

THE LONDON RESORT

The London Resort Development Consent Order

BC080001

Environmental Statement Volume 1: Main Statement

Chapter 8 – Human health

Document reference: 6.1.8

Revision: 00

December 2020

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

Regulation 12(1)

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Chapter Eight ◆ Human health

INTRODUCTION

- 8.1. This chapter presents the assessment of the range of human health effects which could result from the construction and operation of the London Resort.
- 8.2. The requirement to consider human health in Environmental Impact Assessment (EIA) was introduced in the 2017 EIA Regulations. However, there is no statutory guidance on assessing health impacts in the context of EIA. The assessment of human health effects relating to the London Resort is undertaken as a standalone human health chapter of the ES. The NHS Healthy Urban Development Unit (HUDU) states that health impact assessments (HIA) can be completed as standalone assessments or part of EIAs.¹ This chapter therefore has the dual role of being the HIA and reporting the likely significant human health effects for the EIA.
- 8.3. With respect to this chapter, health is defined in line with the World Health Organization's (WHO's) definition of health:
- 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity'.*
- 8.4. The key word in this definition is 'wellbeing', which is explicitly linked with health by the WHO. 'Wellbeing' refers to a positive rather than neutral state, framing health as a positive aspiration in the definition. In this assessment, changes to mental health outcomes are considered on an equal basis with changes to physical health outcomes.
- 8.5. Factors that have the most significant influence on the health of a population are referred to as determinants of health. Across a broad scale, these include, at the lowest level, an individual's genetics and their lifestyle, and broaden out to include the surrounding environment, as well as policy, cultural and societal issues (Diagram 8.1). Some determinants of health can improve and protect health and wellbeing, whilst other determinants can be harmful to human health and wellbeing.
- 8.6. Development and planning can play a role in the wider determinants of health and wellbeing. This assessment considers the ways in which the London Resort may affect these determinants of health and wellbeing. It also considers health inequalities and how the London Resort may affect different groups in different ways.
- 8.7. This chapter describes which health determinants are relevant to the London Resort and sets out the health effects that are assessed. The London HUDU Planning for Health Rapid Health Impact Assessment (HUDU Rapid HIA) Tool and checklist is used as a guide to

¹ NHS HUDU, 2017, Healthy Urban Planning Checklist (third edition).

identify the relevant health determinants and health effects associated with the London Resort, notwithstanding the fact that the Project Site is outside Greater London. The checklist poses a series of questions based on London Plan policy requirements, but because similar health policies are often adopted outside London as well, the document is a good starting point for assessments of health effects. Based on advice contained in Appendix 1.4: *EIA Scoping Opinion* (document reference 6.2.1.4), this chapter has also reviewed guidance provided by the Wales Health Impact Assessment Support Unit (WHIASU).² While the document has been produced by the Wales Health Impact Assessment Support Unit, its guidance can usefully be applied across the UK.

8.8. This ES chapter:

- defines the scope of the assessment and the data sources used;
- sets out the assessment methodology;
- discusses the relevant legislation and policies;
- describes the existing environment;
- discusses the potential effects and possible mitigation measures; and
- provides a cumulative effects assessment (CEA).

8.9. This assessment identifies temporary and permanent, beneficial and adverse, direct, indirect and induced effects on residents, workers, visitors and transport users, as well as vulnerable groups, as a result of the construction and operation of the London Resort.

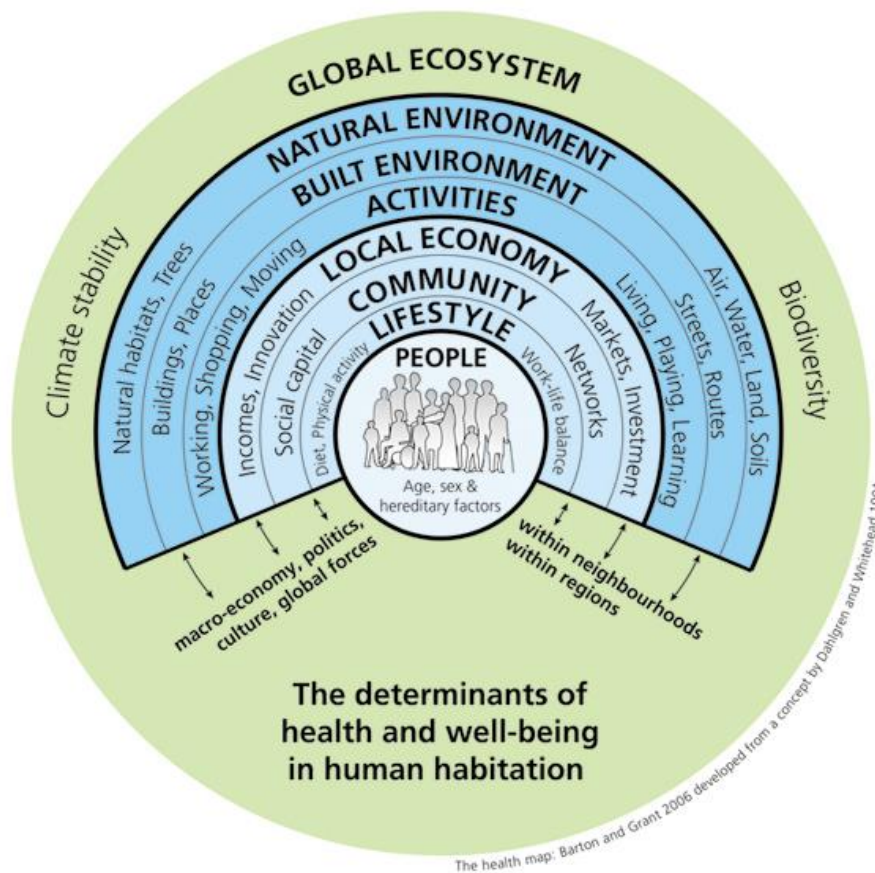
8.10. Where the assessment of the health effects considers those resulting from other technical assessments within the ES, it considers residual effects, i.e. those occurring following mitigation measures relevant to the technical discipline. Where significant effects arise, the assessment presents appropriate health mitigation to minimise any adverse health effects. It also includes measures to secure and enhance positive health effects of the London Resort. This chapter discusses all health effects scoped into the assessment (refer to Table 8.5 for the list of effects assessed).

8.11. This chapter also considers health inequalities. The health effects of the London Resort may be experienced in different ways by different subsets of the population, split by factors including age, gender, ethnicity, and pre-existing health status. Following the Scoping Opinion, the identification of vulnerable populations has been extended to consider the list of protected characteristics under the 2010 Equality Act and Health Impact Assessment: A Practical Guide (2015).³

² Wales Health Impact Assessment Support Unit (WHIASU), 2015, Health Impact Assessment: A Practical Guide.

³ WHIASU, 2015, Health Impact Assessment: A Practical Guide. Appendix 2. This guidance document was suggested for use by the Ebbsfleet Development Corporation. The vulnerable groups considered in the assessment have been updated to additionally incorporate those outlined in the guidance.

Diagram 8.1 General determinants of health



Source: Barton, H. and Grant, M. (2006) A health map for the local human habitat. *The Journal for the Royal Society for the Promotion of Health*, 126 (6). pp. 252-253.

Supporting documents

8.12. This assessment is supported by the following appendices:

- Appendix 8.1: *Policy* (document reference 6.2.8.1) – a summary of the relevant policy and guidance measures is provided within this main chapter of the assessment of changes in human health outcomes. This appendix provides further detail on applicable policy and guidance for the assessment of effects.
- Appendix 8.2 *Detailed Methodology* (document reference 6.2.8.2) – the detailed methodology appendix provides a full description of the approach taken to the assessment, and details how the consultation is considered within the determination of impacts.
- Appendix 8.3 *Detailed Baseline* (document reference 6.2.8.3) – the detailed baseline appendix presents a full description of information considered within the assessment of the baseline conditions for the purposes of this chapter. A summary of the baseline conditions presented within the appendix is outlined in Table 8.19 of this chapter.
- Appendix 8.4 *Literature Review* (document reference 6.2.8.4) – the assessment methodology establishes the causal pathways between environmental changes

resulting from the construction and operation of the London Resort and changes in human health outcomes. The literature review appendix outlines current academic and policy evidence for the pathways between environmental changes and changes in health outcomes. The appendix determines the strength of the causal link between changes in environmental conditions and health outcomes, which informs the assessment of effects undertaken within this chapter.

METHODOLOGY AND DATA SOURCES

Scoping and engagement

The 2020 EIA scoping opinion

8.13. As explained within Chapter 1: *Introduction* (document reference 6.1.1), an EIA Scoping Report was submitted to PINS in June 2020 (document reference 6.2.1.3), in order to secure an update to a Scoping Opinion issued in 2014 (Appendix 8.2: *Detailed methodology* (document reference 6.2.8.2) summarises the 2014 Scoping Opinion). The Secretary of State’s Scoping Opinion was published on 28 July 2020 (document reference 6.2.1.4). The table below provides a summary of the advice offered in the EIA Scoping Opinion 2020 along with the reference to where the relevant matters are addressed in this chapter of the ES.

Table 8.1 The Secretary of State’s advice on health effects in the 2020 scoping opinion and the London Resort’s response

Scoping comment	ES response and reference
<p>4.2.1 - Potential effects from hazardous waste The Scoping Report seeks to scope out this effect on the grounds that the Environment Agency will regulate the Proposed Development as part of the consenting process and therefore significant effects would not arise. The Scoping Report also states that the assessment will cross refer to the waste and materials chapter of the ES but as the waste and materials section of the Scoping Report makes little reference to how impacts on human health receptors would be considered, it is not clear how relevant this is to the assessment. The Inspectorate does not consider that sufficient information has been provided to support scoping these matters from the assessment. Accordingly, the ES should include an assessment of the impacts to human health from hazardous waste where significant effects are likely to occur. The London Resort should make effort to agree</p>	<p>The potential health impacts arising from the production of hazardous waste have been considered in this assessment during both construction and operational phases (paragraphs 8.161 and Error! Reference source not found.). Consultation has been undertaken in relation to both the assessment of health outcomes and the technical assessment related to the production of hazardous waste. Chapter 19: <i>Waste and materials</i> (document reference 6.1.19) provides detail on the consultation undertaken to inform the technical assessment of the production of hazardous waste.</p>

Scoping comment	ES response and reference
the approach to the assessment with relevant consultation bodies.	
<p>4.2.2 - Potential effects associated with exposure to contamination in soil</p> <p>The Scoping Report seeks to scope this out because it would be addressed in the soils, hydrogeology and ground conditions chapter of the ES. The Inspectorate notes that assessment of this matter is addressed in section 17 of the Scoping Report. The Inspectorate is therefore, content that this matter will be assessed in other relevant aspects of the ES. The Inspectorate considers that appropriate cross reference in the Human Health chapter of the ES to the relevant information would be useful.</p>	<p>Chapter 18: <i>Soils, hydrogeology and ground conditions</i> (document reference 6.1.18) provides a description of the human health effects expected to result from exposure to contamination in soil.</p>
<p>4.2.3 – Effects from water quality</p> <p>The Inspectorate does not agree that this matter can be scoped out. The Scoping Report provides insufficient evidence to support scoping these matters from the assessment. Accordingly, the ES should include an assessment of the impacts to human health from changes in water quality where significant effects are likely to occur. The London Resort should make effort to agree the approach to the assessment with relevant consultation bodies.</p>	<p>The potential health impacts arising from changes in water quality have been considered in this assessment for both construction and operational phases (paragraphs 8.165 and 8.235). Consultation has been undertaken in relation to both the assessment of health outcomes and the technical assessment related to water quality. Chapter 17: <i>Water resources and flood risk</i> (document reference 6.1.17) provides detail on the consultation undertaken to inform the technical assessment of water quality.</p>
<p>4.2.4 – Effects associated with electrical safety</p> <p>The Scoping Report seeks to scope out this matter as the safety requirements are the responsibility of the construction site team management and the project management plans will refer to the relevant health and safety legislation. A site wide energy strategy will be developed which will engage with the relevant stakeholders on the generation, transmission and distribution required for the Proposed Development. The Inspectorate agrees that it appears unlikely that significant effects would arise and so this matter can be scoped out.</p> <p>However, if further assessment of the works required to construct the Proposed Development demonstrates that this is not the case then the matter</p>	<p>No further developments have arisen that would demonstrate the potential for significant health effects associated with electrical safety to occur. On this basis this topic remains scoped out of the health assessment.</p>

Scoping comment	ES response and reference
should be scoped back in.	
<p>4.2.5 – Effects associated with a changing global climate</p> <p>The Scoping Report presents a less than clear approach with regards to the assessment of this matter in relation to human health. The Inspectorate considers that the ES should assess impacts to human health from climate change relevant to the Proposed Development and where significant effects are likely to occur. The London Resort should make effort to agree the approach to the assessment with relevant consultation bodies.</p>	<p>The potential health impacts arising from climate change have been considered in this assessment during both construction and operational phases (paragraphs 8.195 and 8.335). Consultation has been undertaken in relation to both the assessment of health outcomes and the technical assessment of climate change. Further detail on the consultation undertaken for the technical assessment of climate change can be found in Chapter 20: <i>Greenhouse gas and climate change</i> (document reference 6.1.20). The Outline Sustainability Report (document reference 7.7) provides more information on how the London Resort would achieve its sustainability goals.</p>
<p>4.2.6 – Relationship with transport, accessibility and movement chapter</p> <p>Chapter 9 [Land transport] of the Scoping Report states that the ES will consider the effects on access to open green space, recreational facilities and healthcare facilities and on personal injury accidents. The Public Health chapter of the ES should also cross refer to this assessment.</p>	<p>This cross-reference is included in this chapter (see paragraphs 8.45 and 8.46, which outline the technical assessments considered in the production of this chapter).</p> <p>In addition, this assessment considers the resulting human health impacts of changes in access to green space, recreational facilities and healthcare facilities directly in the assessment of effects starting paragraph 8.117.</p>

External engagement

- 8.14. A summary of the engagement with relevant interested parties that has been undertaken up to the finalisation of this chapter is provided below.
- 8.15. In 2014/15, London Resort carried out several stages of public consultation. Engagement with local authorities took place on a range of matters including health impacts during construction and once operational, with a focus on health provision on site and

engagement with the NHS and Clinical Commissioning Groups (CCG). Further engagement was then also carried out with the NHS/CCGs where the approach to assessing health impact was explained.

8.16. General feedback was that the health providers would like to be pro-actively involved more closely in the plans for onsite health provision and any emergency services. However, it was noted by many consultees that information was not yet sufficiently advanced for views to be reached on the likely scale or distribution of impacts. Feedback relevant to the assessment included the following:

- The need to ensure that as much detail as possible was included in the application so that the impacts could be understood clearly;
- The importance of considering different scenarios (best/worst case) where uncertainties existed;
- The importance of consultation on key issues so that local concerns, objectives and recommendations could be taken into consideration; and
- As the locality is undergoing so much change, the importance of considering cumulative impacts along with other known developments and plans for the area was highlighted.

8.17. Leading up to the DCO application, further recent public consultation has been undertaken in via webinar. The human health related queries and responses from the public consultation events are shown in Table 8.2.

Table 8.2 Summary of 2020 London Resort public consultation questions and answers

Public consultation issue	ES response
<p>Consideration of mental health: respondents indicated that the prioritisation of mental health was key for the assessment of health outcomes, and had a desire to ensure mental health was considered on an equal footing with physical health.</p>	<p>This assessment defines health using the definition established by the World Health Organisation. Throughout the assessment care has been taken to ensure that mental health considerations have been treated equally to those of physical health.</p>
<p>Electromagnetic pollution: a respondent to the public consultation identified concerns about the impact of additional electromagnetic pollution arising from the operation of the</p>	<p>The impact of additional electromagnetic pollution arising from the operation of the London Resort on health outcomes is assessed within this chapter. It is found that this is not likely to result in a significant effect on human health.</p>

Public consultation issue	ES response
London Resort on health outcomes.	
<p>Sustainable transport: some respondents directly identified that improvements to walking and cycling infrastructure resulting from the London Resort have the potential to positively impact health outcomes.</p>	<p>Once operational, the improvements to the pedestrian and cycling access within the PSB are thought to encourage active transport and lead to positive health benefits in this assessment.</p>
<p>The health impact of traffic associated with the London Resort: some respondents were concerned that the level of additional traffic generated by the London Resort once operational will lead to negative impacts upon health for local residents.</p>	<p>An assessment of the newly generated traffic on existing road links is undertaken in Chapter 9: <i>Land Transport</i> (document reference 6.2.9). The health assessment draws on the conclusions of Chapter 9 to assess the resulting implications for health arising from the additional traffic generated, alongside changes in active transport levels.</p>
<p>Use of river transport: respondents were pleased that river transport options were being considered for the transport of material for construction to minimise environmental impacts from increased traffic. In addition, some respondents were pleased at the inclusion of the ferry terminal once operational.</p>	<p>Construction activity associated with the London Resort will result in an increase in traffic, affecting health outcomes indirectly through changes in access to community assets and increase noise levels and air pollution. The use of the river for transport of materials will result in less road traffic, and less potential for the indirect health impacts of traffic during the construction phase. The impact on health outcomes of changes to traffic and active travel, air quality, noise, and access to community assets is considered individually within the assessment of effects starting paragraph 8.117.</p>
<p>Development of green infrastructure: public respondents identified the opportunity for the operation of the London Resort to contribute towards the development of open space and pedestrian and cycling networks across Swanscombe Peninsula. Some respondents were concerned that the loss of marshland resulting from the London Resort would impact health outcomes.</p>	<p>An assessment of the health impact of both construction and operational activities associated with the London Resort upon access to open space and walking and cycling routes is undertaken within the assessment of effects starting paragraph 8.117. It is concluded that the additional provision of green infrastructure once the London Resort is operational will contribute positively towards health outcomes.</p>
<p>Accessibility and inclusive design: a large number of respondents to the</p>	<p>The health impact of the inclusive design measures of the London Resort once operational is</p>

Public consultation issue	ES response
<p>public consultation referenced the importance of accessibility and inclusivity for individuals with a range of health outcomes. Other respondents specifically requested the inclusion of quiet areas onsite with reduced external stimuli.</p>	<p>considered within the assessment of effects starting paragraph 8.117. The accessibility and inclusive design measures will enable wider access to leisure opportunities afforded by the London Resort, with accompanying health measures considered to positively impact health outcomes.</p>
<p>Impact upon healthcare services: some respondents highlighted the potential for additional demand for healthcare services to impact the already constrained provision of services in the local area.</p>	<p>The health impact of the additional demand for healthcare services resulting from the construction and operation of the London Resort is considered within the assessment of effects starting paragraph 8.117. Consultation has been undertaken with the healthcare delivery providers in Kent and Essex to determine the likely impact on the additional demand during construction and operation, and the measures that can be put in place to mitigate this impact. The consultation raised that the largest impact would likely be felt on A&E services, and that measures to reduce this burden by accounting for the demand in a non-emergency environment would be key to ensuring local A&E services do not become further constrained. Consultation will continue between the London Resort and local healthcare delivery providers, and this assessment concludes that this no significant adverse impact will occur on local healthcare services during construction and operation provided onsite health measures are put in place.</p>
<p>Healthy food: respondents indicated that they would be keen to see a range of food options, including options compatible with different dietary requirements such as halal, kosher, and vegan options.</p>	<p>A wide range of food will be provided to guests, visitors and onsite staff members, with accessible food options both within and outside the pay-line when operational. The health impact of the change in access to healthy and unhealthy food arising from the operation of the London Resort is considered within the assessment of effects starting paragraph 8.117.</p>
<p>Climate impact: a large number of respondents raised the sustainability and climate impact of London Resort as</p>	<p>Climate change is linked to health outcomes, and the health impact of the construction and operation of the London Resort on climate change is</p>

Public consultation issue	ES response
a critical issue. Some positive comments were received regarding London Resort’s net-zero operational emissions target.	considered within the assessment of effects starting paragraph 8.117. Sustainability has been placed at the heart of the design of the London Resort, and as such the commitment to a net-zero emissions target for all operational activities will ensure that the London Resort will not result in a significant impact upon health through climate change.

8.18. Based upon early feedback and public consultation, further consultations continued with prescribed and non-prescribed consultation bodies in relation to health. Further feedback has included the following meetings.

Kent County Council (KCC)

8.19. The London Resort undertook a meeting on 09/10/20 with KCC’s health team to discuss the proposed approach to the assessment of the impact of London Resort on local healthcare and social services infrastructure, alongside internal health mitigation measures to be built into the design of the scheme.

8.20. During consultation, KCC highlighted the importance of considering the financial burden placed upon local healthcare services by workers of and visitors to the London Resort. Discussions were held on the potential spatial scope at which the health effects should be assessed, including consideration of non-local impacts such as the use of major trauma centres located in London for airlifting patients with severe health issues.

Ebbsfleet Development Corporation (EDC) and Dartford Borough Council (DBC)

8.21. Consultation meetings were held on 14/08/20 and 14/10/20 with both EDC and DBC. These covered many key aspects relating to health. Some key themes included the need to liaise with the local CCG to understand local healthcare capacity and the timing of new delivery. The impact of construction workers on healthcare was raised and the provision of an onsite healthcare facility. It was also noted that the impact on healthcare is not all about GP provision. There are wider outreach aspects of healthcare and the definition should be broader, including mental health considerations.

8.22. Other points raised were the need to distinguish between the health effects associated with the displacement of businesses and a loss of jobs, in contrast to the new jobs created. The importance of the quality of the worker accommodation and how the health agenda fits in with other parts of the submission were raised as key points.

EDC

8.23. A separate engagement with EDC took place on 21/10/20 to discuss the EDC’s planning vision for development in the Garden City, including the provision and planning of

additional healthcare infrastructure such as the Ebbsfleet Health and Wellbeing Hub.

- 8.24. For the assessment of health impacts, EDC outlined the importance of not restricting the study areas for the assessment of community impacts. EDC stated that some local residents have raised general concerns about current lack of access to GP provision within the EDC boundary. This is reflected in the baseline data used for the assessment. It was noted that the existing plans for the delivery of additional GP facilities, with additional facilities was not likely to come forward prior to the inflow of construction workers. Emphasis was therefore placed on the importance of understanding the health provision that the London Resort will provide for construction workers during construction.
- 8.25. EDC is planning the delivery of a number of additional healthcare facilities, the largest of which being a Health and Wellbeing Hub located in proximity to Ebbsfleet International station. The form and quantity of healthcare provision of this facility is as yet not fully determined, and ongoing engagement and collaborative working was encouraged and will be undertaken in order to align the healthcare provision on-site and the new infrastructure in the Health and Wellbeing Hub.

Thurrock Council (TC)

- 8.26. The London Resort met with TC's health team on 06/10/20 to discuss the potential health impacts arising from the London Resort on the north side of Thames, and how best to enable the greatest level of access to the economic opportunities generated by the London Resort for residents of Thurrock.
- 8.27. TC highlighted concerns surrounding access to healthcare facilities that may be affected by the development of the Lower Thames Crossing. The additional traffic generated by the London Resort might have the potential to compound these impacts.
- 8.28. TC suggested the incorporation of an in-combination effect upon neighbourhood amenity in the assessment of health effects. This effect would assess the impact of the London Resort on the physical environment, thereby affecting health outcomes. Following these discussions, this effect has been added into this assessment (paragraphs 8.168 and 8.238).
- 8.29. TC has provided some key data presented in the baseline analysis in this chapter, detailing the difference in the prevalence of different vulnerable groups in the west and the east of Tilbury and the respective levels of socio-economic deprivation in these areas.
- 8.30. Alignment of the London Resort's proposals with other proposals currently underway in Tilbury was encouraged such as: the Tilbury Towns Fund and Community Led Local Development programme.

The London Resort Employment and Skills Taskforce

- 8.31. The London Resort has formed the London Resort Employment and Skills Taskforce, which includes representatives from local authorities, skills and education partners, schools, colleges and high education. The Taskforce was formed to provide guidance on the development of the Outline Employment and Skills strategy and has brought together

schools, colleges and higher education providers in a series of workshops which informed the emerging education proposals outlined in the Outline Employment and Skills Strategy.

- 8.32. The influence of new employment and skills opportunities on improving health outcomes was acknowledged widely in stakeholder consultation, and is a key priority for all Local Planning Authorities (LPAs) and many stakeholders across the core study area and further afield. Income and economic security is a key driver of health outcomes, and many vulnerable groups face significant inequalities in accessing these opportunities. The Employment and Skills Taskforce will assist in developing practical implementation plans to ensure that the employment and skills objectives of London Resort are achieved, thus promoting the health benefits related to employment and incomes, including leading healthier lifestyles, being fitter and more likely to be of healthy body weight.

Kent and Medway Clinical Commissioning Group (CCG)

- 8.33. The Applicant met with the CCG on 09/12/20 to discuss the health impact of the London Resort. The CCG agreed that the analysis outlined in this chapter is detailed and robust and agreed with the effect significance.
- 8.34. The CCG agreed with our assessment that there are healthcare constraints in the area, as identified by the baseline data in this chapter. They noted that Darent Valley Hospital has minimal potential for expansion, and hence their key concern is limiting unnecessary A&E trips. It is acknowledged that some A&E trips will be necessary where there is a serious injury but any measures to reduce trips to A&E would be vital. The CCG noted that the onsite facility will help but suggested alternative solutions to minimise the impact on A&E services. The possibility for building on recent innovative methods of delivering primary healthcare was highlighted, so, too was the importance of collaborative planning. For example, directing temporary onsite construction workers to use online GP services would enable them to access any needs for regular prescriptions, as well as reducing potential impacts upon local services. Similarly, working collaboratively with the CCG to assess what the onsite facility should include. The Applicant is committed to ongoing engagement with the CCG and collaborative planning.

Other stakeholders

- 8.35. The London Resort has met with various local partners and stakeholders such as Locate in Kent, Visit Kent, The Education People, SELEP to discuss socio-economic and health aspects. This engagement has informed this assessment. For example, Locate in Kent and Visit Kent have provided information on the ability of the local housing stock and temporary visitor accommodation to respond to the changes in demand anticipated by London Resort. This consultation has informed the assessment of potential health effects associated with increased demand in the residential property market.
- 8.36. External engagement in relation to crime and security has been undertaken for the development of the security strategy with policing authorities including Kent Police Counter Terrorism Security Advisors, Kent Police Designing Out Crime Officers, Essex Police, Centre for the Protection of National Infrastructure and British Transport Police.

Measures put in place for the prevention of crime proposed in response to this consultation include the use of Crime Prevention through Environmental Design, the creation of an access control strategy and Security Control and Crisis Management Centre, and integration with the Public Address and General Alarm System.

S42 consultation

8.37. This section summarises the S42 consultation responses relevant to human health. It describes the key themes and how they have been addressed in this chapter.

Table 8.3 S42 consultation themes relating to human health and the Applicant’s response

Theme from the S42 consultation	The Applicant’s response
Concern about the influx of construction workforce on health outcomes in the area.	The effect of the construction workforce on human health has been considered in this chapter. Further detail on the numbers of construction workers and their accommodation options is presented within <i>the Construction Workforce Accommodation Strategy</i> (document reference 6.2.7.8).
Concern regarding the impact of the London Resort on existing health infrastructure both north and south of the Thames, including upon primary healthcare and Darent Valley Hospital. Particular attention is drawn to significant constraints in existing health infrastructure, with a number of services already operating over capacity.	This chapter assesses the impact of additional workers during the construction phase, and workers and visitors during the operational phase, on health services and infrastructure (paragraphs 8.192 and 8.282). The evidence presented within the baseline conditions is consistent with the consultation comments that there are significant constraints in a number of forms of healthcare provision locally, and without enabling further delivery of health infrastructure any additional demand generated will impact the ability of existing infrastructure to provide services.
Concern that the London Resort would place pressure for more housing growth and affordable housing generally, which would then impact health outcomes. Concerns were raised that these existing pressures could mean that the additional demand from the London Resort could have a significant effect on the ability to access new and existing housing.	This chapter considers the resulting health effects of the impact of workers and visitors on the local housing market (paragraph 8.277). Chapter 7: <i>Land-take and socio economics</i> (document reference 6.1.7) considers the impact of the additional demand generated by workers and visitors, and this chapter considers the resulting health impact of these effects.
Some stakeholders raised the concern that there are areas of north Kent that face greater levels of deprivation, and that this is hidden	Wherever health data are available at a geography smaller than local authority level, this is presented and considered within the

Theme from the S42 consultation	The Applicant’s response
<p>when considering evidence at the local authority scale.</p>	<p>existing baseline conditions. Appendix 8.3: <i>Detailed baseline</i> (document reference 6.2.8.3) presents all the data considered within the baseline analysis of health conditions, and this includes consideration of deprivation at the local level. Highly localised data relating to health conditions is presented from the 2011 Census.</p>
<p>More information required to understand how the London Resort would maximise employment and skills. Consultees also emphasised the need to engage with local schools, colleges and universities.</p>	<p>An Outline Employment and Skills Strategy has been developed and is submitted with the DCO (Appendix 7.7: <i>Outline Employment and Skills Strategy</i> (document reference 6.2.7.7)). The strategy – which is summarised in this chapter (paragraphs 8.257 to 8.258) – outlines the London Resort’s approach to maximising the local work and training benefits of the London Resort and the engagement that has taken place with a wide variety of local stakeholders. In developing that strategy, the London Resort has also set up an Employment and Skills Taskforce which is a group of relevant local bodies which will continue to meet to advise on the implementation of the Employment and Skills Strategy.</p>

Scope of this chapter

8.38. This section of the chapter summarises the receptors, the potential effects and the spatial and temporal scope over which these effects are assessed. Appendix 8.2: *Detailed methodology* (document reference 6.2.8.2) provides more detail on the methodology.

Relationship with other aspects of the London Resort EIA

8.39. This health assessment seeks to understand whether significant effects, identified in other relevant technical assessments, would result in health effects for the population. This chapter is informed by the following technical assessments, though other DCO documents are also considered:

- Chapter 7: *Land use and socio-economics* (document reference 6.1.7)
- Chapter 9: *Land transport* (document reference 6.1.9)
- Chapter 10: *River transport* (document reference 6.1.10)
- Chapter 11: *Landscape and visual effects* (document reference 6.1.11)

- Chapter 15: *Noise and vibration* (document reference 6.1.15)
- Chapter 16: *Air quality* (document reference 6.1.16)
- Chapter 17: *Water resources and flood risk* (document reference 6.1.17)
- Chapter 18: *Soils, hydrogeology and ground conditions* (document reference 6.1.18)
- Chapter 19: *Materials and waste* (document reference 6.1.19)
- Chapter 20: *Greenhouse gas and climate change* (document reference 6.1.20)

8.40. The health assessment considers the *residual* effects of other EIA technical assessments – i.e. it only considers the effects post-mitigation. Where additional mitigation measures are relevant to the effect on human health but not the original technical assessments, these are presented in this chapter.

Receptors

8.41. The receptors that could experience likely significant health effects are outlined in Table 8.4. Receptor groups include the general population and vulnerable groups, as described in the methodology section below.

8.42. This document uses the following definitions:

- **Health receptors:** the population of receptors identified by technical assessments;⁴ and
- **Receptor population:** the make-up of the study area (defined below), including the groups listed in Table 8.4.

Table 8.4 Receptor populations considered in this assessment

Receptor population group	Receptor population
General population	Residents
	Workers in the area and on site
	Visitors to the area (including those visiting the London Resort)
	Road and public transport users, pedestrians and cyclists (transport users)
Vulnerable groups	Children and young people
	Pregnant women
	Older people
	Low-income groups and the unemployed

⁴ For example this would include residents of a receptor identified in the assessment of effects of noise levels within Chapter 15: Noise and vibration or individuals affected by changes in water conditions for the River Thames as identified in Chapter 17: Water resources and flood risk.

Receptor population group	Receptor population
	Ethnic minority groups
	People with disabilities, neuro-cognitive conditions, long-term illness, or who experience mental ill health (including neuro-cognitive conditions, mental health issues and dementia, autism and epilepsy)
	Lesbian, gay, bisexual, transgender and queer and others (LGBTQ+)
	people
	Single parents
	Traveller populations

- 8.43. In response to consultation feedback the list of receptors was extended in order to provide a more detailed breakdown of the receptors that are likely to be affected by the London Resort. Road and public transport users, pedestrians, and cyclists (transport users) have been added as a receptor in the general population in line with stakeholder comments.
- 8.44. During statutory pre-application consultation in 2020, stakeholders raised the need to align the vulnerable groups considered in the assessment to those outlined in Welsh Health Impact Assessment Support Unit (2015).⁵ Public Health England recommended that the identification of vulnerable populations should be extended and should consider the list of protected characteristics in the Equality Act. As such, pregnant women, LGBTQ+ people, single parents and traveller populations have been added as further vulnerable groups considered in this assessment to ensure the vulnerable population groups align with this guidance (see Appendix 8.2: *Detailed methodology* (document reference 6.2.8.2) for more information).

Identifying relevant sensitive health receptors and receptor populations

- 8.45. Other technical disciplines identify specific receptor locations in the respective assessments. It is not the physical receptors themselves which are relevant for human health, but the individuals who live, work in or visit these receptors. The receptors identified in each individual technical assessment will vary but often include sensitive receptors, such as education and research facilities, healthcare and care-home facilities and open spaces.
- 8.46. Technical assessments consider the locations where impacts are expected and conclude on locations where the most adverse effects are expected. On this basis, the effects described at these health receptors are suitable for describing the potential effects experienced at other, similar, health receptors which are further away from the site or the

⁵ Welsh Health Impact Assessment Support Unit, 2015, HIA Tool Kit v2: Appendix 2 – note the vulnerable groups added match those listed in the ‘Groups who suffer discrimination or other social disadvantage’ in Appendix 2. Refugee groups and people seeking asylum have not been added as vulnerable groups considered in the chapter as only limited evidence exists to suggest these groups would experience disproportionate impacts arising from the effects considered in this assessment. The impact on these groups is considered through the impact on the general population.

road network, as effects will be no larger than those identified at the worst case health receptor locations.

- 8.47. To determine the health effects on receptor populations, the presence of receptor populations in the study area for each effect is determined wherever possible. Due to limitations in available information, it is not always possible to determine the extent to which receptor populations are present in the study areas, particularly for non-resident receptors. For example, it is not possible to determine the number of individuals experiencing mental ill health who might visit the London Resort once operational. In identifying vulnerable groups, this assessment makes it clear where data are available and used, and where assumptions have had to be made in order to carry out an assessment of the anticipated health effects. Appendix 8.3: *Detailed baseline* (document reference 6.2.8.3) summarises the prevalence of resident receptor populations in each study area, including vulnerable groups, where data are available.

Identification of potential effects

- 8.48. Table 8.5 summarises the identified potential health effects as a result of the London Resort. Additional effects have been scoped in in response to the EIA Scoping Opinion 2020 (document reference 6.2.1.4) and responses from statutory consultees. The list of the additional effects is contained in Appendix 8.2: *Detailed methodology* (document reference 6.2.8.2). The health effect of flooding during construction has been scoped out of this assessment as the residual effect is considered to be negligible in Chapter 17: *Water resources and flood risk* (document reference 6.1.17).

Table 8.5 Potential health effects considered in this assessment, by phase of development

Construction	Operation
Potential health effect of displacement or change in access affecting public services and community facilities	Any potential health effects associated with changes in noise and vibration
Potential health effect of displacement or change in access to open spaces	Potential health effects associated with changes in air quality
Potential health effects from displacement of commercial uses	Potential health effects from a change in local traffic and active travel
Potential health effects from displacement of residential dwellings	Potential health effects associated with changes in electromagnetic field exposure
Potential health effect of changes to local traffic and transport and changes in use of active travel modes	Potential health effect of increased flooding
Potential health effect of construction resulting in changes in noise and vibration	Potential health effects associated with the creation and disposal of hazardous waste
Potential health effect of construction resulting in changes in air quality	Potential health effects related to water contamination
Potential health effect of construction resulting in hazardous waste	Potential health effects related to changes to levels of neighbourhood amenity
Potential health effects of construction resulting in water contamination	Potential health effects associated with the inclusive design, site access and facilities in and around the London Resort
Potential health effects of construction related to changes to levels of neighbourhood amenity	Potential health effects relating to changes in access to work and skills

Construction	Operation
Potential effects of the presence of the construction workforce	Potential health effects of provision of worker accommodation
Potential health effect of work and training opportunities created	Potential health effects of change in the demand for residential accommodation
Potential health effect of construction workers on health services	Potential health effects from a change in the demand for health services
Potential construction health effects related to a changing climate	Potential health effects from a change in the demand for public services and community facilities
	Potential health effects associated with open space provision and amenity space
	Potential health effects from changes in community cohesion
	Potential health effects from changes in crime and community safety (including fear of crime)
	Potential health effects from changes to access to healthy and unhealthy food
	Potential health effects from changes in the transmission of communicable diseases
	Potential health effects related to a changing climate

Spatial scope (study areas)

- 8.49. Table 8.6 outlines the various geographical study areas that are used in this health assessment, either as direct study areas or geographical comparators. These are shown in Diagram 8.2.
- 8.50. The spatial scope of health impacts influenced by other areas of technical assessment in the EIA matches the study area used for each relevant technical area. Some technical assessments – including noise, air quality, flooding and transport – do not define specific study areas for a given radius of the Project Site. Instead they identify receptors which are expected to be subject to effects of the largest scale. The effects identified in these assessments are all close to the Project Site and of a similar geography, so this assessment has defined an appropriate geography (see Neighbourhood Study Area (NSA) in Table 8.6) to identify the receptor population that could be affected by the London Resort. The NSA includes all the locations of receptors which have been identified to experience significant effects in these technical assessments.

Table 8.6 Geographical study area definitions and justifications

Geographical Study Area	Definition	Rationale
The Project Site Boundary (PSB)	The DCO Order Limits. Refer to Figure 8.2 for a map of the Project Site Boundary	The PSB study area is used for effects which are at the Project Site level. It is used for the assessment of the impacts of displaced uses.
Community Impact	A 500m radius around the Project	The CIA is used to assess the

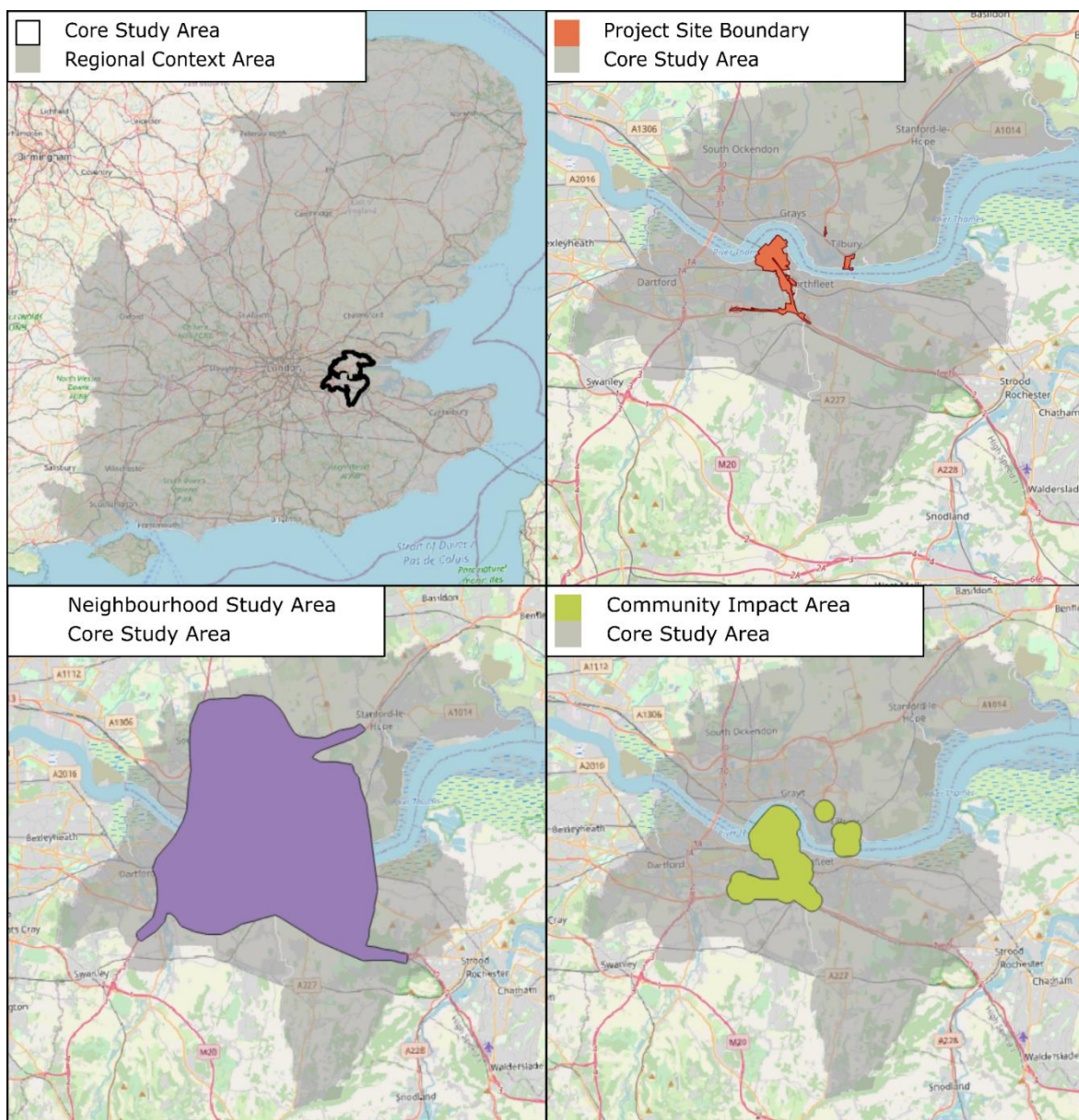
Geographical Study Area	Definition	Rationale
Area (CIA)*	Site Boundary	change in access to community uses, such as open spaces, public rights of way and other recreational or community facilities. Disruption to community uses is most likely to occur in relatively local proximity to the site.
Neighbourhood Study Area (NSA)	Area defined as the transport modelling area, with a 100m buffer applied. Refer to Diagram 8.2 for a map of the Neighbourhood Study Area. This captures the location of all receptors where significant effects relating to traffic, flooding, air quality, noise and vibration and electromagnetic field exposure have been identified, informing the health baseline for those effects.	The NSA is used to assess technical effects relating to local traffic, air quality, noise and vibration, and others, and their impacts upon neighbourhood amenity. Many of these assessments are driven by the results of the transport assessment, and the NSA has been defined as a buffer zone around the transport study area such that it captures any significant resulting indirect effects.
Core Study Area (CSA)	Dartford, Gravesham and Thurrock (local authorities)	The three local authorities in which the Project Site lies. Many of the effects are expected to be experienced at the CSA level.
Sub-Regional Context Area ⁶ (SRCA)	Kent and Medway, Essex, Thurrock (combination of districts)	These study areas are presented in the baseline for context but are not used to assess the significance of any health effects. They are included for context such that the health baseline and receptor population characteristics can be considered against appropriate wider areas.
Regional Context Area (RCA)	South East, East and London	
National Context Area (NCA)	England, GB, UK (depending on data source availability)	
* The CIA does not precisely correspond to a 500m radius around the PSB as at the point of submission. It is slightly larger than a 500m radius. During statutory consultation, some stakeholders stated that this boundary should be no smaller than that defined for the PEIR to ensure all potential effects on community facilities and public services are captured within		

⁶ Defined as county / unitary authorities to be consistent with ONS statistical data releases.

Geographical Study Area	Definition	Rationale
the study area. Therefore, although the PSB has marginally decreased in area since the PEIR was published, the CIA study area has been kept the same.		

8.51. The PSB, CIA, NSA, CSA and the RCA are shown in Diagram 8.2. For the purposes of data collection, for the PSB, CIA and NSA statistical areas which overlap these areas have been chosen and are presented in Appendix 8.3: *Detailed baseline* (document reference 6.2.8.3).

Diagram 8.2 Relevant study areas map



Temporal scope (assessment years)

8.52. As explained in Chapter 3: *Project description* (document reference 6.1.3), the London Resort will be delivered over two phases of construction, with an operational phase of Gate One starting five years before the end the construction activities for Gate Two. The proposed timescales are shown in Table 8.7.

Table 8.7 The London Resort indicative timescales

Phase	Construction phase	Operational phase
Gate One	2022 – 2024	2024 onwards
Gate Two	2026/2027 – 2029	2029 onwards

8.53. Table 8.8 outlines the temporal scope that is considered in this assessment. Gate One is expected to become operational in 2024 and Gate Two is expected to be operational in 2029. Several core assessment years have been chosen for this assessment due to the phased approach to construction. For the purposes of this assessment, the operational phase is defined as a single continuous phase, with three core assessment years.

Table 8.8 Temporal scope – assessment years

Assessment year	Explanation
Construction phases	
2022	The earliest year in the construction phase – used as a worst case for displacement effects.
2023	The construction of London Resort Gate One will be rapid, to achieve an opening date in 2024. For this reason, it is envisaged that the number of construction workers required on site will peak and remain broadly constant at this sustained peak from mid-2022 to mid-2024. The year 2023 is therefore used to assess effects related to the construction workforce as this is the year in which the highest number of construction workers are anticipated to be on site.
Operational phase	
2025	The first full calendar year of Gate One operations.
2030	The first full calendar year of Gate Two operations.
2038	Maturity – the London Resort will be fully operational and established.

8.54. Table 8.9 shows for each potential effect assessed in this chapter the relevant receptor populations, study area, and assessment years. The most appropriate receptor population group is identified as the impacted receptor for each effect, but clearly individuals can fall into more than one receptor group. For example, a local resident could also be a worker, visitor and/or a transport user. In each instance the group most appropriate to the impact

being considered is identified.

Table 8.9 Potential health effects, receptors, study areas and assessment years

Activity	Health effect	Receptor population (s)	Study area	Assessment year(s)
CONSTRUCTION EFFECTS				
Displacement to land and property as a result of the land take	Potential health effect of displacement or change in access affecting public services and community facilities	Residents	CIA	2022: start of construction phase
	Potential health effect of displacement or change in access to open spaces	Residents	CIA	2022: start of construction phase
	Potential health effects from displacement of commercial uses	Residents Workers	PSB CSA	2022: start of construction phase
	Potential health effects from displacement of residential dwellings	Residents	Dartford	2022: start of construction phase
	Potential health effect of changes to local traffic and transport and changes in use of active travel modes	Residents Transport users	NSA	2022: start of construction phase 2023: construction peak
Construction activity	Potential health effect of construction resulting in changes in noise and vibration	Residents	NSA	2022: start of construction phase
	Potential health effect of construction resulting in changes in air quality	Residents	NSA	2022: start of construction phase 2023: construction peak
	Potential health effect of construction resulting in hazardous waste	Residents Workers	NSA	2022: start of construction phase 2023: construction peak
	Potential health effects of construction resulting in water contamination	Residents Workers	NSA	2022: start of construction phase 2023: construction peak
	Potential health effects of construction related to changes to levels of neighbourhood amenity	Residents	NSA	2022: start of construction phase 2023: construction peak
	Potential effects of the presence of the construction workforce	Residents	CSA	2022: start of construction phase 2023: construction peak
	Potential health effect of work and training opportunities created	Residents	CSA	2023: peak construction workforce
	Potential health effect of construction workers on health services	Residents	CIA	2023: peak construction workforce
	Potential construction health effects related to a changing climate	Residents Workers	CSA	2023: peak construction workforce
OPERATIONAL EFFECTS				

Activity	Health effect	Receptor population (s)	Study area	Assessment year(s)
Noise exposure	Any potential health effects associated with changes in noise and vibration	Residents Visitors Workers	NSA	2025: first full year of the operation of Gate One 2030: first full year of the operation of the whole Resort 2038: maturity
Air quality	Potential health effects associated with changes in air quality	Residents Visitors Workers	NSA	2025 2030 2038 (as defined above)
Traffic and transport	Potential health effects from a change in local traffic and active travel	Residents Transport users	NSA	2025 2030 2038
Electromagnetic field exposure	Potential health effects associated with changes in electromagnetic field exposure	Residents Visitors Workers	NSA	2025 2030 2038
Flooding	Potential health effect of changes in flooding	Residents Visitors Workers	NSA	2025 2030 2038
Hazardous waste	Potential health effects associated with the creation and disposal of hazardous waste	Residents Visitors Workers	NSA	2025 2030 2038
Water quality	Potential health effects related to water contamination	Residents Visitors Workers	NSA	2025 2030 2038
Neighbourhood amenity	Potential health effects related to changes to levels of neighbourhood amenity	Residents	NSA	2025 2030 2038
Inclusive design	Potential health effects associated with the inclusive design, site access and facilities in and around the London Resort	Residents Visitors Workers	CIA	2025 2030 2038
Existence of the London Resort	Potential health effects relating to changes in access to work and skills	Residents Workers	CSA	2025 2030 2038
	Potential health effects of provision of worker accommodation	Workers	CSA	2025 2030 2038
	Potential health effects of change in the demand for residential accommodation	Residents	CSA	2025 2030 2038
	Potential health effects from a change in the demand for health services	Residents Visitors Workers	CIA	2025 2030 2038
	Potential health effects from a change in the demand for public services and community facilities	Residents Workers	CIA	2025 2030 2038
	Potential health effects associated with open space provision and amenity space	Residents Workers	CIA	2025 2030 2038

Activity	Health effect	Receptor population (s)	Study area	Assessment year(s)
	Potential health effects from changes in community cohesion	Residents	CIA	2025 2030 2038
	Potential health effects from changes in crime and community safety (including fear of crime)	Residents Visitors	CSA	2025 2030 2038
	Potential health effects from changes to access to healthy and unhealthy food	Residents Visitors Workers	CSA	2025 2030 2038
	Potential health effects from changes in the transmission of communicable diseases	Residents Visitors Workers	CSA	2025 2030 2038
Climate change	Potential health effects related to a changing climate	Residents Visitors Workers	CSA	2025 2030 2038

Baseline

8.55. The data sources used to inform the health baseline and their confidence levels can be found in Appendix 8.2: *Detailed methodology* (document reference 6.2.8.2).

Assessment methodology

8.56. Chapter 6: *EIA assessment methodology* (document reference 6.1.6) outlines the general assessment approach adopted for this EIA. There does not currently exist any UK legislation or government guidance for the assessment of human health effects. A brief summary of the assessment approach used in this chapter is provided below, with Appendix 8.2: *Detailed methodology* (document reference 6.2.8.2) providing a more detailed explanation of the methodology employed.

8.57. An important element of this health assessment is establishing health pathways, which determine the relationship between the activities of the London Resort and potential health effects for the receptor population. These are identified through a literature review (Appendix 8.4: *Literature review* (document reference 6.2.8.4)), which summarises the literature on the links between health determinants and effects on individuals’ health. It contains the evidence base which underpins the assessment of the London Resort’s health effects. For example, the literature review considers the relationship between air quality and health effects, and how this differs by group.

8.58. A summary of the assessment procedure in this chapter is provided below:

- identification of the health receptors and receptor populations potentially affected by the London Resort;
- assessment of the sensitivity of these receptors based on the number of people

exposed to the health effect and the extent to which the exposed receptor population experiences inequalities in health or can access services and facilities. This is informed through stakeholder engagement, and desk-based studies of policy and baseline datasets. An assessment of how the sensitivity of receptors may change under future baseline conditions is also provided, particularly with respect to changes in demographic and economic variables such as population and employment. In response to stakeholder feedback, where possible and relevant, consideration is given to how COVID-19 may have altered baseline or future baseline conditions;

- assessment of the mechanisms through which the London Resort might potentially impact identified receptors. This is informed by the strength of links between health determinants and health outcomes (health pathways) informed by the wider scientific literature, as well as other factors (such as size of the change, whether impacts meet policy); and
- combining the sensitivity of the receptor with the magnitude of impact, the significance of effect is determined.

Receptor sensitivity

- 8.59. The sensitivity of receptor populations is defined as high, medium, or low. For health effects, the receptor sensitivity is determined by the number of people exposed to the health effect and the extent to which the exposed population experiences inequalities in health or can access services and facilities. A receptor population with a high sensitivity would consist of individuals whose health outcomes are very sensitive to most changes, whilst a low sensitivity would consist of individuals whose health is not likely to be sensitive to changes to their environment.
- 8.60. Vulnerable population groups include those with higher levels of social deprivation or relatively poor health status. The vulnerable groups are shown in Table 8.4. Vulnerable groups present in each study area have been identified in the vulnerable populations section of Appendix 8.3: *Detailed baseline* (document reference 6.2.8.3). Appendix 8.4: *Literature review* (document reference 6.2.8.4) considers which groups are vulnerable for each health effect.
- 8.61. For example, there are many studies which find that children are vulnerable to changes in access to public open space. If the open space baseline found an existing deficiency in local publicly accessible open space, and low levels of physical activity and high numbers of children present in the study area, the sensitivity of the receptor population to health effects would be high.
- 8.62. The rationale for the sensitivity of the receptor population is summarised in Table 8.19.

Impact magnitude

- 8.63. The assessment of the magnitude of impact has been undertaken based on professional

judgement, informed by the literature identified in Appendix 8.4: *Literature review* (document reference 6.2.8.4) regarding the links between the various changes anticipated as a result of the London Resort and potential health effects, as there are no industry standard criteria relating to the assessment of the magnitude of health impact. The strength of the evidence linking activities to health outcomes is also assessed and is based on the rating-system presented in Table 8.10.

Table 8.10 Evaluation of the strength of evidence – ratings descriptions

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

8.64. Where the strength of evidence is 'weak' it is not considered evidence for the lack of a potential relationship between the project activities and health outcomes. It simply reflects gaps in the state of our (and, more generally, the scientific community's) knowledge about the causal links involved. However, it does show that there is uncertainty in the assessment of the likely effect. The assessment of the strength of the evidence can be found in Appendix 8.4: *Literature review* (document reference 6.2.8.4).

8.65. Several factors are considered when assessing the magnitude of impact:

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

8.66. The magnitude of impact is assessed as high, medium, low or negligible.

Significance of effect

8.67. Table 8.11 shows how the magnitude of impact and sensitivity of receptor combine to determine the scale of the effect. Effects can be beneficial, adverse or neutral; temporary

or permanent; and, direct or indirect.

- 8.68. Embedded mitigation, and mitigation considered within the identification of impacts in other technical disciplines is considered within the initial assessment of effects. If the effect does not require secondary mitigation (or none is possible), the residual effect will remain the same. If, however, secondary mitigation is required, an assessment of the post-mitigation residual effect is provided.

Table 8.11 Effect significance matrix

Significance magnitude	Sensitivity of receptor		
	High	Medium	Low
High	Major	Major	Moderate
Medium	Major	Moderate	Minor
Low	Moderate	Minor	Negligible
Negligible	Minor	Negligible	Negligible

- 8.69. For the purposes of this assessment, effects that are classified as moderate or major are considered to be significant.

Assumptions and limitations

- 8.70. Appendix 8.2: *Detailed methodology* (document reference 6.2.8.2) presents detailed descriptions of the assumptions and limitations regarding baseline data collection for each effect. The subsections below briefly highlight some assumptions and limitations inherent to the assessment.

Baseline data

- 8.71. The assessment of the existing environment is naturally limited to the availability of baseline data. Existing baseline health conditions are established through interpretation of nationally recognised research, data and survey information. The most recent data published for our given study areas are used throughout this assessment, with a preference for using the most recent data (2018, 2019 or 2020) where available. Where data from these years are not available, the next best alternative has been used (i.e. the most recent). The prevalence of vulnerable populations, and specifically their health outcomes, at small geographical levels is not always recorded or available. This assessment states clearly what data were available and have been used and is transparent in any assumptions made.

COVID-19

- 8.72. The assessment presents baseline data over a reasonable period of time, where time series data are available, so that the impact of any short-term changes can be identified

in the baseline. This may be relevant to the impact of COVID-19 on social, economic, demographic and health baseline data given the significance of the environmental changes brought about by the pandemic. However, there are a number of sources which conclude that the impact of the pandemic is not expected to be persistent, with economic recovery to pre-pandemic levels expected by 2024 (the opening year of Gate One).⁷ This indicates that the impact of COVID-19 is largely relevant for short-term effects and it would not be a material consideration for the operational effects.

- 8.73. Where relevant, the impact of COVID-19 on the receptor sensitivity and conclusions is discussed in this chapter (also see Appendix 8.3: *Detailed baseline* (document reference 6.2.8.3) for further discussions of COVID-19). Where there is uncertainty, the assessment is based on a reasonable worst-case scenario. Whilst this assessment aims to identify possible future scenarios where possible, the impact of COVID-19 is uncertain and will depend on many factors, not least for how long the pandemic persists. This represents an unavoidable limitation in this assessment.

Health effects

- 8.74. The health assessment considers the residual effects of other EIA technical assessments – i.e. it only considers the likely significant environmental effects post-mitigation. The explanations of these mitigation measures are not repeated in this chapter and reference should be made to the respective technical topic chapter of the ES. The same assumptions and uncertainties of these assessments therefore apply to this chapter.
- 8.75. The pathways between determinants and health outcomes are not reliably recorded nor always thoroughly understood. A thorough literature review has been undertaken (Appendix 8.4: *Literature review* (document reference 6.2.8.4)) to inform this assessment but it is naturally limited by the available evidence base.

Cumulative effects assessment

- 8.76. This assessment presents information on the evolution of the health baseline for each assessment year where the information is available, whilst acknowledging that this is subject to uncertainty. This information includes planning policy on the delivery of health-related infrastructure and projections of environmental conditions where available.
- 8.77. A complete set of future baseline data does not exist for health receptors, and therefore the current baseline is sometimes assumed to continue. Some of the other assessments on which this assessment draws are inherently cumulative and hence by nature the secondary effects assessed in this chapter are cumulative. For example, Chapter 7: *Land use and socio-economics* (document reference 6.1.7) presents projections on population and employment to show how the baseline is likely to evolve in the do-nothing scenario. Chapter 9: *Land transport* (document reference 6.1.9) also presents the results of a transport model that accounts for changes in the future baseline. The results of the

⁷ See, for example, Bank of England (2020); Monetary Policy Report November 2020

transport assessment also inform the traffic-related effects for the air quality and noise assessments. Other chapters, such as Chapter 15: *Noise and vibration* (document reference 6.1.15) consider the cumulative effect of relevant schemes. Any cumulative effects identified in these chapters are used to identify any cumulative health effects in this health chapter.

- 8.78. As the assessment is inherently cumulative a separate assessment of the cumulative impact of committed schemes would risk double counting. Based on this approach, the need for a cumulative effects assessment which considers the overall impact of other, committed, schemes is redundant. The only exception to this is where specific cumulative schemes have a direct impact upon health provision or health outcomes (e.g. a scheme including a hospital or increase to open space). In these instances, the impact of this is explicitly included in the cumulative assessment.

RELEVANT LAW, POLICY AND GUIDANCE

Guidance and best practice

- 8.79. There is no UK legalisation or guidance for the assessment of human health effects. However, there are some well-established guides available for health impact assessment including *Health in Environmental Impact Assessment: A Primer for a Proportionate Approach*,⁸ *Health Impact Assessment: a practical guide*,⁹ *the Healthy Urban Planning Checklist*,¹⁰ *NHS HUDU Planning Contribution Model*,¹¹ and *Handbook to the NHS Constitution*.¹²

Summary of relevant policy

- 8.80. This section summarises the relevant legislation and planning policies that define the context of the London Resort. Further information on the policies relevant for the London Resort is presented in Appendix 8.1: *Policy* (document reference 6.2.8.1). The appendix reviews and summarises policy from Dartford, Gravesham and Thurrock, the Ebbsfleet Development Corporation, regional and sub-regional bodies relevant to the London Resort (the South East Local Enterprise Partnership or SE LEP, the Kent and Medway Economic Partnership (KMEP), the Thames Gateway Kent Partnership (TGKP) and Kent County Council (KCC), and national policies. The appendix is split into key health themes to facilitate comparison between policies.
- 8.81. Table 8.12 contains the legislation that has been considered in the assessment of health effects. More detail on the legislation and on how it relates to this health chapter is provided in Appendix 8.1: *Policy* (document reference 6.2.8.1).

⁸ IEMA, undated, health in environmental impact assessment. A primer for a proportionate approach.

⁹ WHIASU, 2015, Health Impact Assessment: A Practical Guide

¹⁰ NHS HUDU, 2017, Healthy Urban Planning Checklist (third edition).

¹¹ NHS HUDU, 2017, Planning Contributions Model 2017.

¹² Department of Health and Social Care, 2019, Handbook to the NHS Constitution for England.

Table 8.12 Legislation relevant for the HIA - summary

Legislation
<i>Health and Social Care Act 2012 (HM Government of Great Britain & Northern Ireland, 2012a)</i>
<i>The Social Value Act 2012 (HM Government of Great Britain & Northern Ireland, 2012b)</i>
<i>Equality Act 2010 (HM Government of Great Britain & Northern Ireland, 2010a)</i>
<i>Environmental Protection Act 1990 (HM Government of Great Britain & Northern Ireland, 1990)</i>

8.82. The national planning policy relevant to the assessments in this chapter is summarised in Table 8.13. More detail on how this relates to this health chapter is provided in Appendix 8.1: *Policy* (document reference 6.2.8.1).

Table 8.13 National planning policy - summary

Policy
<i>National Policy Statement (NPS) for National Networks</i>
<i>NPS for Ports</i>
<i>National Planning Policy Framework (NPPF)</i>

8.83. Table 8.14 summarises the key policies and requirements that are relevant to the London Resort from a health perspective. A reference as to which effects these policies apply to in the ES is provided in the third column.

Table 8.14 Summary of local, sub-regional and national policy by theme, and location in ES where policy is addressed

Summary	Key policy references	ES reference
Public services, community facilities, community cohesion and crime		
Developmental policy within the CSA is generally based on the underlying aim of improving the well-being of residents and the community as a whole. Ensuring the continued provision of community facilities for local residents is frequently mentioned in policies. Growing populations are putting pressure on facilities and LPAs acknowledge the need to improve the quantity and quality of such facilities to meet demand. The loss of community services and facilities, without suitable	Dartford, Core Strategy 2011-2026 Dartford, Development Policies Management Plan 2017 Gravesham, Local Plan Core Strategy 2014 Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015	This chapter considers the health effects associated with community life (paragraph 8.304), crime (paragraphs 8.177 and 8.309), and public services (paragraphs 8.117 and

Summary	Key policy references	ES reference
<p>reprovision, is generally resisted in local policies.</p> <p>The host LPAs policies on issues such as the economy, tourism, green infrastructure and sports/recreational facilities all contain a community driven element. The provision of community facilities is also frequently mentioned as increasing populations increase the demand for such facilities. National policy further supports the integration of communities, where everyone can feel confident and proud of their identity and participate in a number of ways.</p> <p>Local policies aiming at a reduction of the crime rate require developments to follow design principles which help reduce the opportunities for crime in the vicinity. Particular attention is given to the fear of crime, prevention of crime, drugs and alcohol, youth crime, and domestic abuse. Concern is not limited to reducing crime itself, but also encompasses a concern for the economic cost of crime, and the adverse impacts and disorder on people’s lives.</p>	<p>Ebbsfleet Development Corporation, Active Ebbsfleet</p> <p>Ebbsfleet Development Corporation, Space in the Place – Civic Infrastructure Study</p> <p>Kent, A Framework for Community Safety 2012 - 2015</p>	<p>8.292) in the area, and how these are affected by the influx of new workers, visitors and residents.</p>
Healthy lifestyles		
<p>At the LPA level, the objectives surrounding health and social care are primarily based on the provision of healthcare services and the encouragement of healthy lifestyles. The needs of residents for, among other things, open space, nature, sports and leisure facilities are considered by planners, and visions for better provision of facilities for recreation, sport, walking and cycling have been set out.</p>	<p>Dartford, Core Strategy 2011-2026</p> <p>Dartford, Development Policies Management Plan 2017</p> <p>Gravesham, Local Plan Core Strategy 2014</p> <p>Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015</p>	<p>This chapter considers the health effects associated with changes in access to and provision of open spaces and public rights of way (PRoW) (paragraphs 8.124 and 8.299).</p>

Summary	Key policy references	ES reference
	<p>Ebbsfleet Development Corporation, Ebbsfleet Implementation Framework 2017</p> <p>Ebbsfleet Development Corporation, Ebbsfleet Public Realm Strategy 2019</p> <p>Ebbsfleet Development Corporation, Active Ebbsfleet 2019</p> <p>Kent, The Kent Environment Strategy 2016</p>	<p>It also considers the health effect of the London Resort in terms of changes to access to healthy food (paragraph 8.317).</p>
Traffic, transport and active travel		
<p>All the LPAs have set out plans that aim to increase the efficiency of transport networks and minimise car use, whilst simultaneously providing safe and accessible cycling/walking routes for the community to promote healthier lifestyles. A key theme of policy is ensuring the inclusivity of the transport system.</p>	<p>Dartford, Core Strategy 2011-2026</p> <p>Dartford, Development Policies Management Plan 2017</p> <p>Gravesham, Local Plan Core Strategy 2014</p> <p>Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015</p> <p>Ebbsfleet Development Corporation, Ebbsfleet Implementation Framework 2017</p> <p>Ebbsfleet Development Corporation, Active Ebbsfleet 2019</p> <p>Kent, Local Transport Plan 4: Delivering Growth without Gridlock 2016–2031</p>	<p>This chapter considers the health effect of changes to local traffic, transport and the active modes (paragraphs 8.146 and 8.216).</p>
Flooding		

Summary	Key policy references	ES reference
<p>Development will mostly be directed to areas outside of high flood risk zones. According to the policies of the three host LPAs, flood risk will be mitigated, and any future proposals for the Swanscombe Peninsula East Undeveloped Area will be subject to a comprehensive masterplan approach which deals with the issues of, amongst others, flood risk.</p>	<p>Dartford, Core Strategy 2011-2026</p> <p>Dartford, Development Policies Management Plan 2017</p> <p>Gravesham, Local Plan Core Strategy 2014</p> <p>Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015</p> <p>Kent, The Kent Environment Strategy 2016</p>	<p>This chapter considers the health effect of flood risk and flooding in the area (paragraph 8.228).</p>
Air quality		
<p>All the host LPAs have developed plans to tackle environmental and climate issues, with improving air quality being a key part of this. Air quality is seen as an important factor in maintaining good health amongst residents and the community as a whole. Traffic and transport are recognised as key determinants of air quality, and efforts to ameliorate conditions focus on these areas</p>	<p>Dartford, Core Strategy 2011-2026</p> <p>Dartford, Development Policies Management Plan 2017</p> <p>Gravesham, Local Plan Core Strategy 2014</p> <p>Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015</p> <p>Kent, The Kent Environment Strategy 2016</p>	<p>This chapter considers the health effects associated with changes in air quality (paragraphs 8.157 and 8.212).</p>
Noise and vibration		
<p>An excessive amount of noise and vibration is recognised by the LPAs as an impediment to the well-being of residents and workers, and as a result policy stipulates that the design of any development should sufficiently prevent such issues. Kent County Council found that concerns around noise pollution were raised by many</p>	<p>Dartford, Development Policies Management Plan 2017</p> <p>Gravesham, Local Plan Core Strategy 2014</p> <p>Thurrock, Core Strategy and Policies for Management of</p>	<p>This chapter considers the health effects associated with changes in the noise environment (paragraphs</p>

Summary	Key policy references	ES reference
residents and businesses in relation to major transport infrastructure	Development (as amended) Adopted January 2015 Kent, The Kent Environment Strategy 2016	8.151 and 8.205).
Access to work and training		
All authorities have overarching aims of improving the skills of their residents and reducing unemployment. All three host LPAs specify that developments will be expected to deliver skills training so that local residents benefit from economic growth.	Dartford, Core Strategy 2011-2026 Gravesham, Local Plan Core Strategy 2014 Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015 Ebbsfleet Development Corporation, Ebbsfleet Inclusive Growth Strategy (2019-2025) South East LEP, Strategic Economic Statement 2018 South East LEP, South East LEP Smarter Faster Together: towards a local industrial strategy 2019 Thames Gateway and Kent Partnership, TGKP Growth Plan 2014 Kent County Council, Refresh of the 14-24 learning, employment and skills strategy 2017-2020	This chapter considers the health effects associated with access to employment, earnings, and skills (paragraphs 8.129, 8.186, and 8.255).
Inclusive design, site access and facilities		
Local policies support inclusive design, both in the design of buildings and how the site is accessed and the specific facilities it contains.	Dartford, Development Policies Management Plan 2017 Gravesham, Local Plan Core Strategy 2014	This chapter assesses the health effects related to inclusive design of the London

Summary	Key policy references	ES reference
	<p>Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015</p> <p>Ebbsfleet Development Corporation, Ebbsfleet Public Realm Strategy 2019</p> <p>Kent, Inclusive Design and Placemaking, supplementary appendix to Kent Design Guide, 2010</p>	<p>Resort (paragraph 8.245).</p>
Residential accommodation		
<p>Local policy aims to deliver high-quality, accessible residential accommodation at the LPA level. The importance of quickening the pace of delivery gains further mentions.</p>	<p>Dartford, Core Strategy 2011-2026</p> <p>Dartford, Five Year Housing Supply 2019-24</p> <p>Gravesham, Local Plan Core Strategy 2014</p> <p>Gravesham, Five Year Deliverable Housing Land Supply Statement 2018-2023</p> <p>Thurrock, Five Year Housing Land Supply Position Statement, 2016-21</p> <p>SE LEP, South East LEP Strategic Economic Plan 2014</p> <p>Kent and Medway Economic Partnership, KMEP Unlocking the Potential: Going for Growth 2013</p> <p>Thames Gateway Kent Partnership, TGKP Plan for Growth 2014-2020</p> <p>MHCLG, Housing supply and delivery assessment</p>	<p>This chapter assesses the health effects related to access to housing and the London Resort’s impacts on the housing market (paragraphs 8.262 and 8.277).</p>

Summary	Key policy references	ES reference
	Public Health England, Improving health through the home	
Health services		
<p>At the LPA level, the objectives surrounding health and social care are primarily based on the provision of healthcare services – both primary healthcare and other services – as well as the encouragement of healthy lifestyles. Dartford Council has set out their desire to provide additional primary health services in order to meet the anticipated needs arising from a growing population. Similarly, Gravesham and Thurrock have also stated their intentions to bolster their health and social care infrastructure systems, with several strategic sites being marked for targeted investment. The EDC has plans for additional healthcare infrastructure such as the Ebbsfleet Health and Wellbeing Hub in order to provide the health services required for the area’s growing population.</p>	<p>Dartford, Core Strategy 2011-2026</p> <p>Dartford, Development Policies Management Plan 2017</p> <p>Dartford, Infrastructure Delivery Plan 2019</p> <p>Gravesham, Local Plan Core Strategy 2014</p> <p>Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015</p> <p>Ebbsfleet Development Corporation, Ebbsfleet Implementation Framework</p> <p>Kent and Medway, Kent and Medway Growth and Infrastructure Framework Kent County Council 2018 update</p> <p>Kent, The Kent Environment Strategy 2016</p>	<p>This chapter assesses the health effects of changing demand for health services (paragraphs 8.192 and 8.282).</p> <p>The ability of local health services to cope with the spread of communicable disease and the London Resort’s impact is also investigated (paragraph 8.329).</p>
Pollution		
<p>Local policies aim at preserving water quality in the area and preventing its pollution or contamination. LPAs have formulated policies for the management of waste, including hazardous waste. Developers are required to meet high standards of environmental safety, as well as</p>	<p>Dartford, Core Strategy 2011-2026</p> <p>Dartford, Development Policies Management Plan 2017</p> <p>Gravesham, Local Plan Core Strategy 2014</p>	<p>This chapter considers potential health effects related to water contamination (paragraph 8.235) and the</p>

Summary	Key policy references	ES reference
development meeting water efficiency criteria.	<p>Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015</p> <p>Kent, The Kent Environment Strategy 2016</p> <p>Kent, Minerals and Waste Local Plan</p>	<p>disposal of hazardous waste (paragraphs 8.161 and Error! Reference source not found.).</p>
Neighbourhood amenity		
<p>Neighbourhood amenity reflects the combination effect of environmental effects that result in changes to the physical environment (traffic, air quality, noise and visual amenity and light). As such, all the health policies identified under these headings apply. All CSA LPAs have local policies aiming to safeguard the heritage and attractiveness of their neighbourhoods.</p>	<p>Dartford, Core Strategy 2011-2026</p> <p>Dartford, Development Policies Management Plan 2017</p> <p>Gravesham, Local Plan Core Strategy 2014</p> <p>Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015</p>	<p>This chapter considers the health effects of the London Resort's impact on neighbourhood amenity (paragraphs 8.168 and 8.238).</p>
Climate change		
<p>All the host LPAs have developed plans that are partly based on tackling environmental and climate issues. New development is required to adhere to high standards of energy-efficiency, sustainable resource use and construction technology, and renewable power generation.</p>	<p>Dartford, Core Strategy 2011-2026</p> <p>Dartford, Development Policies Management Plan 2017</p> <p>Gravesham, Local Plan Core Strategy 2014</p> <p>Thurrock, Core Strategy and Policies for Management of Development (as amended) Adopted January 2015</p> <p>Ebbsfleet Development Corporation, Ebbsfleet Implementation Framework 2017</p>	<p>This chapter considers the health effects from the London Resort's contribution to climate change (paragraphs 8.200 and 8.335).</p>

Summary	Key policy references	ES reference
	Kent, The Kent Environment Strategy 2016 Kent, Climate Local Kent 2014 Progress Report	

BASELINE CONDITIONS

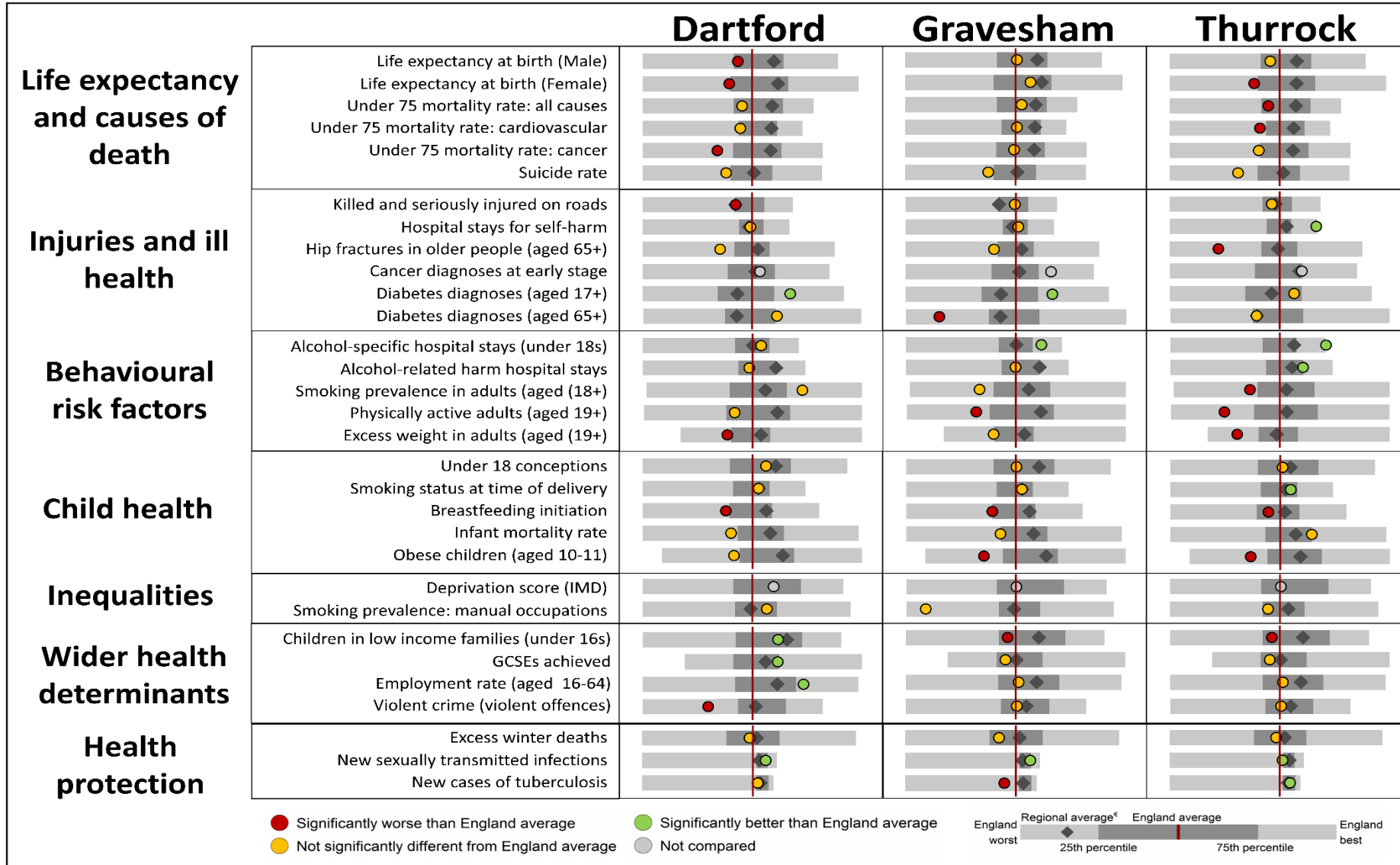
Current baseline conditions

- 8.84. This section sets out a summary baseline of the health conditions in the three host authorities of Dartford, Gravesham and Thurrock, which together comprise the CSA. The summary baseline provides a picture of overall health and highlights the most important issues in the CSA local authorities, and the findings inform a number of the effect assessments. A more detailed summary of health conditions is provided in Appendix 8.3: *Detailed baseline* (document reference 6.2.8.3).
- 8.85. Public Health England (PHE) prepares summary public health profiles to provide an overview of health conditions in individual local authorities.¹³ A summary of the indicators and how the local authorities in the CSA perform is shown in Diagram 8.3. The values for each area are shown as a circle; the England average is indicated by a red line. The grey bar indicates the range of values taken by all English local authorities. This high level overview provides a comparison of the key differences in health indicators between the CSA local authorities and the regional and national level.
- 8.86. Life expectancy at birth is worse or similar to the national average across each of the three host local authorities. The life expectancy of females is significantly worse in two of the three local authorities compared to the national average. The summary profiles and Joint Strategic Needs Assessments (JSNAs) for the area highlight multiple reasons for low life expectancies, including cancer mortality and poor underlying health determinants such as obesity, lack of physical activity and high levels of smoking.¹⁴
- 8.87. In the three local authorities making up the CSA, the rate of employment is relatively high, which is frequently shown to be associated with positive health outcomes in the literature review undertaken in Appendix 8.4: *Literature review* (document reference 6.2.8.4). However, the skills and training levels of the areas are below that of regional and national levels, which is a key driver of both economic and health outcomes. This was also a key theme raised by several stakeholders. The three local authorities that make up the CSA are not particularly deprived on the English Indices of Multiple Deprivation's (IMD) overall deprivation measure, but problems exist around education, employment, and skills and crime. As discussed later, however, there are pockets of overall deprivation in south and west Thurrock, north Dartford and north Gravesham.

¹³ PHE, Local authority fingertip profiles

¹⁴ Kent County Council, 2016, Joint Strategic Needs Assessment; Thurrock Council, 2012, Joint Strategic Needs Assessment

Diagram 8.3 PHE public health profile of Dartford, Gravesham and Thurrock, 2019



Future baseline conditions

8.88. Future baseline conditions are informed by national trends, as described by PHE in *Health Profile for England (2019)*.¹⁵ Where forecasts are identified, they inform the future baseline; where they are not, the most accurate expectation of future baseline conditions is the continuation of the existing trends outlined below.

Life expectancy

8.89. Although life expectancy has continued to increase across the UK, recent years have seen a slowdown in these improvements. This phenomenon has been more prominent in the UK than elsewhere in Europe, where the UK has been sliding in the life expectancy tables for both males and females.

Mortality

8.90. Mortality and the leading causes of death present a mixed picture: death rates from dementia and drug misuse have been increasing steadily, whereas deaths associated with heart conditions and cancer are decreasing.

Demography

8.91. England's population has steadily increased over recent decades, with the population continually ageing. The proportion of those aged over 85 is forecast to continue increasing.

Chronic ill health

8.92. As England's population ages, the recorded number of people with chronic conditions, or living with ill health (morbidity) is forecast to increase. The prevalence of mental health disorders has increased since 1993 and is anticipated to continue to do so as the awareness and diagnosis of mental health disorders continues to improve.

Lifestyle

8.93. Obesity and smoking are among the leading risk factors for ill health and are associated with a range of conditions. Since 2007 there has been an upward trend in adult obesity, but smoking prevalence continues to decline. The latest data also shows an increase in the rate of certain new sexually-transmitted infections (STIs).

Housing and socio-economic status

8.94. The quality of housing plays a role in maintaining good health. Homelessness remains high in England. England's employment rate continues to rise, however certain groups of the population find it hard to enter into or stay in meaningful work and are excluded from the

¹⁵ PHE, 2019, Health Profile for England 2019

benefits of economic growth.¹⁶

The impact of COVID-19 on baseline conditions

8.95. The COVID-19 pandemic has had a considerable impact on health conditions across virtually all areas of the UK. As a result of the lags in the publication of data, the extent of the health impacts of the pandemic on baseline health conditions is not yet visible in much of the data presented for the assessment.

8.96. Although the impact of the pandemic is not captured in many of the data sources relied upon for the health assessment, some data exist detailing the impact of the pandemic on health conditions at the national level.

8.97. The PHE wider impacts of COVID-19 monitoring tool presents key indicators detailing health conditions affected by the pandemic at the national level.¹⁷ The following changes in health conditions are identified by the monitoring tool:

- self-reported mental health and wellbeing have worsened as a result of the pandemic. In the weeks following the nationwide lockdown, the prevalence of adults reporting high levels of anxiety was approximately double the 2019 average;
- diagnosis rates for illnesses such as dementia have decreased as a result of patients not accessing services where assessment would take place. The estimated diagnosis rate of dementia in adults aged 65 and over was lower between April to August 2020 than in any time in the prior two years;
- levels of community support and measured community cohesion have increased since the start of the pandemic, with the majority of individuals reporting that they feel better supported than prior to the pandemic. This pattern is seen across income, age, sex, and ethnic groups;
- air quality and general pollution levels have seen improvements since the start of the pandemic, partly as a result of reductions in private vehicle travel. Data for NO₂ and particulate matter show generally lower levels than under the comparison period in 2019;
- the lockdown has resulted in visible changes in food use behaviours, particularly among younger age groups and households with children. In general, there has been a shift towards cooking more from scratch and eating healthy meals, but also an increase in unhealthy snacking; and
- the economic effects of the 2020 COVID-19 lockdown, with the rate of redundancy

¹⁶ No reliable employment forecasts taking into account the impact of COVID-19 have been identified. It is known that employment will have been negatively affected in the short term, which is not yet recorded in any reliable detail in the available data.

¹⁷ PHE, 2020, Wider Impacts of COVID-19 on Health: Monitoring Tool.

doubling from March to June 2020, will result in significant impacts upon health conditions. Stable income is a key determinant of both mental and physical health, and therefore the negative economic consequences of the pandemic will correspond to adverse impacts upon health outcomes.

- 8.98. Although following the initial nationwide lockdown there was a general trend towards fewer patients accessing health services, this is not thought to continue into the future. It is thought that as fears of contracting or spreading the virus reduce, individuals are less likely to put off accessing health services.¹⁸ Some research suggests that the lack of access of health services has created a significant backlog of planned care, and this will create lasting pressures on the ability of health infrastructure to provide health services.¹⁹
- 8.99. Where baseline characteristics are likely to have been substantially altered by the COVID-19 pandemic, this is documented in the baseline for each effect. For instance, the baseline section for the health effect of changes in the transmission of communicable disease has clearly been affected by the pandemic in a manner not visible in currently available baseline data. This impact is discussed qualitatively in the relevant baseline section.

Vulnerable populations

- 8.100. This section summarises the vulnerable populations present in each study area. The population share of vulnerable groups is compared to the shares in the RCA and NCA to determine if these groups are present in relatively larger numbers in the area. The relative presence of vulnerable population for each effect informs the sensitivity of the receptor population.
- 8.101. The results are summarised in Table 8.15. A vulnerable population highlighted in red signals that the vulnerable population has a relatively larger presence in the study area than both the RCA and the NCA. An amber highlight indicates that the vulnerable population has a relatively larger presence in the study area than in the NCA, but not larger than in the RCA. A dark green highlight indicates that the vulnerable population has a relatively smaller presence in the study area than in the NCA and the RCA, and a light green highlight indicates that the vulnerable population has a relatively smaller presence in the study area than in the NCA, but not smaller than in the RCA.
- 8.102. Table 8.15 highlights that the various study areas have a higher proportion of young people and households living in poverty (after housing costs), but a lower presence of older people in the population. Data on the prevalence of vulnerable groups among other receptors (visitors, workers, transport users) is not readily available. However, as a precautionary approach, vulnerable groups are assumed to be present among the non-residential receptors.

¹⁸ The Health Foundation, 2020. Public perceptions of health and social care in light of COVID-19 (July 2020)

¹⁹ Iacobucci, 2020, Government Must Fund Extra NHS Capacity to Tackle Backlog; British Medical Association.

Table 8.15 Vulnerable populations in the study areas

	PSB	CIA	NSA	CSA	RCA	NCA
Young people	26%	27%	25%	25%	22%	21%
Pregnant women	1.20%	1.23%	1.10%	1.04%	0.89%	0.83%
Older people	14%	12%	14%	15%	17%	19%
Households in poverty (before housing costs)	14%	15%	15%	14%	14%	17%
Households in poverty (after housing costs)	22%	25%	23%	23%	22%	21%
Ethnic minorities	13%	16%	16%	15%	20%	14%
People with long term illness or disability	18%	16%	16%	16%	15%	18%
Single parent households (as proportion of households with dependent children)	14.1%	15.0%	13.0%	12.6%	11.8%	11.8%
LGBTQ+*	n/a	n/a	n/a	n/a	2.2%	2.1%
Traveller population	0.30%	0.27%	0.26%	0.24%	0.14%	0.10%
<i>n/a means that data are not available for the identified study areas. A precautionary approach to the assessment is applied where data is unavailable.</i>						
<i>* Data regarding the proportion of LGBTQ+ residents are not available for any geography below regional</i>						

SUMMARY OF EXISTING POPULATION HEALTH

8.103. The 2011 Census collected data on self-reported health. Individuals were asked to assess their general health, ranging from very good to very bad. As can be seen in Table 8.16, the levels of self-assessed health are very similar across all study areas: everywhere 5% of the population said they experienced 'bad' or 'very bad' health, and between 46% and 49% experienced 'very good' health.

Table 8.16 Self-reported health in the study areas, 2011

Area	Very good health	Good health	Fair health	Bad health	Very bad health
PSB	46%	35%	13%	4%	1%
CIA	47%	35%	13%	4%	1%
NSA	48%	35%	13%	4%	1%
CSA	48%	35%	13%	4%	1%
SCA	47%	35%	13%	4%	1%
RCA	49%	34%	12%	4%	1%
NCA	47%	34%	13%	4%	1%

Source: ONS, 2011, National Census. NB: Figures may not sum to 100% due to rounding.

8.104. Deprivation based on the English IMD is average across all study areas: each study area ranks on average in the 5th decile²⁰ on the IMD’s overall deprivation measure (where the 1st decile is the most deprived 10% of the country), meaning that the study areas are in the top 60% least deprived in England, and marginally worse than the England average.

8.105. However, each study area performs relatively poorly on the education, skills, and training, and crime subdomains. The CSA performs especially poorly on these two subdomains. Table 8.17 shows the decile where the study areas on average fall in terms of deprivation, where 1 indicates the 1st decile (10% most deprived nationally) and 10 indicates the 10th decile (10% least deprived nationally).

Table 8.17 Deprivation in the study areas

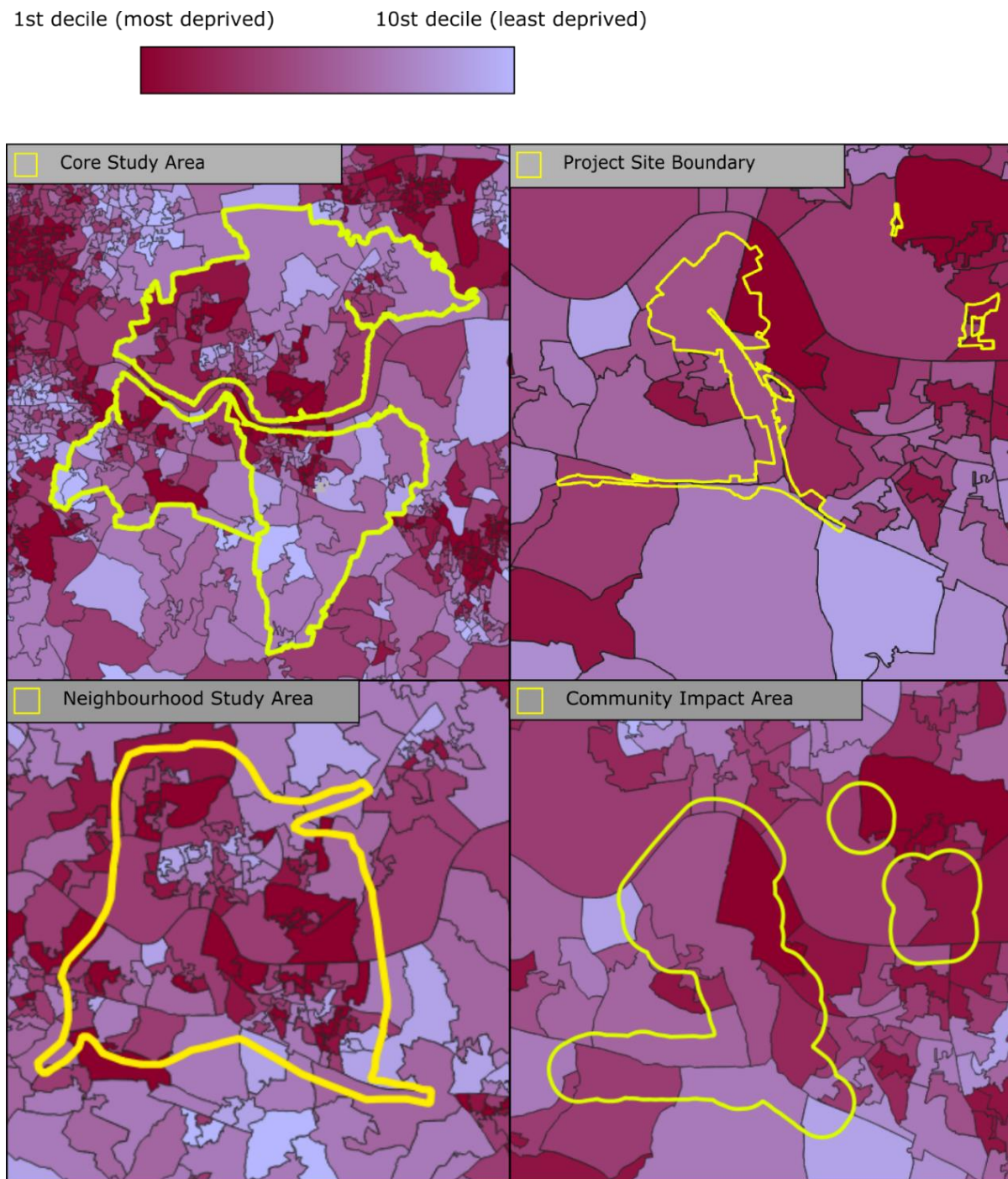
	IMD overall	Income	Employment	Education, skills and training	Health deprivation and disability	Crime	Barriers to housing and services	Living environment
PSB	5	5	6	4	6	4	5	6
CIA	5	5	5	4	6	3	5	6
NSA	5	6	6	4	7	4	6	6
CSA	5	5	6	3	6	2	5	5

Source: MCHLG, 2019, English Index of Multiple Deprivation

8.106. Diagram 8.4 shows the deprivation levels in the study areas. As highlighted during consultation with local authority health teams, the urban areas to the north of Dartford and Gravesham (above the A2) suffer relatively higher levels of deprivation and the area in the west and south of Thurrock suffers relatively higher levels of deprivation than the authority averages.

²⁰ A decile is a statistical measure grouping values into 10% intervals arranged from lowest to highest. The first decile corresponds to the 10% lowest values of a distribution, the second decile corresponds to the 10% to 20% lowest values of a distribution, and so on.

Diagram 8.4 Deprivation map of the study areas



Source: MHCLG, 2019, English Index of Multiple Deprivation

8.107. Table 8.18 presents comparative statistics on a range of health indicators, related to life expectancy, obesity and physical activity, sexual health, mental health and cancer.

Table 8.18 Summary of key health indicators

	Dartford	Gravesham	Thurrock	England / UK
Life expectancy				
Male life expectancy 2016-2018	79.7	79.4	79.0	79.6
Female life expectancy 2016-2018	82.2	83.7	82.5	83.2
Life expectancy inequality (males) 2016-2018	7.1	11.7	8.4	9.5
Life expectancy inequality (females) 2016-2018	5.7	4.9	7.4	4.6
Obesity and physical activity				
Obesity in Year 6 (11 year olds) 2018/19	23.4%	20.4%	22.5%	20.2%
Adults overweight or obese 2018/19	75.1%	65.1%	75.9%	62.3%
Physically active adults, 2018/19	69.2%	59.5%	58.6%	67.2%
Sexual health				
New STI diagnoses per 100,000 population, 2019	478	505	564	779.00
Mental health				
Estimated prevalence of common mental disorders (aged 16+), 2017	16.0%	16.8%	17.3%	16.9%
Cancer				
Under 75 mortality from cancer 2016-2018	137.7	134.1	142.2	132.30%
Cancer screening coverage: breast cancer, 2019	74.3%	73.1%	68.9%	74.5%
Cancer screening coverage: bowel cancer, 2019	56.6%	58.1%	55.7%	60.1%
Cancer screening coverage: cervical cancer (aged 50 to 64), 2019	74.9%	75.6%	76.3%	76.2%
Cancer screening coverage: cervical cancer (aged 25 to 49), 2019	71.9%	71.3%	70.9%	69.8%

Source: Public Health England, 2020, Local Authority Health Profiles

Kent's Joint Strategic Needs Assessment

8.108. As stated in Appendix 8.3: *Detailed baseline* (document reference 6.2.8.3), Dartford and Gravesham produce no JSNAs of their own. Instead, the relevant parts of Kent County Council's (KCC) JSNA, which covers all 12 Kent authorities, are presented here.

8.109. There are 8 emerging health priorities in Kent:

- Cancer: cancer is one of the largest causes of mortality in Kent.
- Demographics: older age bands (those over 65 years of age) are expected to see strong population growth, with implications for local services.
- Diabetes: the recorded diabetes prevalence in Kent has risen. Obesity accounts for 80%-85% of the risk of developing Type 2 diabetes.
- Growth: Kent is expected to see population growth in the years up to 2031, both from Ebbsfleet Garden City and elsewhere. The increased population will require increased services.
- Health inequalities: while mortality rates are coming down across all population strata, the gap in health outcomes between the most deprived and least deprived areas persists.
- Healthy weight: the prevalence of obesity varies across Kent, with the highest prevalence rates of adult obesity to be found in North Kent in Dartford and Swale CCGs and in East Kent, Shepway CCG. People who are obese are at far higher risk than the general population of serious illness including diabetes, heart disease and stroke.
- Mental health: the majority of people with the worst mental health in Kent are aged 35-65 years old. The over 65s also face non dementia related depression and anxiety. There is a strong link between the severity and duration of common mental illness and socio-economic conditions.
- Stroke: the recorded prevalence of stroke in Kent and Medway has increased since 2006/7. As more people are surviving stroke an important role is placed upon post stroke care.

Thurrock's Joint Strategic Needs Assessment

8.110. All age, all cause and premature (age under 75 years) death rates in Thurrock are statistically significantly greater than Essex and the East of England, although statistically

significantly less than in many comparable²¹ local authorities.

- 8.111. The relatively deprived wards in the south of the Borough such as Tilbury St. Chads, Grays Riverside, Belhus and Riverside and Thurrock Park have premature death rates that are much greater than wards in the north of the Borough.
- 8.112. The most prevalent psychiatric disorders in mid adult years include neurotic disorder, phobias, panic, obsessive compulsive disorder, depression and mixed and general anxiety disorders. Within Thurrock, the prevalence of these disorders map directly to the borough's areas of deprivation.
- 8.113. Thurrock has a higher prevalence of obese adults (16+) than geographical neighbours and amongst a third of comparator local authorities. Obesity prevalence across Thurrock is linked to deprivation with nearly a third of people in the areas of Tilbury and in the East of Thurrock being classified as being obese.

BASELINE ASSESSMENT AND RECEPTOR SENSITIVITIES

- 8.114. Table 8.19 presents a summary of the baseline health conditions for each effect considered within the assessment of health effects, alongside the study area, receptor population and the receptor sensitivity. The information presented in this table is a summary of that presented within Appendix 8.3: *Detailed baseline* (document reference 6.2.8.3), which presents a full breakdown of baseline conditions relevant for the determination of each effect.
- 8.115. The receptor population column in Table 8.19 presents information on the study area at which each effect is considered, alongside the receptor populations affected and their prevalence within the study area. The receptor populations are grouped into individuals affected as part of the general population, and vulnerable groups of individuals with the potential to be disproportionately impacted by each effect. The vulnerable groups with the potential to be disproportionately impacted by each effect differ by effect, and have been identified through a review of evidence presented in more detail in Appendix 8.4: *Literature review* (document reference 6.2.8.4).
- 8.116. The prevalence of vulnerable population groups in each study area is presented within highlighting of text within the receptor population column. Text is coloured under the following format:
- **Green highlighted** text reflects a relatively smaller prevalence of a vulnerable population group within the study area than comparator areas.
 - **Yellow highlighted** text reflects a prevalence of a vulnerable population group within the study area higher than in one comparator, but lower than in the other.
 - **Red highlighted** text reflects a relatively larger prevalence of a vulnerable population group within the study area than comparator areas.

²¹ Chartered Institute of Public Finance and Accountancy (CIPFA) comparator group of local authorities, that have populations with similar characteristics

Table 8.19 Summary of baseline conditions, receptor population and receptor sensitivity by effect

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
<i>Construction effects</i>			
Displacement or changes in access affecting public services and community facilities	<p>No essential community services are located in the PSB. Chapter 7: <i>Land-use and socio economics</i> (document reference 6.1.7) identifies a total of 76 community facilities in the CIA.</p> <p>The CIA performs at the national average in terms of barriers to housing and services. Some indicators of mental health related to the provision of community facilities, including prevalence of anxiety, perform worse than the national average, with other indicators including social contact of social care users performing relatively better than the national average.</p> <p>There is consent for six development proposals for community uses within the CIA affecting the future baseline for this effect, including a hub facility for lifelong learning at Eastern Quarry.</p>	<p>Study area: CIA General population: residents Vulnerable groups: young people, older people, low income groups, ethnic minority groups, people with long-term illness or disability, single parent families, gypsy and traveller populations</p>	<p>The existing health levels of the receptor population related to community services are considered to be average overall (high rates of anxiety, mixed picture regarding level of social contact). High prevalence of some vulnerable groups likely to experience a disproportionately large health effect.</p> <p>Sensitivity of receptor population: medium.</p>
Displacement or changes in access to open spaces	<p>Obesity and physical inactivity are identified as problems in the CSA and the wider areas of Kent and Thurrock. However, the utilisation of outdoor spaces and sports club membership is higher in Kent and Thurrock than the national average, suggesting that the driver behind physical inactivity and obesity is more complicated than simply the average level of access to facilities across the areas.</p> <p>There are 41 open spaces in the CIA, and none of them are in the PSB. There are three marshes in the PSB. There are ten PRoWs and routes that will be directly affected by the London Resort.</p>	<p>Study area: CIA General population: residents Vulnerable groups: young people, older people, low income groups, people with long-term illness or disability</p>	<p>The CIA has relatively strong existing access to open spaces and other sports facilities. Health outcomes related to open spaces are mixed, with obesity being a key issue visible in health data and raised during consultation. High prevalence of young people and low income groups disproportionately affected by a change in access to open spaces, but relatively low prevalence of other vulnerable groups affected.</p> <p>Sensitivity of receptor population: medium.</p>
Displacement of commercial uses	<p>Businesses employing an estimated 1,040 full time equivalents (FTEs) are located on the PSB and will potentially be displaced. 80% of all jobs supported by firms onsite are in industrial based sectors. Of the 94 identified businesses, 32 have been classed as 'bad neighbour uses', equivalent to 34% of firms or 41% of the total</p>	<p>Study area: PSB (workers) CSA (residents) General population: residents, workers</p>	<p>The area surrounding the PSB contains a relatively large share of individuals facing reduced labour market outcomes, and data highlights socio-economic inequalities despite</p>

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	<p>occupied floorspace. These uses include heavy industrial functions such as concrete manufacturers, demolition services, metal scrap collectors, vehicle repair centres, and large-scale recycling plants. The local labour market was performing relatively well before the impact of COVID-19: 85% of the working age population were economically active and 81% employed, higher than all geographical comparators. However, the unemployment rate was also higher. The economic impact of the COVID-19 pandemic has resulted in adverse employment outcomes for individuals across the UK not captured in the data yet. In the CSA, at the peak of the job retention scheme, 27% of employees in the CSA were placed on furlough leave, marginally above the 26% of employees placed on furlough leave nationally. It is uncertain how labour market characteristics will recover.</p>	<p>Vulnerable groups: young people, pregnant women, older people, low income groups, ethnic minority groups, single parent families, gypsy and traveller populations</p>	<p>a relatively well-performing labour market following the initial impacts of COVID-19. In the PSB, some of the businesses that will be displaced are ‘bad neighbour uses’, which may have relatively greater difficulty in securing alternate premises to continue businesses. High prevalence of most vulnerable groups likely to experience a disproportionate health effect in the study area. Sensitivity of receptor population: high.</p>
<p>Displacement of residential dwellings</p>	<p>One dwelling in the PSB will be displaced: a property on the corner of London Road and Pilgrim’s Road which forms three separate apartment dwellings.</p> <p>At the Dartford level, there is sufficient housing supply over its five year plan. However, there are identified issues with affordability and new housing is not affordable to many local residents. The importance of housing delivery in underpinning positive socio-economic and health outcomes is highlighted in policy.</p>	<p>Study area: Dartford General population: residents Vulnerable groups (Dartford): young people, older people, low income groups, people with long-term illness or disability</p>	<p>This effect is assessed at the Dartford level. Given the significance of the impact of household displacement on health outcomes, at the individual level health outcomes are considered highly sensitive to this effect. There is also evidence that whilst Dartford meets its housing need requirement, much of the new housing is being taken up by people moving out of London and is not affordable to many local residents. Sensitivity of receptor population: high.</p>
<p>Changes to local traffic and transport and active travel</p>	<p>Obesity and a lack of physical activity are a problem across much of the NSA. Active travel improvements could help increase physical activity.</p> <p>Prior to the COVID-19 pandemic, the average distance travelled to work in the NSA was higher than the regional or national average, with the resident population potentially more exposed to interruptions to traffic.</p>	<p>Study area: NSA General population: residents, transport users Vulnerable groups: pregnant women, older people, low income groups, people with long-term illness or disability, single parent families</p>	<p>Obesity is a key health issue raised within consultation relevant to traffic and transport. Residents within the NSA are relatively more reliant on car transport and have a lower usage of active transport modes. Above average prevalence of some vulnerable groups likely to experience disproportionate health</p>

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	<p>The Kent and Essex Project Sites benefit from good railway links, frequent bus services, and a wide range of pedestrian and cyclist facilities.</p> <p>There are a number of schemes being delivered in proximity to the London Resort that will affect the future baseline, including recently approved upgrades to both the Bean and Ebbsfleet junctions along the A2(T) and the delivery of the Lower Thames Crossing which will see significant reductions in traffic along the A2(T) once complete.</p>		<p>impacts as a result of changes to traffic, transport and active travel.</p> <p>Sensitivity of receptor population: medium.</p>
Changes in noise and vibration	<p>Unregulated night-time noise has the potential to affect the sleep of residents. Across the nation, the public is getting far less sleep than the recommended levels. Data available at the level of the three CSA LPAs finds that the number of noise complaints is broadly in line with the national average. Each of the CSA LPAs faces a number of exceedances of specified targets for the noise from road, rail and air traffic, however these noise targets are exceeded at a rate below the national average, both during the day and at night. Chapter 15: <i>Noise and vibration</i> (document reference 6.1.15) contains more detail on the noise surveys undertaken and the local noise environment.</p>	<p>Study area: NSA General population: residents Vulnerable groups: young people, older people, people with long-term illness or disability</p>	<p>Existing noise levels within the NSA are relatively low, and the NSA contains a relatively low prevalence of vulnerable groups impacted by the effect.</p> <p>Sensitivity of receptor population: low.</p>
Changes in air quality	<p>Respiratory health is generally poor in the area, with higher than average mortality rates due to respiratory disease. Lung cancer is a particular problem in the CSA. All pollutants, including particulate matter, are expected to face modest decreases in the years until 2030. This is a result of national improvements in emission control measures from point sources and industrial processes, improvements in emission abatement technology in the transport sector, and local policies aimed at improving air quality.</p>	<p>Study area: NSA General population: residents Vulnerable groups: young people, pregnant women, older people, people with long-term illness or disability</p>	<p>Poor levels of respiratory health within the NSA, but the area has levels of air pollutants in line with the national average levels. High prevalence of young people and pregnant women disproportionately likely to experience adverse health outcomes as a result of changes in air quality.</p> <p>Sensitivity of receptor population: medium.</p>
Changes in hazardous waste	<p>Reducing pollution in general, including hazardous waste, is identified as a key health priority in the JSNAs produced by both KCC (2016) and Thurrock Council (2012). Hazardous waste landfills can impact health directly through emissions of volatile organic compounds and indirectly through the stress and anxiety the fear of hazardous waste can induce.</p>	<p>Study area: NSA General population: residents, workers Vulnerable groups: young people, older people, people</p>	<p>No existing sources or storage of hazardous waste in the local area. Consultation and local health policy outline general pollution as a health priority, but no specific policies relate to hazardous waste. High prevalence of young people, but relatively low prevalence of older</p>

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	<p>Respiratory health is generally poor in the area, with higher than average mortality rates due to respiratory disease. Measures of anxiety are also higher in Thurrock and Kent than nationally, although the number of people with more serious anxiety disorders are relatively low.</p> <p>There are no active hazardous landfill sites in Essex, and sites in Kent contain approximately 0.2 million m³ of hazardous landfill capacity. Available capacity in hazardous waste landfill sites is expected to decrease by 4% across England and 1% across Kent per year.</p>	<p>with long-term illness or disability</p>	<p>people and people with long-term illness or disability likely to be disproportionately impacted by the effect.</p> <p>Sensitivity of receptor population: medium.</p>
Water contamination	<p>The water quality assessment in Chapter 17: <i>Water resources and flood risk</i> (document reference 6.1.17) identifies the following water assets sensitive to changes in water quality: the River Thames, Black Duck Marsh and Botany Marsh, River Ebbsfleet, Sawyer’s Lake and Castle Hill.</p> <p>The review of evidence in Appendix 8.4: <i>Literature review</i> (document reference 6.2.8.4) identifies a link between water contamination and some forms of disease, including certain cancers. The incidence and mortality rates for cancers in Kent and Thurrock are broadly in line with the national average.</p>	<p>Study area: NSA General population: residents, workers Vulnerable groups: young people, older people, people with long-term illness or disability, low income groups</p>	<p>Mixed evidence related to water contamination baseline, with broad indicators of health conditions arising from water-borne disease being in line with national average. High prevalence of young people and low income groups, but relatively low prevalence of older people and those with long-term illness or disability with health outcomes disproportionately affected by water contamination.</p> <p>Sensitivity of receptor population: medium.</p>
Changes in neighbourhood amenity	<p>The NSA ranks broadly in line with the national average in terms of the quality of its living environment. The visual influence of the Project Site in its current form is limited given the extent of varying topography and built form in the local vicinity.</p>	<p>Study area: NSA General population: residents Vulnerable groups: young people, pregnant women, older people, people with long-term illness or disability, low income groups</p>	<p>Local pockets of deprivation which are located near to and around the PSB, but data regarding the overall living environment of the NSA is broadly in line with the national average. High prevalence of some affected vulnerable groups within the NSA.</p> <p>Sensitivity of receptor population: medium.</p>
Presence of the construction workforce	<p>There were 17,300 CSA residents employed in construction prior to the impact of COVID-19, and they comprised 8.5% of the local workforce – a higher share than in the RCA (7.4%) and nationally (7.2%). Construction employment was expected to grow by 0.5% annually in the UK prior to COVID-19. Cumulative schemes in the</p>	<p>Study area: CSA General population: residents Vulnerable groups: young people, older people, ethnic minority groups, people with long-term illness or disability,</p>	<p>High existing crime levels and relatively large number of construction workers already within the CSA. High prevalence of some vulnerable groups disproportionately affected by inflows of construction workers, but a</p>

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	<p>area are expected to require a total of 6,060 construction workers in the peak construction year.</p> <p>Adding a large number of temporary residents or employees into an area can increase crime or the perception of crime amongst local residents which affects health outcomes. The crime rate in the CSA is substantially higher than the national average. Crime and the fear of crime may result in lower rates of physical activity and higher rates of mental distress, and the CSA scores poorly on physical activity, overweight residents and anxiety.</p>	<p>LGBTQ+ populations, single parent families</p>	<p>relatively lower prevalence of other vulnerable groups.</p> <p>Sensitivity of receptor population: medium.</p>
Work and training opportunities created	<p>The baseline evidence finds that the CSA faces a significant skills deficit, which has been shown to be strongly linked to several socio-economic health determinants such as household poverty and income insecurity. However, a larger share of the CSA's population is economically active than in comparators and the employment rate is similarly higher. Unemployment and the number of claimants is higher in the CSA too. Construction jobs in the UK were forecast to grow by 0.5% annually before the COVID-19 pandemic.</p> <p>The economic impact of the COVID-19 pandemic has resulted in adverse employment outcomes for individuals across the UK not captured in the data above. At the peak of the job retention scheme, 27% of employees in the CSA were placed on furlough leave.</p>	<p>Study area: CSA General population: residents Vulnerable groups: young people, pregnant women, low income groups, ethnic minority groups, single parent families, gypsy and traveller populations</p>	<p>Data on labour market outcomes highlights that before COVID-19, the local labour market was performing relatively well as a whole. However, significant inequalities exist within the CSA, and many residents face a skills deficit preventing them from accessing employment opportunities. The CSA also includes a large prevalence of individuals within vulnerable groups facing disadvantages in accessing employment opportunities. The COVID-19 pandemic has since led to job losses and labour market uncertainty.</p> <p>Sensitivity of receptor population: high.</p>
Change in demand for health services	<p>There are six GP surgeries within the CIA, three on each side of the Thames.²² These surgeries have a patient to GP FTE ratio of 3,700, far above the NHS benchmark of 1,800. In the CSA the ratio is 2,400. GP provision in the area is constrained; this has been confirmed by Thurrock and EDC in consultation.</p> <p>Local NHS Trusts are not meeting the NHS target of admitting, transferring, or discharging patients within four hours in 95% of cases. The two local trusts score 87% and 83% on this measure, similar to the 84% average in England.</p>	<p>Study area: CIA General population: residents Vulnerable groups: older people, ethnic minority groups, people with long-term illness or disability, single parent families, gypsy and traveller populations</p>	<p>Data detailing constraints on local health services prior to the impact of COVID-19 show local healthcare faces significant constraints, which have been further heightened by the impact of the pandemic. Consultation has highlighted the limited capacity of, and length of time taken for, existing services to respond to additional demand.</p> <p>Sensitivity of receptor population: high.</p>

²² A seventh GP (Swanscombe Health Centre) has been identified in the CIA, however there is no data available for this surgery.

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	Dartford is planning a new hub facility for lifelong learning in Ebbsfleet Garden City, which is planned to deliver health services for the new and growing population. A healthcare facility is being provided at Stone / Greenhithe, and Thurrock is planning for the delivery of an Integrated Medical Centre in Tilbury.		
Changing climate	<p>Existing uses on site currently generate 2,124 tonnes of CO₂ emissions per year, contributing to climate change. These are expected to decline in the future as a result of improvements in energy efficiency and the energy mix.</p> <p>Respiratory health is generally poor in the area, with higher than average mortality rates due to respiratory disease. Ozone-related premature deaths are estimated to be up to 11,900 per year in the UK already, which could worsen as a result of climate change.</p> <p>Heatwaves currently lead to far fewer excess deaths than winter cold in the UK, but this could change dramatically as a result of climate change.</p>	<p>Study area: CSA</p> <p>General population: residents, workers</p> <p>Vulnerable groups: young people, older people, people with long-term illness or disability</p>	<p>Local respiratory health outcomes related to the climate and living environment are relatively poor across the CSA. These have the potential to worsen through climate impacts during the construction phase, however it is anticipated that the largest health changes related to climate impacts will occur over a longer timeframe. Large prevalence of young people, but relatively low prevalence of older people and those with long-term illness or disability thought to face disproportionate health outcomes as a result of climate change.</p> <p>Sensitivity of receptor population: medium.</p>
<i>Operational effects</i>			
Changes in noise and vibration	<p>Unregulated night-time noise has the potential to affect the sleep of residents. Across the nation, the public is getting far less sleep than recommended. Data available at the level of the three CSA LPAs finds that the number of noise complaints is broadly in line with the national average. Each of the CSA LPAs faces a number of exceedances of specified targets for the noise from road, rail and air traffic, however these noise targets are exceeded at a rate below the national average, both during the day and night.</p> <p>Existing uses within the PSB include several ‘bad neighbour’ and noise-intensive uses, including local industrial noise sources from scrapyards and metal work businesses operating along Dock Road.</p>	<p>Study area: NSA</p> <p>General population: residents, visitors, workers</p> <p>Vulnerable groups: young people, older people, people with long-term illness or disability</p>	<p>Existing noise levels within the NSA are relatively low, and the NSA contains a relatively low prevalence of older people and people with long-term illness or disability impacted by the effect.</p> <p>Sensitivity of receptor population: low.</p>
Changes in air quality	Respiratory health is generally poor in the area, with higher than average mortality rates due to respiratory disease. This includes the	Study area: NSA	Poor levels of respiratory health within the NSA, but the area has levels of air pollutants in

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	<p>risk of developing lung cancer, one of the most common forms of cancer in the areas, and which has been linked to air pollution. All pollutants, including particulate matter, are expected to face modest decreases in the years until 2030. This is a result of national improvements in emission control measures from point sources and industrial processes, improvements in emission abatement technology in the transport sector, and local policies aimed at improving air quality</p>	<p>General population: residents, visitors, workers Vulnerable groups: young people, pregnant women, older people, people with long-term illness or disability</p>	<p>line with the national average levels. High prevalence of young people and pregnant women disproportionately affected by changes in air quality. Sensitivity of receptor population: medium.</p>
<p>Changes to local traffic and transport and active travel</p>	<p>Obesity and a lack of physical activity are a problem in much of the NSA. Active travel improvements could help increase physical activity. Prior to the COVID-19 pandemic, the average distance travelled to work in the NSA was higher than the regional or national average, suggesting that the resident population could be more exposed to interruptions to traffic. Many of the local transport networks are expected to remain unchanged during the operational period. The Kent and Essex Project Sites benefit from good railway links, frequent bus services, and a wide range of pedestrian and cyclist facilities. There are a number of schemes being delivered in proximity to the London Resort that will affect the future baseline, including recently approved upgrades to both the Bean and Ebbsfleet junctions along the A2(T) and the delivery of the Lower Thames Crossing which will see significant reductions in traffic along the A2(T) once complete.</p>	<p>Study area: NSA General population: residents, transport users Vulnerable groups: pregnant women, older people, low income groups, people with long-term illness or disability, single parent families</p>	<p>Obesity is a key health issue raised within consultation relevant to traffic and transport. Residents within the NSA are relatively more reliant on car transport and have a lower usage of active transport modes. High prevalence of some vulnerable groups disproportionately affected by changes to traffic, transport and active travel, including pregnant women, low income groups and single parent families. Sensitivity of receptor population: medium.</p>
<p>Changes in electromagnetic field exposure</p>	<p>The literature in Appendix 8.4: <i>Literature review</i> (document reference 6.2.8.4) on exposure to EMF indicates that the potential for likely significant health effects is restricted to conditions of high and prolonged exposure to EMF. The literature also indicates that field strengths decrease rapidly with distance from the infrastructure, meaning that significant effects can arise only in close and prolonged proximity to electrical infrastructure. No major electrical infrastructure, and therefore major sources of EMF exposure exist within the NSA. The Project Site does not</p>	<p>Study area: NSA General population: residents, visitors, workers Vulnerable groups: young people, people with long-term illness or disability</p>	<p>Limited available information regarding existing health conditions related to EMF. The PSB does not contain any major sources of EMF exposure. The review of evidence highlights the uncertainty surrounding the health effects of EMF. High prevalence of young people, but low prevalence of individuals with long-term illness or disability disproportionately affected by EMF exposure.</p>

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	contain any electrical sub-station, nor underground cabling connected to the National Grid.		Sensitivity of receptor population: low.
Changes in flooding	Parts of the Project Site fall into all the standard flood zone categories 1-3, where Flood Zone 3 is recognised as facing the largest flood risk. The northern part of the Swanscombe Peninsula is located in Flood Zone 2 with a large band across the centre of the peninsula located in Flood Zone 3. The Access Corridor is located almost entirely in Flood Zone 1. The Essex Project Site is located entirely in Flood Zone 3 and benefits from defences. Climate change could heighten flood risk within the study area in the future.	Study area: NSA General population: residents, visitors, workers Vulnerable groups: older people, people with long-term illness or disability	Limited evidence exists detailing the current baseline health conditions related to flooding within the NSA. Part of the PSB is in an area of high flood risk. Low prevalence of vulnerable groups thought to be disproportionately affected by changes in flooding. Sensitivity of receptor population: medium.
Changes in hazardous waste	Increasing pollution, including hazardous waste, is identified as a key health priority in the JSNAs produced by both KCC (2016) and Thurrock Council (2012). Hazardous waste landfills can impact health directly through emissions of volatile organic compounds and indirectly through the stress and anxiety the fear of hazardous waste can induce. Respiratory health is generally poor in the area, with higher than average mortality rates due to respiratory disease. Measures of anxiety are also higher in Thurrock and Kent than nationally, although of the more serious anxiety disorders both have lower prevalence than the nation as a whole. There are no active hazardous landfill sites in Essex, and sites in Kent contain approximately 0.2 million m ³ of hazardous landfill capacity. Available capacity in hazardous waste landfill sites is expected to decrease by 4% across England and 1% across Kent.	Study area: NSA General population: residents, visitors, workers Vulnerable groups: young people, older people, people with long-term illness or disability	No existing sources or storage of hazardous waste in the local area. Consultation and local health policy outline general pollution as a health priority. High prevalence of young people, but low prevalence of other vulnerable groups disproportionately impacted by hazardous waste. Sensitivity of receptor population: medium.
Water contamination	The water quality assessment (Chapter 17: <i>Water resources and flood risk</i> (document reference 6.1.17) of this ES) identifies the following water assets sensitive to changes in water quality: the River Thames, Black Duck Marsh and Botany Marsh, River Ebbsfleet, Sawyer’s Lake and Castle Hill. Chapter 17: <i>Water resources and flood risk</i> (document reference 6.1.17) writes that there is potential for on-site activities to	Study area: NSA General population: residents, visitors, workers Vulnerable groups: young people, older people, people with long-term illness or disability, low income groups	Mixed evidence surrounding the baseline health conditions related to water contamination, with broad indicators of health conditions arising from water-borne disease being in line with national average. High prevalence of young people and low income groups, but relatively low prevalence of older

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	influence the water quality of the Swanscombe Channel and the River Ebbsfleet through connections and proximity both during construction and connections during the operational phase of the development.		people and people with long-term illness or disability thought likely to be disproportionately affected by water contamination. Sensitivity of receptor population: medium.
Changes in neighbourhood amenity	The NSA ranks broadly in line with the national average in terms of the quality of its living environment. The visual influence of the Project Site in its current form is limited given the extent of varying topography and built form in the local vicinity.	Study area: NSA General population: residents Vulnerable groups: young people, pregnant women, older people, people with long-term illness or disability, low income groups	Local pockets of deprivation (particularly in close proximity to the PSB), but data regarding the overall living environment of the NSA is broadly in line with the national average. High prevalence of some affected vulnerable groups within the NSA. Sensitivity of receptor population: medium.
Inclusive design of the Resort	Economic activity rates are far lower for residents in the CIA suffering from a long-term illness or disability than for healthy residents, however, outcomes remain above the regional and national average levels. Several major theme parks and resorts across the UK provide services and facilities that cater to those who may be disabled.	Study area: CIA General population: residents, visitors, workers Vulnerable groups: young people, pregnant women, older people, people with long-term illness or disability	Although the general labour market within the CIA is performing relatively well compared to the national average, there is substantial socio-economic inequality. Many of the vulnerable population groups disproportionately impacted by inclusive design measures face reduced health outcomes within the local area. Sensitivity of receptor population: medium.
Work and training opportunities created	The baseline evidence finds that the CSA faces a significant skills deficit, which has been shown to be strongly linked to several socio-economic health determinants such as household poverty and income insecurity. However, a larger share of the CSA's population is economically active than in comparators, and the employment rate is similarly higher. Unemployment, and the number of claimants is higher in the CSA too. There are a relatively high number of apprenticeship starts in the CSA on a per population basis, compared with the SRCA, RCA and NCA. Apprenticeships in the leisure, travel, and tourism sector tend to have the highest achievement rates but make up a low	Study area: CSA General population: residents, workers Vulnerable groups: young people, pregnant women, low income groups, ethnic minority groups, single parent families, gypsy and traveller populations	Data on labour market outcomes highlights that before the impact of COVID-19, the local labour market was performing relatively well as a whole. However, significant inequalities exist within the CSA, and many residents face a skills deficit preventing them from accessing employment opportunities. The CSA also includes a large prevalence of individuals within vulnerable groups facing disadvantages in accessing employment opportunities. The COVID-19 pandemic has since led to job losses and labour market uncertainty.

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	<p>proportion of overall opportunities, given the relative importance of the sectors.</p> <p>Employment was expected to grow by 1.3% compound annual growth rate (CAGR) in the CSA before COVID-19, significantly faster than the national level 0.5% growth forecast. These are the rates in the ‘Do nothing’ scenario, i.e. without the London Resort. These rates of growth could have been delayed as a result of the pandemic, and consultees highlighted higher rates of unemployment, particularly among the young, as being an increasing concern.</p>		<p>Sensitivity of receptor population: high.</p>
<p>Provision of worker accommodation</p>	<p>The workers are likely to come from a broad spectrum of demographics and areas. Chapter 7: <i>Land use and socio-economics</i> (document reference 6.1.7) has identified that housing is pressured in the area and is a key determinant of health.</p>	<p>Study area: CSA General population: workers Vulnerable groups: older people, low income groups, people with long-term illness or disability</p>	<p>The workers are likely to come from a broad spectrum of demographics so will have different sensitivities to the provision of housing. There is likely to be some presence of vulnerable groups among the worker population.</p> <p>Sensitivity of receptor population: medium.</p>
<p>Change in demand for residential accommodation</p>	<p>Vacant dwellings are only 2.2% of the total in the CSA, lower than 2.7% nationally. Homes in the CSA are far less affordable than the England average and have shown faster growth in house prices since 2010.</p> <p>Chapter 7: <i>Land use and socio-economics</i> (document reference 6.1.7) also notes that consultation feedback and data shows that there is a net inward migration from London boroughs to the CSA. This trend is placing pressure on the housing market and increasing property prices. As a result, prices are increasingly unaffordable for CSA residents. There is also linked evidence of high homelessness rates and high growth in levels of homelessness.</p> <p>Dartford is the only CSA authority able to demonstrate a five year housing supply. Though even in Dartford, stakeholders have identified that much of the delivery of additional housing units is</p>	<p>Study area: CSA General population: residents Vulnerable groups: young people, older people, low income groups, people with long-term illness or disability</p>	<p>Inward migration to the CSA is putting upward pressure on prices and affordability is decreasing in the area. The homelessness rate has also been trending upwards. The vulnerable groups of young people and low income groups are present in relatively large numbers in the CSA, but older people and those with long-term illness or disability are relatively less prevalent.</p> <p>Sensitivity of receptor population: high.</p>

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	being taken up by people moving out of London. Many of the new homes are not accessible to local residents.		
Change in demand for health services	<p>There are six GP surgeries within the CIA, three on each side of the Thames. These surgeries have a patient to GP FTE ratio of 3,700, far above the NHS benchmark of 1,800. In the CSA the ratio is 2,400. GP provision in the area is constrained; this has been confirmed by Thurrock and EDC in consultation.</p> <p>Local NHS Trusts are not meeting the NHS target of admitting, transferring, or discharging patients within four hours in 95% of cases. The two local trusts score 87% and 83% on this measure, similar to the 84% average in England.</p> <p>Dartford is planning a new hub facility for lifelong learning in Ebbsfleet Garden City, which is planned to deliver health services for the new and growing population. A healthcare facility is being provided at Stone / Greenhithe, and Thurrock is planning for the delivery of an Integrated Medical Centre in Tilbury.</p>	<p>Study area: CIA General population: residents, visitors, workers Vulnerable groups: older people, ethnic minority groups, people with long-term illness or disability, single parent families, gypsy and traveller populations</p>	<p>Data detailing constraints on local health services prior to the impact of COVID-19 show local healthcare faces significant constraints, which have been further heightened by the impact of the pandemic. Consultation has highlighted the limited capacity of, and length of time taken for, existing services to respond to additional demand. High prevalence of single parent families and gypsy and traveller populations that place greater reliance upon these services, but relatively lower prevalence of other vulnerable groups.</p> <p>Sensitivity of receptor population: high.</p>
Change in demand for public services and community facilities	<p>No essential community services are located in the PSB. Chapter 7: <i>Land use and socio-economics</i> (document reference 6.1.7) identifies that a total of 76 community facilities are located across the CIA. The CIA performs at the national average in terms of barriers to housing and services. Some indicators of mental health related to the provision of community facilities including prevalence of anxiety perform worse than the national average, with other indicators including social contact of social care users performing relatively better than the national average.</p> <p>There is currently consent for six development proposals for community uses within the CIA, including a hub facility for lifelong learning at the Eastern Quarry.</p>	<p>Study area: CIA General population: residents, workers Vulnerable groups: young people, older people, low income groups, ethnic minority groups, people with long-term illness or disability, single parent families, gypsy and traveller populations</p>	<p>The existing health levels of the receptor population related to community services are considered to be average overall (high rates of anxiety, mixed picture regarding level of social contact). High prevalence of young people, low income groups, single parent families and gypsy and traveller populations that place greater reliance upon these facilities, but relatively lower prevalence of other groups vulnerable to this effect.</p> <p>Sensitivity of receptor population: medium.</p>
Open space provision	<p>Obesity and physical inactivity are identified as problems in the CSA and the wider areas of Kent and Thurrock. However, the utilisation of outdoor spaces and sports club membership is higher in Kent and Thurrock than the national average, suggesting that the driver</p>	<p>Study area: CIA General population: residents, workers Vulnerable groups: young people, older people, low</p>	<p>The CIA has relatively strong existing access to open spaces and other sports facilities. Health outcomes related to open spaces are mixed, with obesity being a key issue visible in health data and raised during consultation. High</p>

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	behind physical inactivity and obesity is more complicated than simply the average level of access to facilities across the areas. There are 41 open spaces in the CIA, of which none are within the PSB. There are three marshes in the PSB. There are ten PRoWs and routes that will be directly affected by the London Resort.	income groups, people with long-term illness or disability	prevalence of young people and low income groups disproportionately affected by changes in open space provision, but low prevalence of other groups disproportionately affected. Sensitivity of receptor population: medium.
Changes in community cohesion	There is little direct data on the strength of community cohesion at the geographic scale of the CIA. Regional data indicate that the proportion of residents who feel lonely, unable to socialise or able to rely on people is broadly in line with the national average. The majority (95%) of individuals in the RCA agree with the statement that there would be people there for them if they needed help.	Study area: CIA General population: residents Vulnerable groups: young people, older people, ethnic minority groups, people with long-term illness or disability	Limited data are available quantifying the baseline conditions reflecting community cohesion. However, the importance of community cohesion in determining health outcomes was directly raised during stakeholder consultation. Relatively low prevalence of all population groups vulnerable to this effect, apart from young people. Sensitivity of receptor population: medium.
Changes in crime and community safety (including fear of crime)	The crime rate in the CSA is substantially higher than the national average. Crime and the fear of crime may result in lower rates of physical activity and higher rates of mental distress. The CSA scores poorly on physical activity, being overweight and suffering from anxiety are identified problems in the CSA. Crime in the CSA has grown faster since 2016 than in comparators.	Study area: CIA General population: residents, visitors Vulnerable groups: young people, older people, ethnic minority groups, LGBTQ+ populations	The CSA experiences relatively high rates of crime and contains a presence of individuals within vulnerable groups for whom health outcomes are disproportionately affected by crime. High prevalence of young people, and average prevalence of most other vulnerable groups disproportionately affected by changes in crime and community safety. Sensitivity of receptor population: high.
Changes in access to healthy and unhealthy food	Obesity is identified as a key problem in the CSA, for both children and adults. Fast-food outlets are less prevalent per head of population in the CSA than across England, and at least 3 different food retailers are present in nearly all (82%) MSOAs ²³ of the CSA authorities. A third of MSOAs contain at least 8 different food retailers.	Study area: CIA General population: residents, visitors, workers Vulnerable groups: young people, older people, ethnic minority groups, people with long-term illness or disability	Obesity has been identified as a key health priority in local policy. The number of fast food and unhealthy food providers within the CSA is relatively low compared to the national level. Relatively high prevalence of young people thought disproportionately affected by changes in access to healthy and unhealthy

²³ MSOAs are a geospatial statistical unit used in England and Wales to facilitate the reporting of small area statistics. They are designed to break down administrative areas into small geographies accounting for approximately 7,500 residents.

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
	<p>Specialist health food stores have a strong presence in the area too. There is a health food store in Dartford Marketplace (Food for Living) selling wholefoods, vegetarian and vegan food, free-form food and supplements. Additionally, CSA residents have access to a variety of supermarkets, with three located in Dartford, four in Gravesham and ten in Thurrock. Relatively few retailers exist in direct proximity to the PSB, reflecting the lower density of residents and retail floorspace.</p>		<p>food, but limited prevalence of other vulnerable groups. Sensitivity of receptor population: medium.</p>
<p>Transmission of communicable diseases</p>	<p>Prior to COVID-19, the CSA experienced transmission rates of a range of communicable diseases broadly in line with the national average. During the current COVID-19 pandemic the number of confirmed cases has been lower than the UK average on a per population basis, but deaths due to the disease have been higher. The CSA performs relatively better than the England average for the prevalence of a number of forms of communicable disease.</p>	<p>Study area: CIA General population: residents, visitors, workers Vulnerable groups: young people, older people, people with a long-term illness or disability</p>	<p>Communicable disease was a theme during consultation due to the COVID-19 pandemic. Data regarding the spread of communicable diseases is limited at the CSA level, however the area has a relatively lower prevalence and mortality associated with a number of diseases. Relatively high prevalence of young people who are disproportionately affected by some communicable diseases, but limited prevalence of other vulnerable groups. Sensitivity of receptor population: medium.</p>
<p>Changing climate</p>	<p>Existing uses on site currently generate 2,124 tonnes of CO₂ emissions per year, per Chapter 20: <i>Greenhouse gas and climate change</i> (document reference 6.1.20), contributing to climate change. These are expected to decline in the future as a result of improvements in energy efficiency and the energy mix. Respiratory health is generally poor in the area, with higher than average mortality rates due to respiratory disease. Ozone-related premature deaths are estimated to be up to 11,900 per year in the UK already, which could worsen as a result of climate change. Heatwaves currently lead to far fewer excess deaths than winter cold in the UK, but this could change dramatically as a result of climate change.</p>	<p>Study area: CSA General population: residents, visitors, workers Vulnerable groups: young people, older people, people with long-term illness or disability</p>	<p>Relatively high prevalence of young people disproportionately affected by a changing climate, but limited prevalence of other vulnerable groups. Local respiratory health outcomes related to climate and living environment are relatively poor across the CSA. These have the potential to worsen through climate impacts until the assessment year considered within this chapter. It is anticipated that the largest health changes related to climate impacts will occur over a longer timeframe than considered within this assessment of the health impact of the London Resort.</p>

Potential health effect	Baseline	Receptor population	Sensitivity of receptor population
			Sensitivity of receptor population: medium.

POTENTIAL SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSALS

CONSTRUCTION EFFECTS

Potential effect of displacement or change in access affecting public services and community facilities

Health pathway and strength of evidence

- 8.117. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking the displacement of or change in access to public services and community facilities and adverse health outcomes is judged to be strong.
- 8.118. There is clear evidence on the positive effects of social networks for mental health outcomes, such as improved self-confidence and preventive health behaviours. There is further evidence linking the loss of these networks to negative health outcomes through increased loneliness, social isolation and higher rates of disease. The presence of community facilities enables social interactions and encourages the development of social networks in communities, with the potential to improve mental health outcomes.
- 8.119. In addition, there is a link between a number of types of community facilities and physical health outcomes. Where community facilities impact the underlying factors affecting health outcomes, such as physical activity or diet, or where they provide economic and social assistance, changes in access to these facilities would have further impacts upon the health of residents in the local area. Groups tend to be vulnerable to disruptions to social ties and their communities because they have difficulties forming new ones, or because there is a paucity of existing facilities catering to their needs, so that any loss of existing facilities is proportionally greater.

Categorising effects on human health

- 8.120. Community facilities help create and maintain social ties. From forming social ties, individuals are more likely to engage in preventive health behaviour, reinforcing positive health attitudes such as better nutrition and exercise. This can also improve mental health and reduce loneliness.
- 8.121. Chapter 7: *Land use and socio-economics* (document reference 6.1.7) of the ES finds that no essential community services, such as community centres, libraries or public services are located in the PSB. It finds that one public convenience facility (i.e. a public toilet) would be displaced. Due to the provision of alternatives and the type of this facility, the loss to the community would be negligible. As this facility is not one which would promote social interaction or underpin positive health outcomes, it is judged that the loss would not result in any impact upon health outcomes of the general or vulnerable communities.
- 8.122. During the construction phase, access to the full road network within the PSB will continue, with construction activities having no potential to affect direct access to community facilities. The assessment undertaken in Chapter 9: *Land Transport* (document

reference 6.2.9) concludes that no road links will experience a significant increase in traffic levels as a result of construction activity, and therefore it is not envisaged that road access to community facilities will be affected. The only potential for reduced pedestrian access to community facilities comes as a result of the diversion of the DS1 footpath north to enable construction works. This footpath connects the northeast area of Greenhithe adjacent to the PSB and the industrial area of Manor Way. No community facilities are expected to be materially affected through temporary severance as a result of the disruption to this pedestrian route.

- 8.123. Construction activity will result in the displacement of one public convenience facility the impact of this loss is not expected to be material, nor will there be any material change in access for any of the community facilities considered. The health impact arising from displacement of, or changes in access to, community facilities during the construction phase is therefore anticipated to be negligible for both the general population and vulnerable groups. This results in a **negligible** effect at the CIA level (**not significant**).

Potential effect of displacement or change in access to open spaces

Health pathway and strength of evidence

- 8.124. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking the displacement of or change in access to open spaces to health is extensive. There is clear and strong evidence on the positive effects of open spaces across all groups including increased physical activity, better cognition and better mental health outcomes. Substantial evidence also exists on the adverse outcomes associated with displacement of or a clear lack of access to open spaces, such as loneliness, increased crime and mental health problems in children.

Categorising effects on human health

- 8.125. Better access to open spaces encourages more physical activity and correspondingly tends to reduce rates of obesity. Access to parks and natural settings can reduce anxiety and improve cognition.
- 8.126. There is no public open space in the PSB so the London Resort is not expected to have any direct effect on the provision of open space.²⁴
- 8.127. Chapter 7: *Land-use and socio-economics* (document reference 6.1.7) assesses the direct impact of the London Resort on PRoWs. It finds that 10 PRoWs and routes will be directly affected by the London Resort (the changes to these PRoWs and routes is described in more detail in the operational effect). Due to the changes to these routes during construction, there will be some temporary works and disruption. The key change for

²⁴ It is possible that during construction access to and the enjoyment of open space and PRoWs/routes in close proximity of the PSB will be indirectly disrupted, and therefore less pleasant in its use. This results through a combination of increased traffic and heavy goods vehicles, and resulting reduced air quality and increased noise. These indirect impacts are assessed separately within the consideration of the health impact of air quality, of noise, and of changes in traffic and active travel.

pedestrian access will be the temporary diversion of the DS1 footpath north to enable construction works. Whilst this would be mitigated through sensitive construction practices, there is still likely to be some disruption to the users of these routes for access. This will however be a temporary effect and is not expected to result in any material changes to the health of the receptor population (including vulnerable groups).

- 8.128. Overall, considering the direct and indirect impacts of the London Resort, it is judged that the health impact associated with changes to the PRow, routes and open spaces during construction will be low for both the general population and vulnerable groups. On a medium sensitivity receptor, this results in a temporary effect on residents which is **minor adverse** at the CIA level in 2022 (**not significant**).

Potential effects from displacement of commercial uses

Health pathway and strength of evidence

- 8.129. The land take required for the London Resort will result in displacement of commercial businesses in the PSB. The London Resort will provide a generous compensation package to the displaced businesses and the Applicant is committed to assisting businesses to relocate. However, the displacement of businesses has the potential to result in residents losing access to the services and owners and employers of the businesses losing employment opportunities.
- 8.130. A loss of access to the services and employment opportunities provided by businesses in the PSB could result in adverse mental and physical health outcomes. There is strong evidence on the positive effects of employment, such as income and social status, along with the adverse health outcomes that are associated with displacement of various commercial uses which result in unemployment. The effects of displacement may result in the relocation of businesses, which can lead to reduced cohesion in the community and financial burdens for smaller businesses. However, the evidence is less developed on the topic of the overall burden on health as a result of job relocation or the effect on the community as a result of lost commercial entities. Appendix 8.4: *Literature review* (document reference 6.2.8.4) identifies that the evidence linking the displacement of commercial uses to health outcomes is considered to be moderate.

Categorising effects on human health

- 8.131. Chapter 7: *Land use and socio-economics* (document reference 6.1.7) identifies that 1,040 FTE jobs across 94 businesses with 69,000 sqm of commercial floorspace will be displaced within the PSB as a result the London Resort. It shows that 32 of the 94 businesses displaced are classified as 'bad neighbour uses'. There is no formal definition of this term, but in general, it typically involves businesses that are disruptive to the local community in terms of visual quality, noise and air pollution, and includes uses such as heavy industrial functions and other activity usually located away from residential property. These businesses may have a relatively harder time relocating to alternative locations following displacement.

- 8.132. The ‘bad neighbour’ use type of many businesses on the site, coupled with the high prevalence of small businesses, means that these firms are particularly sensitive to relocation and the local authorities have indicated that there are minimal alternative sites in their boundaries for these businesses. It is therefore likely that they could either be lost or have to relocate further afield. The removal of these bad neighbour uses could be a benefit to the receptor population due to improvements in visual quality, noise and air quality.
- 8.133. Employment is a key driver of health, both physical and mental, and there is potential for an adverse health impact for the business owners and their employees due to potential for unemployment resulting from this displacement. The workers impacted could face depression, anxiety and reduced physical activity; existing social ties at the workplace could be disrupted too. These effects are expected to reduce in the longer-term with improved health outcomes once individuals are back in employment.
- 8.134. There is also potential for residents to experience adverse health effects due to the loss of a local service. However, this effect is likely to be considerably smaller in magnitude compared to the worker health effect as most of the services on site serve a relatively large catchment area and are services which are used infrequently by most residents of the CSA. The disruption and associated health effect caused by having to use alternative provision or travel further to access the service is therefore judged to be minimal.
- 8.135. Chapter 7: *Land use and socio-economics* (document reference 6.1.7) describes how the Applicant is committed to ensuring that any displaced businesses are appropriately supported throughout the process. The Applicant has been in consultation and engagement with landowners and businesses for many years. The Applicant is exploring options for business relocation support in partnership with local stakeholders, including local authorities, SELEP and Locate in Kent to understand what spaces might be available for the displaced businesses in Kent and Essex.
- 8.136. All businesses within the PSB have been notified and received request for information (RFI) forms, asking questions about the ownership, rights to and use of the property/land, the business onsite and tenancy information. The Applicant has been engaging for a number of years. These conversations have informed the backbone of a generous property compensation offer. More recently, the approach has been to focus on engagement with individuals, including specialised webinars during the statutory consultation on the topic. Sessions will continue in the coming months when more is known about the requirements of specific businesses, so that the offer can be adapted and tailored to suit the displaced businesses as far as possible.
- 8.137. The property compensation policy seeks to financially mitigate the adverse impacts associated with displacement of homes, land or property as a result of land acquisition by the London Resort. The Applicant recognises that claimants may find it difficult to secure alternative accommodation both in the locality and also at a similar entry level (rent/value) and is therefore prepared to make an enhanced proposal to qualifying claimants – the London Resort Premium.

- 8.138. The support will mitigate some of the adverse displacement impacts. For some businesses, this mitigation could result in them becoming less sensitive to relocation, and for others the magnitude of impact of relocation could be reduced due to support being provided.
- 8.139. Overall, considering the scale of the displacement, the commitment to ongoing communication and appropriate assistance to displaced businesses, and the generous compensation policy, the magnitude of the health impact on businesses and their employees is expected to be medium at the level of the PSB at which businesses will be displaced. On a high sensitivity receptor, this results in a permanent effect on businesses and their employees that would be **major adverse** at the PSB level in 2022 (**significant**).
- 8.140. The magnitude of impact for employees belonging to vulnerable groups is expected to be high in 2022 (high sensitivity receptor). This is because these groups may find it harder to access alternative employment which would result in adverse health outcomes. The resulting effect is **major adverse** in the PSB in 2022 (**significant**).
- 8.141. The impact for residents (including those belonging to vulnerable groups) at the CSA level is negligible (high sensitivity receptor) resulting in a **minor adverse** effect in 2022 across the CSA (**not significant**).

Potential effects from displacement of residential dwellings

Health pathway and strength of evidence

- 8.142. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the link between displacement of residential dwellings and health is judged to be moderate. There are numerous theories on how housing-led regeneration projects and displacement may positively or negatively affect human health, but studies vary in their findings and few long-term or definitive results were found. Whilst some people may be accepting of change or the change may result in improved living conditions, it is conservatively assumed that the effect is considered to be negative.

Categorising effects on human health

- 8.143. The London Resort needs to acquire the three dwellings contained at the 19 London Road address in order to construct the visitor centre and also to create an entrance to the Resort down Pilgrims' Way. The assessment year for this effect is 2022; the earliest date at which this displacement could take place. It is assumed that this takes place in this year.
- 8.144. Whilst some of the residents may be accepting of the change or it could positively change their living conditions, this effect is conservatively expected to be negative for these residents. The negative health effects largely relate to mental health issues (reduced happiness levels) due to disrupted social networks and a loss of sense of control.
- 8.145. Overall, across the study area, whilst the impact would be material for the residents of the three dwellings, these represent a very small proportion (0.01%) of the total stock in

Dartford. The magnitude of impact is therefore expected to be negligible at the Dartford level. On a high sensitivity receptor, this results in a **minor adverse** effect at the Dartford housing market level in 2022 (**not significant**).

Potential changes to local traffic and transport and changes in use of active travel modes

Health pathway and strength of evidence

8.146. Appendix 8.4: *Literature review* (document reference 6.2.8.4) finds that the link between health and changes to local traffic and transport and changes in the use of active travel modes is judged to be strong. There is a reasonable body of evidence linking poor transport access to adverse health outcomes (such as isolation, depression, and stress), but the evidence is particularly strong regarding the link between reduced active travel methods and positive health outcomes which aren't realised, such as increased physical activity.

Categorising effects on human health

8.147. Construction-related traffic will lead to an increase in heavy goods vehicle movements on the road network. Chapter 9: *Land Transport* (document reference 6.2.9) provides an assessment of the likely increase in land traffic anticipated to arise as a result of construction activities associated with the London Resort. This assessment determines that at the height of construction operations, construction traffic will not result in significant impacts upon any of the road links modelled, including upon pedestrian and cycle amenity.

8.148. During the construction phase, access to all roads within the PSB will continue. Pedestrian routes will largely be unaffected. The only area with the potential for severance of pedestrian access is between the northeast area of Greenhithe adjacent to the PSB and the industrial area of Manor Way. As explained in Chapter 7: *Land-use and socio-economics* (document reference 6.2.7), the footpath DS1 connecting these two areas will be diverted north to enable construction works. Once operational, this footpath will be enhanced to enable access to the new ferry terminal, however during construction there may be temporary impacts for users of this right of way for access between the two areas.

8.149. In order to transport material for construction activities associated with the London Resort, river transport barge boats along the River Thames will be heavily utilised: 80% of the materials will come from the Port of Tilbury via barge. This minimises the number of heavy goods vehicle movements on-land and reduces the increase in road traffic associated with construction activities to within the normal daily variations of existing traffic levels for all surrounding road links.²⁵

8.150. The construction activities associated with the London Resort will result in only very marginal changes in road traffic and disruption to existing pedestrian and cycling routes,

²⁵ It is considered within Chapter 9: Land Transport (document reference 6.2.9) that an increase in traffic of less than 10% is within daily variations of traffic levels, and therefore will not result in significant effects.

resulting in a minimal impact on transport access and active transport for local residents. Overall, it is considered that the changes to local traffic and changes in the use of active travel modes will result in a negligible impact at the NSA level during construction for both the general population and vulnerable groups. This results in a **negligible effect (not significant)**.

Potential effect of changes in noise and vibration during construction

Health pathway and strength of evidence

8.151. As explained in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the relationship between changes in the levels of noise and vibration during the construction phase and health outcomes is judged to be strong. The evidence is clear that increased levels of noise can adversely affect health. Negative health outcomes that can arise as a result of increased noise exposure include sleep disturbance and psychological stress. It can also cause cardiovascular problems, reduce performance and provoke annoyance responses, with particular adverse effects on children, older people and disabled people.

Categorising effects on human health

8.152. A technical assessment of the anticipated increase in noise levels is provided in Chapter 15: *Noise and vibration* (document reference 6.1.15). This assessment concludes that, following the imposition of mitigation measures, noise from construction activities would not have a significant impact on any of the receptors assessed. Of the seven receptor areas considered within the assessment, minor adverse impacts would occur on two areas, both to the west of the Kent Project Site in proximity to construction activity associated with Gate 2 and hotel construction, including the residential area of Greenhithe directly adjacent to the PSB. This includes assessment on noise sensitive receptors including education and research facilities, healthcare and care-home facilities. Residual effects on these human receptors are not significant.

8.153. The noise levels during construction have the potential to impact upon the enjoyment of open spaces and the PRow network in the vicinity of the PSB. Although the assessment Chapter 15: *Noise and vibration* (document reference 6.1.15) concludes that construction activity will not cause a significant change in noise levels, any change in noise resulting from construction activity would be largest in the area adjacent to the PSB to the northeast of Greenhithe. Temporary construction noise may, at times, affect the enjoyment of the play space located on Vaughan Avenue and on the pedestrian PRow DS30, but it is not thought that any change in noise levels will be sufficient to affect health outcomes.

8.154. Any change in noise resulting from construction activity would vary over the duration of the construction period and be temporary in nature. Given the marginal impacts on construction noise, the presence of mitigating measures outlined in Chapter 15: *Noise and vibration* (document reference 6.1.15) and the temporary nature of the change, it is not anticipated that significant health impacts would occur as a result of changes in noise levels during the construction period.

8.155. The overall magnitude of the potential health impact resulting from noise and vibration during the construction phase would be negligible for both the general population and members of vulnerable groups within it. This impact results in a **negligible effect (not significant)** at the NSA level.

Potential effect of changes in air quality during construction

Health pathway and strength of evidence

8.156. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the relationship between changes in air quality and human health outcomes is judged to be strong. The evidence is clear that pollutants (such as PM and NO₂) have negative health impacts on individuals, such as coronary heart disease, lung cancer and annoyance.

Categorising effects on human health

8.157. Chapter 16: *Air quality* (document reference 6.1.16) provides a technical assessment of the likely potential impacts of air quality as a result of construction activities associated with the London Resort. This assessment concludes that in terms of the additional traffic generated by construction activity, no significant effects are anticipated to occur for any of the 100+ residential and community facility receptors considered within the assessment. In terms of the dust soiling and emissions resulting directly from construction activity, such as excavation of the site, mitigation is required to ensure that changes in air quality do not result in significant effects for receptors assessed. The assessment concludes that following mitigation measures outlined, no significant residual effects are anticipated to occur on existing receptors.

8.158. In the absence of mitigating measures, users of nearby community facilities, open spaces and PRoWs, have the potential to face reduced health outcomes as a result of construction dust and emissions associated with construction activities. However, the assessment undertaken in Chapter 16: *Air quality* (document reference 6.1.16) – which considers the effect on human receptors (residential, schools, care homes, proposed staff accommodation and hotels) – identifies that following mitigating measures these emissions will be negligible.

8.159. Following mitigation measures, the overall magnitude of the potential health impact resulting from changes in air quality during the construction phase will be negligible for the general population. This results in a **negligible effect (not significant)**.

8.160. Members of vulnerable population groups, and users of some of the community facilities that are anticipated to experience changes in air quality, are relatively more susceptible to changes in air quality. It is conservatively assessed that despite the mitigation measures in place to minimise changes in air quality, the magnitude of the impact upon vulnerable population groups will be low. The relatively minimal change in air quality, and the temporary nature of extraction activities that will result in the greatest change, imply that these groups would only be anticipated to face minimal and short-term impacts, and these are not thought significant so as to effect general health outcomes. The low magnitude of

impact results in a **minor adverse** impact for members of vulnerable population groups, **(not significant)**.

Potential effect of construction resulting in hazardous waste

Health pathway and strength of evidence

8.161. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking hazardous waste to human health is judged to be moderate. Links between landfill or waste disposal sites and adverse health outcomes are relatively strong, and an obvious link exists between hazardous waste and health, but less definite conclusions can be drawn directly relating waste resulting from construction activities and human health in the literature.

Categorising effects on human health

8.162. Chapter 19: *Materials and waste* (document reference 6.1.19) concludes that the magnitude of waste production resulting from the London Resort during the construction phase is major, due to a 1.85% depletion of remaining England hazardous landfill capacity at the year 2029. Approximately 265,400m³ of hazardous waste is to be disposed of, with about 98% of this predicted to be excavation waste. However, the major impact within this assessment reflects a purely logistical measure of pressure on remaining landfill infrastructure, which does not relate directly to health and safety effects.

8.163. Without proper handling of hazardous waste, there are potential health risks to workers and the general public in the area of the London Resort. With the inclusion of mitigation measures, such as appropriate on-site storage, use of suitable equipment, PPE for workers, and secure transportation of waste for treatment/disposal, there is not expected to be a significant effect on the health of workers or local residents. It will be the responsibility of the Principal Contractor to ensure best practice is followed throughout the preparation and construction stages including these measures, in line with requirements such as the Hazardous Waste Regulations.

8.164. It is anticipated that following appropriate on-site mitigation measures, the magnitude of the potential health impact resulting from the production of hazardous waste during the construction phase will also be negligible for both the general population and vulnerable groups. The sensitivity of the receptor population is medium so this results in a **negligible** effect **(not significant)**.

Potential effect of construction resulting in water contamination

Health pathway and strength of evidence

8.165. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking water quality to human health is judged moderate. Links between water contamination and adverse health outcomes are strong, but less research exists connecting construction activities with reduced health outcomes through water

contamination. Water contamination can result in enteric diseases for humans, and depending on the pollutant, certain forms of cancer or mutations.

Categorising effects on human health

- 8.166. Construction activity associated with the London Resort has the potential to result in contaminated groundwater being exposed during the construction phase. A technical assessment of the potential for construction activity associated with the London Resort to result in changes to water quality is undertaken in Chapter 17: *Water resources and flood risk* (document reference 6.1.17). This technical assessment concludes that following mitigation measures, construction activities will not have a significant impact upon any of the water assets identified. In particular, the potential for water contamination by hazardous materials is considered to be of negligible scale for each of the water assets assessed.
- 8.167. As a result of the low likelihood of construction activity impacting water quality and contamination in the NSA, the magnitude of the health impact of water contamination is deemed to be negligible in nature for both the general population and vulnerable groups. This results in a **negligible** effect at the NSA level during the construction period that is **not significant**.

Potential health effects of construction related to changes to levels of neighbourhood amenity

Health pathway and strength of evidence

- 8.168. Neighbourhood amenity reflects the in-combination effect of various individual environmental effects combining to alter the overall physical environment. This effect reflects the possibility that the combination of these effects can be greater than the sum of their parts. Changes in neighbourhood amenity during the construction phase are considered to result from changes in a combination of transport and travel, noise and vibration, air quality and visual amenity.
- 8.169. Appendix 8.4: *Literature review* (document reference 6.2.8.4) finds that the strength of the evidence linking quality of neighbourhood amenity to human health is moderate. There is individual evidence linking the quality of physical spaces and other components of neighbourhood amenity to health and wellbeing, however the literature review finds that there is limited evidence on the in-combination effect associated with these different aspects, which prevents strong conclusions from being drawn regarding human health.

Categorising effects on human health

- 8.170. The construction of the London Resort will impact on neighbourhood amenity. Neighbourhood amenity will be impacted through changes in transport and travel, noise and vibration, air quality, light and visual amenity. The individual effects are summarised in the table below.

Table 8.20 Construction phase effects based on the individual determinants of neighbourhood amenity

Effect	Receptor impacted	Conclusion of health effect in isolation
Potential changes to local traffic and transport and changes in use of active travel modes	General population	Negligible
	Vulnerable groups	Negligible
Potential effect of changes in noise and vibration during construction	General population	Negligible
	Vulnerable groups	Negligible
Potential effect of changes in air quality during construction	General population	Negligible
	Vulnerable groups	Minor adverse
No health effect is concluded from the individual impact of changes in visual amenity. The impact of this is discussed below.		

8.171. Chapter 11: *Landscape and visual effects* (document reference 6.1.11) considers there to be scope for significant visual amenity impacts during construction. Whilst construction activities introduce direct and indirect disturbance to the fabric of the landscape and the surrounding area, which can be perceived by people living, working or travelling through it, these effects are temporary in nature.

8.172. On the Swanscombe Peninsula, there will be some direct loss of scrub habitat as a result of the construction activity, including disturbance and degradation of habitat through deposition of materials. There will be a direct loss of poor-semi improved grassland, semi-improved neutral calcareous grassland, open mosaic on previously developed land and populations of nationally scarce plants. Some physical disturbance to areas through movements of machinery and workers and degradation through the deposition and storage of construction materials is also expected. As a result, on the Kent Project Site a fairly large number of receptors assessed were expected to see significant visual impacts.

8.173. At the Essex Project Site, it is expected there will be low change, and negligible effect to the character of the Tilbury Docks Local Landscape Character Area (LLCA) during the construction stage, as defined in Chapter 11: *Landscape and visual effects* (document reference 6.1.11).

8.174. The assessment of the health impact arising from changes in noise and traffic and active transport concludes that construction activity will result in a negligible effect upon both the general population and vulnerable groups within it. The assessment of the health impact of changes in air quality concludes that construction activity will result in a minor adverse impact on vulnerable groups, and a negligible impact on the general population.

8.175. During the construction phase, the effect on neighbourhood amenity is best described as

adverse. However, these changes will be temporary in nature, with any adverse effects minimised using appropriate mitigation, as described in the respective chapters. As a result of the minimal impacts of construction activity upon neighbourhood amenity, it is judged that the in-combination effect on health as a result of change in neighbourhood amenity will be minimal.

- 8.176. Overall, considering the temporary changes in neighbourhood amenity resulting from the construction impacts listed above, the magnitude of impact is considered to be **low** on both the general population and vulnerable groups. This results in a **minor adverse** effect (**not significant**) on health during the construction phase for both the general population and vulnerable groups.

Potential effects of the presence of the construction workforce

Health pathway and strength of evidence

- 8.177. Appendix 8.4: *Literature review* (document reference 6.2.8.4) finds that the strength of the evidence linking the presence of a construction workforce to human health outcomes is weak. The introduction of a construction workforce in an area does not have any direct effect on health, but could indirectly influence behaviour through feelings of intimidation due to negative stereotypes. Whilst there is anecdotal evidence of perceptions of adverse impacts associated with large construction workforces, there is limited causal evidence suggesting that the presence of construction workers is likely to have significant health impacts.
- 8.178. The reduced feelings of safety the community may experience as a result of interaction with the construction workforce, whether founded or unfounded, could also lead to reduced physical activity (with implications for obesity, physical and mental health and wellbeing) and the stresses of social isolation.

Categorising effects on human health

- 8.179. The number of people that are likely to be affected by construction worker presence or behaviour is expected to be small and short-term in nature. Whilst there is expected to be a relatively large number of construction workers on site (between 3,300 and 5,000 at peak times during the construction of Gate One), it is a low proportion in the context of the existing population (up to 0.7%) and worker numbers (up to 3%) in the CSA.
- 8.180. As discussed in Chapter 7: *Land use and socio-economics* (document reference 6.1.7), the increase in construction workers, many from outside the local area, has the potential to adversely affect the perceived safety of local neighbourhoods during the construction phase.
- 8.181. Certain vulnerable groups could feel intimidated as well. For example, of all workers on construction sites, 85% heard offensive or inappropriate language directed towards LGBTQ workers – compared to 60% in other working environments.

- 8.182. The London Resort would provide on-site accommodation for all non-home based workers in 2023 (expected to be a maximum of 2,500). This accommodation will be provided in the form of a cruise ship (1,000 to 2,000 rooms) to be docked at Tilbury, and mobile homes located on the G2 site, with room for 500 to 700 homes. The on-site accommodation will provide amenity facilities, reducing the need for workers to utilise community facilities. This embedded mitigation will reduce the likelihood and perception of crime and also reduce the large groupings of construction workers which can cause intimidation for some residents. Appendix 7.8: *Construction Workforce Accommodation Strategy* (document reference 6.2.7.8) has more information on the impact of non-home based workers on the local accommodation market.
- 8.183. Chapter 7: *Land use and socio-economics* (document reference 6.1.7) describes that the construction site will also be managed in accordance with the highest standards to minimise any adverse impacts, such as crime. There will be a requirement to conform to the Worker Code of Conduct (the Code). The Code will set out clear expectations for the behaviour of workers both on-site and when in the local community, including (but not limited to) no antisocial behaviour, no offensive language and no property damage. The London Resort may preclude an operative from working on the project as a consequence for Code violation. Supply chain partners and contractors will be required to comply with the Code. These bodies will be consulted in the development of the Code so that all agree on the scope and are aligned with behaviour expectation. The Code will be made publicly available so that the community are aware of the standards of behaviour expected and the channels through which to engage with the project over workforce behaviour. These high standards for behaviour, management and monitoring mean that the prevalence of crime as well as the perception of crime will be reduced.
- 8.184. The magnitude of impact upon the general population in 2023 (peak construction year), taking into account the considerable mitigation efforts of the London Resort, is therefore expected to be negligible, affecting a medium sensitivity receptor. This results in a temporary health effect which is **negligible** at the CSA level (**not significant**).
- 8.185. The magnitude of impact upon vulnerable groups in 2023 (peak construction year) is expected to be low. This is a worst-case scenario, which depends on the levels of interaction of vulnerable groups with the construction workforce and the extent to which they are deterred from activities due to the presence of a large construction workforce. It also depends on the presence of vulnerable groups in the residential population. The temporary health effect is considered to be **minor adverse** at the CSA level (**not significant**).

Potential effect of work and training opportunities created

Health pathway and strength of evidence

- 8.186. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking the creation of work and training opportunities to positive health outcomes is considered to be strong. There is clear and robust evidence on the positive effects of

employment, including better physical health outcomes (such as more money available to provide better services for individuals and healthcare) and better mental health outcomes (such as increased sense of purpose and confidence). In addition, there is extensive literature on the benefits of education and its link to positive health outcomes, as individuals are more likely to have healthier lifestyles and behaviours.

Categorising effects on human health

- 8.187. There is a strong and significant positive link between employment opportunities and health outcomes. This has been further reinforced by stakeholders during consultation. Those with better qualifications are more likely to have healthy lifestyles, to be fitter and to be of healthy body weight. Unemployment on the other hand can lead to reduced physical activity, depression and anxiety.
- 8.188. As identified in Chapter 7: *Land use and socio-economics* (document reference 6.1.7), the London Resort is expected to support a peak onsite workforce of 3,300-5,000 in 2023 (the peak construction year of Gate One). In total, over the course of the construction period, the London Resort will support an estimated 23,300 job years for Gate One and Gate Two.
- 8.189. Given the links between employment and health, the work and training opportunities created by the London Resort will have a positive effect on health. However, the majority of jobs will be temporary in nature and benefit people over a relatively wide geography. It should be noted that, whilst the employment opportunities created during the construction phase will be temporary in nature, the improvements to skills supported and associated increase in future opportunities and incomes will be permanent. Construction opportunities emerged as a strong and consistent theme of consultation by health stakeholders and the public.
- 8.190. Appendix 7.7: *The Outline Employment and Skills Strategy* (document reference 6.2.7.7) provides detailed information on the pledges the London Resort is committed to and how they would be implemented. These pledges have been designed with the specific intention of increasing the level of local employment and the skill levels of local residents. The Applicant is committed to working with the supply chain, wider businesses and partners to ensure that employment and skills opportunities are accessible to under-represented and vulnerable groups. These pledges will be further developed throughout the examination process through consultation with the Employment and Skills Taskforce.
- 8.191. The magnitude of impact upon the general population and vulnerable groups in 2023 (peak construction year) is expected to be low, affecting a high sensitivity receptor. This results in a temporary health effect which is **moderate beneficial** at the CSA level (**significant**).

Potential health effect of construction workers on health services

Health pathway and strength of evidence

- 8.192. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence

linking the increased number of construction workers' use of health services and health outcomes is moderate. Increased pressures on local health facilities and longer waiting times could reduce access to health services. Reduced access to health services may exacerbate health outcomes, unmet health needs and place financial burdens upon vulnerable individuals. Those groups with pre-existing reduced access to healthcare and a relatively higher reliance upon health services would be the worst affected from changes in demand and access.

Categorising effects on human health

- 8.193. The baseline concludes that local GP provision in the CIA faces substantial existing constraints, with data highlighting the relatively large number of patients served by relatively few practitioners. Primary healthcare services could be further impacted should construction workers choose to register with local GP practices, however it is thought that few are expected to do so as a result of the temporary nature of the construction work.
- 8.194. On average, construction workers have a higher injury rate at work compared to the average worker (2.4% of the workforce per year compared to 1.7% across all industries). This means that, at peak, 135 injuries might arise during construction in 2023 and an estimated 46 injuries in 2028, placing pressure on local A&E services. In the context of the existing baseline, the number of injuries associated with the construction period is very small. In addition, substantial site-wide safety measures, including an onsite health facility, will ensure that any potential A&E attendances are minimised.
- 8.195. In addition, the non-home-based workers could impact on other forms of healthcare including mental health and community health services, pharmacies and dental healthcare infrastructure. However, given the temporary nature of the non-home-based construction workforce, the impact on these other healthcare services is not expected to be material.
- 8.196. The scale of impact on healthcare services will be reduced as a result of on-site provision. Throughout the duration of the construction period, an on-site health facility will be established to treat minor injuries and ailments and provide preventative healthcare. In the event of any major incidences, the on-site medical team will provide first aid and the local emergency services will be called to take any seriously injured workers to hospital. Chapter 7: *Land-use and socio-economics* (document reference 6.1.7) provides further detail on the provision within the on-site health facility and the health and safety induction process that all construction workers will go through.
- 8.197. Through consultation with the Kent and Medway CCG, the importance of collaborative planning was highlighted. For example, directing temporary onsite construction workers to use online GP services would enable them to access any needs for regular prescriptions, as well as reducing potential impacts upon local services. Similarly, working collaboratively with the CCG to assess what the onsite facility should include will ensure it is best placed to meet needs and reduce the pressures placed on existing healthcare provision. The Applicant is committed to ongoing engagement with the CCG and collaborative planning.
- 8.198. Overall, the potential health effects related to construction worker health service demand

during construction is deemed to have a negligible magnitude on the general population and vulnerable groups. On a receptor of high sensitivity, this results in a **minor adverse** impact upon health outcomes (**not significant**).

Potential construction health effects related to a changing climate

Health pathway and strength of evidence

- 8.199. The effects of climate change could result in more heat-related illnesses and deaths, worse respiratory conditions and disease vectors establishing themselves in the UK.
- 8.200. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking climate change to human health is judged moderate. A changing climate affects health through a number of pathways, both directly, such as through an increased incidence of heatwaves or severe weather events, and indirectly, through establishing vectors for vector-borne disease such as malaria. However, it is not clear from the literature whether the climate change impact of the London Resort would have a direct effect on the health of the receptor population in the study area.

Categorising effects on human health

- 8.201. A technical assessment of the potential for the construction activity associated with the London Resort to generate embodied carbon is presented in Chapter 20: *Greenhouse gas and climate change* (document reference 6.1.20). Embodied carbon reflects the carbon footprint of the material used in construction, considering the carbon generation through the construction supply chain alongside the direct generation of carbon through construction activities such as energy consumption and vehicle use.
- 8.202. Chapter 20: *Greenhouse gas and climate change* (document reference 6.1.20) concludes that the construction activities associated with the London Resort would generate a total of between 226,050 tonnes of CO₂ and 238,955 tonnes of CO₂. The chapter concludes that the construction of the London Resort would result in a moderate adverse (significant) impact upon embodied and life-cycle carbon, as a result of the fact that no mitigation measures have at this stage been made to reduce embodied carbon within construction. Measures to reduce embodied and life-cycle carbon for the construction stage will be considered following submission to reduce this impact.
- 8.203. The potential health effects generated by the contribution of the London Resort to climate change arise through the increase in greenhouse gas emissions resulting in more severe extreme weather events, increases in the risk of disease vectors establishing in the UK, and further pressures on the health infrastructure. Although the construction phase of the London Resort would generate greenhouse gas emissions and result in an increase in carbon embodied within building design, it is not thought that it would do so on a scale at which health outcomes will be affected. The construction phase of the development will be temporary and produce a negligible change upon overall emissions on the scale relevant at which climate change would affect health outcomes. When assessed in isolation, the greenhouse gas emissions resulting from construction activities associated

with the London Resort would not noticeably impact upon health outcomes.

- 8.204. Overall, the impact magnitude of climate change on human health due to the construction phase is judged negligible for the general population and vulnerable groups. This combines with a receptor of medium sensitivity to create a temporary adverse effect of **negligible** scale at the CSA level (**not significant**).

OPERATIONAL EFFECTS

Potential health effects associated with changes in noise and vibration during operation

Health pathway and strength of evidence

- 8.205. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the relationship between changes in the levels of noise and vibration during the construction phase and health outcomes is judged to be strong. The evidence is clear that prolonged exposure to increased levels of noise can adversely affect health. Negative health outcomes that can arise as a result of increased noise exposure include sleep disturbance and psychological stress, with particular adverse effects on children, older people and disabled people.

Categorising effects on human health

- 8.206. There is a relationship between changes in noise and health outcomes. There is therefore potential for a change in the baseline position, widening in health inequalities and/or a contribution to health priorities. Noise can disturb sleep, cause cardiovascular problems, reduce performance and provoke annoyance responses.
- 8.207. Chapter 15: *Noise and vibration* (document reference 6.1.15) considers the possibility of operational noise impacts in the following areas: traffic noise, ride and attraction noise, fixed plant noise, noise from external events and outdoor gatherings of crowds, noise impact of existing river dredgers (the impact of this existing noise source on the newly induced visitors and staff on-site) and noise from helicopter operations. Of these sources of noise, the assessment concludes that existing residents and users of community facilities would be affected primarily through ride and attraction noise. Remaining sources of noise impacts, including crowd noise, traffic noise and noise from the helicopter activities are expected to result in negligible impacts following mitigation at all human receptor locations outside of the PSB.
- 8.208. Ride and attraction noise would be concentrated in the areas surrounding the rides and attractions when the London Resort is operational. It is concluded in Chapter 15: *Noise and vibration* (document reference 6.1.15) that, pre-mitigation, there is potential for ride and attraction noise above the significance threshold in areas with direct line of sight to rides and attractions at the following road locations: Wainwright Avenue, Stonely Crescent, Tiltman Avenue, Vaughan Avenue, Duncannon Place and Reed Court. All these roads are located in the northeast of Greenhithe. The children's play area located on Vaughan Avenue is the only community facility identified at these locations, and it is likely

that this facility will not experience significant noise increases from ride and attraction noise due to the higher background noise levels when children are using the play area. Chapter 15: *Noise and vibration* (document reference 6.1.15) concludes that following mitigation measures, no significant noise effects will result at the previously identified locations.

- 8.209. The operation of the London Resort will also see the introduction of overnight visitors and workers on-site in hotels and staff accommodation. These visitors and workers would be subject to the discussed changes in noise conditions and exposed to existing noise relating to the operation of river dredgers located at the nearby Manor Way industrial premises. The design of the accommodation for both staff and visitors will take this noise source into account, with sufficient measures in place to ensure that no changes in health outcomes will arise for the introduced human receptors.
- 8.210. Cumulative effects are possible from plant noise, industrial noise and road traffic noise. Fixed plant and equipment noise should follow the legislative requirements for all cumulative schemes, and the effect is assessed as negligible in Chapter 15: *Noise and vibration* (document reference 6.1.15). For industrial noise and road traffic noise, non-negligible impacts are possible, and will depend on the exact operational management and traffic routing.
- 8.211. Since all residual noise effects concluded in Chapter 15: *Noise and vibration* (document reference 6.1.15) are not significant, the magnitude of impact on the general population and vulnerable groups is expected to be low. This combines with a receptor of low sensitivity to create an effect of **negligible** scale at the NSA level (**not significant**).

Potential health effects associated with changes in air quality during operation

Health pathway and strength of evidence

- 8.212. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the relationship between changes in air quality during the operational phase and human health outcomes is judged to be strong. The evidence is clear that pollutants (such as PM and NO₂) created from air quality changes have negative health impacts on individuals, such as coronary heart disease, lung cancer and annoyance.

Categorising effects on human health

- 8.213. There is a relationship between changes in air quality and health outcomes. There is therefore potential for a change in the baseline position, widening in health inequalities and/or a contribution to health priorities. Changes in air quality could affect asthma, coronary heart disease, strokes and lung cancer.
- 8.214. Chapter 16: *Air quality* (document reference 6.1.16) provides a technical assessment of the likely potential changes in air quality resulting from increased traffic levels and the operation of the energy centre on-site. It concludes that operational effects on all human receptors (residential, schools, care homes, proposed staff accommodation and hotels)

are negligible. Based on the air quality assessment, it is considered that no users of community facilities, open spaces or the PRow network would face changes in health outcomes as a result of changes in air quality during the operational phase.

- 8.215. Based on these conclusions, there are not expected to be any material changes in health outcomes associated with changes in air quality once the London Resort is operational. The potential health impact is therefore deemed negligible for both the general population and vulnerable groups. The sensitivity of the receptor population is medium so this results in a **negligible** effect (**not significant**).

Potential health effects from a change in local traffic and active travel

Health pathway and strength of evidence

- 8.216. Appendix 8.4: *Literature review* (document reference 6.2.8.4) concludes that the link between health and changes to local traffic and transport and use of active travel modes is strong. There is reasonable evidence linking better transport access to better health outcomes, such as access to employment opportunities (and associated health benefits) and increased happiness, but the evidence is particularly strong regarding the link between an increase in active travel methods and human health outcomes, such as increased physical activity.
- 8.217. Changes to the local transport network could reduce travel in the area and isolate individuals, resulting in depression, poor sleep quality and poor cardiovascular function. Reduced use of active travel could lead residents to miss out on the benefits of a reduced risk of heart disease, hypertension and lower cholesterol levels.

Categorising effects on human health

- 8.218. The operation of the London Resort will result in additional traffic for the road network. Chapter 9: *Land Transport* (document reference 6.2.9) provides an assessment of the likely increase in traffic as a result of the operation of the London Resort. Pre-mitigation, the assessment determines that one of the road links assessed (the westbound slip road from the A2260 onto the A2) will face significant adverse impacts as a result of increased road traffic, but that this will be insignificant following the consideration of mitigation measures.²⁶ A non-significant increase in traffic is expected for all remaining links assessed.
- 8.219. Once operational the London Resort would contribute towards redeveloped pedestrian and cycle links, provide a new ferry terminal on-site to improve connectivity across the River Thames and link to existing ferry services, and establish a transport interchange at Ebbsfleet International Rail Station to improve links to rail services and increase

²⁶ This includes measures such as the Transport Management Plan, which outlines the measures undertaken to reduce traffic access to the site, and the junction improvements at the A226 that will improve traffic flows in the immediate vicinity of the PSB.

accessibility across the wider local area.²⁷

- 8.220. The potential for severance of existing transport access will be negated through the re-provision and enhancement of all pedestrian and cycle access routes affected during construction and the creation of a new pedestrian and cycle bridge over the regional rail line between Northfleet and Swanscombe, overcoming the severance between the site and Ebbsfleet International. To address the potential for any east-west severance as a result of the creation of a new access road, new pedestrian and cycle access routes will be provided connecting Titman Road and Manor Way. The Walking and Cycling Strategy within the Transport Assessment (document reference 6.2.9.1, section 10) outlines improvements to the existing PRow network including: upgraded crossing facilities at London Road, Swanscombe, removal of unnecessary street furniture, wayfinding and improvements to street lighting, and an upgrade to the existing toucan crossing at Thames Way/A2206.
- 8.221. To ensure potential cycle access is maximised once operational, a network of cycle routes will be provided on Swanscombe Peninsula, combining existing with new proposed routes. All pedestrian and cycle infrastructure will conform to standards outlined within Cycle Infrastructure Design Guidance LTN 1/20. The new pedestrian and cycle bridge over the regional rail line between Northfleet and Swanscombe would overcome existing cycle severance between Ebbsfleet International Station and Swanscombe Peninsula. Once operational, the London Resort will include the provision for a significant delivery and maintenance of cycle parking, and would work with local transport hubs to assess the potential for implementation of a cycle hire scheme.
- 8.222. Appendix 9.1: *Transport Assessment* (document reference 6.2.9.1) explains how public transport would play a major role in facilitating the movement of visitors and staff to the London Resort. The public transport strategy includes working with passenger rail service providers to ensure infrastructure is ready to accommodate trips to the Resort, providing a dedicated high frequency People Mover to transfer visitors from Ebbsfleet International Station to the Resort, supporting local bus services and providing a cross-river shuttle service between Tilbury and the London Resort. The Travel Demand Management Plan also outlines a flexible approach to managing the travel demands of the London Resort.
- 8.223. Overall, it is considered that once operational, the London Resort would contribute positively towards health outcomes related to changes in local traffic, transport and active travel modes. Although the operation of the London Result would result in additional road traffic on the existing network, Chapter 9: *Land Transport* (document reference 6.2.9) concludes that this will not result in significant impacts for any of the individual road links assessed following mitigation measures. No transport severance is likely to occur anywhere within the NSA, and the additional active travel measures brought into operation by the London Resort would both improve existing transport access to

²⁷ An assessment of the maritime navigational safety risks resulting from the operation of the ferry services is undertaken in Chapter 10: *River Transport* (document reference 6.2.10). This assessment concludes that the operational of ferry services would contribute no additional sources of significant maritime risk.

Swanscombe Peninsula and its surrounds and encourage physical activity.

8.224. It is deemed that the impact upon both the general population would be low. This would result in a **minor beneficial** effect at the NSA level (**not significant**).

Potential health effects associated with changes in electromagnetic field exposure

Health pathway and strength of evidence

8.225. Based on a review of the existing literature, Appendix 8.4: *Literature review* (document reference 6.2.8.4) determines the link between EMF and adverse human health outcomes to be weak. A large body of literature exists on the health outcomes associated with exposure to EMF and has been researched for many years, such as headaches, anxiety, and nausea, but evidence is weak in proving the link and conclusions are often inconclusive.

Categorising effects on human health

8.226. There is a relationship between exposure to electromagnetic fields and health outcomes, if exposure exceeds the International Commission for Non-Ionizing Radiation Protection (ICNIRP) guidelines. There is therefore potential for a change in the baseline position, widening in health inequalities and/or a contribution to health priorities. However, health effects are unlikely as they require high and prolonged exposure to EMF. In the event of prolonged exposure, health effects could include cancer, stimulation of nerves and muscles and altered biological processes, although the evidence is mostly speculative.

8.227. As the site is developed, new EMF emitters such as new cellular infrastructure and public wi-fi will be placed where required. These changes may require existing communications infrastructure to be altered, replaced or moved to a new location. Such changes, if required, will become apparent once the optimum location to place new EMF emitters is determined through consultation with relevant statutory undertakers. This will change the underlying EMF condition. All changes must ensure that EMF exposure limits do not exceed ICNIRP Guidelines. The Applicant confirms that proposed new electrical infrastructure for the London Resort will comply with ICNIRP guidelines. As such, any potential health effects are unlikely, and it is not a likely significant effect. Therefore, a negligible magnitude of impact is anticipated for both the general population and vulnerable groups (low sensitivity). This would result in a **negligible** health effect (**not significant**) for all assessment years.

Potential health effect of increased flooding

Health pathway and strength of evidence

8.228. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking flooding to adverse health effects is judged moderate. Some evidence has shown a link between flooding and mental health outcomes. Individuals from areas prone to flooding have been shown to experience relatively high levels of post-traumatic stress

disorder (PTSD), depression and anxiety. However, the literature does not establish a conclusive causal link between flooding and health outcomes.

Categorising effects on human health

8.229. Chapter 17: *Water resources and flood risk* (document reference 6.1.17) assesses the impact of the London Resort on flood risk. The London Resort will generally improve and invest in flood defences. This chapter concludes that following the operation of the commitments made in the Flood Risk Assessment, flood risk at the Kent Project Site is expected to be reduced from baseline conditions, however a more sensitive site use is being introduced. Given the balance between flood risk improvements and more sensitive receptors on-site the effect significance will be negligible for users of the site. The Essex Project Site faces limited existing flood risk, and it is concluded that any changes in flood risk will be negligible for users of the Essex Project Site.

8.230. The existing evidence detailing the impact of flood risk on mental and physical health outcomes highlights prolonged exposure to flooding as the driver of negative health outcomes. From a health impact perspective, it is therefore judged that any changes in flood risk are anticipated to affect health outcomes only for residents within the study area who would face changes in continued exposure to flood risk as a result of the operation of the London Resort.

8.231. The flood risk measures put in place during operation are likely to significantly reduce the risk of flooding within the Kent Project Site, but it is not thought that these will contribute to significantly reducing continued exposure to flood risk for existing local residents in the NSA. Overall, it is considered that the reduced exposure to flood risk across the NSA will result in a negligible magnitude of impact for both the general population. This results in a **negligible** effect on human health, and this effect is deemed **not significant**.

Potential health effects associated with the creation and disposal of hazardous waste

Health pathway and strength of evidence

8.232. As stated within the determination of the scale of the effect during the construction phase, the evidence linking hazardous waste to human health is judged to be moderate.

Categorising effects on human health

8.233. As a result of the scale of the London Resort, and the large number of visitors and workers that it would support, there is potential for the operation of the London Resort to result in the creation of hazardous waste. A technical assessment of the anticipated quantity of hazardous waste produced through the operational activities of the London Resort is undertaken in Chapter 19: *Waste and materials* (document reference 6.1.19). This technical assessment concludes that the operation of the London Resort will result in the generation of 415m³ of hazardous waste each year, compared to total hazardous waste capacity levels of approximately 14 million m³ across England. Any hazardous waste produced will be stored in line with the Hazardous Waste Regulations.

8.234. Due to the small quantity of hazardous waste produced during the operational phase and the measures put in place to manage storage of waste, there is not expected to be any change in health outcomes or inequalities. The magnitude of the health impact of the creation and disposal of hazardous waste is deemed to be negligible for both the general population and vulnerable groups (medium sensitivity). This results in a **negligible** effect (**not significant**) at the NSA level during the operational period.

Potential health effects related to water contamination

Health pathway and strength of evidence

8.235. Appendix 8.4: *Literature review* (document reference 6.2.8.4) finds that the evidence linking water quality to human health is strong. Links between chemical and bacterial water contamination and adverse health outcomes are strong and widely reported in the scientific literature.

Categorising effects on human health

8.236. A technical assessment of the potential for the operation of the London Resort to result in a change in water quality is undertaken in Chapter 17: *Water resources and flood risk* (document reference 6.1.17). This technical assessment concludes that with the commitments to the mitigation measures outlined in that chapter, the London Resort's impact on water quality during operation will not be significant.

8.237. As a result of the low likelihood of operational activity impacting water quality and contamination in the NSA, the magnitude of the health impact of water contamination is deemed to be low for both the general population and vulnerable groups (medium sensitivity). This results in a **minor adverse** effect at the NSA level (**not significant**).

Potential health effects related to changes to levels of neighbourhood amenity

Health pathway and strength of evidence

8.238. Appendix 8.4: *Literature review* (document reference 6.2.8.4) finds that the evidence linking levels of neighbourhood amenity to human health is moderate. There is evidence linking the quality of physical spaces and other components of neighbourhood amenity to health and wellbeing, however the difficulties in defining neighbourhood amenity prevents strong conclusions from being drawn regarding human health.

Categorising effects on human health

8.239. This effect considers the in-combination health effect of the individual effects on traffic, noise, air quality considered previously, as well as any visual and light impacts. The individual effects are summarised in the table below.

Table 8.21 Operational phase effects based on the individual determinants of neighbourhood amenity

Effect	Receptor impacted	Conclusion of health effect in isolation
Potential changes to local traffic and transport and changes in use of active travel modes	General population	Minor beneficial
	Vulnerable groups	Minor beneficial
Potential effect of changes in noise and vibration during construction	General population	Negligible
	Vulnerable groups	Negligible
Potential effect of changes in air quality during construction	General population	Negligible
	Vulnerable groups	Negligible
No health effect is concluded from the individual impact of changes in visual amenity and light. The impact of this is discussed below.		

8.240. As described above, it is concluded that the operational changes to traffic and active travel will have a positive impact on health outcomes. The introduction of a ferry terminal connecting the Swanscombe Peninsula to Tilbury and the development of a network of pedestrian and cycle ways around the PSB will enable residents and visitors maximum possible active transport access to the PSB and its surrounds. The operation of the London Resort will result in an increase in traffic levels on the local road network, however as assessed within Chapter 9: *Land Transport* (document reference 6.2.9), this is not expected to result in a significant change for any of the road links assessed.

8.241. Both the assessment of changes in noise and vibration and air quality concluded that the operation of the London Resort would result in negligible impacts upon human health. As a result, it is not considered that these impacts would make a significant contribution towards neighbourhood amenity.

8.242. The London Resort will considerably and permanently change the existing landscape of the Swanscombe Peninsula. Chapter 11: *Landscape and visual effects* (document reference 6.1.11) considers that on the basis of the proposed landscape and ecological mitigation strategies, the overall residual effects upon the landscape fabric and features of the Swanscombe Peninsula would be beneficial, including retention and enhancement of existing areas of ecological habitats such as marsh, reeds and grassland as well as creation of newer areas. A high number of receptors assessed could see significant beneficial impacts. With regard to the Essex Project Site, landscape and visual effects would be localised. It is considered that the operational effects would be minimal in 2025 and further reduced by 2038.

8.243. *The Artificial Light Environmental Impact Assessment* (document reference 7.9) provides details of the lighting strategy proposed by the London Resort throughout the operational

phase. This assessment describes best practice measures to ensure that light pollution is minimised, whilst on-site and road safety is maximised. Artificial light generated by the London Resort will meet guidance for the relevant Lighting Environment Zone under the Institution of Lighting Professionals guidance ILPN01 (which outlines acceptable brightness levels given baseline environmental conditions). The operation of the London Resort will result in some light pollution, but this will be reduced to acceptable levels through the best practice use of lighting types and placements.

8.244. Overall, considering the marginal positive impacts upon traffic and active traffic and visual amenity, and the overall negligible negative impacts upon air quality, noise and light pollution, it is concluded that the operation of the London Resort would result in a negligible change on neighbourhood amenity for both the general population and vulnerable groups. This results in a **negligible effect (not significant)** on health for both the general population and vulnerable groups.

Potential health effects associated with the inclusive design, site access and facilities of the London Resort

Health pathway and strength of evidence

8.245. Appendix 8.4: *Literature review* (document reference 6.2.8.4) finds that the link between inclusive design features, site access and facilities on-site and health outcomes is moderate. Evidence exists on the human health impacts of a lack of accessibility on particular groups, for instance those with sensory impairments, older people and pregnant women. For all groups, first-aid points, suitable fire egress routes, evacuation procedures and communication systems are important for good inclusive design.

Categorising effects on human health

8.246. The London Resort is committed to designing and operating a venue that actively encourages people from the broadest spectrum of society and surrounding areas to enjoy the Resort and surrounding areas on equal terms. To achieve this ambition, the London Resort will subscribe to all relevant standards, will meet or exceed relevant building regulations and is committed to on-going dialogue with stakeholders identified through consultation (e.g. representatives of user groups).

8.247. The London Resort will subscribe to all principles of inclusive design from the Commission for Architecture and the Built Environment (CABE). These principles are:²⁸

- acknowledging diversity and difference;
- offering choice where a single design solution cannot accommodate all users;
- providing flexibility in use; and

²⁸ CABE (2006), The principles of inclusive design

- providing environments that are convenient and enjoyable for everyone to use.
- 8.248. The London Resort is committed to creating a development that is accessible and inclusive so that everyone – regardless of disability, age, gender, sexual orientation, race or faith – can enjoy what is on offer confidently and independently with choice and dignity. Examples of provisions to make the London Resort more accessible to everyone include providing mobility assistance (a fleet of e-Vehicles), step-free pedestrian routes, accessible seating, assistive listening systems, quiet rooms, faith rooms, accessible toilets and Changing Places facilities and concessions and baby change facilities.
- 8.249. The inclusive design elements associated with Gate 1 will be delivered by 2025 and the rest will be delivered by 2030. Inclusive design is as much about management / operational policy as physical provision – the London Resort will do all they can to ensure these policies will be in place from opening day onwards. The year with the greatest potential health effect will be 2038 (fully operational) as by this time the inclusive design measures will be monitored and improved upon, and the Applicant would have responded to the requirements of visitors and staff.
- 8.250. *The Design and Access Statement* (document reference 7.1) presents a summary of the inclusive design measures put in place for the operation of the London Resort. These measures include:
- All principal circulation routes being step-free, as well as clear and logical with character areas and materiality used to assist with wayfinding.
 - Landscaping will provide a choice of quiet areas of different sizes and visual vibrancy with consideration for people who are neurodivergent or have a sensory impairment. Quiet rooms will be incorporated to allow visitors to retire to safe spaces in the park as required.
 - All circulation routes to contain gradients less steep than 1:21, with shallow ramps at a maximum gradient of 1:12 in areas where this is not possible.
 - A seating strategy involving a maximum distance of 50m between resting places, with all seating conforming to BS8300-1 accessibility guidelines.
 - Priority vehicular access for individuals unable to take advantage of the cycle and public transportation strategies as a result of disability or illness.
 - The general principles of lighting will ensure social amenity, enabling people who are partially sighted and people who have sensory/neurological processing difficulties, to be able to use the external environment conveniently, safely and securely.
 - All measures and principles will be reviewed by the Accessibility Working Group, set up following DCO submission to ensure access and inclusion is maximised for all individuals.

- 8.251. The literature review highlights the potential for inclusive design measures to provide mental health benefits for individuals who would otherwise feel excluded from accessing assets and facilities. The inclusive design measures on site once operational would aim to ensure that all individuals have equal access to on site facilities.
- 8.252. Good design can reduce the risk of injury and improve access to first aid and emergency treatment. Suitably spaced resting points could reduce the need for physical exertion, particularly for vulnerable groups. The London Resort will have suitable systems in place to respond to emergencies, including communications strategies, with adequate backups, minimising adverse health outcomes.
- 8.253. Overall, the evidence base indicates that inclusive design, access and facilities are linked to positive health outcomes. Inclusive design can help reduce accidents and social exclusion. Well-lit and designed signage, visual contrast and materials can help ensure that the building and its environments are easy to use for everyone.
- 8.254. The incorporation of the principles of inclusive design into the physical design **and** the operational policies of the London Resort are expected to result in an impact of **medium** magnitude of health outcomes for both the general population and vulnerable groups. The medium magnitude of impact would generate a **moderate beneficial** effect (**significant**) at the CIA level.

Potential health effects relating to changes in access to work and skills

Health pathway and strength of evidence

- 8.255. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking the creation of work and training opportunities to positive health outcomes is considered to be strong. There is a large and robust body of evidence linking employment to positive health outcomes, including better physical health (such as more money available to provide better services for individuals and healthcare) and mental health (such as increased sense of purpose and confidence). There is also a strong body of evidence linking education to positive health outcomes as individuals are more likely to have healthier lifestyles and behaviours.

Categorising effects on human health

- 8.256. As identified in Chapter 7: *Land use and socio-economics* (document reference 6.1.7), the London Resort is expected to support 8,810 direct jobs in 2025, 13,010 in 2030 and 17,310 by 2038. The London Resort would be one of the largest single-site employers in the UK. The socio-economic assessment also shows that these jobs would be provided across a range of skill levels and occupations. There will be between 15,800 and 28,700 net additional jobs at the national level by 2038. The assessment presents a conservative assessment of the net additional employment impact of the London Resort in line with EIA best practice. Based on the evidence of a higher multiplier from Disneyland Paris, the *Economic and Regeneration Statement* (document reference 7.5) finds that the London Resort could support up to 48,000 direct, indirect and induced jobs across the UK by 2038.

- 8.257. Appendix 7.7: *Outline Employment and Skills Strategy* (document reference 6.2.7.7) is submitted with the DCO. This includes local skills initiatives and key pledges, including coordination and partnerships between employers and providers such that the opportunities are efficiently matched to the residents. The initiatives in the strategy are designed to match the local issues and objectives in the local area, maximising the benefits available. Employment creation and the opportunity to increase skills of local residents in an equal way has been a strong and consistent theme during consultation by stakeholders and the public.
- 8.258. The Outline Employment and Skills Strategy will continue to evolve after submission. The London Resort has set up an Employment and Skills Taskforce which will facilitate the bringing together of parties from various stakeholders (LPAs, EDC, employment and training providers, educational institutions) who will meet to discuss and refine the implementation strategy and ensure the offer is aligned to local need. Key objectives include: creating local employment opportunities; providing career paths, not just jobs; addressing skill gaps and promoting career choices through training and working with local schools, colleges, universities, job centres and charities; and celebrating diversity and inclusion. Appendix 7.7, *Outline Employment and Skills Strategy* (document reference 6.2.7.7) provides more detail on the specific commitments of the London Resort.
- 8.259. Given the links between employment and health, the work and training opportunities created will have a positive effect on health. These health effects are expected over the medium to long term as they are permanent, good quality positions. The skills created and associated increase in future opportunities and incomes will be permanent. There will also be expected to be health benefits to dependents of staff working onsite, as children of employed parents tend to be more stably employed in later life too.
- 8.260. The magnitude of impact upon the general population in 2025 is expected to be low, increasing to medium in 2030 and 2038 due to the expected increase in number of jobs. The sensitivity of the receptor population to changes in work and training is high. This results in a permanent health effect which is **moderate beneficial (significant)** at the CSA level in 2025 and **major beneficial (significant)** in 2030 and 2038.
- 8.261. The magnitude of impact upon the health of vulnerable groups resulting from employment and skills opportunities is expected to be medium in 2025, increasing to high in 2030 and 2038, as more employment opportunities become available which could benefit vulnerable groups. The London Resort is committed to working with local authorities and bodies and their existing employment and skills programmes, to ensure under-represented and vulnerable groups are given equality of opportunity and supported in their access to employment and skills. This results in a permanent health effect which is **major beneficial** at the CSA level (**significant**) in 2025, 2030 and 2038.

Potential health effects of the provision of worker accommodation

Health pathway and strength of evidence

- 8.262. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence

on the link between quality of housing and indoor living environments and residents' health is strong.

8.263. The World Health Organisation states that poor quality housing and indoor environments cause or contribute to many types of preventable diseases and injuries.²⁹ The Housing and Health report, authored by the World Health Organisation, explains that due to the large volume of time spent in the home setting, residents have a high exposure to health risks associated with housing and housing design. A review undertaken in Thompson et al. (2009) concluded that high quality design of housing interventions can directly lead to physical and mental health benefits. The HUDU Rapid HIA Tool, a guidance document for assessing the health impacts from development schemes, states that 'the quality of design, including internal sound insulation, daylighting and provision of private space can influence the health and wellbeing of occupiers.'³⁰

Categorising effects on human health

8.264. The London Resort is committed to its employees' welfare and wellbeing. This ranges from the quality of the working environment and the standard of accommodation and facilities provided to the important relationship that they will have with the surrounding community. The London Resort is not just providing jobs for employees but careers, with the London Resort Academy providing ongoing training for those who wish to progress their skills, experience and expertise, recognising that employee retention is a key factor in the success of the Resort as a whole.

8.265. There will be employment opportunities for people of all ages with many coming from the existing communities on both sides of the River Thames. However the London Resort will also be attractive to the younger generation as it will be a place to learn skills and develop a career path over time, and the London Resort recognises that it will not always be easy for those individuals who are the beginning of their careers to be able to afford to live within the existing community.

8.266. The London Resort will therefore will provide up to 500 units of staff accommodation to help address this challenge, attract and retain the best staff. These facilities are focused on accommodating the needs of younger single employees who may find it difficult to live in the wider area at the beginning of their careers, providing a much needed stepping stone into the wider community. Each unit will be a co-living home (sui generis use class), where 4-8 high quality en-suite bedrooms share common facilities within each 'cluster' such as living room and kitchen area, but are also an integral part of a wider community, with community facilities to enjoy including manned reception areas, goods delivery facilities, laundry, sports facilities, landscaped grounds, gym, recreational areas including games/video rooms and a local centre for their immediate needs.

8.267. The quality of the accommodation is very important for a number of reasons. It has to be of a high standard in order to attract staff to want to live there, it needs to provide the

²⁹ World Health Organisation, 2017. Housing and health

³⁰ Healthy Urban Design Unit, 2017, Rapid HIA Tool (3rd Edition).

support that communities of this nature require, it also needs to be of a high quality as it will be in continual use and the management and maintenance are a key consideration. The use of high quality materials and finishes will help to reduce and avoid maintenance requirements and the frustrations that can occur when things break down. It is in the London Resort's interests to make these facilities as easy to use as possible, exciting, durable and timeless.

- 8.268. This also means that the external fabric will play a key role where the choice of high quality of materials and finishes will help to ensure that the buildings age gracefully, once again minimising the need for maintenance, apart from planned plant maintenance and the usual cleaning of windows.
- 8.269. The buildings will be designed to a high standard of thermal comfort, warm in winter and cool during the heat of summer, with high standards of ventilation. Thermal insulation and overall energy efficiency including lighting will help to reduce energy needs and optimise efficiency, contributing towards the London Resort's goal of being net carbon neutral in operation. The proposed modular construction will provide a high standard of acoustic isolation, a truly sustainable development.
- 8.270. In addition to the privacy of their own room, there will be a variety of places and spaces within the buildings and landscaped setting for people to socialise or escape to read a book in peace and quiet.
- 8.271. Daylight and sunlight are a key consideration in the overall layout of the buildings and an important factor in securing wellbeing. There will be no north facing apartments, generous windows will allow excellent daylight and views to the surrounding landscape, with the need for privacy embraced in the overall design and spacing of buildings avoiding any problems associated with overlooking.
- 8.272. Accessibility has been a fundamental consideration for the design of the London Resort as a whole and this includes the staff accommodation, where the building regulations will be met in every respect including the provision of accessible rooms and facilities.
- 8.273. The staff accommodation is strictly for use by London Resort employees and will not be available to the general public. It has to be affordable to attract the staff that the London Resort will need for its successful running and the price point will be set accordingly and regularly reviewed to ensure that this is maintained.
- 8.274. All of the facilities will be actively managed through offices and staff located in the Galley Hill Staff Management suite, located immediately adjacent to the site at its eastern end. This will enable staff to address any concerns that they might have, but also act as a booking centre. It will also be the place where the local community can go to address any management issues that might arise.
- 8.275. Homes in the private rental sector in which the young staff members would likely reside in in the absence of delivery on-site more often do not meet the Decent Homes Standard

(25%) and may contain more category one hazards than the average home (17%).³¹ The alternative for some of the Resort's workers could therefore be housing in environments where there is an immediate and serious risk to health. Poor housing and indoor environments cause or contribute to physical and mental health issues.

8.276. Based on the evidence review, the provision of new, high quality housing accommodation will have long term positive impacts on mental and physical health by reducing the adverse health effects associated with poor quality or insecure housing. The magnitude of impact upon the workers (including vulnerable groups) is expected to be medium in all assessment years (medium sensitivity receptor). This results in a health effect which is **moderate beneficial (significant)** effect at the CSA level in all assessment years.

Potential health effects arising from changes in the demand for residential accommodation

Health pathway and strength of evidence

8.277. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence on the link between access to good quality and sufficient housing on residents' health is moderate. A lack of quality, affordable housing can result in households residing in overcrowded and unsatisfactory housing conditions, exposing them to physical illness as well as affecting mental health outcomes, such as anxiety and wellbeing, but the evidence is mixed.

Categorising effects on human health

8.278. Chapter 7: *Land use and socio-economics* (document reference 6.1.7) summarises the assessment of the London Resort on the housing market. It finds that the impact of the demand created by the workers and visitors at the London Resort could have negative implications for residents and homes through the pressures placed on the housing market. This impact would be mitigated to a large extent through the embedded mitigation in the form of capacity for 2,000 staff living onsite and 3,550 hotel rooms by 2038. However, the analysis in the socio-economic assessment suggests that this mitigation may not be sufficient and there would be some additional demand placed on the housing market of the CSA. In the end, the final outcome depends on the development response – the number of additional homes, hotels and other accommodation that will be built. The London Resort will make development much more viable in the area, which has been demonstrated by the experience near Disneyland Paris.³² As an example, Ebbsfleet Garden City will be expected to provide much more housing compared to the counterfactual where the London Resort is not delivered due to the additional demand created in the area and associated impacts on viability.

8.279. This assessment takes a reasonable worst case approach and assumes that there would be a development response but due to land and development constraints it may not be sufficient to offset all of the additional demand. Under this scenario, demand is expected

³¹ MHCLG, 2020. English Housing Survey 2018-19

³² Disneyland Paris, 25 Years of Economic and Social Contribution.

to exceed supply and house prices and rents would increase. This would be a beneficial impact for many residents as it would enable them to make money through tourism opportunities, such as renting out their home or spare rooms. It would also be beneficial for homeowners who would see their house prices increase. However, there would also be negative impacts for renters and people wanting to buy in or move into the area. There would be many beneficiaries as the majority (68%) of housing in the CSA is owner occupied. However, to provide a conservative assessment, the impact is described as potentially adverse.

- 8.280. These changes could result in adverse physical and mental health impacts for residents associated with a loss of sense of place, insecurity and movement into inadequate housing. As a result of this increased demand for housing, house prices have the potential to rise, and the increased costs could displace household spending on health (e.g. healthy diets, healthcare). In addition, a further impact may indirectly result as households trying to save move into lower quality or overcrowded housing.
- 8.281. The magnitude of impact upon the general population and vulnerable groups is expected to be negligible in 2025, increasing to low in 2030 and 2038 due to the rising numbers and demand from workers and visitors. The sensitivity of the receptor population to changes in housing is high. This results in a health effect which is **minor adverse (not significant)** at the CSA level in 2025 and **moderate adverse (significant)** in 2030 and 2038. This is a reasonable worst-case scenario whereby the market does not fully respond and development to meet this increasing need is not delivered. In reality, there is potential for this impact to be reduced through a development response to the London Resort, under which additional housing supply growth is enabled.

Potential effects from a change in the demand for health services

Health pathway and strength of evidence

- 8.282. Appendix 8.4: *Literature review* (document reference 6.2.8.4) finds that the evidence linking increased user numbers of health services and health outcomes is moderate. Reduced access to health services can lead to the exacerbation of health outcomes, unmet health needs and financial burdens. Those groups with pre-existing reduced access to healthcare would be the worst affected from an increase in demand for health care services.
- 8.283. As mentioned earlier in the construction effects, increased pressures on the local health facilities and longer waiting times could exacerbate patients' adverse health outcomes, and make treatment costlier and more precarious for a range of conditions.
- 8.284. This effect considers the impact of workers and visitors upon primary healthcare, A&E and wider health and social care services. Whilst these latter effects have not been quantitatively assessed here due to data unavailability, they are considered in the assessment of the magnitude of impact.

Categorising effects on human health

- 8.285. Chapter 7: *Land use and socio-economics* (document reference 6.1.7) considers the impact of the London Resort on local GP services. It finds that the on-site workers will result in demand for 0.5 additional full-time equivalent (FTE) GPs in 2025 and one additional FTE GP in 2030 and 2038 at the CIA level. For the other workers who would not live on site, the GP impact is less clear. It is now possible to register at a GP near to a person's workplace (the CIA). GPs can refuse to let them register for a variety of reasons, one being a lack of capacity. Given these factors enabling GPs to refuse to accept new patients, coupled with the significantly high patient to GP ratio in the CIA, it is deemed unlikely that many workers would seek to register with local GPs, many workers will already be registered with their local GP. Visitors would not be expected to register with a local GP. During consultation, the CCG did not view this indirect impact of the London Resort's worker on GPs as a significant issue.
- 8.286. Chapter 7: *Land use and socio-economics* (document reference 6.1.7) also considers the impact of the London Resort on A&E provision. The CCG agreed that the analysis outlined in this chapter is detailed and robust and agreed with the effect significance. Their key concern is limiting unnecessary A&E trips. It is acknowledged that some A&E trips will be necessary where there is a serious injury but any measures to reduce trips to A&E would be vital. The CCG noted that the onsite facility will help but suggested alternative solutions to minimise the impact on A&E services. Some potential options noted included working collaboratively with the EDC and video links to the A&E. The Applicant is committed to continued engagement with the CCG. Based on this commitment and the conclusions of the CCG and the analysis above, it is expected that the likely effect on A&E will be mitigated and immaterial.
- 8.287. *The Security Planning Report* (document reference 7.8) outlines the ways in which the London Resort will mitigate against major incidents. These include providing collaborative facilities for use by emergency services and ensuring clear communication with members of the public providing information on what to do. During consultation, NHS England noted that the nearest hospitals are not large so care should be taken to avoid straining local providers. The project team noted that this will be taken on board for both routine activities including care of staff living on site as well as during accidents and major incidents.
- 8.288. In addition, inclusive design measures related to health include quiet rooms for workers and visitors who are neurodiverse, alleviating risks of serious health conditions or overheating.
- 8.289. The London Resort will contain a helipad for emergency use in the rare event of a major emergency incident.
- 8.290. Public service providers have a statutory duty to serve the public wherever they choose to live and work. Demand arising from new workers to the area should therefore, to some extent, be met by reallocation of resources. Most services are funded through central or local taxation or through charges at the point of service and should therefore be able to

respond and absorb additional demand when it arises. The London Resort will generate a large new tax base, which will help to increase resources at the locations where there is more demand, thereby largely offsetting the impact.

- 8.291. Overall, given the conclusions of the CCG, the commitment of the Applicant to ongoing collaborative working with the CCG, the statutory duty for public health providers to serve the health needs of the public, and the increase in tax base created by the London Resort, it is expected that the London Resort will have a negligible magnitude of impact upon healthcare (high sensitivity receptor) in all assessment years for both the general population and vulnerable groups. This would result in a **minor adverse effect (not significant)** upon healthcare in 2025, 2030 and 2038.

Potential effects from a change in the demand for public services and community facilities

Health pathway and strength of evidence

- 8.292. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking access to public services and community facilities to positive health outcomes is considered to be strong. There is robust evidence on the benefits of social networks and interactions on health for all individuals (as a result of access to these community facilities), in particular children, older people, and ethnic minorities. However, an increased demand for public services may reduce availability for some groups in society requiring them the most.

Categorising effects on human health

- 8.293. The growth in visitors and workers (including those living onsite) will directly place some additional demand for public services and community facilities. This may not necessarily be negative if the demand increases the viability of these services.
- 8.294. The sensitivity of public services is dependent upon the capacity of those services to respond to changes in population. As most public services are centrally funded, these services should be able to respond to changes. As described in Chapter 7: *Land use and socio-economics* (document reference 6.1.7), any demand for public services is expected to be offset by the increased tax base supported by the London Resort – at least in the longer term once funding mechanisms have adapted sufficiently. However, it is noted that this can be affected by political decisions and other external factors.
- 8.295. As mentioned in paragraph 8.120, community facilities help create and maintain social ties. From forming social ties, individuals are more likely to engage in preventive health behaviour, reinforcing positive health attitudes such as better nutrition and exercise, which can also improve mental health and reduce loneliness.
- 8.296. Given the scale of residential development planned in the area and uncertainty over future baseline provision of public services and community facilities, this effect is best characterised as being potentially adverse. As most demand for public services and community facilities are driven by residential changes, the impact of the London Resort

relative to the scale of change already underway in the area is likely to be relatively lower.

- 8.297. The Applicant has engaged with emergency services and public service providers. All highlighted the importance of ongoing collaboration and joint working to ensure that future planning appropriately reflects the changing nature and increased needs of the local area. The Applicant is committed to this ongoing dialogue and the sharing of such relevant information. The Security Planning Report also outlines the ways in which the London Resort will mitigate against major incidents. The proposals also include publicly available elements which will contribute positively towards community provision in the area.
- 8.298. Based on this combination of evidence, it is possible that the positive community benefits directly delivered, coupled with the commitment to collaborative working with public services, will enable the area's provision to adapt appropriately to the changing needs in the area. The London Resort is expected to result in a negligible magnitude of impact upon demand for public services and community facilities for the general population and vulnerable groups (medium sensitivity receptor) in all assessment years. This results in **minor adverse effect (not significant)**.

Potential effects associated with open space provision and amenity space

Health pathway and strength of evidence

- 8.299. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking the provision of and access to open space and amenity space to positive health outcomes is considered to be strong. There is clear and strong evidence on the positive effects of the provision of open spaces for all groups, including increased physical activity, better cognition and better mental health outcomes.
- 8.300. As discussed in paragraph 8.125, better access to open spaces encourages more physical activity, and correspondingly tends to reduce rates of obesity and anxiety and improve cognition.

Categorising effects on human health

- 8.301. Chapter 7: *Land use and socio-economics* (document reference 6.1.7) assesses the impact on PROWs and routes directly affected during the construction and operation phases. The assessment concludes that once operational, the London Resort will have a minor adverse (not significant) impact upon two PROWs, Dartford routes DS2 and DS30. DS2 will be diverted alongside the proposed resort road to provide more direct access to the ferry Terminal and facilitate the development and operation of Gate One. DS30 will face diversion to align with the Resort boundary along the western edge of Gate 2, and include seating and viewing areas alongside to allow appreciation of Black Duck Marsh to east. A significant beneficial impact is concluded for the impact of the London Resort upon PROW DS1 as the result of improvements to the route, which will connect to the newly created Swanscombe Ferry Terminal when operational. Improvements include a new path for cyclists, a regenerated pedestrian path, and gym equipment to establish the route as a

fitness trail.

- 8.302. Appendix 11.7: *Landscape Strategy* (document reference 6.2.11.8) describes the landscape approach. It is envisaged that this will encourage enjoyment of the open space and marshes with specific proposals including new bird watching towers, improved signage and maintenance, better routes, and benefits to routes which are currently prone to flooding. Overall, the impact on the marshes is expected to be beneficial due to the long term improvements in access and quality, which is aligned with policy objectives. The evidence base shows that access to open space is linked to improved health outcomes, including physical and mental health improvements.
- 8.303. The magnitude of impact upon the general population and vulnerable groups is expected to be medium due to the improved open space provision (medium sensitivity receptor). This would result in **moderate beneficial** permanent effect (**significant**) at the CIA level in all assessment years.

Potential effects from changes in community cohesion

Health pathway and strength of evidence

- 8.304. There is strong evidence on the association between positive health outcomes and community cohesion. High levels of community cohesion have been shown to improve mental health outcomes and reduce mortality from a number of physical illnesses, although existing literature struggles in isolating the impact of community cohesion from the effects of alternative factors. Generally, however, the health literature agrees that a more cohesive community has positive health benefits for its members. The scale of the activity associated with the London Resort could change social structures, which can lead to isolation, insecurity and a lack of cohesion.

Categorising effects on human health

- 8.305. The London Resort could affect community cohesion in several ways, both negative and positive. The London Resort would result in significant positive effects on mental and physical health because it will increase opportunities for social interactions and provide additional places for people to meet. These areas, such as the open space and the Market, will be open to the community and inclusively designed, which will maximise the use of the space. The provision of a significant number of diverse local employment opportunities will also improve social cohesion and wellbeing. The positive health effects associated with increased social cohesion from the use of these spaces and the jobs would benefit local residents.
- 8.306. On the other hand, the displacement of residents and businesses (and the indirect impact on the housing market due to the increase in workers and visitors in the area) could undermine social cohesion. The development of a major entertainment resort and the associated uplift in visitors and workers in the area could have negative implications for the existing communities.

8.307. Balancing these different factors, it is expected that the positive contribution of the London Resort in terms of the amount of opportunities for social interaction and significant number of job opportunities created will outweigh the negative aspects. That is not to downplay the adverse effects that the London Resort could have on existing communities. In the short term to medium term there could be changes in access to social networks that might leave some members of local communities isolated from pre-existing social networks. However, it is likely that in the long-term, local communities will respond to the changes brought about by the operation of the London Resort. It is believed that opportunities provided by the London Resort to improve this health determinant will benefit a far larger number of people than it would harm.

8.308. Overall, it is thought that the London Resort would have a low impact on community cohesion for the general population and vulnerable groups, resulting in a **minor beneficial** impact of health outcomes (**not significant**).

Potential effects from changes in crime and community safety (including fear of crime)

Health pathway and strength of evidence

8.309. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking crime to health outcomes is considered to be strong. Some theme parks and surrounding amenities and communities have been linked to higher occurrences of crime, in addition to the need for additional measures to ensure the safety of visitors. Crime and the fear of crime can lead to many adverse health outcomes, such as reduced physical activity and obesity, social isolation in older people, and more generally reduced feelings of safety causing mental distress for individuals.

Categorising effects on human health

8.310. Good planning and design of the built environment are central to community safety (to include employees, visitors, and the local residential and business community) and protective security. Freedom from crime and the fear of crime lead to social, economic and environment success and make a significant contribution to the fulfilment of the London Resort's wider vision. Both safety and protective security will be embedded in the early development proposals using an integrated design process.

8.311. The causes of crime and disorder are many and complex. For a crime to occur, the following are required:

- an offender who is motivated and resourceful;
- a target or victim; and
- a favourable place where the crime is likely to go unnoticed, unchallenged or even be promoted.

8.312. Through planning and design, it is possible to reduce the number of occasions when all

three components are in place.

- *Community safety* comprises strategies and measures that seek to reduce the risk of crimes occurring and their potential harmful effects on individuals and society, including fear of crime, by intervening to influence their multiple causes.
- *Protective security* is an organised system of protective measures implemented to achieve and maintain security. It combines the four disciplines of personnel, information, technological systems, and physical security in a manner to create 'defence in depth', where multiple layers work together to deter, delay, detect and deny and attack. More details on the protective security measures to be implemented at the London Resort are presented in the mitigation section (paragraph 8.340).

8.313. The security aim is to deliver elegant, cost-effective and flexible solutions which meet the needs of a wide range of users. The security design process has been developed to ensure that potential security-related vulnerabilities are considered across a range of activities and processes and that, where applicable, physical, personnel, cyber and cross-cutting security measures are properly embedded.

8.314. Successful security is most effective when implemented in a series of concentric layers. These layers feature access control and vehicle management on the Project Site as a whole, design of approach routes, further vehicle management and stand-off distances against the building facades and finally, control of stand-off distances and security design to the immediate vicinity of individual assets. The layered approach to physical security starts with the protection of individual assets and people, and then proceeds progressively outwards to include the building facades, external spaces, DCO Order Limits, and the immediate surroundings. Here the approach routes, Principal Development, Associated Development are considered, as well as the utilities and services beyond the perimeter.

8.315. The aim of Crime Prevention Through Environmental Design (CPTED) is to reduce the opportunities for crime by the effective design and use of the build environment. The security philosophy is centred on the principles of CPTED, the key strategies of which are as follows:

- Strategies of access control encourage, restrict and channel activities and aim to deny access to a potential crime target. Access control at the London Resort will involve both informal, formal, and mechanical strategies.
- The London Resort will utilise both formal and informal surveillance, with the key objective to increase the perceived risks associated with offending by increasing the likelihood that behaviour in a particular area will be observed. Spaces in the Proposed Development will be designed to provide a high degree of natural surveillance achieved by ensuring the landscaping does not obstruct the vision of those occupying the space. This will be supplemented with technological surveillance where appropriate.
- Territorial reinforcement is a key 'defensible space' concept and involves generating

and confirming a sense of proprietorship and ownership among the approved users of particular spaces and discouraging illegitimate users. Territorial reinforcement requires creating and maintaining spatial hierarchies and ensuring clear, well-recognised boundaries between public and private areas.

- The maintenance and the 'image' of an area can have a major impact on whether it will become targeted. Territorial concern, social cohesion and a general sense of security will be reinforced by the strong identity of the London Resort.
- Coordination is being undertaken with other disciplines, including (but not limited to) transportation and crowd flow specialists, inclusive design consultations, and flooding specialists, along with extensive coordination with the landscape and architectural teams, to ensure that security is integrated into each strand of the design.

8.316. The impact magnitude for the general population and for vulnerable groups is expected to be negligible in the CSA. This results in a **minor adverse** permanent health effect (**not significant**) at the CSA level associated with crime in 2025, 2030 and 2038.

Potential health effects from changes to access to healthy food

Health pathway and strength of evidence

8.317. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking access to healthy and unhealthy food to human health is judged strong. Nutritional intake is one of the main determinants of human health, and lack of access to healthy foods prevents healthy eating. There is also evidence that easy access to unhealthy food increases consumption and therefore reduces health outcomes.

Categorising effects on human health

8.318. One of the most important factors is how frequently a user might get food onsite. With this in mind, the effects makes the following distinction between different types of visitors:

- visitors are tourist-visitors who frequent the Resort relatively infrequently (typically those going into Gates One and Two and coming at most once a year); and
- residents are resident-visitors who live more locally (also being CSA residents). Residents may frequent the dining elements of the Resort relatively more frequently in any given year than tourist-visitors.

8.319. Finally, the analysis also considers the effects for workers, a proportion of whom will live onsite and thus be more likely to consume more food onsite.

8.320. Any potential health impacts resulting from of the delivery of food and beverage provision in the London Resort will be experienced most significantly by residents (particularly those choosing to visit more frequently) and workers (particularly those living on-site). Although

visitors will consume food and beverage at the London Resort once operational, visitors are transitory in nature and would not be exposed to the same level of consistent, long-term health impacts as residents and workers on-site.

- 8.321. A proportion of the food and beverage provision in the London Resort will be publicly accessible, without the need to pay to enter the main park gates. In total, up to 12 retail units (375 sq m each) will be dedicated to food and beverage provision and are publicly accessible without the need to enter the paid area of park gates. Additional food and beverage provision will be contained in the music venue and sports bar, the eSports Coliseum and Conference Centres, and hotel restaurants and bars.
- 8.322. There may also be opportunities for pop-up retail in the public realm (such as a coffee van or support to themed events in the public realm). There is a café in the Visitor Centre and there will be a food offer in the London Resort Academy, both at the top of Galley Hill. There will be food and beverages (F&B) associated with the staff accommodation, and BoH areas for the London Resort office/admin side will also have F&B ‘canteens’ in the Fire Station. There will also be a facility for coach drivers.
- 8.323. At this stage, the exact nature and typology of the food and beverage provision likely to be available across the London Resort is yet to be specified. In line with changing trends in eating patterns generally across society, as well as specifically in entertainment venues, which are discussed in Appendix 8.3: *Detailed baseline* (document reference 6.2.8.3), it is judged likely that the food and beverage provision located on-site will contain a range of options to suit the dietary needs of guests, as opposed to focusing singularly on the historically more typical entertainment venue provision of fast food including burgers and hot dogs.³³
- 8.324. The focus of food provision for on-site staff are the three staff canteens, located in each of the two Gates and the main back of house area for service operations. It is envisaged that these will offer a range of foods to cater to the needs, diets and cuisines of staff.
- 8.325. The types of food and beverage provision located on-site create the potential for local residents and workers located on-site to experience health effects arising from changes in access to the provision of healthy food. The exact types of food provision anticipated to be accessed by both local residents and workers is not yet specified, although as noted, it is expected that the provision would follow general market trends which demonstrate that people are wanting a wider variety of cuisines, including a trend towards healthier eating. There will also be kitchens in the staff accommodation, enabling workers to prepare their own food for some meals.
- 8.326. Based on Appendix 7.5: *Attendance Technical Note* (document reference 6.2.7.5), which provides disaggregated attendance estimates by different visitor groups, it is not anticipated that the London Resort will generate a large number of repeated visits from residents or visitors that are sufficient to alter dietary impact on health. Existing literature

³³ Although it is acknowledged that in the range of types of food and beverage provision, there is the potential for provision of this type to be included.

highlights persistent change in diet as the fundamental driver of human health, and the number of guests anticipated to persistently return to the London Resort on a regular enough basis to face lasting change to dietary habits is thought to be relatively minimal.

- 8.327. Similarly whilst workers (particularly those living in the onsite accommodation) may eat onsite more frequently, it is envisaged that they will have a variety of food options available in the canteen, and will be able to prepare their own food. The impact magnitude for the general population is anticipated to be negligible. This results in a **negligible** effect at the CSA level (**not significant**).
- 8.328. The health impact upon vulnerable groups of the changes in access to healthy food is anticipated to be low, resulting in a **minor adverse** effect at the CSA level. This effect is **not significant**.

Potential health effects from the spread of communicable diseases

Health pathway and strength of evidence

- 8.329. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking the spread of communicable disease to human health is judged strong. Communicable diseases are a key source of morbidity in the UK, and as demonstrated through the Covid-19 pandemic, their spread has the potential to affect health outcomes in far reaching pathways beyond direct impacts of disease contraction.

Categorising effects on human health

- 8.330. The operation of the London Resort would attract a significant number of visitors and workers to the Project Site, with the potential to transmit communicable diseases to a greater extent than the general population. As a large open air venue, the most likely diseases transmitted would be gastrointestinal infections, if the food offer at the Resort got contaminated. This would be true in any destination with a large-scale food and beverage offering, and the likelihood of such an event is minimised by the implementation of standard best practise around health and safety and food hygiene in particular. The Applicant would work with Environmental Health teams at the host authorities and meet their standards to reduce the risk of these infections.
- 8.331. The London Resort will comply with hygiene standards set by the government, and in the event that an outbreak of a communicable disease (such as COVID-19) occurred, the London Resort would follow all government guidance at that point in time so as to minimise spread. The potential effect is therefore considered to be a low likelihood one.
- 8.332. As noted, the best practice policies and procedures are expected to evolve over the coming years and the advice which will be in place in 2025, 2030 and 2038 is uncertain. The London Resort would be in line with whatever best practice and procedures are in place at this time. For example, the risk level of COVID-19 (or an alternative communicable disease) in these assessment years is uncertain at this stage.

8.333. Health and safety of visitors and workers is a priority. The London Resort will follow all relevant Government guidance.

8.334. Subject to the London Resort following best practice procedures, the potential effect is not likely, and so the magnitude of impact is deemed to be negligible for both the general population and vulnerable groups. This results in a **negligible effect (not significant)**.

Potential health effects related to a changing climate

Health pathway and strength of evidence

8.335. As shown in Appendix 8.4: *Literature review* (document reference 6.2.8.4), the evidence linking climate change to human health is judged strong. A changing climate affects health through a number of pathways, both directly through an increased incidence of severe weather events and indirectly through establishing vectors for vector-borne disease such as malaria and affecting health determinants.

Categorising effects on human health

8.336. The effects of climate change could result in more heat-related illnesses and deaths, worse respiratory conditions, and disease vectors establishing themselves in the UK.

8.337. The London Resort will achieve net zero greenhouse gas emissions for all operational activities. This will be achieved through the implementation of Greenhouse Gas emissions reduction measures, and any remaining GHG emissions will be offset either using off-site renewable generation or carbon offsetting certificates. Greenhouse gas emissions arising from water consumption will be net zero from the start of the operation period. A full description of measures intended to promote sustainability and improve the operational impact upon climate change are detailed within *the Outline Sustainability Strategy* (document reference 7.7).

8.338. Greenhouse gas emissions associated with operational transport has been carried out for private cars, coaches, buses, trains, the Thames Clipper, delivery vehicles and on-site fleet vehicles. Chapter 20: *Greenhouse gas and climate change* (document reference 6.1.20) concludes that the additional traffic will result in a minor adverse climate impact (not significant) following mitigation.

8.339. Chapter 20: *Greenhouse gas and climate change* (document reference 6.1.20) concludes that the operation of the London Resort will have a limited impact on contribution towards climate change at the CSA level. Therefore it is judged that the changes in health outcomes as a result of the contribution of the operation of the London Resort to climate change would be of negligible magnitude for both the general population and vulnerable groups. This combines with a receptor of medium sensitivity, to create a **negligible effect (not significant)**.

PROPOSED ADDITIONAL MITIGATION

Pre-mitigation significant adverse effects

8.340. Prior to health-specific mitigation measures, this health chapter has identified the significant adverse health effects:

Construction:

- The displacement of businesses and their employees (including vulnerable groups) at the PSB level is significant. The effect at the CSA, however, is not significant; and

Operation:

- The additional demand generated for residential accommodation as a result of the operation of the London Resort on residents within the CSA and vulnerable groups among them, in 2030 and 2038.

8.341. The remainder of this section identifies, where feasible, the additional health-specific mitigation measures put in place to reduce the impact of these adverse effects.

Mitigation measures

8.342. Additional mitigation measures differ from embedded measures. Embedded measures are built into the scheme and reduce the negative impacts or enhance the positive aspects of the London Resort. The impact of these embedded measures is incorporated into the impact magnitude in the main assessment. By contrast, additional mitigation measures are measures imposed outside the scheme itself to address the negative effects of the scheme. These measures are not embedded in the main assessment of effects but are relevant nonetheless. Depending upon the additional measure, the effect in the main assessment can be revised to form a different, residual effect.

8.343. This health assessment seeks to understand whether effects, identified in other relevant technical assessments, could result in health effects for the population, including vulnerable groups. The health assessment describes the embedded mitigation under the initial assessment of effects detailed above. This health assessment considers the residual effects of other EIA technical assessments and so the effect of the mitigation from these other assessments is already accounted for in the main assessment. Refer to the respective ES chapters for further information on the proposed mitigation.

8.344. The table below summarises, for every additional mitigation or enhancement measure, the initial effect assessment and the residual effect based on the measure. Details of the measures are provided below the table.

Table 8.22 Additional mitigation and residual effects

Effect	Main assessment	Additional mitigation	Residual effect
Potential effect of displacement or change in the demand for health services	Minor adverse effect for both general population and vulnerable groups	Emergency services working group	Unchanged
Potential health effects from changes in crime and community safety (including fear of crime)	General population: minor adverse Potential vulnerable groups: minor adverse	Security strategy	General population: negligible Potential vulnerable groups: negligible

Emergency services working group

8.345. The Applicant commits to the creation of an emergency services working group with the aim of ensuring that demand upon emergency services generated by the project will be met during both the construction and operational phases. The Applicant will nominate designated members of the project team to sit on the working group alongside representatives from emergency services departments.

8.346. The working group will meet to discuss the potential for incidents involving emergency services on-site. The group will work to develop specific mitigating measures to be put in place by the London Resort to reduce the impact upon public services and ensure that emergency response vehicles are not delayed travelling in local communities.

Security Planning Report

8.347. Extensive coordination with both Category 1 and Category 2 emergency services, and the Kent Resilience Forum are planned, to ensure that all stakeholder security requirements are met, and that all access routes into and out of the site are planned with the emergency services in mind. Stakeholders in Essex, such as Essex Police, have also be consulted.

8.348. Terrorism is a crime, and with the agreement of the emergency services, the security strategy will embed counter-terrorism protective security in our built environment, reducing vulnerabilities and increasing the resilience of the community

8.349. The following security measures are among those being considered and implemented in the overall security strategy for the London Resort:

- Pedestrian and vehicle access control / screening, search and validation where appropriate
- Hostile vehicle mitigation measures
- Surveillance

- Intruder detection
- Lighting
- Security control and crisis management facilities
- Perimeter security
- Construction site security
- Identification of key threats and vulnerabilities identified in the Threat and Risk Assessment

8.350. A key component of the security strategy is the sharing of information and intelligence in the confines of the General Data Protection Regulations 2018 (GDPR), especially relevant in the context of security partnerships.

8.351. As a result, the potential health effects from changes in crime and community safety (including fear of crime) are reduced from **minor adverse** to **negligible** for the general population and vulnerable groups (**not significant**).

8.352. Following mitigation, the following significant adverse residual effects remain:

Potential health effects from displacement of commercial uses

8.353. This health effect is significant only at the level of the individual workers facing workplace displacement. When considered at the wider level of the CSA the numbers of workers being displaced is relatively small, however each individual worker is highly sensitive to changes in health outcomes that may arise through commercial displacement and therefore this effect is anticipated to be both significant and adverse for these workers.

8.354. More work will be undertaken post-submission to assist both businesses and workers on-site for whom health outcomes may be affected. This will likely include measures to assist businesses located on-site in relocation to other workplaces, which will mitigate the potential for workers to lose access to jobs. One of the biggest determinants of adverse health outcomes relating to loss of employment is uncertainty. Until the DCO application is further advanced and more certainty about its delivery is known, this uncertainty for current businesses onsite cannot be alleviated. As the DCO process continues, the businesses will gradually gain more certainty over the impacts upon them. The London Resort is committed to ongoing engagement throughout this period so as to minimise adverse effects wherever possible to do so.

Potential health effects of change in the demand for residential accommodation

8.355. The additional demand for residential accommodation is created by the operation of the London Resort resulting in a large number of visitors and residents coming to the area who would otherwise not do so. In addition to the demand placed upon residential accommodation, it is thought that the visitors and workers coming to the local area will additionally result in an uplift in economic activity, which has positive regenerative impacts for local residents.

8.356. In the short-term it is acknowledged that the initial demand generated by the operation

of the London Resort will result in increased demand for residential accommodation, possibly to the point at which the health outcomes of local residents may be affected. However, in the longer term, the additional demand would likely be met by an additional delivery of housing capacity, mitigating the potential for lasting health impacts.

Additional mitigation, enhancement and monitoring

8.357. Based on this assessment, the London Resort proposes the following measures to mitigate/enhance or monitor the ongoing health impacts:

- Crime, community safety and social cohesion – London Resort should continue measures to work with local residents, including engagement with local schools and other education partners to maximise learning and social opportunities for children and local communities.
- Inclusive design and access:
 - continue engagement with accessibility experts and engineers to develop innovative and comprehensive solutions for accessibility;
 - ensure that the greatest possible level of accessibility for attractions and events, and where access for all individuals is not possible for safety reasons or otherwise, ensure that alternative experiences are provided;
 - provide comprehensive staff training to develop ability to ensure capability to cater for individuals with a large range of health conditions;
 - the distinct nature of the guest experience at the London Resort, particularly where sensory stimuli are intrinsic to the event, should be fully explained to guests to ensure guests have a clear understanding of the event experience before they book their tickets and understand the features of the events, in particular the audio visual elements; and
 - communication to guests should explain the various event formats and the nature of the guest experience, in particular the audio-visual experience in the more immersive event modes.
- Monitoring – a monitoring plan would be put in place to safeguard the interests of the receptor population(s) by reporting on key issues, such as the selection and recruitment process, the workplace culture, suitability of the inclusive design and access, and safety and security.

RESIDUAL ENVIRONMENTAL EFFECTS

8.358. As explained in the mitigation section above, this health assessment accounts for

mitigation presented in other ES chapters, such as the mitigation measures in outlined in Chapter 15: *Noise and vibration* (document reference 6.2.15), but does not repeat the discussion of these measures. Additional identified mitigation for the health effects is described above. The residual health effects following mitigation are summarised in below.

Summary of effects

8.359. The health effects are summarised in the table below. Significant effects are in bold. Where the assessment year is not stated, the sensitivity, magnitude of impact and effect significance are the same in all assessment years.

Table 8.23 The London Resort: summary of residual health effects

Effect	Receptor population(s)	Spatial scale	Sensitivity	Impact	Residual effect
CONSTRUCTION EFFECTS					
Displacement of community uses	Residents	CIA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Open space	Residents	CIA	Medium	General population: low Vulnerable groups: low	Minor adverse Minor adverse
Displacement of commercial uses	Residents Workers	PSB (workers) CSA (residents)	High	General population - (workers): medium (residents): negligible; Vulnerable groups: (workers): high (residents): negligible	Major adverse (workers and businesses) Minor adverse (residents) Major adverse (workers and business) Minor adverse (residents)
Displacement of residential dwellings	Residents	Dartford	High	General population: negligible Vulnerable groups: negligible	Minor adverse Minor adverse
Traffic and active travel	Residents Transport users	NSA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Noise and vibration	Residents	NSA	Low	General population: negligible	Negligible Negligible

Effect	Receptor population(s)	Spatial scale	Sensitivity	Impact	Residual effect
				Vulnerable groups: negligible	
Air quality	Residents	NSA	Medium	General population: negligible Vulnerable groups: Low	Negligible Minor adverse
Hazardous waste	Residents Workers	NSA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Water quality	Residents Workers	NSA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Neighbourhood amenity	Residents	NSA	Medium	General population: low Vulnerable groups: low	Minor adverse Minor adverse
Presence of construction workforce	Residents	CSA	Medium	General population: negligible Vulnerable groups: low	Negligible Minor adverse
Work and skills	Residents	CSA	High	General population: low Vulnerable groups: low	Moderate beneficial Moderate beneficial
Health services	Residents	CIA	High	General population: negligible Vulnerable groups: negligible	Minor adverse Minor adverse
Climate change	Residents Workers	CSA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible
OPERATIONAL EFFECTS					
Noise and vibration	Residents Visitors Workers	NSA	Low	General population: low Vulnerable groups: low	Negligible Negligible
Air quality	Residents Visitors Workers	NSA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible

Effect	Receptor population(s)	Spatial scale	Sensitivity	Impact	Residual effect
Traffic and active travel	Residents Transport users	NSA	Medium	General population: low Vulnerable groups: low	Minor beneficial Minor beneficial
Electromagnetic field exposure	Residents Visitors Workers	NSA	Low	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Flooding	Residents Visitors Workers	NSA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Hazardous waste	Residents Visitors Workers	NSA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Water contamination	Residents Visitors Workers	NSA	Medium	General population: low Vulnerable groups: low	Minor adverse Minor adverse
Neighbourhood amenity	Residents	NSA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Inclusive design	Residents Visitors Workers	CIA	Medium	General population: medium Vulnerable groups: medium	Moderate beneficial Moderate beneficial
Work and skills	Residents Workers	CSA	High	General population: low (2025), medium (2030 & 2038) Vulnerable groups: medium (2025), high (2030 and 2038)	Moderate beneficial (2025), Major beneficial (2030, 2038) Major beneficial (2025, 2030 & 2038)
Worker accommodation	Workers	CSA	Medium	General population: medium Vulnerable groups: medium	Moderate beneficial Moderate beneficial

Effect	Receptor population(s)	Spatial scale	Sensitivity	Impact	Residual effect
Demand for residential accommodation	Residents	CSA	High	General population: negligible (2025), low (2030 & 2038) Vulnerable groups: negligible (2025), low (2030 & 2038)	Minor adverse (2025), moderate adverse (2030, 2038) Minor adverse (2025), Moderate adverse (2030, 2038)
Health services	Residents Visitors Workers	CIA	High	General population: negligible Vulnerable groups: negligible	Minor adverse Minor adverse
Public services and community facilities	Residents Workers	CIA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Open space	Residents Workers	CIA	Medium	General population: medium Vulnerable groups: medium	Moderate beneficial Moderate beneficial
Community cohesion	Residents	CIA	Medium	General population: low Vulnerable groups: low	Minor beneficial Minor beneficial
Crime and community safety	Residents Visitors	CSA	High	General population: negligible Vulnerable groups: negligible	Negligible Negligible
Healthy food	Residents Visitors Workers	CSA	Medium	General population: negligible Vulnerable groups: low	Negligible Minor adverse
Communicable disease	Residents Visitors Workers	CSA	Medium	General population and vulnerable groups: negligible	Negligible Negligible
Climate change	Residents Visitors Workers	CSA	Medium	General population: negligible Vulnerable groups: negligible	Negligible Negligible

CUMULATIVE AND IN-COMBINATION EFFECTS

8.360. Most technical assessments (socio-economics, transport, air quality, water and flooding, waste, climate change) which underpin the health assessment are inherently cumulative, meaning that the health assessment itself is also inherently cumulative. Where they are not (noise), the cumulative effects have been considered in the assessment of changes in health outcomes. Where they are inherently cumulative, a separate assessment of the cumulative impact of committed schemes would risk double counting. Based on this approach, the need for a cumulative effects assessment which considers the overall impact of other, committed schemes is redundant.

SUMMARY AND CONCLUSIONS

8.361. A wide range of potential adverse health effects has been considered but in most cases, no significant adverse effects have been identified. This health assessment finds that the London Resort generates the following **significant residual** health effects:

- Commercial displacement – **major adverse** effects in 2022 for workers (including vulnerable groups) in the PSB due to displacement of existing commercial businesses on-site and associated jobs. The effect at the CSA level is not significant;
- Access to work and skills (construction) – **moderate beneficial** health effects for the general population and vulnerable groups of the CSA in all assessment years due to the provision of work and skills during the construction of the London Resort;
- Inclusive design (operation) – **moderate beneficial** health effects as a result of the inclusive health and accessibility measures in place once operational;
- Access to work and skills (operation) – **moderate beneficial** effects in 2025 and **major beneficial** effects in 2030 and 2038 for the general population in the CSA associated with access to work and training. A **major beneficial** effect in 2025, 2030, and 2038 for vulnerable groups;
- Provision of worker accommodation – **moderate beneficial** effects in all assessment years for the operational workforce (including vulnerable workers) due to the provision of high quality on-site worker accommodation;
- Demand for residential accommodation – **moderate adverse** effect in 2030 and 2038 for the resident population of the CSA for the general population and vulnerable groups due to increased demand for residential accommodation in the CSA. This is based on a reasonable worst case assessment where the development response does not meet the additional demand created as a result of the London Resort; and
- Provision of open space – **moderate beneficial** effects for the general population and

vulnerable groups in the CIA in all assessment years as a result of improved open space provision across the CIA.