 8.3: Air quality, Section 8.4: Noise and Vibration, and Section 8.5: Community Safety.

8.7 Economic conditions: Employment and income

- 8.7.1 This section discusses the benefits of employment provision associated with the Estate. The Estate provides good quality employment and economic activity in North Hertfordshire.

- 8.7.2 Direct and indirect employment opportunities have socio-economic effects that impact upon health and mental well-being. There is strong evidence for a protective effect of employment on depression and general mental health (van der Noordt et al., 2014). People who are unemployed long-term carry a markedly higher burden of disease, particularly mental illness, than employed persons and those who are unemployed only for a short time. The burden of disease increases with the duration of unemployment (Herbig et al., 2013).
- 8.7.3 The evidence that large income differences have negative health and social consequences is strong and, in most countries, inequality is increasing. Narrowing the socioeconomic gap can improve the health and wellbeing of populations (Pickett and Wilkinson, 2015). Improvements in socioeconomic determinants positively impact population health. Income inequality, measured mainly as median household income, has a strong impact on health (Pickett and Wilkinson, 2015).
- 8.7.4 Improvements in indicators like income, education, and employment status can result in a reduction in mortality and morbidity outcomes improving overall population health. Improving more than one indicator simultaneously results in a greater health improvement (Salgado et al., 2020). Socioeconomic position is consistently associated with children's nutrition knowledge, parent modelling, home food availability and accessibility. Socioeconomically disadvantaged children are at higher risk of consuming poor diets, in particular less fruits and vegetables, and more non-core foods and sweetened beverages (Zarnowiecki et al., 2014).
- 8.7.5 There is the potential for a population health effect arising from jobs and economic activity provided by the Estate. The businesses on the Estate provide good quality employment and income providing more health supporting resources. These impacts have the potential to affect local residents of working age and their dependants and people from the wider area who commute to the Estate for work.
- 8.7.6 The population groups relevant to this assessment are:
- The local population of North Hertfordshire District.
 - The regional population of East of England.
 - The sub-population vulnerable due to:
 - Young age vulnerability, particularly children and young people who are dependants, as well as young adults early in their careers.
 - Old age vulnerability, specifically older people who are dependants.
 - Health status, particularly people with existing poor physical and mental health.
 - Low-income vulnerability, in particular people living in deprivation, including those on low incomes for whom good quality employment may be particularly beneficial.
 - Access and geographical vulnerability, specifically people for whom other job opportunities may be limited due to access and geographical limitations.

Sensitivity of receptor

- 8.7.7 The sensitivity of the general population is **low**. This reflects that most people are within stable employment (or a dependant of such a person).
- 8.7.8 The sensitivity of the vulnerable group population is **high**. Vulnerability in this case relates to people and their dependants who are benefitting from the Estate in terms of employment and economic activity. Vulnerability also relates to those who are in unemployment or not economically active who may benefit from locally available employment opportunities and economic activities.

Magnitude of impact

- 8.7.9 Hitchin Industrial Estate is a well-established employment area located within the town of Hitchin. The Estate comprises a diverse range of commercial and industrial uses, including the Global Ardour Recycling Facility, National Gas, and a variety of businesses such as electrical and engineering services, vehicle repair and servicing, building trades, pharmaceutical services, and laboratory facilities.
- 8.7.10 The magnitude of impact due to employment and income provision from the Estate is considered to be low. Businesses on the Estate provide access to paid employment and economic activity in the study area. These are supportive of improved living standards, reduced financial stress and enhanced wellbeing. The overall scale at the population level is considered low, but a medium scale for those directly employed or who have businesses operating on the Estate. The duration of effect is over the long-term. Employment opportunities are continuous and the beneficial effects occur frequently through regular income generation, job stability and day to day economic activity. The severity of health outcomes relates to moderate impacts on quality of life and morbidity related to mental health, reduced stress and improved capacity for healthy living conditions. A small minority of the working age population benefit from the employment and economic activity provided by the Estate.

Summary of effect

- 8.7.11 The impact arising from the operation of businesses on the Estate is considered to be **minor beneficial**. The Estate provides ongoing employment opportunities and supports local supply chains within the local study area. This has a marginal effect on the delivery of public health and socio-economic policy objectives to improve employment rates and reduce health inequalities within the County of Hertfordshire. Access to stable employment and income is a well-established determinant of health, with clear evidence demonstrating positive associations with improved mental wellbeing, reduced financial stress, better housing security, and improved long-term health outcomes. There is potential for a slight beneficial change in the local population health baseline if employment provision and economic activity improve or remain the same.

Proposed Mitigation

- 8.7.12 Relevant mitigation measures to address impacts on employment and income, include:
- Consider road traffic amendments as proposed as part of the assessment for Section 8.2: Transport to ensure access to employment and economic opportunities on the Estate.

8.8 Wider societal infrastructure and resources

- 8.8.1 Recycling facilities provide efficient handling and management of waste (scrap metal, largely from vehicles) in the local and wider community, as well as nationally. This section assesses the public health benefits of waste management as a component of the Estate.
- 8.8.2 Metal recycling facilities are an essential part of modern waste management systems that play a vital role in minimising the amount of waste that ends up in landfills, and reducing greenhouse gas emissions (EPA, 2001). These offer several benefits including contributing to the circular economy through the recycling of scrap metal, and efficient waste management through handling of metal waste from various sources.
- 8.8.3 There is the potential for a population health effect due to the contribution of the recycling facilities towards the circular economy and more sustainable waste management practices, with associated public health benefits. These impacts have the potential to

affect local residents, local businesses, and long-term occupiers of the local community. As GA accepts waste from across the UK, there is also the potential for effects on the regional and national population.

8.8.4 It is noted that the Nationwide Metal Recycling Centre is located nearby, though not within the Estate. This facility also contributes to the wider public health benefits of waste management, contribution to the circular economy and greenhouse gas reduction.

8.8.5 The population groups relevant to this assessment are:

- The local population of North Hertfordshire District.
- The regional population of East of England.
- The national population of England.
- The sub-population vulnerable due to:
 - Young age vulnerability (children and young people, in particular with regards to the impacts of climate change e.g. extreme temperatures)
 - Old age vulnerability (older people who are dependants, in particular with regards to the impacts of climate change e.g. extreme temperatures)
 - Health status vulnerability (people with existing poor respiratory or cardiovascular health, in particular with regards to the impacts of climate change e.g. extreme temperatures, increased burden of disease)
 - Low-income vulnerability, in particular people living in deprivation (as deprived populations are more vulnerable to the effects of climate change), and those on low incomes for whom good quality employment may be particularly beneficial.

Sensitivity of receptor

8.8.6 The sensitivity of the general population is low. This reflects that the UK is a developed economy and has comparatively high resilience and capacity to adapt to climate change, so in general the national population can be considered to be of low sensitivity.

8.8.7 The sensitivity of the vulnerable sub-population is high. Adverse effects would be disproportionately experienced by the most vulnerable members and regions of society. Such effects are likely to widen health inequalities. Although the general population in the UK are likely able to get support to cope with the effects of climate change, some vulnerable population groups are at greater risk (e.g. people with socio-economic disadvantage or old age making it harder to cope with heatwaves or flooding). These are also the population groups that are mostly likely to benefit from the public health benefits of a circular economy.

Magnitude of impact

8.8.8 GA recycling facility, through scrap metal recycling, contributes to the circular economy. Operation of the facility reduces waste going to landfill and contributes to the reduction of greenhouse gases (through reducing the need for virgin metal production). This is line with local and national policies which aim to provide safe and efficient waste management using practices up the waste hierarchy, reducing waste volumes that go to landfill (such as the Waste Core Strategy and Emerging Mineral and Waste Local Plan, as detailed in Section 3).

8.8.9 Reducing greenhouse gas emissions supports avoiding adverse health effects associated with climate change. These include extreme temperature and climatic effects related to infectious diseases occurrence, food insecurity, injury and death (Costello *et al.*, 2009). These effects are relevant to the UK population, but also the global population, particularly

deprived populations in low- and middle- income countries. However, changes in health outcomes related to climate change are expected to be relatively small in the UK, due to it being an economically developed nation (as the greatest adverse climate change impacts on health are expected in the most economically deprived populations). The Intergovernmental Panel on Climate Change (IPCC) states that there are opportunities to achieve co-benefits from actions that reduce emissions of climate altering pollutants and at the same time improve health (IPCC, 2014).

- 8.8.10 On the other hand, moving towards a more circular economy in terms of waste management methods has a wide variety of public health benefits, including (from WHO Regional Office for Europe, 2023):
- Materials recycling using modern technology is less hazardous to health than unregulated landfilling or open-air burning of waste;
 - The circular economy promotes more skilled (and therefore better paid) waste industry jobs, with good quality employment being a strong driver of health;
 - The circular economy (especially materials recycling) puts resources back into economic markets, promoting health outcomes of economic prosperity.
- 8.8.11 The magnitude of impact due to the wider societal benefits of operation of the Estate is considered to be low. Impacts will be long-term in duration and relate to frequent effects with regard to provision of good quality waste management, and the indirect health co-benefits of moving towards a circular economy and reducing greenhouse gas emissions. Such impacts may have service quality implications at the local, regional and national level. This is expected to result in a very minor change in quality of life for a large minority of the population with regards to sustainable handling of waste.

Summary of effect

- 8.8.12 The operational impacts of the Estate are considered to result in a **minor beneficial** effect on population health. The Estate provides a protective effect on the health baseline that is important for public health. This conclusion reflects the scientific literature which establishes a causal relationship between climate altering pollutants, climate change and population health outcomes (Al-Delaimy *et al.*, 2020), and a clear association between safe waste management systems, the circular economy and health outcomes (WHO Regional Office for Europe, 2023). Although the Estate would have very limited impact on the national or global health baseline even accounting for long-term inter-generational effects, it is considered that the Estate will contribute to the delivery of local and national policies and relates generally to local health priorities.

Proposed mitigation.

- 8.8.13 Relevant mitigation measures to address impacts on employment and income, include:
- Explore long-term strategies and planning for waste management across Hertfordshire County.

9 Conclusion and Recommendations

- 9.1.1 Overall, the Hitchin Industrial Estate plays an important role in the local community. It provides valuable employment, services, community spaces, and places of worship. The two recycling centres located either on the Estate (Global Ardour Recycling) or near the Estate (Nationwide Recycling) also play a critical role in contributing to climate mitigation strategies and a circular economy.
- 9.1.2 However, the site of the Estate being surrounded by largely residential uses and with only one access route has created tension between the commercial purposes of the Estate and local residents.
- 9.1.3 Initially, concern was raised about the health effects of a series of fires that had occurred at the recycling facilities. This issue has been assessed in section 8.5 Community Safety and has found that strategies being used from the updated Fire Prevention Plan have been successful at reducing fire risks.
- 9.1.4 A greater concern that emerged through community consultation was the volume of traffic and presence of HGVs on local roads. The HIA has assessed this as a moderate adverse effect, meaning that there is the likelihood for a significant impact on population health. This issue poses risks for road users and pedestrians, including children who use parts of the route to travel to school. The HIA has proposed several recommendations that can be considered in the short-term to improve the safety of the roads. Longer-term solutions warrant further consideration by the Local Authorities.
- 9.1.5 Other impacts including physical activity, air quality, noise and vibration, community safety, social and community influences on health, employment and income, and wider societal infrastructure and resources were assessed as not-significant effects. This means that the overall effect is not anticipated to generate substantial changes to population health. However, this HIA has provided recommendations to further reduce any identified negative effects and improve beneficial effects, as set out in Table 9-1, below.

REPORT

Table 9-1: Summary of findings and recommendations

Health topic	Summary of findings	Recommendations (mitigation or enhancement measures)	Responsible for Implementation
Physical activity	Minor Adverse – The scale of the effect is long-term and would affect a small minority of the population. Operational activities of the Estate have resulted in air and noise pollution, fires, increased congestion on local roads, and increased presence of HGVs (and debris falling off them) on local roads causing fear and intimidation. The resulting reduced uptake of physical activity and active travel is likely to have a minor impact on morbidity. This conclusion reflects that physical activity is a local public health priority and the scientific literature on the benefits of physical activity to health are well established. As detailed in Section 8.2 (Transport), local public health policies prioritise physical activity, children and young people, and emphasise the delivery of active travel including safe access. Operational activities of GA (primarily the presence of HGVs on local roads) have the potential to impact the ability to deliver these policies.	Relevant mitigation measures to address impacts on physical activity are addressed as part of the relevant health determinants in Section 8.2: Transport, Section 8.3: Air quality and Section 8.4: Noise and Vibration of this HIA.	n/a
Transport	Moderate Adverse - As vehicle collisions pose risk of injury or death the severity of the effect is considered high. Fear and intimidation associated with the presence of HGVs affecting changes in active travel is also likely to have a minor impact on morbidity. The Local Health and Wellbeing Strategy sets out physical activity, children and young people, and healthy streets as key priorities, and the JSNA considers young age (including excess weight and mental health) and older people (including those with sensory and mobility impairments) as priority populations. It is also noted that Policy 7 of the LTP emphasises delivery of active travel including safe access. The presence of HGVs associated with the Estate may impact on the ability to deliver these policies. This conclusion is supported by clear evidence in the literature as well as consistent evidence gathered for this assessment.	Vehicle speed and traffic: - Installation of painted speed roundels on the carriageway to reinforce the speed limit. - Consideration of extending the 20-mph zone further along Grove Road, including Wilbury Way, Cadwell Lane and the roads that run off them. - Review speed limits during school drop-off hours. Security of loads: - Scrap metal hauler HGVs should consistently use required netting. Recycling centres should continue to ensure compliance for their own fleet and actively monitor third-party operators. Police enforcement of load security requirements should be considered.	HCC Highways and Transport Hertfordshire Police, Global Ardour Recycling, Nationwide Recycling

REPORT

		Pedestrian safety: • Cut back vegetation that encroaches onto footpaths. • Repairs and surface levelling of footpaths are required. • Review the usage and safety of the narrow sections of the railway bridge on Grove Road for pedestrians and consider signing pedestrians towards the alternative pedestrian route on the southeast side of Grove Road where the bridge pier separates the carriageway from the footway. • Investigate the feasibility and funding of two additional pedestrian crossing points on Grove Road. The first of these would be near to the entrance of Grove Road, at the junction with Nightingale Road, where there are effectively three lanes of traffic. The second of these would be to the north of the Grove Road railway bridge. • Refreshing road markings (including at the Grove Road/Nightingale Road roundabout) and improving pedestrian crossings would improve clarity and road safety. This could include adding new bollards at, for example, the Grove Road railway bridge, or new lighting if feasible. • Conduct a Safe Routes to School Review.	HCC Highways and Transport HCC Active Travel and Road Safety Team
Air Quality	Minor Adverse– The scale of the effect is long-term (both temporary from fires and permanent from operational activities) and would affect a small minority of the population. Both operation of plant and HGVs associated with GA produce emissions to air. Emissions to air from operational activities of GA are within statutory standards set for health protection, as illustrated by their compliance with EA permit requirements. However, HGVs, as they regularly pass nearby residences, schools and other sensitive receptors, are considered to be the more substantial source of air pollution (and associated community concerns). As seen by the air pollution monitoring undertaken by HCC, results show that	• Continue to monitor local air quality through continuous monitoring at a location representative of the Estate. • Ensure continued compliance with fire prevention protocols, and review and update these as new technology is developed or changes to operational capacity occur. • Ensure compliance with monitoring requirements and emission limits detailed within the recycling facility permits.	NHC Environmental Health Environment Agency, Global Ardour Recycling, Nationwide Recycling Environment Agency, Global Ardour Recycling

REPORT

	elevated pollution levels in the area are likely caused by a variety of sources (the most common likely to be residential wood and coal heating). While there are occasional exceedances of limits, annual concentrations of pollutants (NO₂ and PM_{2.5}) are within UK recommended limits protective for health. The effect is considered to relate to frequent exposure associated with a minor change in quality of life and/or morbidity risk for respiratory and cardiovascular conditions for a very few people. The scientific evidence on the health effects of changes in air quality and respiratory and cardiovascular health outcomes is causal. This may result in a very limited effect on the health baseline with the potential to worsen health inequalities.	Given road traffic calming measures will contribute to improved air quality, mitigation measures set out for 'Transport' are also relevant.	
Noise and Vibration	Minor Adverse - The scale of the effect is long-term and would affect a small minority of the population. While operations of GA produce noise and vibration emissions, the primary source of concern is associated with HGVs as these pass nearby residences, schools and other sensitive receptors (see Figure 7-1). The effect is considered to relate to frequent exposure associated with a minor change in quality of life. The scientific evidence on the health effects of noise and vibration is clear, for example in relation to sleep disruption, and suggestive in the case of educational attainment. This may result in a very limited effect on the health baseline with the potential to worsen health inequalities.	- Consider installing impact deadening in the HGVs holds or containers. HGV or container holds can be surfaced with abrasion-resistant rubber to reduce noise generated by material impact as waste is loaded. - When at a stop, all HGV engines should be switched off. - Consider switching any tonal reversing alarms for broadband white noise non-tonal alarms. - The access route for HGVs should be well maintained and free of potholes.	All businesses within the industrial area² that own and operate HGVs All businesses within the industrial area that own and operate HGVs. All businesses within the industrial area should monitor for compliance by HGV third-party operators. As HGV non-idling is also codified in Rule 123 of the Highway Code, this should also be enforced by Hertfordshire Police. All businesses within the industrial area HCC Highways and Transport

² This includes all businesses within the Estate as well as facilities within the area that rely on similar resources such as shared roads (e.g. Nationwide Recycling).

REPORT

		Control and monitor noise in accordance with the issued permit or written management system.	Global Ardour Recycling, Nationwide Recycling, Environment Agency
		Publish online advice to properties adjacent to access roads on planning (and other) rules on installing noise mitigation barriers.	North Herts Council
Community safety	Minor Adverse - Evidence of previous fire incidents indicate an ongoing issue that may influence population health and perceptions of safety within the study area. The continued presence of lithium-ion battery related fire risk has an influential effect on the ability to deliver local public health objectives relating to community health and safety, and environmental protection. The WCS aims to reduce environmental and social impacts associated with waste management infrastructures. The Health and Wellbeing Strategy aims to achieve health and sustainable places and good emotional and mental wellbeing for the people of Hertfordshire (see section 3.1.3.5). These effects are particularly relevant in the context of health inequalities as nearby residential receptors including vulnerable groups such as children, older people and those with chronic respiratory conditions may experience disproportionate exposure to air pollution including smoke. Community consultation indicated concern regarding fire safety and health impacts, showing mixed confidence in the effectiveness of current control measures. There is potential for a slight change in the local population health baseline if fire risks remain the same. Scientific evidence shows a clear relationship between exposure to fire pollutants and short term respiratory and cardiovascular effects and indirect mental health impacts including stress, anxiety and perceived risk.	- Timely communication with local residents in the event of a fire. This could be achieved through using an existing Council AQ alert system, targeted outreach (e.g. through a listserv), and broad outreach via social media. - Ongoing pro-active community engagement with the recycling facility Liaison Officer to ensure transparency with the local residents, including sharing lessons learnt, and the preventative measures taken to reduce the likelihood of future events. Regular local community engagement would help to address concerns. - Consider putting in place a no HGV long-stay or overnight parking policy on surrounding residential roads. - Ensure regular review of the current Fire Prevention Plan to make sure it is up to date and reflects best practice. - Given that one of the primary causes of fires at recycling facilities (and a risk for fires in general) is lithium-ion batteries, safer use and disposal of lithium-ion batteries by the public would help to reduce this risk. Increase communication and awareness of residents about the risks of lithium-ion battery fires and provide clear guidance on	Hertfordshire Fire and Rescue Service, HCC Air Quality Partnership Global Ardour Recycling HCC Highways and Transport All businesses in the industrial area that are subject to Environment Agency permitting, including Global Ardour Recycling and Nationwide Recycling; Environment Agency (with support from Hertfordshire Fire and Rescue Service) Herts Waste Partnership, Hertfordshire Fire and Rescue Service, Elected Officials (e.g. MPs, councillors), members of the public who use lithium-ion batteries

REPORT

		where to safely dispose of these batteries locally. Further actions to support legislation on lithium-ion battery use and disposal should be considered.	
Community identity	Minor Adverse (in relation to community identity) - The scale of heavy vehicle traffic may have a marginal effect on wider policy objectives on healthy, liveable neighbourhoods and community well-being. The continued presence of debris, noise and emissions associated with vehicle movements contribute to negative perceptions of the area and may exacerbate existing inequalities particularly where communities already experience multiple environmental burdens. Consultation themes have highlighted concern among residents regarding cleanliness, safety and character of the area indicating that current conditions are affecting community cohesion and identity. This also reflects that evidence from the literature demonstrates a clear relationship between heavy traffic and environmental degradation and reduced neighbourhood satisfaction, social interaction and sense of belonging.	Relevant mitigation measures to address impacts on social and community influences on health are included as part of the assessment for Section 8.2: Transport, Section 8.3: Air quality, Section 8.4: Noise and Vibration, and Section 8.5: Community Safety.	n/a
	Minor Beneficial (in relation to community infrastructure) - The scale of the effect is considered to be small. This is an acknowledgement of the positive influence that these provisions have on community identity with long-term benefits to community cohesion and mental health. The level of impact on community cohesion is likely to have a marginal effect on health policy delivery or inequalities.	No further mitigation proposed.	n/a
Employment and income	Minor Beneficial - The Estate provides ongoing employment opportunities and supports local supply chains within the local study area. This has a marginal effect on the delivery of public health and socio-economic policy objectives to improve employment rates and reduce health inequalities within the County of Hertfordshire. Access to stable employment and income is a well-established determinant of health, with clear evidence demonstrating positive associations with improved mental wellbeing, reduced financial stress, better housing security, and improved long-term health	Consider road traffic amendments as proposed as part of the assessment for Section 8.1: Transport to ensure access to employment and economic opportunities on the Estate.	n/a

REPORT

	outcomes. There is potential for a slight beneficial change in the local population health baseline if employment provision and economic activity improve or remain the same.	
Wider societal infrastructure and resources	Minor Beneficial – The scale of the beneficial effect is small, long-term, and affects a large minority of the population (local, regional and national). The Estate contributes to the circular economy, reduces the amount of waste that goes into landfill, and reduces greenhouse gas emissions. The resulting protective effect on the health baseline is important for public health. This conclusion reflects the scientific literature which establishes a causal association between mitigating climate change and population health outcomes; and a clear association between good quality, sustainable waste management systems, the circular economy and health outcomes. Operation of the recycling facilities are supportive of delivering health-related planning policy and relate generally to local health priorities.	• Explore long-term strategies and planning for waste management across Hertfordshire County. HCC and North Herts Council

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Appendices

Appendix A – Workshop Consultation Results

Theme	Description of Issue	Vulnerable Groups	Specific Sensitive Areas
Disincentivised Use of Outdoor Spaces	Attendees expressed concerns regarding air and noise pollution, congestion, fires and debris prevent safe access and use of parks and outdoor play areas.	Children and young people	Field on Cadwell Lane, Ransome's Rec, Hitchin Boys School Playing Fields, Wilshire Dacre Playing Fields, Triangle Community Garden, Nature Reserve
Air Pollution & Emissions	Attendees expressed concerns regarding: Traffic emissions and diesel fumes reduce indoor and outdoor air quality, including in homes, schools, and public spaces.	People in poor health	Nursery school on Grove Road, Wilshire Academy, Hitchin Boys School, 'Residents on Fishponds, Old Park Road, Nightingale, Grove Road, Cadwell Lane',
Fire odours & smoke	Attendees expressed concerns regarding: Fires and burning activities create bad odours and smoke, affecting physical and mental health.	None specified	n/a
Road safety risks	Attendees expressed concerns regarding: Heavy HGV traffic (including amount of traffic) create unsafe conditions for drivers, cyclists, pedestrians, school children, and vulnerable groups.	Cyclists, pedestrians, school children, disabled people	Walgrove Road, Wilbury Road, Grove Road, Cadwell Lane,
Public Transport Limitations	Attendees expressed concerns regarding: Limited public transport options due to heavy traffic which restricts travel options for residents.	n/a	n/a
Noise & Vibration Disturbance	Attendees expressed concerns regarding: Noise and vibrations from the HGVs and explosions at Global Ardour affect schools, social meeting places, homes, sleep, and general wellbeing.	Children, poor mental health	Catholic Church Nightingale Road and Grove Road, Nursery School on Grove Road, Wilshire Academy, Hitchin Boys School
Light pollution	Attendees expressed concerns regarding: Lights from traffic at night disturbing sleep	n/a	n/a
Community Identity & Cohesion Issues	Attendees expressed concerns regarding: Pollution, debris, and industrial activity reduce community pride and affect social spaces.	n/a	n/a
Community Identity	Attendees expressed concerns regarding: Provision of infrastructure that promotes community identity and cohesion in the Industrial Estate (Positive) e.g gyms, religious places, adult skills development	People in poor mental health	Gyms, Places of worship
Reduced Attractiveness & Environmental Quality	Attendees expressed concerns regarding: Litter, dust, debris, noise and industrial impacts reduce the attractiveness and cleanliness of the area and housing including house prices	n/a	Homes around the Industrial Estate
Connectivity & Accessibility Problems	Attendees expressed concerns regarding: Air and noise pollution, congestion, fires and debris prevent safe access and use of parks and outdoor play areas.	School children, elderly people, those in poor health, disabled people	Grove Road, Nature Reserve

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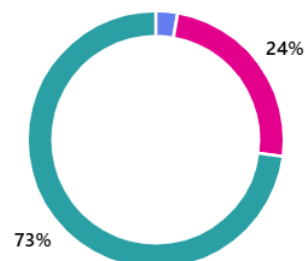
Parking & Congestion	Attendees expressed concerns regarding: Lorries parking on residential roads and idling vehicles cause noise, blockages, and safety concerns (crime related).	Children, disabled people	Grove Road, Cadwell Lane
Water Pollution	Attendees expressed concerns regarding: Rubbish overspill and oil leaks from HGVs may contaminate local waterways.	n/a	River Hiz, Cadwell Creek
Fire Risks	Attendees expressed concerns regarding: Fires and burning activities from lithium batteries create dangers for the community	Children	n/a
Injury Risks	Attendees expressed concerns regarding: Metal pieces, sharp objects, and falling debris from trucks pose physical injury risks.	Children, road users, pedestrians, cyclists	n/a
Employment provision	Attendees reported that: • Industrial activity provides employment. • However, the traffic congestions were also noted to be creating delays for employees travelling to the Estate.	n/a	n/a
Economic impact	Attendees expressed concerns regarding: Recycling centre creates delays or business impacts due to traffic and behaviour of drivers	Businesses at the Estate	n/a
Healthcare	Attendees expressed concerns regarding: Increase in demand for physical and mental health services due to the cumulative impacts of risk perception, air pollution and noise pollution	n/a	n/a
Waste management benefits	Attendees noted the benefits from the recycling centre in terms of provision of waste management.	n/a	n/a

Appendix B— Online Survey Responses

Q1. How long have you lived in this area

255/258 respondents answered this question

Less than 1 year	7
1–5 years	62
More than 5 years	186

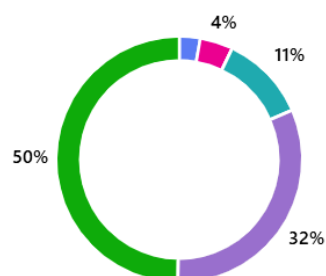


Q2. How concerned are you about health and safety risks associated with the industrial estate?

255/258 respondents answered this question

The responses indicate a high level of concern to the risks associated with the Estate. A combined total of 82% of respondents show extreme or high concern. Only 3% were not at all concerned with 4% slightly concerned.

Not at all concerned	7
Slightly concerned	11
Moderately concerned	29
Very concerned	81
Extremely concerned	127

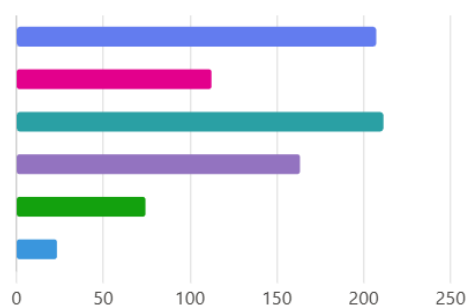


Q3. Which of the following issues concern you most (Select up to 3)

253/258 respondents answered this question

The responses indicate from the list provided, respondents were most concerned about air quality, traffic safety, fire risk, noise with some concern about water quality. 3% of the respondent raised other issues including vibration, narrow roads, damage to street furniture, nuisance from traffic; flying/fallen debris, odour, health implications, structural damage to houses, flooding and ground contamination.

Air Quality	207
Noise	112
Traffic Safety	211
Fire Risk	163
Water Quality	74
Other	23

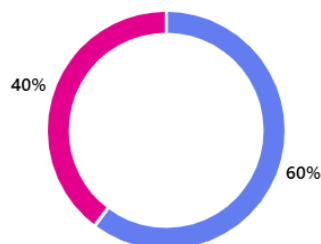


Q6. Have you or your household experienced any health, or wellbeing impacts you believe are related to the industrial estate?

253/258 respondents answered this question

The responses indicate that the majority of the respondents (60%) believe they have faced health impacts that were related to the Industrial Estate, indicating the perceptions that the respondents have towards the Estate. A notable proportion of respondents (40%) did not think they have faced any health impacts related to the Estate.

● Yes 153
● No 101



Those respondents who said yes to the question above were asked to further describe these impacts. These are summarised in the table below:

Table 9-1: Online Survey Responses

Question	Summary of responses
Have you or your household experienced any health, or wellbeing impacts you believe are related to the industrial estate?	Issues raised by those who said yes:
	Concerns raised about noxious fumes, air pollution and related mental stress as to the contents of released fumes and impact on health. Concerns raised about impact on breathing on children's health
	Concerns raised about constant noise from traffic preventing people from opening windows. Concerns about traffic noise early morning disturbing sleep
	Concerns raised about the noise from the metal recycling centre outside of licence hours and from 'explosions' at the site.
	Concerns raised about recent fires causing fears to go outside as people were concerned about the pollutants in the air. (related mental stress a people were not sure what was in the air). Concerns raised about headaches due to the fires and poor communication.
	Concerns raised about the volumes of traffic, size of the lorries and speed on the roads described as 'intimidating' for pedestrians and causing road safety issues
	Concerns raised about journey delays on the road network due to long queues of heavy lorries on the roads leading to the estate.
	Concerns raised about pieces of metal falling from the waste transfer trucks.

Q7. How often do you notice traffic, noise, or other emissions associated with the estate?

25/258 respondents answered this question



Q8. How confident are you that current fire safety measures at the estate protect nearby residents?

253/258 respondents answered this question

85% of the survey respondents reported not being confident (either not at all or not very confident) in the current fire safety measures that the Estate offers. 12% are somewhat confident and only 2% are very confident.



Q9. What improvements would make you feel safer in the event of an industrial fire?

182/258 respondents answered this question

A summary of the recommendations from the community are summarised in the table below. Majority of the respondents expressed they would like the Industrial Estate or Recycling Centre moved elsewhere, to a location that is less populated. A number of people also recommended a proper access route for fire emergency services to ensure fast response times.

Table 1-2: Online Survey Responses

Improvements that the surveyed residents express would make them feel safer are summarised below:
Relocation/Closure of Industrial Estate or the Recycling Centre
Improved communication (including immediate emergency alerts in the event of a fire so residents may be aware to stay indoors and take the necessary precautions e.g. alarms or text messages. Communication of on current safety measures and steps to take in the event of a fire.)
Fire prevention/Better fire safety systems (sprinklers, detection, suppression, inspections, reducing batteries)
Full time onsite firefighting presence or fire station in the estate
Change of access roads sto avoid residential areas/ Reroute vehicles away from residential areas

REPORT

Rigorous monitoring of waste volumes, improved screening and more care in the handling of batteries and other flammable items
Fire management plan Fire Procedure detailing what residents should do in the event of a fire (should be shared with the whole community)
Air quality monitoring during fires and regular compliance checks
Improved handling of lithium-ion batteries. Incentivising safe disposal e.g. deposit return schemes
Reduce volumes of waste being processed on site
Refusal of toxic waste such as battery recycling
Traffic calming measures
Fewer trucks or time restrictions on when the trucks can travel
Nothing would make it feel safer/ Eliminate risk entirely
Improved access for emergency vehicles i.e. Fire Rescue
Improved security in the Industrial area i.e. more CCTV
No suggestion/ Don't know/ Not qualified to recommend
Supportive or confident in current measures

Q10. What actions do you think could improve health and wellbeing in relation to the estate?
(Examples: better communication during incidents, improved traffic management, more green buffers, air quality monitoring, etc.)

228/258 respondents answered this question

The concerns are summarised in the table below:

Table 1-3: Online Survey Responses

Question	Responses
What actions do you think could improve health and wellbeing in relation to the estate?	Recommendations are summarised below:
	Improved traffic management (speed limits, caps on HGVs, weight restrictions, enforcement, safe crossings, time restrictions, parking controls)
	Debris control/load security/ street cleaning (netting, road sweeping)
	Air quality monitoring (24/7 monitoring, shutdown triggers, dust concerns)
	Relocation or closure of recycling centre (move estate, shut down, move dirty uses out of town)
	Alternative access route/Bypass/relief road (new road from Stotfold Road, Old Hale Way, Industrial only route)

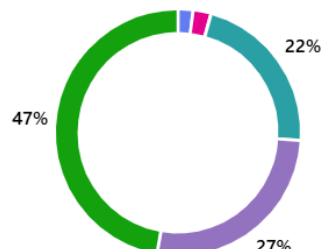
	Improved communication during fire incidents (alerts, fire warnings, transparency, emergency notifications)
	Stronger enforcement and regulation (fines, monitoring breaches, health and safety enforcement, licensing review)
	Green buffers/ Urban greening (trees, landscaping, screening)
	Fire prevention or fire monitoring (fire safety standards)
	Water quality monitoring/ river protection
	Noise and vibration monitoring
	Community engagement/Liaison
	CCTV / Spot checks/ Surveillance

Q11. How satisfied are you with the information you receive about the estate and its activities?

254/258 respondents answered this question

74% of the survey respondents are not satisfied (either very or somewhat dissatisfied) with the information they receive about the Estate and activities. 22% are neutral, with only 4% being somewhat satisfied or very satisfied.

Very satisfied	5
Somewhat satisfied	6
Neutral	55
Somewhat dissatisfied	68
Very dissatisfied	120

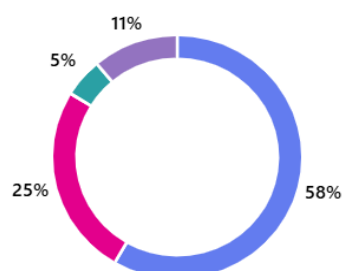


Q12. What is the best way for you to receive updates about safety or environmental issues?

252/258 respondents answered this question

Majority of the respondents to the survey reported they prefer to receive updates about safety or environmental issues through email (58%). The respondents also prefer to receive updates via social media

Email	147
Social media	64
Local meetings	13
Other	28



REPORT

(25%) and local meetings (5%). Other forms of communication mentioned include letters, policy, local newspaper, SMS updates, door knocking, poster, dedicated application, local meetings.

13. What benefits do you feel the industrial estate provides to the community (e.g., jobs, services)? 201/258 respondents answered this question

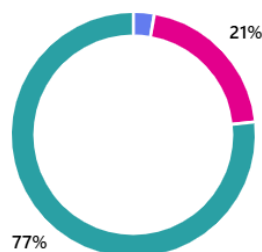
23 respondents (11%) answered jobs and services for this question.



14. Overall, how would you rate the impact of the estate on your quality of life? 253/258 respondents answered this question

In overall, the 77% survey respondents reported being negatively impacted by the estate on their quality of life; 21% report being positively impacted and only 3% report the Estate does not have an impact on their quality of life.

Positive	7
Neutral	52
Negative	194



Appendix C – Field Visit Walking Tour – Traffic Route to Hitchin Industrial Estate via Wallace Way

These photos were taken by the HIA lead author, KH, on a field visit walking tour of the traffic route used to access the Hitchin Industrial Estate. The field visit was conducted from 8:30 am to 9:30 am on Friday 28 November 2025.



Image 1 – Recycling HGV with visible netting



Image 2 - Large HGV next to man on footpath with guardrail

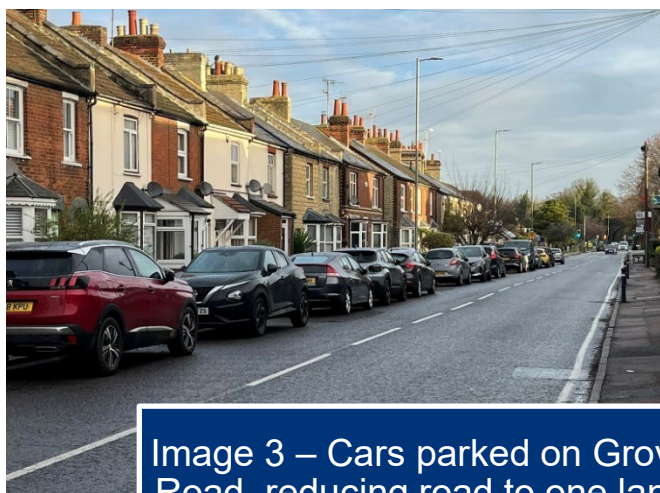


Image 3 – Cars parked on Grove Road, reducing road to one lane



Image 4 – HGV in rail bridge tunnel next to bike lane



Image 5 – Narrow footpath in rail bridge tunnel with HGV approaching in the distance



Image 7 – Scale of recycling HGV next to mid-size car



Image 6 – Two HGVs approaching from both lanes next to people walking with pram on the footpath



Image 8 – Debris on footpath

Appendix D – Self-Review against the WHIASU Quality Assurance Review Framework for Health Impact Assessment

Table 1-4: Self Review against WHIASU Quality Assurance Review Framework

	Criteria	Grading	Comments
1	Section 1: Information about the project, policy, plan or proposal		
1.1	There is a clear description of the project or plan being assessed including: • Aims and objectives • Organisational relationships • Funding • The context in which the project or plan 'sits' • Timeframes • Links or distance to other neighbouring projects if relevant (as there may be cumulative impacts) • The national and/or local policy context	Good	A clear description of the Estate, under assessment has been provided including aims and objectives, and study area. This is clearly defined in chapter. • Aims and objectives are in section 1 (Overview) • Organisational relationships are in section 1 (Overview) of the HIA • That HIA has been commissioned by the relevant authorities is set out in section 1 (Overview) of the HIA • The context is set out in section 1 (Overview). • The policy context is set out in section 3
2	Section 2: Methodology: Is it an HIA? Has it followed a recognised HIA methodology?		
2.1	There is a clear explanation of the HIA methodology used including: • Screening • Scoping - any geographical, population or other limits, and how and why these were agreed. • Assessment/appraisal	Good	The HIA scoping follows methodology set out in guidance (WHIASU, 2012) and (IPH, 2021). Scoping is covered in section 5 (Scope of the assessment) The assessment follows methodology set out in guidance (WHIASU, 2012) and (IPH, 2021). The methodology is set out in section 2 (Approach and methodology) of the HIA.
2.2	The HIA is planned and timed to inform the relevant decision making/project management processes	Good	HIA is timed to inform the relevant decision making relating to the existing Industrial Estate. The HIA is both retrospective and prospective providing recommendations for future planning.
2.3	The aims and objectives for the HIA are clear and relevant.	Good	The aims and objectives are to assess the impacts of the Industrial Estate on the wider determinants of population health. This is set out in section 1 (Overview) of the HIA.
2.4	The HIA has been framed around a definition of health and wellbeing that is holistic (physical and mental) and includes the social (wider) determinants of health	Good	The HIA has been framed around the agreed WHO definitions of health, mental health and the wider determinants of health, as set out in section 1.2 (Health Impact Assessment) of the HIA.
2.5	The assessment tools/frameworks/checklists used are included in the report and they include physical, mental, and social health and wellbeing along with the wider determinants of health.	Good	The assessment follows methodology set out in guidance (WHIASU, 2012) and (IPH, 2021). The methodology is set out in section 2 (Approach and Methodology) of the HIA. These include the wider determinants of health.

REPORT

2.6	The screening and scoping process identifies the people and vulnerable groups who may be impacted on by the proposal and how they will be engaged in the HIA process	Good	Scoping followed the methodology set out in guidance (WHIASU, 2012) and (IPH, 2021) which includes specific regard to lists of vulnerable groups. Vulnerable groups identified through scoping are set out in section 2 (Approach and Methodology). Stakeholder consultation in relation to relevant vulnerable groups is set out in section 4 (Consultation and Engagement)
2.7	The report identifies all the stakeholder groups who are relevant to making an assessment of health impact for this project and how they were to be engaged in the HIA.	Good	Section 4 (Consultation and Engagement) of the report identifies relevant stakeholders to the assessment of health impact for the Industrial Estate including how these were engaged. Vulnerable groups are assessed throughout the assessment in section 8 (Assessment of Effects).
2.8	There is a clear explanation of the roles and responsibilities in the HIA and the organisations they represent.	Good	The HIA has been undertaken by Tetra Tech, as set out in section 1 (Overview). Other stakeholders who have been consulted as part of the HIA are set out in section 4 (Consultation and Engagement)
3	Section 3: Evidence: Is the evidence used to identify and assess impacts robust?		
3.1	The HIA report includes the key types of evidence required. Community /population health and socioeconomic data profile Literature/evidence review. Stakeholder opinion and experience Technical data (if relevant) i.e. air quality statistics or health outcome projections	Good	Population health baseline information is provided in section 7 of the HIA report. This includes population health data profiles, with baseline data specific to the wider determinants of health being assessed in the report. Literature review is set out in section 8 (Assessment of Effects). Stakeholder consultation is set out in section 4 (Consultation and Engagement) Technical data is set out in section 7 (Baseline Environment)
3.2	Community /population health profile (quantitative and qualitative). - This should provide sufficient information on the physical and mental health and wellbeing and social determinants of health for the affected populations and any vulnerable groups identified in order to assess possible impacts. - The profile should contain indicators of physical and mental health and wellbeing relevant to the project under assessment. - There should be a narrative which interprets the data collected in the context of the HIA. A list of tables and data is not sufficient.	Good	The HIA provides sufficient information on the physical and mental health and wellbeing of the affected populations in Section 7, including general health and life expectancy data, data on the relevant protected characteristics of the community, and data specific to the various wider determinants of health being assessed in the report. The profiles are based on a selection of relevant physical and mental health indicators. The HIA includes narratives that interpret the collected data in Section 7, in addition to the data tables.
3.3	Literature/evidence review. - The search strategy is clear. - The methodology and sources used are relevant to the project and scale of the HIA.	Good.	The literature methodology is set out in section 2.2.1 (Evidence review). The search strategy used for literature review and evidence review is clear including data collection for baseline statistics. Methodologies and sources used are relevant to the Estate and scale of the HIA. Summaries of all reviewed literature are provided in the assessment section (Section 8 of the HIA).

REPORT

	- The quality and depth of evidence is sufficient to inform the assessment of likely impacts. - There is some critical assessment of the literature used.		
3.4	Stakeholder knowledge and experience (qualitative). - The methods of engagement were appropriate, and their effectiveness evaluated. - The range of stakeholders and how many people from different groups were engaged is recorded.	Good.	Feedback from consultation held for the Estate are provided in Section 4 of the HIA report. This includes details on all the engaged stakeholders. The methods of engagement were appropriate and effective. Additional detail on the consultation results of those engaged is set out in Appendices A and B.
3.5	Technical data The HIA uses robust data sources on air quality, noise, transport or from other key environmental, economical or technical disciplines where relevant to the proposal and possible impacts.	Good	The HIA also considers findings from other technical assessments of the Estate including air quality, and transport. These are cross-referred to in the HIA analysis within section 8 (Assessment of Effects).
3.6	Any limitations of the evidence collected are highlighted and a rationale provided.	Good	The report highlights any limitations of the collected evidence including rationale to the limitations.
4 Section 4: Appraisal, Assessment and the identification of impacts			
4.1	Any positive impacts or opportunities to maximise health and wellbeing outcomes are identified and how they were identified is presented clearly.	Good	The HIA highlights the positive impacts of the Industrial Estate. These are set out in the HIA analysis within section 8 (Assessment of Effects).
4.2	Any negative impacts, gaps or unintended consequences are identified and how they were identified is presented clearly.	Good	The HIA highlights the negative impacts of the Industrial Estate. These are set out in the HIA analysis within section 8 (Assessment of potential effects).
4.3	There is a balanced approach to the understanding and reporting of impacts i.e. no under-reporting of negative impacts or overstating of positive impacts	Good	Careful consideration has been given to all the conclusions given in the report. There is a balanced approach to the understanding and reporting of impacts. Both positive and negative effects are assessed using the same methodology, which is set out in section 2 (Approach and methodology) of the HIA.
4.4	Possible cumulative impacts of related policies or projects in the vicinity are considered.	Good	A cumulative effects assessment has not been included in this report
4.5	All sources of evidence are triangulated and used to inform the assessment and identifications of impacts.	Good	Methods set out in section 2 have been used that triangulate evidence sources and professional perspectives to inform the assessment. The data and evidence triangulated is set out in section 8 (Assessment of Effects). The professional judgements reached, based on that triangulate evidence, are set out in section 8 (Assessment of Effects).
4.6	It is made clear how each impact identified is supported by the evidence gathered. The strength and sources of evidence for each impact is clearly communicated.	Good	Evidence for the HIA was collected per each determinant of health and is listed accordingly in section 8. The report structuring indicates how evidence informs the professional judgements on each relevant determinant of health. The assessment conclusions in section 8 are presented in HIA categories of significance, such as major, moderate, minor or negligible, and a narrative explaining this 'score' was made with reference to evidence, local context and any inequalities.

REPORT

			Sources of evidence are provided in the form of citations and bibliography in Section 8 and the References section.
4.7	It is clear who will be impacted and any potential inequalities in the distribution of impacts are identified.	Good	The HIA distinguishes between the general population and the vulnerable people in the community, to cater for and highlight any potential inequalities in the distribution of impacts across the population. This is set out in section 2.2.3 (population health approach and vulnerable groups).
4.8	The degree of likelihood and severity of specific impacts is distinguished	Good	The scoping exercise has identified which of the determinants of health listed within the WHIASU, 2012 and IPH 2021 guidance is 'likely'. Those that are unlikely have been scoped out of the assessment. The source-pathway-receptor linkage for plausible effects, as well as a consideration of their probability in the particular context of the Estate is set out in the assessment, section 8. Severity is one criteria of the IPH 2021 magnitude methodology that has been used. Statements of severity and their relationship with population extent and other criteria is set out within the assessment section of the HIA, section 8.
4.9	Has the scope of the HIA been fulfilled?	Good	The HIA fulfils the identified scope for the Industrial Estate. Each of the relevant determinants of health and vulnerable groups identified at scoping has been assessed.
4.10	A summary of the appraisal/assessment is provided.	Good	Section 9 provides a summary of the assessment.
5	Section 5: Recommendations, Conclusions and Monitoring		
5.1	There is a clear link between the evidence gathered, assessment and recommendations.	Good	There is a consistent structure to the HIA whereby the evidence informs the assessment, which in turn informs the recommendations. This is evident from the table of contents and from the reporting across the HIA through sections 7 (evidence), 8 (assessment) and 9 (conclusion and recommendations).
5.2	There should be an explanation of how the findings will be used to inform the decision-making processes within the project/ programme.	Good	Section 9 on conclusion and recommendations explains that the HIA's findings will inform the future planning regarding the Industrial Estate.
5.3	Recommendations should: • Be specific, measurable, appropriate, realistic and time bound. • Be clearly linked to the impacts identified. • Prevent or mitigate potential negative impacts or unintended consequences. • Maximise the benefits and opportunities of positive impacts. • Be clear on who is expected to take action	Good	All recommendations have been carefully considered and clearly linked to the identified impacts. These are specific and realistic and have been tailored to prevent potential negative impacts and maximise benefits where proportionate. To ensure they can be adopted, the HIA recommendations have sought to meet relevant planning tests such as being: necessary; enforceable; precise; and reasonable in all other respects.
5.4	If recommendations are prioritised the rationale for this should be clearly stated	Good	Prioritisation is linked to the significance methodology set out in section 2. That methodology means that recommendations relied on to avoid significant adverse population health effects are of greater priority than those that do not. Similarly, those recommendations that can enhance beneficial effects to be significant for public health are of greater priority than those that provide only minor benefits.

REPORT

5.5	Best practice: a process is in place for monitoring the implementation of recommendations and indicators have been identified to monitor key health and wellbeing impacts	N/A	Monitoring is resource intensive and must therefore always be proportionate. In general, only recommendations that are relied on to avoid significant adverse population health effects requiring monitoring (IPH 2021). That is not anticipated to be the case for this Estate so, whilst monitoring has been considered, no monitoring is proposed with regards to the HIA recommendations. However, as part of the recommendations, long-term air quality monitoring has been proposed.
5.6	Plans for dissemination of the report and communication of findings are specified.	Good	The HIA will be a publicly available document published through the local authority. The local community have been engaged during the HIA and will be made aware of its publication by the HIA team.
5.7	The intended audience for the report is clear and the language, information and tone of the report are suitable for this audience.		The report audience is set out in section 1 (Overview). The primary audience for the HIA report includes the public, the local authority public health and elected members representing the community. The language use is non-technical where appropriate with key findings and recommendations summarised at the end of the report (section 9).
5.8	The structure of the report is clear and there are relevant and logical sections.	Good	As set out in the table of contents, the report is divided into logical sections including Introduction, Approach and Methodology, Policy and Guidance Review, Consultation and Engagement, Scope of the Assessment, Baseline Environment, Assessment of Effects, and Conclusion and Recommendations, References and Appendices.
5.9	All appendices or additional documents containing data, evidence, records and details of methodology are signposted /cross referenced and easy to locate and access.	Good	References to methodology and evidence used in the HIA are included throughout the report where relevant. Cross references to other sections of the same report are provided throughout the report for seamless navigation with hyperlinks for digital copies. A reference list is set out in section 10 and the appendices are appended and listed in the table of contents.
5.10	All sources are clearly and accurately referenced.	Good	All data sources are clearly and accurately referenced according to Harvard citation style. A reference list is set out in section 10
5.11	Any technical terms used in the HIA are explained in the document or a glossary.	Good	All technical terms has been provided in page 4.
5.12	Best practice: An executive summary or non-technical summary is provided summarising the key messages, recommendations and the supporting evidence	Good	A concise and short summary of the report has been provided in Section 9 of the report.
5.13	Additional criteria for capital/ construction/development type projects: Is there a proposed plan for monitoring the implementation of the recommendations and a clear line of accountability for reporting ongoing outcomes? This could include: - Identifying indicators for the ongoing measurement of health and wellbeing impacts. i.e. emissions and noise levels - A Health Management Plan	Good	The HIA was undertaken for an existing Industrial Estate. Monitoring is resource intensive and must therefore always be proportionate. In general, only recommendations that are relied on to avoid significant adverse population health effects requiring monitoring (IPH 2021). That is not anticipated to be the case for this Project so, whilst monitoring has been considered, no monitoring of indicators in relation to HIAs recommendations is proposed.
6	Section 6: Principles and Governance: Has it been conducted in a way that meets the principles and values of HIA?		

REPORT

6.1	Equity – A focus on contributing to achieving equity and reducing inequalities is considered throughout the HIA	Good	The HIA identifies and addresses health inequalities and inequities among vulnerable populations in the study area (see section 2.2.3) such as low-income households, minority groups and those in poor health.
6.2	Transparent & open – The governance of the HIA is clear and appropriate to ensure that the HIA was carried out in an effective and balanced way.	Good	Governance is covered in the methods section of the HIA (section 2). Decision making on the HIA has been with the HIA authors, informed by client technical and legal reviews, as well as discussion with stakeholders. The HIA has used competent experts under the IEMA 2024 definition, which includes that “A <i>competent expert adheres to relevant codes of professional conduct</i> ” (IEMA 2024). The HIA methods also reference that the HIA adopts and aligns with the principles of HIA, which include ethical use of evidence (IAIA 2021). The HIA confirms that the project has been commissioned by the applicant and undertaken by Tetra Tech (section 1). The scope and methods of the assessment have been discussed with the local authority public health team (section 4), which included meeting minutes being shared for accuracy. The HIA authors have advocated for measures that promote public health as part of the HIA process (section 8). Stakeholders have been provided with access to the HIA report via the local authority planning portal and comments on the HIA will inform the planning determination.
6.3	Democratic – This emphasises the rights of people to participate in major decisions that affect their lives. The stakeholders engaged reflect the diversity of all those who are likely to be affected by the proposal, involved in the development of the proposal or involved in the implementation of the proposal.	Good	The HIA has been undertaken in the context of an existing Industrial Estate and the participation of relevant local authority representatives and the community has been sought. The production the HIA has included identifying and involving relevant stakeholders, as set out in Section 4.
6.4	Sustainable – The HIA set out to maximise health and wellbeing benefits/impacts and minimise unintended consequences by considering both short and long-term impacts	Good	Short-term, medium-term and long-term are reflected appropriate in the assessment conclusions, section 8. The wider determinants of health approach sets population health within the context of wider environmental considerations for the project. This aligns with the principles of HIA (IAIA 2021) cited in the methodology section 2. The HIA recommendations have regard to both the future and existing community (section 9).
6.5	Participatory - The HIA used appropriate, effective and accessible methods of engagement for the stakeholders who were relevant for this assessment.	Good	As set out in section 4, the HIA was conducted with a participatory approach by engaging a wide range of stakeholders including community members, public health experts, and the Local Authority. Proportionate to the HIA, input was gathered through a workshop, and online surveys. All the findings and responses from these informed the HIA and its findings. The HIA Team held a public workshop, and an online survey with questions relevant to vulnerability and concerns about health.
Review summary of the HIA: A compliant comprehensive HIA has been completed in line with good practice. Reviewed by: Lisa Nelson and Katie Hirono (Tetra Tech) on 23/04/2026.			