The London Resort Development Consent Order

BC080001

Environmental Statement
Volume 2: Appendices

Appendix 8.3 – Detailed baseline

Document reference: 6.2.8.3
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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Appendix 8.3 ◆ Detailed baseline

CONTENTS

INTRODUCTION

8.3.1 Chapter 8: *Human health* (document reference 6.1.8) summarises the existing health conditions relevant to the study areas for the health assessment of the London Resort. This appendix provides a more detailed assessment of the metrics and information used in the assessment of baseline conditions, examining a wider pool of information unable to be presented with the main chapter and analysing baseline conditions at a more detailed geography.

8.3.2 This appendix follows the same structure as the baseline presented in the chapter, where data relevant to each effect is listed in the order of effects assessed.

8.3.3 The study areas are consistent with that presented in the main chapter, as shown in the table below.

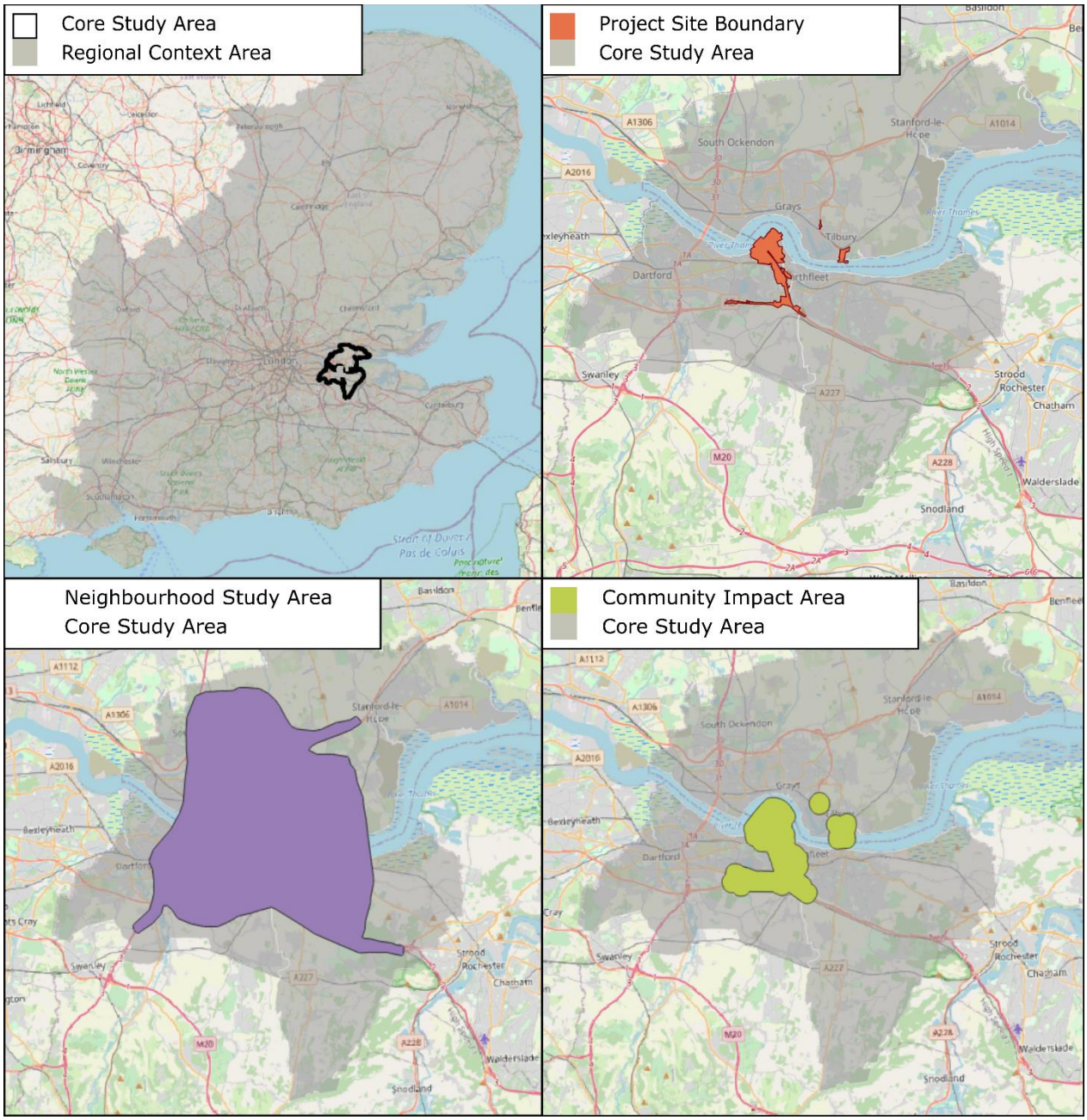
Table 8.3.1 Study areas considered in the London Resort

Geographical Study Area	Definition	Rationale
The Project Site Boundary (PSB)	The DCO Order Limits. Refer to Diagram 8.3.1 for a map of the PSB.	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 Area (CIA)	A 500m radius around the PSB.	The CIA is used to assess the change in access to community uses, such as open spaces, public rights of way (PRoW) and other recreational or community facilities. Disruption to community uses is most likely to occur within relatively local proximity to the site.
Neighbourhood Study Area (NSA)	Area defined as the transport modelling area, with a 100m buffer applied. Diagram 8.3.1 maps the NSA. This to intended to capture all significant effects relating to traffic, flooding, air quality, noise and vibration and electromagnetic field exposure, 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 that the Project Site falls within. Many of the effects are expected to be experienced in the CSA.
Sub-Regional Context Area (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 placed in the context of appropriate wider areas.
Regional Context Area (RCA)	South East, East and London	
National Context Area	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 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.		

8.3.4 The relevant study areas are shown in Diagram 8.3.1.

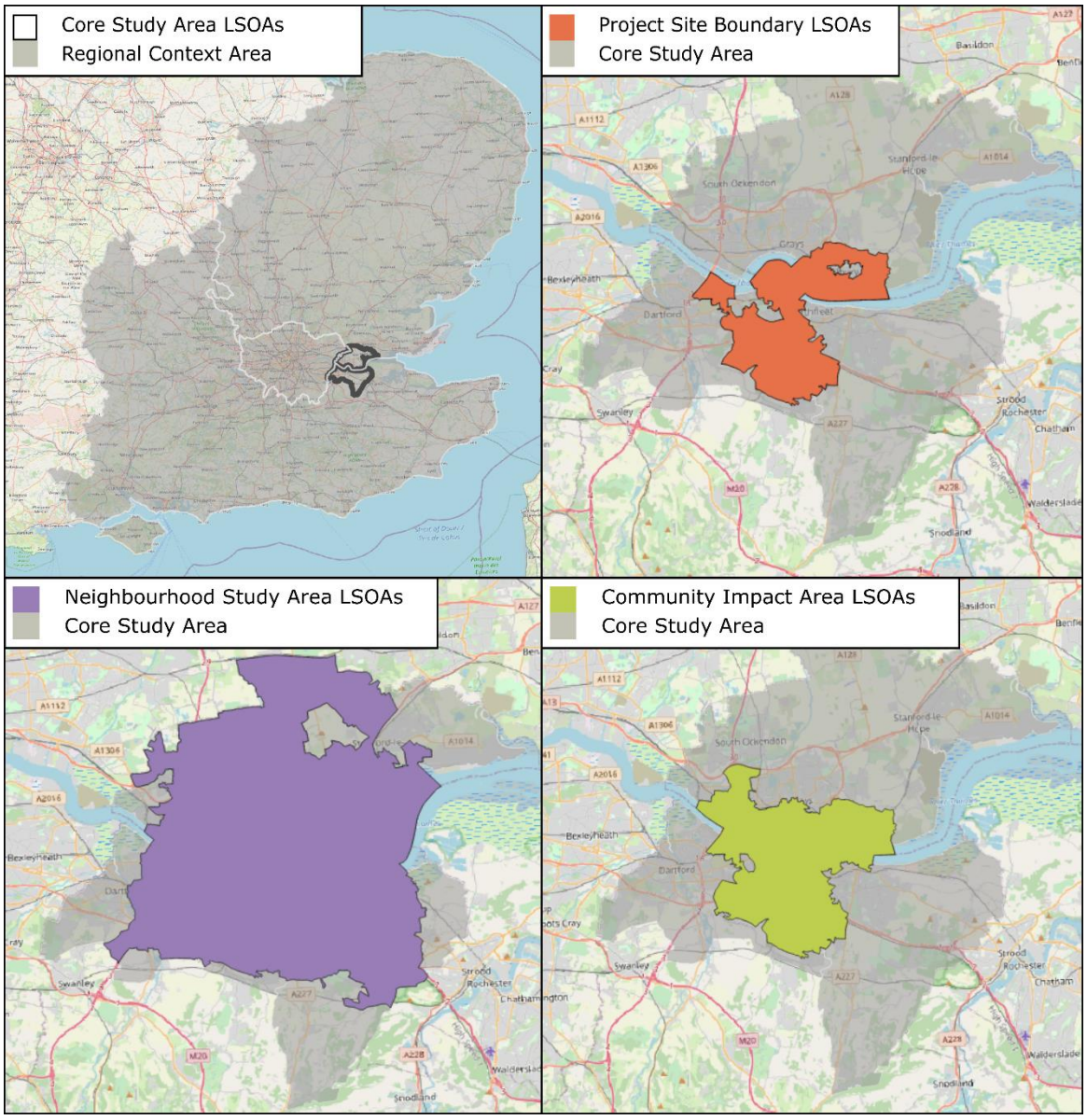
Diagram 8.3.1 Map of relevant study areas



8.3.5 For the purposes of data collection at the level of the smallest geography available, small statistical areas referred to as lower-layer super output areas, or LSOAs, which overlap the assessment areas have been used.[1] These are presented in Diagram 8.3.2.

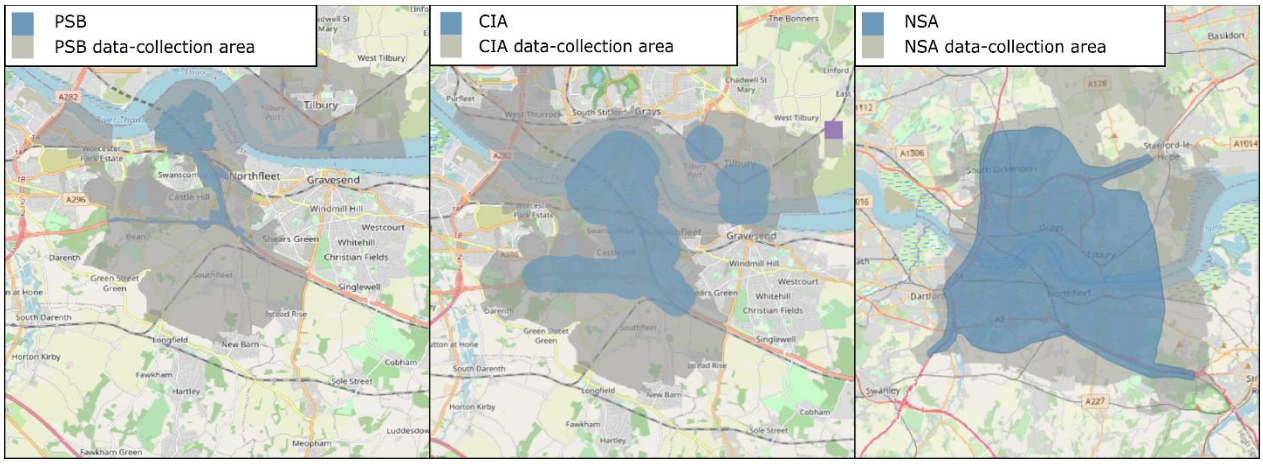
[1] LSOAs are a geospatial statistical unit used in England and Wales to facilitate the reporting of small area statistics. They are designed to break down administrative areas into small geographies accounting for approximately 1,500 residents.

Diagram 8.3.2 Map of the data collection areas



8.3.6 Diagram 8.3.3 compares the data-collection areas and the actual study areas.

Diagram 8.3.3 Comparison of data-collection areas and study areas



GENERAL HEALTH BASELINE CONDITIONS

Population health

Census – self-reported health

8.3.7 As part of the 2011 UK census, individuals were asked to report on their own health on a five point scale from very bad health to good health. The results presented in the table below indicate that self-reported health is essentially the same across all relevant geographical areas.

Table 8.3.2 Self-reported health statistics, 2011

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

Source: ONS, the 2011 Census

OVERVIEW OF HEALTH BASELINE CONDITIONS

Current baseline conditions

8.3.8 This section sets out a summary baseline of the health conditions in the three host authorities of Dartford, Gravesham and Thurrock. The data and sources which inform

this summary are presented further below.

8.3.9 Public Health England (PHE) prepares public health profiles[2] to provide an overview of health conditions within individual local authorities. A summary of the indicators and how the local authorities perform is shown in Diagram 8.3.4. 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.

8.3.10 Life expectancy at birth is similar to the national average or lower at each of the three local authorities. The life expectancy of females is significantly worse in two of the three local authorities compared to the national average. Road accidents leading to injury or death are a particular problem in all the areas, and diagnoses of dementia are also relatively high. Cancer is highlighted in the area's Joint Strategic Needs Assessments (JSNAs) as a cause of concern.[3] Levels of anxiety are high in the area. This is despite the wider region scoring relatively highly on questionnaires of community support and social ties.

8.3.11 Lifestyle factors with a negative influence on health which are problem sources for the area include obesity (both among children and adults), lack of physical activity, smoking, in some areas, and, on average, a relatively high under-18 conception rate. Note that wider sexual health is good in the area, as discussed further below. Alcohol-specific hospital admissions are relatively low in the areas.

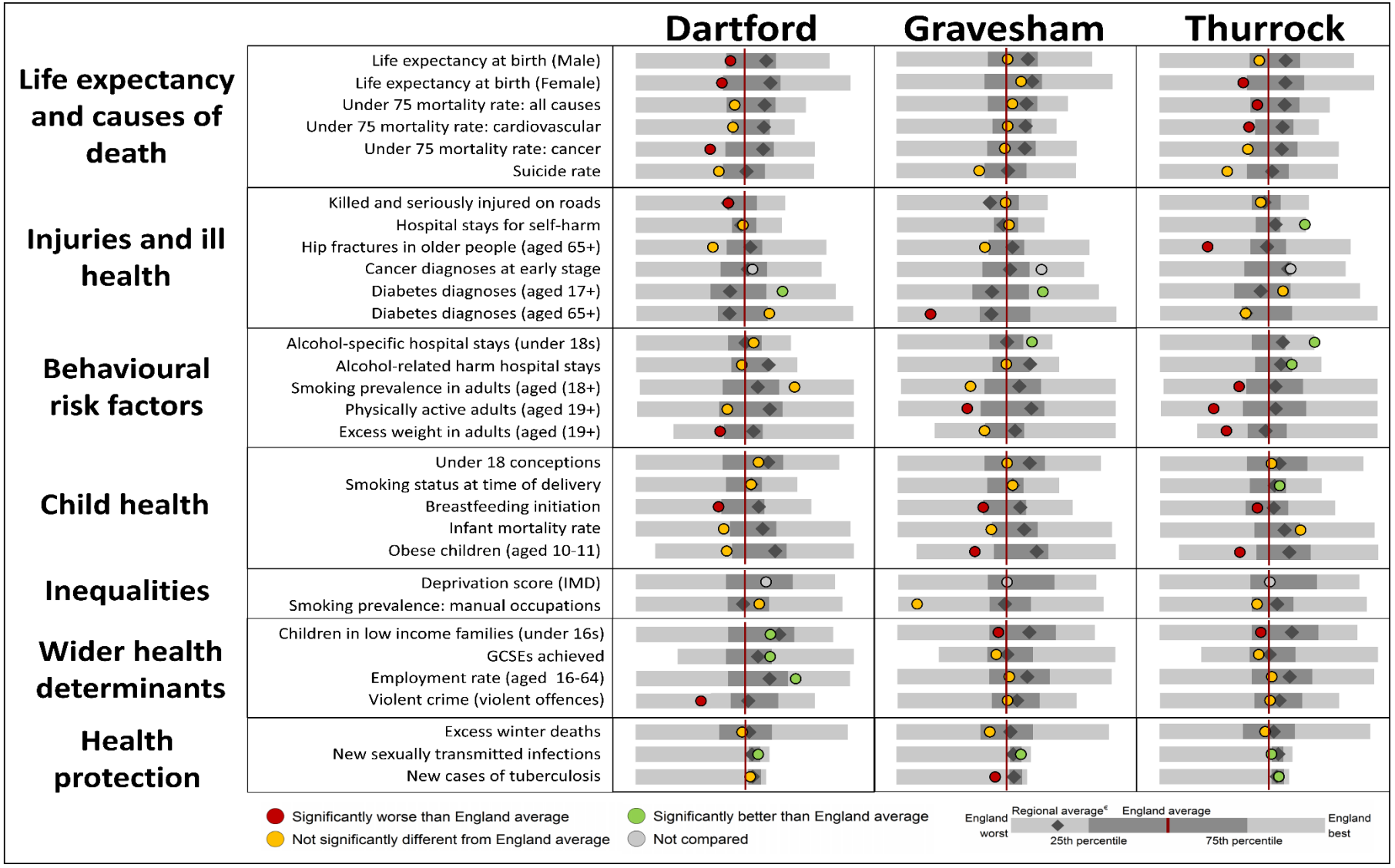
8.3.12 Locals enjoy a high employment rate, with the attendant health benefits the better socio-economic status employment brings. However, the skills level of the areas is limited compared to regional and national levels.

8.3.13 The three local authorities are not particularly deprived on the English Indices of Multiple Deprivation (IMD) 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.

[2] PHE, Local authority fingertip profiles

[3] KCC, 2016, Joint Strategic Needs Assessment; Thurrock Council, 2012, Joint Strategic Needs Assessment

Diagram 8.3.4 PHE public health profile of Dartford, Gravesham and Thurrock, 2019



Future baseline

8.3.14 Future baseline conditions are informed by national trends, as described in PHE's Health Profile for England 2019 document.[4] Where the trends identified concern the present, the most accurate expectation of future baseline conditions is the continuation of the trends below.

Life expectancy

8.3.15 The future trend of life expectancy in England is uncertain. Provisional data shows that 2018 may have recorded no gains in life expectancy over 2017. The UK's performance when compared to the 27 other EU countries is not bright: female life expectancy is 17th highest, and male life expectancy is 10th highest (down from 6th highest in 2006). The life expectancy gap between those living in the most deprived and least deprived areas of the country has increased since 2011-13, mainly due to higher mortality from heart and respiratory diseases.

Mortality

8.3.16 Since 2006, mortality rates from dementia have increased steadily. Dementia is now the most common cause of death for women. The mortality rate for dementia is forecast in 2024 to be double what it was in 2012. Deaths from drug misuse are also increasing and reached a new high in 2018. Deaths from heart conditions are at the same time decreasing, albeit at a slower rate than previously forecast.

Demography

8.3.17 One of the most important factors shaping the population's health is demographic change. Whilst England's population has steadily increased over recent decades, the population has also been ageing. Today there are three times as many people aged over 85 than there were in 1971. The proportion of those aged over 85 is forecast to increase in the future.

Chronic ill health

8.3.18 As England's population grows older, the number of people with chronic conditions, or living with ill health (morbidity) is forecast to increase. The number of people with diabetes is expected to increase from 3.9 million in 2017 to 4.9 million in 2035. In 2017 it is estimated that the most common causes of morbidity were musculoskeletal disorders, mental disorders and neurological disorders.

8.3.19 Mental health conditions account for an estimated 16.2% of the population's morbidity. The prevalence of mental health disorders has increased since 1993, with nearly 1 in 5 adults aged 16-64 suffering from at least one mental health disorder in 2014.

[4] PHE, 2019, Health Profile for England 2019

Lifestyle

8.3.20 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, and the rate of increase is faster than was previously forecast. Childhood obesity has not declined in recent years. Smoking prevalence continues to decline, although the speed of transition to a tobacco-free society is uncertain, as recent decreases have not been as large as previously forecast. The latest data also shows an increase in the rate of certain new sexually-transmitted infections (STIs), although HIV diagnosis rates have dropped.

Housing and socio-economic status

8.3.21 The quality of housing plays a role in maintaining good health. Homelessness remains high in England, but the proportion of homes meeting the Decent Homes Standard has increased in recent years.

8.3.22 England's employment rate continues to rise, although certain groups of the population find it hard to enter into or stay in meaningful work.[5]

COVID-19

8.3.23 The COVID-19 pandemic has had a considerable impact on health conditions across virtually all areas of the UK, with much of this impact not accounted for within the data presented within this baseline assessment of health conditions. 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 within much of the data presented for the assessment.

8.3.24 Although the impact of the pandemic is not captured within 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.

8.3.25 The PHE wider impacts of COVID-19 monitoring tool presents key indicators detailing health conditions affected by the pandemic at the national level.[6] 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 within the prior two years;

[5] No reliable employment forecasts taking into account the impact of COVID-19 have been identified. It is expected that employment will have suffered a blow, which is not yet recorded in the available data.
[6] PHE, 2020, Wider Impacts of COVID-19 on Health: Monitoring Tool.

- 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 supported higher 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 resulting 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 lockdown, with the rate of redundancy 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.

8.3.26 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, individuals are less likely to put off accessing health services.[7] 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.[8]

8.3.27 Where baseline characterises are likely to have been substantially altered by the COVID-19 pandemic, this is documented within 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 within currently available baseline data. This impact is discussed qualitatively within the relative baseline section.

Joint Strategic Needs Assessment – detailed data

8.3.28 The following section summarises the key findings from the local authorities' JSNA.

[7] The Health Foundation, 2020. Public perceptions of health and social care in light of COVID-19 (July 2020)
[8] Iacobucci, 2020, *Government Must Fund Extra NHS Capacity to Tackle Backlog*; British Medical Association.

Kent County Council

8.3.29 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, is presented below.[9] KCC identifies six emerging health priorities: cancer, demographics, diabetes, growth, health inequalities, healthy weight, mental health and stroke.

8.3.30 Cancer is one of the largest causes of mortality in Kent. Cancer was recorded as the underlying cause of death in 29% of mortality in 2014. In Kent, the most common cancers in men are: prostate, colorectal and lung cancer; in women: breast, colorectal and lung cancer.

8.3.31 Across Kent, the recorded diabetes prevalence has risen from 4.5% in 2006/07 to 6.2% in 2014/15, an average annual increase of 0.2%. This rate of increase is similar across all CCGs of Kent, with none of the CCGs increasing at a significantly different rate to Kent.

8.3.32 The prevalence of obesity varies across Kent, with the highest prevalence rates of adult obesity to be found in North and East Kent. The percentage of adults classified as overweight or obese (2012) in the county had risen from 63.8% to 64.6% whilst that for children aged 10-11 has dropped from 33.5% to 32.7%. Children aged four - five has also dropped from 22.5% to 20.8%.

8.3.33 The number of people with mental health problems can be calculated by using The Adult Psychiatric Morbidity Survey (2007) and applying it to the Kent population. 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 socioeconomic conditions. At risk groups include perinatal women, offenders and substance misusers.

8.3.34 The recorded prevalence of stroke in Kent and Medway has increased from 1.56% in 2006/07 to 1.71% in 2013/14.

Thurrock

8.3.35 Thurrock's JSNA reports the following.[10] 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 but statistically significantly less than many of its Chartered Institute of Public Finance and Accountancy (CIPFA) local authority comparators. 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.

8.3.36 Amongst men in Thurrock, death rates:

- have recently fallen in line with regional rates for circulatory diseases, including CHD

[9] KCC, 2016, Joint Strategic Needs Assessment

[10] Thurrock Council, 2012, Joint Strategic Needs Assessment

and stroke;

- are significantly higher than regional and national rates in respect of respiratory diseases but have shown an overall decline in recent years;

- from cancer have declined over the past decade, but remain higher in Thurrock than regional comparators;

- have for lung cancer generally remained higher than both regional and national rates, yet overall have declined;

8.3.37 Amongst women in Thurrock, death rates:

- have remained higher for circulatory diseases, including Coronary Heart Disease (CHD) and strokes when compared to regional averages, whilst remaining consistently lower than for males. The rate amongst women has fallen, albeit at a smaller and steadier rate of decline than for men.

- are lower for respiratory diseases than observed in males but are higher than regional and national rates with no decline;

- have declined for cancer, are lower than observed in males but are higher than regional and national rates. This is against the observed trend for regional and national rates where female cancer rates are higher than that of males.

- show no significant decline in respect of lung cancer. Although female mortality rates for lung cancer are lower than that of males, there is an observed narrowing of the gap in mortality rates between the genders.

8.3.38 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.

8.3.39 Thurrock has a higher prevalence of obese adults (16+) than geographical neighbours and amongst a third of CIPFA comparator local authorities; this is statistically significantly higher. 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. Over the last four years, rates of childhood obesity in Thurrock have been increasing. In the school year 2009-10, more than 1 in 10 children in reception (age 4-5) measured as obese and this increased to 1 in 5 in year 6 (aged 10-11). Again, there is a strong link between deprivation and childhood obesity. Compared with CIPFA areas, Thurrock has the highest prevalence of childhood obesity.

8.3.40 The prevalence of smoking amongst adults in Thurrock is significantly greater than national and regional comparators, but not statistically different to its CIPFA comparator

group of local authorities.[11] Smoking prevalence is not distributed evenly within Thurrock but largely linked to deprivation levels.

Life expectancy and health inequalities

8.3.41 Significant health inequalities exist across Dartford, Gravesham and Thurrock.

***Dartford*[12]**

8.3.42 Based on the period 2016 to 2018, male life expectancy at birth in Dartford was 79.7, slightly above that of England (79.6). However, female life expectancy at birth is lower (82.2) than in England (83.2). Life expectancy is 7.1 years lower for men and 5.7 years lower for women in the most deprived areas of Dartford compared to the least deprived areas.

***Gravesham*[13]**

8.3.43 Based on the period 2016 to 2018, male life expectancy at birth in Gravesham was 79.4, similar to that of England (79.6). Female life expectancy at birth is (83.7), also similar to that of England (83.2). Life expectancy is 11.7 years lower for men and 4.9 years lower for women in the most deprived areas of Dartford compared to the least deprived areas.

***Thurrock*[14]**

8.3.44 Based on the period 2016 to 2018, male life expectancy at birth in Thurrock was 79.0, lower than that of England (79.6). Female life expectancy at birth is (82.5), is also lower than that of England (83.2). Life expectancy is 8.4 years lower for men and 7.4 years lower for women in the most deprived areas of Dartford compared to the least deprived areas.

Obesity and physical activity

8.3.45 Excess weight and obesity are a significant problem in Dartford, Gravesham and Thurrock, especially amongst the adult population. The picture regarding physical activity is more mixed: Dartford residents are significantly more active than their peers in Gravesham and Thurrock, which latter two have populations less active than England as a whole.

***Dartford*[15]**

8.3.46 In 2018/19, 23.4% of Year 6 Dartford children are obese, compared to just 20.2% in

[11] Chartered Institute of Public Finance and Accountancy (CIPFA) comparator group of local authorities, that have populations with similar characteristics
[12] PHE, Local Authority Health Profile 2019: Dartford
[13] PHE, Local Authority Health Profile 2019: Gravesham
[14] PHE, Local Authority Health Profile 2019: Thurrock
[15] PHE, Local Authority Health Profile 2019: Dartford

England. Amongst adults, 75.1% are classified as overweight or obese, compared with 62.3% in England. Some 69.2% of adults are physically active, slightly higher than the national average (67.2%).

Gravesham[16]

8.3.47 In 2018/19, 20.4% of Year 6 Gravesham children are obese, similar to the 20.2% in England. Amongst adults, 65.1% are classified as overweight or obese, compared with 62.3% in England. Just 59.5% of adults are physically active, compared with 67.2% in England.

Thurrock[17]

8.3.48 In 2018/19, 22.5% of Year 6 Thurrock children are obese, compared to just 20.2% in England. Amongst adults, 75.9% are classified as overweight or obese, compared with 62.3% in England. Just 58.6% of adults are physically active, compared with 67.2% in England.

8.3.49 Thurrock recognises that there are social, economic, mental and physical consequences of excess weight which can lead to residents not fulfilling their full potential.[18] Thurrock sees a need for a whole systems approach in tackling obesity, writing that not only do they need to tackle the issue with a comprehensive portfolio of interventions, but more important to this, the interactions between them need to be defined and linked. Food is one issue where Thurrock is significantly lower than the regional and national averages for meeting 5-a-day fruit and vegetable consumption. An emerging focus is to treat prevention in childhood as a priority, as well as facilitating the creation of environments conducive to healthy weight, and inspiration for behavioural change.

Sexual health

8.3.50 The new STI diagnosis rate in Dartford in 2018 was 478 per 100,000 population, in Gravesham 505, and in Thurrock 564 per 100,000 population, all substantially better figures than England's 779 per 100,000 population.

8.3.51 Kent's JSNA[19] on sexual health identifies the key issues relating to sexual health in Kent. These include an increase in rates of syphilis and gonorrhoea, mirroring the national trend, a high crude rate of hospital admissions continuing to increase for pelvic inflammatory disease (PID) amongst 15-44 year olds in North and West Kent districts. Dartford and Gravesham are in North Kent. It is also noted that there is only a single point of access for free termination of pregnancy services in Kent.

8.3.52 Thurrock's JSNA[20] notes that the borough in general performs well on measures of sexual

[16] PHE, Local Authority Health Profile 2019: Gravesham
[17] PHE, Local Authority Health Profile 2019: Thurrock
[18] Thurrock Council, 2017, Joint Strategic Needs Assessment: Whole Systems Obesity
[19] KCC, 2017, Sexual Health
[20] Thurrock Council, 2012, Joint Strategic Needs Assessment

health. Under 18 conception rates have been falling for some time and are now below the England rate (although still above that of East England). Abortion rates continue to fall, but HIV rates continue to rise in line with the national trend.

Mental health

8.3.53 In England nearly one third of GP consultations are related to mental health problems. Approximately one in four people will have a common mental illness during their lifetime and one in six people in England have a mental health problem at any given time (point prevalence). One in seven people will have 2 or more mental health problems at any point in time.[21]

8.3.54 The estimated prevalence of common mental health disorders among the 16+ population in Dartford is 16.0%, in Gravesham 16.8%, and in Thurrock 17.3%, all broadly similar to the 16.9% in England.

Kent County Council

8.3.55 As discussed above, Dartford and Gravesham do not produce their own JSNAs, but are covered by KCC's assessment.[22] The estimate of people with neurotic disorders in Kent and Medway is approximately 160,000. Neurotic disorders are mixed anxiety and depression, generalised anxiety disorder, depression, phobias, obsessive compulsive disorder, panic disorder. Three quarters of these people will either self-help or get better in time, so not all will require NHS services. The latest ONS figures estimate around one quarter or 40,000 people will need treatment with drugs and/or psychological therapies. Revised estimates put this figure at 34,700 for Kent and Medway

8.3.56 Of Kent's population of adults with severe and enduring mental health problems, only 8% are in employment. There are currently gaps in service provision to need, in dual diagnosis (alcohol and mental health), transition services between child and adult mental health services, services tackling maternal depression and maternal mental illness, older people's mental health (excluding dementia) and eating disorders, personality disorders, offenders in the community and veterans.

Thurrock

8.3.57 A complex measure, the Mental Illness Needs Index (MINI) was created in the mid-1990s and updated in 2000 (MINI 2K). The index is derived from a number of socio-economic measures that best explain variation in psychiatric admissions. MII 2K provides a standardised score against an England average of one, and is frequently used to refine comparisons of mental health experience between geographical areas. The mean score for Thurrock is 0.91 which is below the national average of 1.00. However, it is clear that there is a wide variation in the distribution of the mental illness needs within Thurrock,

[21] KCC, 2012, Joint Strategic Needs Assessment.
[22] Ibid.

with the areas of deprivation having higher MINI 2K scores.

8.3.58 Thurrock's JSNA on adult mental health[23] found that the current mental health prevention and treatment system in place is highly fragmented. A large proportion of mental ill health are never diagnosed, nor treated, and of those with mental illnesses that are identified many often are not referred to treatment. Mental ill health poses a risk for physical health too, inducing higher rates of smoking, obesity, and long-term conditions.

8.3.59 With respect to children and young people[24] Thurrock considers the primary focus on increased treatment unsustainable and sees an opportunity to strengthen protective factors (good social connections, positive coping strategies, physical activity) which can prevent mental ill health in the first place. The Council also wishes to work against the key risk factors of bullying and body image issues.

Cancer[25, 26, 27]

8.3.60 The under 75 mortality rate in 2016 to 2018 from cancer is 137.7 per 100,000 population in Dartford, 134.1 in Gravesham, and 142.2 in Thurrock, all worse than England's rate (132.3 per 100,000).

8.3.61 Cancer screening coverage is in general worse across the three CSA local authorities than in England: cancer screening coverage for breast cancer and bowel cancer are all lower in all three authorities than England, and screening coverage for cervical cancer for those aged 50 to 64 is lower in Dartford and Gravesham, but minimally better in Thurrock than nationally. Cancer screening coverage for cervical cancer among those aged 25 to 49 is better in all three authorities than in England.

Summary of key health indicators

8.3.62 The table below summarises the baseline data on the three LPAs presented in the sections above.

Table 8.3.3 Summary of key health indicators of the CSA local authorities

	Dartford	Gravesham	Thurrock	England / UK
Life expectancy				
Male life expectancy 2016-2018	79.7	79.4	79.0	79.6

[23] Thurrock Council, 2018, Thurrock Joint Strategic Needs Assessment for Common Mental Health Disorders – Executive Summary.
[24] Thurrock Council, 2018, Children and Young People's Mental Health
[25] PHE, Local Authority Health Profile 2019: Dartford
[26] PHE, Local Authority Health Profile 2019: Gravesham
[27] PHE, Local Authority Health Profile 2019: Thurrock

	Dartford	Gravesham	Thurrock	England / UK
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

Deprivation

8.3.63 The English Index of Multiple Deprivation[28] (IMD) rank areas based on a range of metrics

[28] MHCLG, 2019, English indices of deprivation

to map levels of deprivation relative to other areas. The local authorities comprising the CSA are not particularly deprived overall but are all among the worst 50% of all 317 English local authorities: Dartford is ranked 145th, Gravesham 119th and Thurrock 116th.

8.3.64 The IMD also provides assessment on a range of sub-domains relating to different domains of deprivation. Areas of concern identified are deprivation connected to:

- Education, skills and training: Gravesham (62nd), Thurrock (24th);
- Crime: Dartford (19th), Gravesham (6th), Thurrock (75th);
- Barriers to housing and services: Dartford (64th), Thurrock (76th); and
- Living environment: Dartford (68th).

8.3.65 Education, skills and training deprivation is driven primarily by a relatively low share staying on in education post-16 and/or going to university later, and by the relatively low skills and English proficiency of residents. Barriers to housing and services deprivation is driven primarily by relatively high rates of homelessness and the relative unaffordability of housing. Deprivation in the living environment domain is driven by Dartford's high count of road accidents and relatively poor air quality.

8.3.66 The study areas[29] used in the assessments tend to perform poorly on the education, skills and training domain of deprivation and on crime. On other domains, the study areas tend to be among the top 60% of the country in terms of deprivation.

[29] Averaging the IMD decile component units fall into.

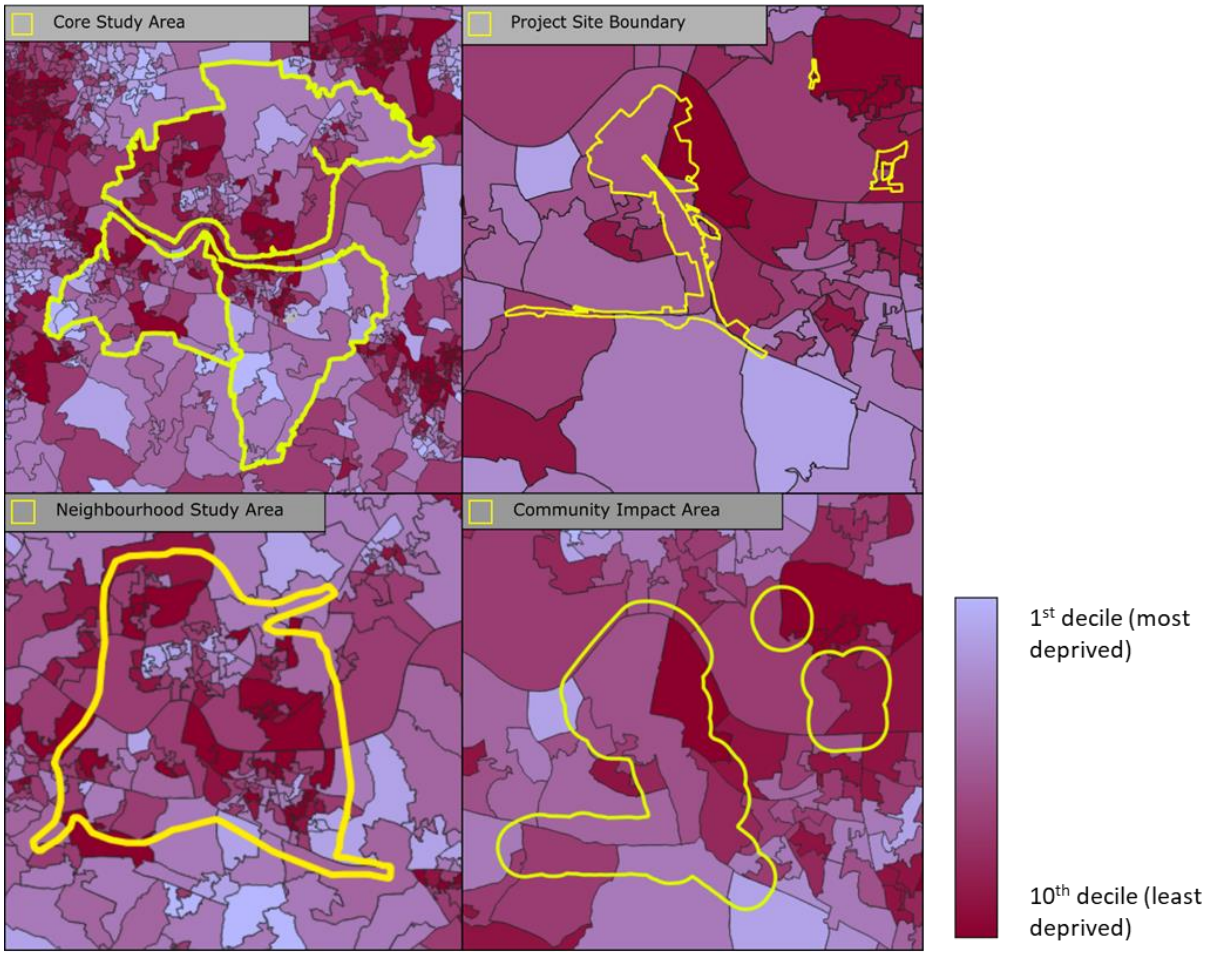
Table 8.3.4 IMD decile of relevant geographies (1 = worst decile)

Area	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: MHCLG, 2019, English Indices of Deprivation 2019

8.3.67 Diagram 8.3.5 shows the deprivation levels within 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.

Diagram 8.3.5 Deprivation map of the study areas



Source: MHCLG, 2019, English Index of Multiple Deprivation

Access to healthy assets and hazards (AHAH)

8.3.68 The Geographic Data Science Lab releases a dataset called AHAH – which is a multi-dimensional index measuring how 'healthy' neighbourhoods are, based on the following:

- Access to amenities such as fast food outlets and pubs;
- Levels of air pollutions;
- Access to health services (GPs, hospitals, pharmacies, dentists, leisure services); and
- Access to natural environment (green and blue spaces).

8.3.69 The map below shows the surroundings of the London Resort in terms of their score on the AHAH index. Areas on the north bank of the Thames, in Thurrock, tend to perform worse than areas on the south bank, although Dartford and Gravesham have a fair number of low-rated areas.

Diagram 8.3.6 Map of access to healthy assets and hazards index, 2017 (red = more deprived)

Source: Consumer Data Research Centre

Vulnerable populations

8.3.70 The following populations have been identified in the literature as more exposed and more affected by changes in one or more health determinants:

- **Children and young people**: children, adolescents, and pregnant women are more sensitive to their physical environment than adults. During the physical and mental development of the human body, environmental factors such as air pollution, noise, odour and stress, have been shown to be associated with relatively worse health outcomes. Barriers to physical activity created by the removal of open space or heavy traffic has greater impacts on young people due to their greater reliance on outdoor and active spaces.

- **Pregnant women**: the health of pregnant women has an impact on the health of the baby. Pregnancy can also increase the sensitivity to changes in health determinants of the pregnant women.

- **Older people**: with age comes a degree of frailty as the body is less able to repair damage and overcome disease. Older people are also at risk of social exclusion, can find it difficult to access health, social services, shops and community facilities.

- **People on low incomes**: significant evidence exists that social grade and income are strongly associated with health outcomes. PHE state that "income and work are two of the most important determinants of health and wellbeing." Often the poorest people experience worse health outcomes as they are exposed to poor quality outdoor environments and do not face the same access to nutrition and activity.

- **Ethnic minorities**: ethnic minority groups often have worse overall health outcomes than those in the majority population. There is evidence that the poorer socio-economic position of ethnic minorities is the main factor driving health inequalities for ethnic minorities.

- **People with disability or long-term illness**: those with long-term illnesses often see their daily activities impacted and may have a lower capacity to adapt to changes and as a result can be particularly sensitive to changes in their living environment.

- **LGBTQ+**: LGBTQ+ populations can face discrimination and can have worse health outcomes as a result. LGBTQ+ people may be particularly vulnerable to effects related to crime, especially hate crime.

- **Single parent households:** single parent households typically suffer drops in income and access to community resources. This makes them vulnerable health effects related to access to monetary and social resources in particular.

- **Gypsy and Irish Traveller populations:** Gypsy, Roma, and Traveller populations are some of the most deprived in health terms in all of Europe.

Identifying presence of vulnerable groups

8.3.71 Vulnerable groups have been carefully considered in assessing receptor sensitivity to changes in health determinants. Detailed analysis has been undertaken to identify the vulnerable groups present in the residential population at the relevant geographical levels of each health determinant.

8.3.72 The assessment areas do not always precisely overlap the areas for which statistical data is gathered. Data is gathered for all LSOAs which the PSB, CIA, and NSA overlap, and it is the population share of these wider areas that is here presented. It is assumed that demographic mix of the actual PSB, CIA and NSA is similar to that of the areas on which the data-gathering exercise has been performed (presented in Diagram 8.3.2).

8.3.73 Due to limitations in available information, it is not always possible to determine the extent to which receptor populations are presented in the study areas, particularly for non-resident residents. For example, it is not possible to determine the number of individuals experiencing mental ill health who will visit the London Resort once operational. In identifying vulnerable groups, Chapter 8: *Human health* (document reference 6.1.8) makes it clear where data are available and used, and where assumptions have had to be made in order to carry an assessment of the anticipated health effects.

Young people

8.3.74 The PSB, CIA, NSA and CSA are all significantly younger and 0-17 year olds make up a significantly larger share of the population than within the region or the UK as whole. The table below contains the proportion of residents aged 0-17 at the relevant geographical areas.

Table 8.3.5 Young people at the relevant geographies, 2019

	Total population	Young population	Young %
PSB	27,533	7,107	26%
CIA	71,600	19,165	27%
NSA	288,340	73,277	25%
CSA	393,886	97,884	25%
RCA	24,378,196	5,348,181	22%
NCA	66,796,807	14,123,374	21%

Source: ONS, 2020, Mid-year population estimates 2019-based

Pregnant women

8.3.75 Direct data on the proportion of pregnant women is not directly available. The proportion of pregnant women is estimated[30] from the ONS's statistics on the number of live births, broken down by the mother's area of residence. The table below contains the estimated proportion of pregnant women as a share of the population in the relevant study areas.

Table 8.3.6 Pregnant women at the relevant geographies, 2018

	Total population	Live births	Average pregnant women	Pregnant women %
PSB	26,138	417	313	1.20%
CIA	69,465	1,136	852	1.23%
NSA	284,277	4,169	3,127	1.10%
CSA	388,619	5,396	4,047	1.04%
RCA	24,242,920	286,302	214,727	0.89%
NCA	59,116,000	656,925	492,694	0.83%

Source: ONS, 2019, Births by Lower layer Super Output Area (LSOA), England and Wales, mid-year 2001 to 2018

Older people

8.3.76 The immediate surroundings of the PSB and the CIA, and the slightly broader NSA, have an older people population share significantly below that of the region or the UK as a whole. The wider CSA also has a smaller older people population share, although the difference for this area is not as large as for the PSB, CIA or NSA. The table below contains the proportion of residents aged 65+ at the relevant geographical areas.

Table 8.3.7 Older people at the relevant geographies, 2019

	Total population	65+	65+ %
PSB	27,533	3,936	14%
CIA	71,600	8,307	12%
NSA	288,340	39,141	14%
CSA	393,886	58,492	15%
RCA	24,378,196	4,111,237	17%
NCA	66,796,807	12,374,961	19%

Source: ONS, 2020, Mid-year population estimates 2019-based

[30] As a rough approximation, the number of live births in the given year is multiplied by 0.75 to yield an estimate of the average number of pregnant women at any one time during that year (assuming an average pregnancy lasts exactly nine months). This method does not calculate with twins, who make up less than 1% of births, nor with stillbirths, or miscarriages, which are similarly not common.

People on low incomes

8.3.77 Before housing costs are taken into account, all study areas shown below have a lower share of households living in poverty than the national average.[31] However, once housing costs are taken into account, England and Wales performs better on this measure of poverty than any of the other geographies analysed. The immediate surroundings of the Project Site (the CSA) perform particularly poorly on this measure.

Table 8.3.8 People on low incomes at the relevant geographies, 2014

	Households below the poverty line (before housing costs)	Households below the poverty line (after housing costs)
PSB	14%	22%
CIA	15%	25%
NSA	15%	23%
CSA	14%	23%
RCA	14%	22%
NCA	17%	21%

Source: ONS, Small area model-based households in poverty estimates, England and Wales: financial year ending 2014

Ethnic minorities

8.3.78 With the exception of the PSB, all sub-national study areas have a higher share of ethnic minority populations than England and Wales. The table below shows the population share of ethnic minorities at the relevant geographies.

Table 8.3.9 Ethnic minorities at the relevant geographies, 2011

	Total population	Ethnic minorities	Ethnic minority %
PSB	22,992	2,891	13%
CIA	61,279	9,519	16%
NSA	259,471	42,563	16%
CSA	356,790	52,065	15%
RCA	22,655,656	4,630,207	20%
NCA	56,075,912	7,866,517	14%

Source: ONS, Census 2011

[31] Defined as earning below 60% of the median salary in the area.

People with disability or long-term illness

8.3.79 The PSB, CIA, NSA and the CSA have a slightly larger share of their population suffering from limiting disability or long-term illness compared to the RCA, although these areas still perform better than the England and Wales average. RCA is the best performer on this metric. The table below contains the population share made up of people with limiting disabilities or long-term illness at the relevant geographies.

Table 8.3.10 People with disability or long-term illness at the relevant geographies, 2011

	Disabled or long-term ill
PSB	18%
CIA	16%
NSA	16%
CSA	16%
RCA	15%
NCA	18%

Source: ONS, the 2011 Census

LGBTQ+ populations

8.3.80 The ONS collects data on LGBTQ+ population only at the regional level. English regions tend to have fairly similar population shares who identify as LGBTQ+. It is not possible to know the share of LGBTQ+ populations in the PSB, CIA, NSA and CSA, so the population share of the RCA (2.2%) is used instead; this is marginally higher than the national average (2.1%).

Table 8.3.11 LGBTQ+ populations at the relevant geographies, 2017

	LGBTQ+ population
RCA	2.2%
NCA	2.1%

Source: ONS, 2019, Sexual orientation, UK: 2017

8.3.81 Based on data from the 2011 Census single-parent households are a larger share of all households in the PSB, CIA, NSA, and CSA than they are in the RCA or nationally. The table below shows the data on single-parent households at the relevant geographies.

Table 8.3.12 Single-parent households at the relevant geographies, 2011

	Total households	Single-parent households	Single-parent household %
PSB	9,571	1,347	14.1%
CIA	25,460	3,813	15.0%
NSA	103,631	13,509	13.0%
CSA	142,865	17,944	12.6%
RCA	9,244,671	1,090,061	11.8%
NCA	23,366,044	2,756,245	11.8%

Source: ONS, Census 2011

Gypsy and Traveller populations

8.3.82 Based on data from the 2011 Census, Gypsies and Travellers comprise a significantly larger share of the population of the local area than they do in the NCA or the RCA. The table below shows the data on the Gypsy and Traveller populations at the relevant geographies.

Table 8.3.13 Gypsy and Traveller populations at the relevant geographies, 2011

	Total population	Travellers	Traveller %
PSB	22,992	69	0.30%
CIA	61,279	165	0.27%
NSA	259,537	683	0.26%
CSA	356,790	872	0.24%
RCA	22,655,656	30,903	0.14%
NCA	63,182,178	63,193	0.10%

Source: Census 2011

8.3.83 Data on the prevalence of vulnerable groups among other receptors (visitors, workers) are not readily available. However, as a precautionary approach, vulnerable groups are assumed present among the non-residential receptors.

LOCAL AUTHORITY HEALTH PRIORITIES

8.3.84 The health priorities of the local authorities have been researched, and the relevant JSNAs and Joint Health and Wellbeing Strategies (JHWSs) have been reviewed. Dartford and Gravesham produce no JSNA or JHWS of their own but are covered in KCC's JSNA and JHWS.

Common themes and health priorities

8.3.85 There are several commonalities between Kent's and Thurrock's health priorities, as described in their respective JSNAs and JHWSs. These include:

- the need to reduce health inequalities between those living in the worst conditions, and the most affluent;
- increasing access to services and shifting care priorities towards prevention where possible, and integrating disparate care providers;
- improving social networks to combat isolation and other mental health problems;
- reducing smoking prevalence and obesity rates, as well as increasing physical activity;
- improving the conditions and services available to those with learning disabilities in particular; and
- a concern with air pollution.

8.3.86 The individual priorities of Kent and Thurrock are presented below.

Kent health priorities

8.3.87 Kent's JSNA[32] identifies eight key emerging priorities:

- cancer;
- demographics;
- diabetes;
- growth;
- health Inequalities;
- healthy weight;
- mental health; and
- stroke.

[32] KCC, 2016, Joint Strategic Needs Assessment

Cancer

8.3.88 Cancer is one of the largest causes of mortality in Kent. Cancer was recorded as the underlying cause of death in 29% of mortality in 2014. This figure is even more pronounced in younger adults with cancer, accounting for 43% of premature mortalities (death under 75 years) in Kent in 2014.

8.3.89 The prevalence of cancer has increased due to a combination of an increasing average life expectancy of the population and an increased occurrence of risk factors for cancer (e.g. obesity). Survival rates have been improved due to better diagnosis and treatment. In Kent, the most common cancers in men are: prostate, colorectal and lung cancer; in women: breast, colorectal and lung cancer.

Demographics

8.3.90 The projected growth in population for Kent to 2020 highlights the growth particularly in the two age bands of 65–84 (9.6%) and over 85 (13%). This has implications for both health and social care as these two age cohorts place increasing pressures on services through increasing numbers of patients with long-term conditions needing complex care and treatment from different organisations.

8.3.91 It brings into focus the need for strategies and interventions to support Living Well and Ageing Well to help modify the impact that these individuals will present and to ensure that efforts to maximise life expectancy are achieved. This issue reinforces the need to have robust prevention programmes in place to support investment in behaviour change.

Diabetes

8.3.92 Across Kent, the recorded diabetes prevalence has risen from 4.5% in 2006/07 to 6.2% in 2014/15, an average annual increase of 0.2%. From 2006/07, the emergency diabetes admission rate has increased steadily across Kent from 76.0 admissions per 10,000 population to 131.4 in 2014/15. obesity accounts for 80–85 per cent of the overall risk of developing Type 2 diabetes. Deprivation is strongly associated with higher levels of obesity. Physical inactivity, unhealthy diet, smoking and poor blood pressure control also increase the risk of diabetes or the risk of serious complications for those already diagnosed.

Growth

8.3.93 Primary healthcare required to support population growth to 2031 was mapped, and the analysis of the provision of GP numbers identified that there is a lack of capacity in proposed growth areas. One hundred and forty-six additional GPs and associated premises of 24,100m^2 and 121 additional dentists and associated premises of 6,000m^2 will be required.

Health inequalities

8.3.94 Whilst health outcomes have been improving for Kent as a whole, the differences in these outcomes between affluent and deprived populations persist. Current data highlights this - whilst mortality rates are coming down across all deprivation deciles, the gap between the most affluent (the bottom line) and the most deprived (the top line) has not changed over the last 10 years, suggesting that efforts to tackle health inequalities are not yet having an impact on mortality rates.

Healthy weight

8.3.95 The prevalence of obesity varies across Kent, with the highest prevalence rates of adult obesity to be found in North and East Kent. The percentage of adults classified as overweight or obese (2012) in the County had risen from 63.8% to 64.6% whilst that for children aged 10-11 has dropped from 33.5% to 32.7%. Children aged four - five has also dropped from 22.5% to 20.8%

Mental health

8.3.96 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 socioeconomic conditions. At risk groups include perinatal women, offenders and substance misusers.

Stroke

8.3.97 The recorded prevalence of stroke in Kent and Medway has increased from 1.56% in 2006/07 to 1.71% in 2013/14. The rate of change with each passing year was not significantly higher than England at 0.022%. As more people are surviving stroke, an important role is placed upon post stroke care. This includes services such as early supported discharge (within 10 days) and multidisciplinary community rehabilitation services.

8.3.98 Kent's JHWS[33] seeks five key health outcomes:

- every child has the best start in life;
- effective prevention of ill health by people taking greater responsibility for their health and wellbeing;
- the quality of life for people with long term conditions is enhanced and they have access to good quality care and support;
- people with mental health issues are supported to 'live well';

[33] KCC, Joint Health and Wellbeing Strategy

- people with dementia are assessed and treated earlier, and are supported to live well.

8.3.99 For each of the five key health outcomes, KCC's focus will be on four priorities:

- tackle key health issues where Kent is performing worse than the England average;
- tackle health inequalities;
- tackle the gaps in service provision; and
- transform services to improve outcomes, patient experience and value for money.

Public services and community life

8.3.100 The priorities identified under this heading apply to potential effect of displacement or change in access affecting public services and community facilities, potential effects from a change in the demand for health services, potential effects from a change in the demand for public services and community facilities, potential effects from changes in community cohesion, potential effects from changes in crime and community safety (including fear of crime), potential health effects from the spread of communicable diseases.

8.3.101 KCC's JHWS targets a reduction in waiting times for Child and Adolescent Mental Health Services (CAMHS), for Memory Assessment Services (MAS), and an increased uptake of NHS Health Checks, and better cancer screening. Antibiotic resistant infections and their possible spread – also linked to the incorrect use of antibiotics – is also highlighted in the JSNA.

8.3.102 KCC's JSNA recommends improving services for adolescent emotional health.

8.3.103 KCC is aiming to improve social and community networks in order to combat mental health problems.[34] The Council also seeks to improve the coverage of Gypsies, Roma and Travellers in ethnic monitoring relating to health and social care to address their 'invisibility' in public health terms.

8.3.104 KCC's JSNA[35] defines no strategy to improve health outcomes related to crime, although in connection mental health it states that health and wellbeing boards need to offer a joint forum with Crime and Safety Partnerships to understand the needs of offenders.

Housing

8.3.105 The priorities identified under this heading apply to potential health effects from displacement of residential dwellings, potential health effects of provision of worker accommodation, potential health effects of change in the demand for residential

[34] KCC, 2016, Joint Strategic Needs Assessment
[35] Ibid.

accommodation.

8.3.106 Kent's JSNA examines fuel poverty and finds that being unable to afford to adequately heat a home increases the risk of ill health, hospital admission or possible premature mortality, particularly for vulnerable older people or those with a disability or long-term condition. Emergency support is available at a population level and Public Health have co-funded housing retrofit interventions with the Kent County Council Warm Homes programme, to provide sustainable interventions such as insulation and heating repairs for those over 65 with a long-term health condition, particularly respiratory disease and circulatory conditions.

8.3.107 Kent also targets a reduction in the number of falls; KCC Public Health and DGS CCG are working, together with Kent Fire and Rescue Service's senior management teams, on a trial on falls reduction work. The majority of falls result in hip fractures. In the forthcoming revised needs assessment, the role of housing as part of the Kent Falls Framework is being reassessed to strengthen their working with other stakeholders.

Employment and training

8.3.108 The priorities identified under this heading apply to potential effects from displacement of commercial uses, potential effect of work and training opportunities created, potential health effects relating to changes in access to work and skills.

8.3.109 KCC's JSNA on the social determinants of health[36] recognises that at a local level the economic environment influences health through the degree of wealth disparity. Relative poverty commonly defined as living on less than 60% of the national median income has been demonstrated to relate to poor health and risk of premature death, arguably through the psycho-social stress of low socio-economic status and poorer quality of social relations.

8.3.110 KCC's JSNA recommends that efforts to reduce health inequalities be focused on the geographic areas of the greatest deprivation and to develop a multiagency response to recognise and act upon the social determinants of health, such as education, housing and green spaces.[37]

Healthy lifestyles

8.3.111 The priorities identified under this heading apply to potential effect of displacement or change in access to open spaces, potential effects associated with open space provision and amenity space, potential effects of the presence of the construction workforce, potential health effects from changes to access to healthy and unhealthy food.

8.3.112 KCC's JHWS targets a reduction in the number of pregnant women who smoke, and an increase in the number of people who quit smoking via smoking cessation services, a

[36] KCC, Joint Strategic Needs Assessment: Social determinants of health

[37] KCC, 2016, Joint Strategic Needs Assessment

reduction in conception rates for young women aged under 18, and a reduction in child and adult obesity rates. The council also targets a reduction in the mortality rate from cardiovascular diseases for the under 75.

8.3.113 It is also a goal to increase levels of physical activity including integrating physical activity into transport and environmental planning and services, improving physical activity assets and facilities in response to local demand. The promotion of behavioural change techniques is recommended. It is further recommended that public health commissioners should continue to commission services that promote healthier lifestyles, smoking cessation, and cholesterol and hypertension management. It is also recommended that all parts of the system take action to ensure that processes are in place to guarantee that the population is advised about how to change behaviour to achieve a healthier diet and take more physical activity. An integrated model for obesity should be developed that includes other related health improvement strands such as emotional health and wellbeing, smoking, and alcohol.

8.3.114 It is recommended that programmes be commissioned to address physical inactivity based on the brief intervention and motivational interviewing model. Use of the natural environment for physical activity and health reasons should also be increased.

8.3.115 KCC aims to reduce inequalities of smoking prevalence across different social and ethnic groups and to target and reduce the number of children and young people who smoke. The Council notes that most people in Kent drink responsibly, around 70%.[38]

Inclusion

8.3.116 The priorities identified under this heading apply to potential health effects associated with the inclusive design, site access and facilities of the London Resort.

8.3.117 KCC's JHWS aims to reduce the gap in the employment rate between those with a learning disability and the overall employment rate. An increase in the percentage of adults with a learning disability who are known to the council, who are recorded as living in their own home or with their family is also sought. An increased employment rate among people with mental illness is a further target.

8.3.118 KCC's JSNA[39] recommends providing parenting support to parents with a learning disability by working with children centres to deliver public health messages in an easy read format. Other recommendations centre on the prevention of the development of disabilities following a stroke, or other events.

8.3.119 For diabetes, the JSNA notes that effective systems should be in place to ensure that people know what services and treatment is available, especially those aimed at people who are disadvantaged from using services.

[38] KCC, 2016, Joint Strategic Needs Assessment
[39] Ibid.

Transport

8.3.120 The priorities identified under this heading apply to potential changes to local traffic and transport and changes in use of active travel modes and potential health effects from a change in local traffic and active travel.

8.3.121 KCC's JSNA notes that transport contributes to both positive and negative outcomes for population health. It aims to increase levels of physical activity including integrating physical activity into transport and environmental planning and services, improving physical activity assets and facilities in response to local demand.

Flooding

8.3.122 The priorities identified under this heading apply to potential effect of increased flooding.

8.3.123 KCC does not identify issues relating to flooding as a health priority.

Noise and vibration

8.3.124 The priorities identified under this heading apply to potential effect of construction resulting in changes in noise and vibration and potential health effects associated with changes in noise and vibration.

8.3.125 KCC does not identify issues relating to noise and vibration as a health priority.[40]

Air quality

8.3.126 The priorities identified under this heading apply to potential effect of construction resulting in changes in air quality and potential health effects associated with changes in air quality.

8.3.127 KCC's JHWS targets a reduction in the mortality from respiratory diseases for those under 75.

8.3.128 KCC's JSNA notes that air quality is influenced by transport, planning and the provision of green spaces. Air pollutants of greatest concern are particulate matter (PM), oxides of nitrogen and ozone.

Electromagnetic field exposure

8.3.129 The priorities identified under this heading apply to potential health effects associated with changes in electromagnetic field exposure.

8.3.130 KCC does not identify issues relating to electromagnetic field exposure as a health

[40] Ibid.

priority.

Neighbourhood amenity

8.3.131 The priorities identified under this heading apply to potential health effects of construction related to changes to levels of neighbourhood amenity, potential health effects related to changes to levels of neighbourhood amenity.

8.3.132 Neighbourhood amenity reflects the combination effect of environmental effects (transport, noise and vibration, air quality), as well as the impact on visual amenity. As such, all the health priorities identified under these headings apply.

Pollution and climate change

8.3.133 The priorities identified under this heading apply to potential health effect of construction resulting in hazardous waste, potential health effects of construction resulting in water contamination, to potential construction health effects related to a changing climate, potential health effects associated with the creation and disposal of hazardous waste, potential health effects related to water contamination, potential health effects related to a changing climate.

8.3.134 KCC's JSNA[41] notes that district authorities have a key primary prevention role in minimising the effect of poor housing, poor environment (e.g. noise, air and water pollution) and transport (for example road safety measures to reduce accidents) all of which have an impact on health and social care outcomes. KCC's JHWS[42] writes that for a robust delivery of the strategy wider factors affecting short and long term physical and mental health need to be considered such as access to green space, climate change resilience, air quality, housing, transport, inequality and employment. KCC's 'Sustainability' JSNA acknowledges that there is a clear interdependency between public health, social care and sustainability.

Thurrock health priorities

8.3.135 A theme that runs throughout Thurrock's JSNA product is that of health inequalities – inequalities in life chances, opportunities, and health and wellbeing outcomes of different populations within the borough. Variations in life expectancy are linked to deprivation which is associated with variations in morbidity and mortality from different diseases.

8.3.136 The first two priorities to be tackled are:

- Reducing the overall prevalence of smoking within Thurrock and reducing the difference in smoking prevalence between affluent and deprived areas.

[41] KCC, 2016, Joint Strategic Needs Assessment
[42] KCC, Joint Health and Wellbeing Strategy

- Reducing the overall prevalence of both adult and child obesity within Thurrock and reducing the difference in obesity prevalence between affluent and deprived areas.

8.3.137 Thurrock's Health and Wellbeing Strategy (HWS)[43] defines the vision for Thurrock as:

8.3.138 We want Thurrock to be a place where people live long lives which are full of opportunity, allowing everyone to achieve their potential. To achieve this, we have set five goals, which we are all committed to achieving. The goals are ambitious and will require a lot of hard work from Thurrock Council, the NHS, voluntary organisations and communities themselves but we think that by working together, we can achieve these goals and make a real difference to the people of Thurrock.

8.3.139 The five goals defined in the HWS are:

- Opportunity for all: better educated children and residents who can access employment opportunities.

- A healthier environment: places and communities that keep people well and independent.

- Better emotional health and wellbeing: strengthen mental health and emotional wellbeing.

- Quality care centred around the person: remodel health and care services so they are more joined up and focus on preventing, reducing and delaying the need for care and support.

- Healthier for longer: reduce avoidable ill-health and death.

Public services and community life

8.3.140 The priorities identified under this heading apply to potential effect of displacement or change in access affecting public services and community facilities, potential health effects from displacement of residential dwellings, potential effects from a change in the demand for health services, potential effects from a change in the demand for public services and community facilities, potential effects from changes in community cohesion, and potential effects from changes in crime and community safety (including fear of crime), potential health effects from the spread of communicable diseases.

8.3.141 Thurrock Council's HWS[44] sets the goal of having communities that are stronger and better connected. A goal of having fewer people feeling socially isolated or lonely is also enshrined in the document. Separately, four new healthy living centres will be built, with GPs, nurses, mental health services, wellbeing programmes, community hubs and outpatient clinics under one roof. One of these has already been handed over in Purfleet,

[43] Thurrock Council, 2016, Health and Wellbeing Strategy
[44] Ibid.

in southern Thurrock, close to the Essex Project Site.

8.3.142 Thurrock Council's JSNA notes that commissioners need to ensure that information and advice about health and care services is made more accessible to enable local people to find out about the range of local services and support.[45] The JSNA also noted that the rate of new cases of communicable diseases such as tuberculosis and food poisoning are below national levels. Certain sexually transmitted diseases are spreading in the population (herpes, warts), others are of middling concern (chlamydia 25+, gonorrhoea), and yet others have low rates of infection (syphilis, chlamydia 15-24).

8.3.143 Access to and the provision of health services, in particular, primary health care services, have a key role to play in the improvement of the local population's health. Under doctoring appears to be an issue in Thurrock with half of the practices serving weighted practice populations/WTE GP of more than the recommended maximum of 2000.[46]

8.3.144 Thurrock Council's JSNA states that there is a need to increase the profile of hidden crimes, such as violence against women (including honour based abuse and female genital mutilation), loan sharks and hate crime so that victims are not left isolated and at risk of depression.[47] Data is required from A&E, particularly around alcohol and knife crime, with locations so that responses can be effectively targeted.

Housing

8.3.145 The priorities identified under this heading apply to potential health effects from displacement of residential dwellings, potential health effects of provision of worker accommodation, potential health effects of change in the demand for residential accommodation.

8.3.146 Thurrock Council's JSNA states that the association between housing conditions and physical and mental ill health has long been recognised. Good housing has a key role to play in influencing the overall living standards of a family. Children's development and well-being is dependent on tackling all relevant dimensions of poor housing. If a home is overcrowded it can affect health and educational attainment and can impact negatively on life chances. It is also recognised that damp, cold housing is associated with an increase in mental health problems and cold living conditions increase blood pressure, increasing the risk of heart attacks and strokes.

Employment and training

8.3.147 The priorities identified under this heading apply to potential effects from displacement of commercial uses, potential effect of work and training opportunities created, and potential health effects relating to changes in access to work and skills.

8.3.148 Thurrock's HWS sets itself the goal of ensuring that all children make good educational

[45] Thurrock Council, 2012, Joint Strategic Needs Assessment
[46] Ibid.
[47] Ibid.

progress and to put more Thurrock residents in employment. Thurrock's JSNA notes that being in employment correlates strongly with good health. Similarly unemployment is damaging to health. The document also highlights that investors are concerned about the low skills base and the lack of professional management expertise within the Borough. Low levels of graduate qualification and poor school performance are identified as reasons for a lack of inward investment in Thurrock.

Healthy lifestyles

8.3.149 The priorities identified under this heading apply to potential effect of displacement or change in access to open spaces, potential effects associated with open space provision and amenity space and potential effects of the presence of the construction workforce, potential health effects from changes to access to healthy and unhealthy food.

8.3.150 The two key priorities identified in Thurrock's JSNA are reducing obesity and reducing the prevalence of smoking.

8.3.151 In Thurrock there are currently 72 maintained parks and open spaces with a combined area of approximately 640 hectares. Thurrock Council notes that Thurrock has low levels of physical activity in both adults and children. Levels of satisfaction with leisure provision in Thurrock are significantly lower than both England and regional rates, and have declined over the last five years.[48]

8.3.152 Thurrock Council's JSNA[49] notes that smoking prevalence is not distributed evenly within Thurrock but largely linked to deprivation levels. Smoking is the leading preventable cause of death in England, and the biggest single cause of inequalities in death rates between rich and poor, accounting for over half of the difference in risk of premature death between social classes. The document states that in order to reduce health inequalities, commissioners should review commissioning arrangements of stop smoking services within Thurrock in order to increase access and quit rates per estimated smoking population in the deprived areas of West Thurrock and South Stifford, Grays Riverside, Tilbury St. Chads, Little Thurrock and Blackshots and Chadwell St. Mary.

8.3.153 The highest substance misused in Thurrock for both adults and young people is alcohol, followed by cannabis.[50] Admissions for alcohol attributable and alcohol specific illnesses are increasing, and this trend mirrors the national picture. More work is required to increase the impact of this Department of Health identified 'high impact' change, and to widen the screening and early interventions to people with illnesses that are resulting in admissions to hospital. Thurrock's HWS has also set itself the goal of reducing the number of teenage pregnancies.

[48] Ibid.
[49] Ibid.
[50] Ibid.

Inclusion

8.3.154 The priorities identified under this heading apply to potential health effects associated with the inclusive design, site access and facilities.

8.3.155 Thurrock Council's JSNA states that commissioners need to ensure that the outcomes of the learning disability health self-assessment are implemented across Thurrock. It recommends that Council commission the provision of learning disability day opportunities to local social enterprise to optimise support for and put people with learning disabilities at the heart service design and provision.[51]

Transport

8.3.156 The priorities identified under this heading apply to potential changes to local traffic and transport and changes in use of active travel modes and potential health effects from a change in local traffic and active travel.

8.3.157 Thurrock Council's JSNA notes that transport affects the health of the whole population both directly and through pollution of the environment. Thurrock's strategy will improve conditions for vulnerable road users such as pedestrians and cyclists, by making the overall urban environment safer, especially by reducing traffic speeds in residential areas, such as widespread 20mph zones. The council will also give priority to improving road safety in disadvantaged communities, integrating with wider programmes such as neighbourhood renewal, as well as around schools and major workplaces.

Flooding

8.3.158 Thurrock Council does not identify issues relating to flooding as a health priority.

Noise and vibration

8.3.159 The priorities identified under this heading apply to potential effect of construction resulting in changes in noise and vibration and potential health effects associated with changes in noise and vibration.

8.3.160 Thurrock Council's JSNA[52] notes that for the period 1/4/2010 to 31/3/2011 there were 1,828 Noise Service requests. No recommendations or further issues are identified.

Air quality

8.3.161 The priorities identified under this heading apply to potential effect of construction resulting in changes in air quality and potential health effects associated with changes in air quality.

8.3.162 Thurrock's HWS sets itself the goal of improving air quality. Thurrock Council's JSNA

[51] Ibid.
[52] Ibid.

states that levels of NO_2 in the air have exceeded the agreed air quality mean objective level for NO_2 at the monitoring site at Purfleet for the past three years. There is now also a need for the Council to progress to a Detailed Assessment for Calcutta Road in Tilbury in order to declare an AQMA for nitrogen dioxide.

Electromagnetic field exposure

8.3.163 Thurrock Council identifies no issues relating to electromagnetic field exposure as a health priority.

Neighbourhood amenity

8.3.164 The priorities identified under this heading apply to potential health effects of construction related to changes to levels of neighbourhood amenity, potential health effects related to changes to levels of neighbourhood amenity.

8.3.165 Neighbourhood amenity reflects the combination effect of environmental effects (transport, noise and vibration, air quality), as well as the impact on visual amenity. As such, all the health priorities identified under these headings apply. Thurrock's JSNA also recognises that the causal links between different dimensions of housing, neighbourhood environment and health can operate at a number of interrelated levels.

Pollution and climate change

8.3.166 The priorities identified under this heading apply to potential health effect of construction resulting in hazardous waste, potential health effects of construction resulting in water contamination, potential construction health effects related to a changing climate, potential health effects associated with the creation and disposal of hazardous waste, potential health effects related to water contamination, and potential health effects related to a changing climate.

8.3.167 Thurrock Council records in its JSNA[53] its successful bid for the Local Sustainable Transport Fund. The dominant element of the package is the delivery of Smarter Choices measures, including workplace travel planning, school travel planning, station travel planning, personalised journey planning, lift sharing, as well as marketing and promotional activities. Such activities have the potential to have a major positive impact on health and wellbeing in terms of increasing activity levels resulting in reduced risk of obesity, cardio-vascular disease and improved mental health, and on more macro public health issues such as air quality, pollution and climate change.

[53] Ibid.

CONSTRUCTION PHASE BASELINE

Displacement to land and property as a result of the land take

8.3.168 The London Resort is expected to require a significant land take, which may impact community facilities in the area. Large numbers of construction vehicles or temporary changes to routes may also affect patterns of local traffic and the accessibility of locations. To understand the impact of this, this section considers the baseline of existing community facilities and their users present in the area.

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

Barriers to access to housing and services

8.3.169 The CIA ranks within the 5th decile on the IMD's barriers to access to housing and services domain, indicating that access to services is in line with the national average. As discussed above, deprivation issues in Dartford and Thurrock are driven by homelessness and the relative unaffordability of housing, and not so much by access to services and facilities.

Anxiety

8.3.170 NHS anxiety data is measured from responses answering the question "Overall, how anxious did you feel yesterday?".[54] Answers between 6-10 are classified as high anxiety scores. Although no breakdown of the sources of anxiety is available, it is expected that a share of this will be social anxiety, which has the capacity to harm the social ties of the individual.

8.3.171 In 2015/16, 19.37% of respondents in England were found to have a high anxiety score; this compares with 19.65% in Thurrock and 21.53% in Kent, indicating that in these areas, anxiety is marginally more prevalent than at the national level.

Use of social care

8.3.172 In Kent, the proportion of people who receive social care who feel safe is 71.2%, and in Thurrock 72.8%, better than England's 69.2%.[55]

8.3.173 Of adult social care users in Kent 52.3% say they have as much social contact as they wish; the same share in Thurrock is 46.3%. The proportion in England is lower, 45.9%. Regarding adult carers, the share who say they have as much social contact as they wish is higher in England (32.5%) than in either Kent (27.3%) or Thurrock (27.5%). Overall, high proportions of users of social services in both Kent (79.7%) and Thurrock (83.7%) feel

[54] NHS, 2.23iv – Self-reported wellbeing – people with a high anxiety score
[55] NHS Digital, Personal Social Services Adult Social Care Survey 2019

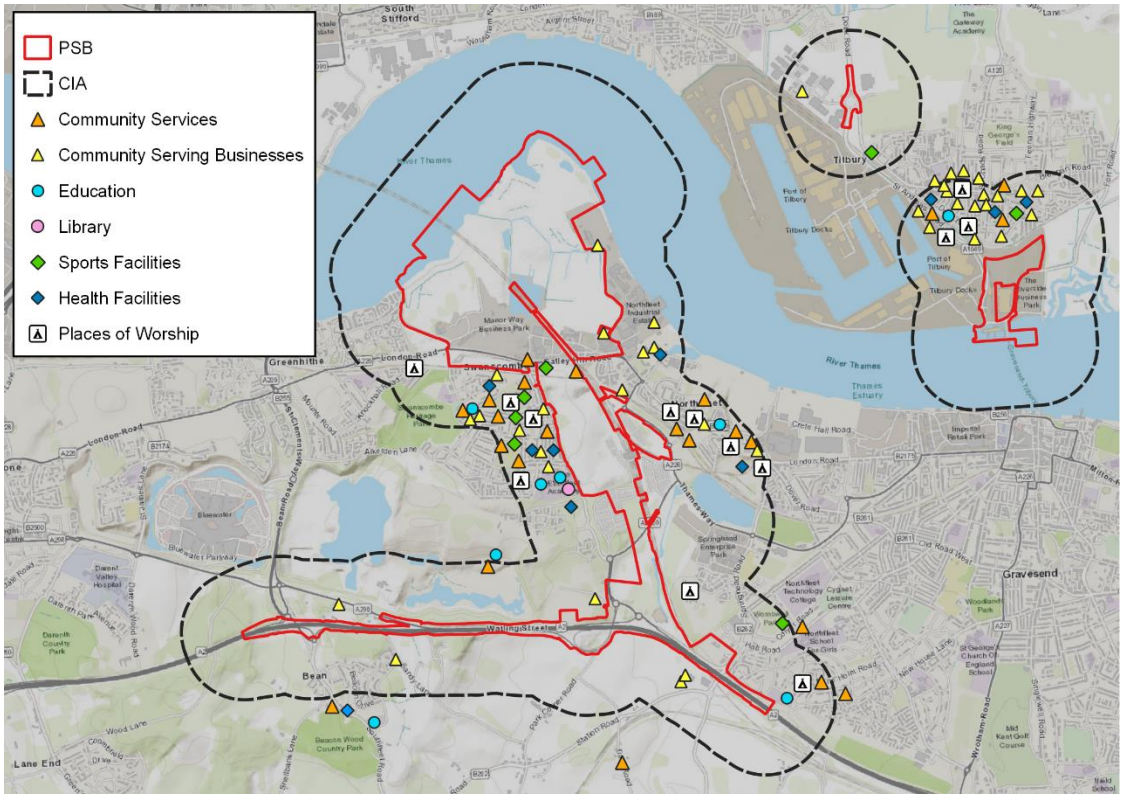
they have control over their lives, compared with 76.6% in England.

Existing community facilities

8.3.174 Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) shows that 76 community facilities are located within the CIA, and only one facility is situated in the PSB. This facility has been identified as a public convenience facility and is in operation. Overall, community centre provision is within the optimum range identified in research.

8.3.175 In terms of public services, the nearest ambulance service to the Kent Project Site is the SECAmb Station in Dartford, whereas the Essex Project Site is served by four ambulance services, the closest being the Euromed Ambulance Service. There are two police stations – one is located in the CIA on the north side of the river (Tilbury Police Station) and the other is located on the south side of the river on the eastern part of the Project Site (North Kent Police Station), just outside the CIA. There are also three fire stations in the vicinity of the Project Site – one is within the CIA whilst the other two are located on either side of the river but outside the CIA boundary.

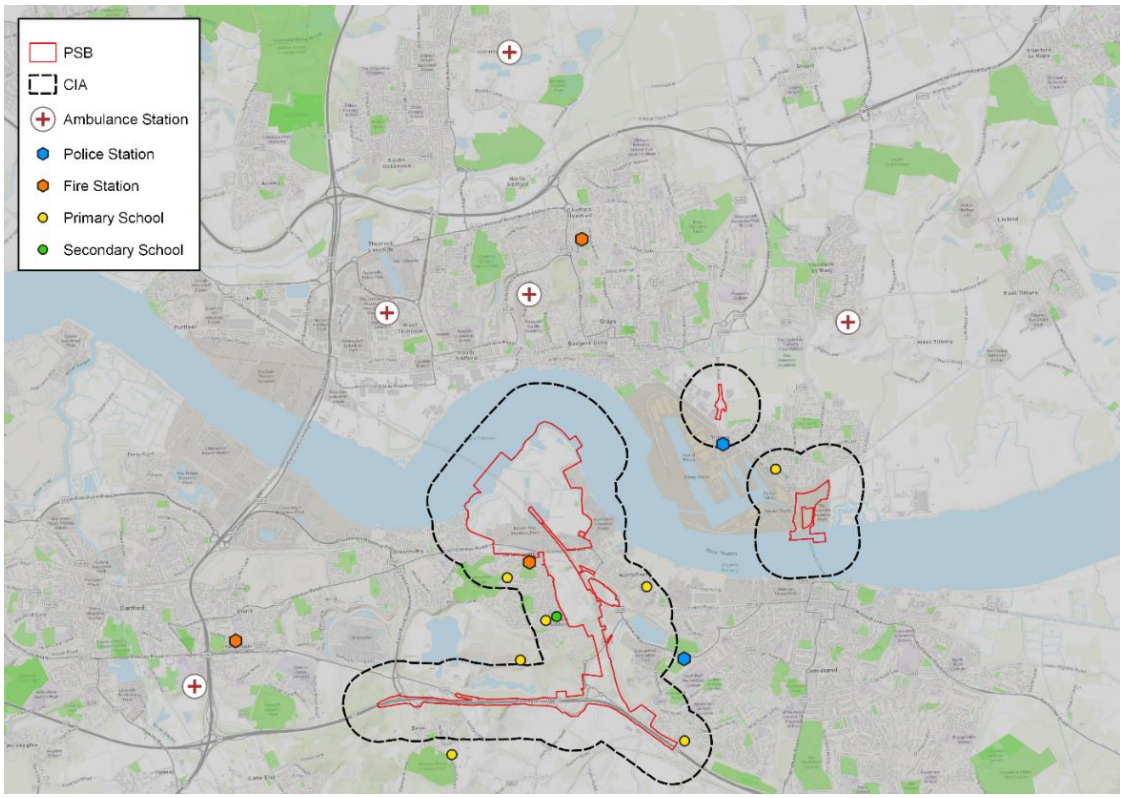
Diagram 8.3.7 Map of community facilities / services within the PSB and CIA



*NB: *note: Essandor Sports & Social Club, and the rifle range have not been assessed in terms of their displacement as they are assumed to not be in operation. They have however, been included in the diagram above to provide spatial context on their location.*

Source: Ordnance Survey Addressbase Premium; Google Maps

Diagram 8.3.8 Map of public services in the CIA



Source: Ordnance Survey Addressbase Premium; Google Maps

Future baseline

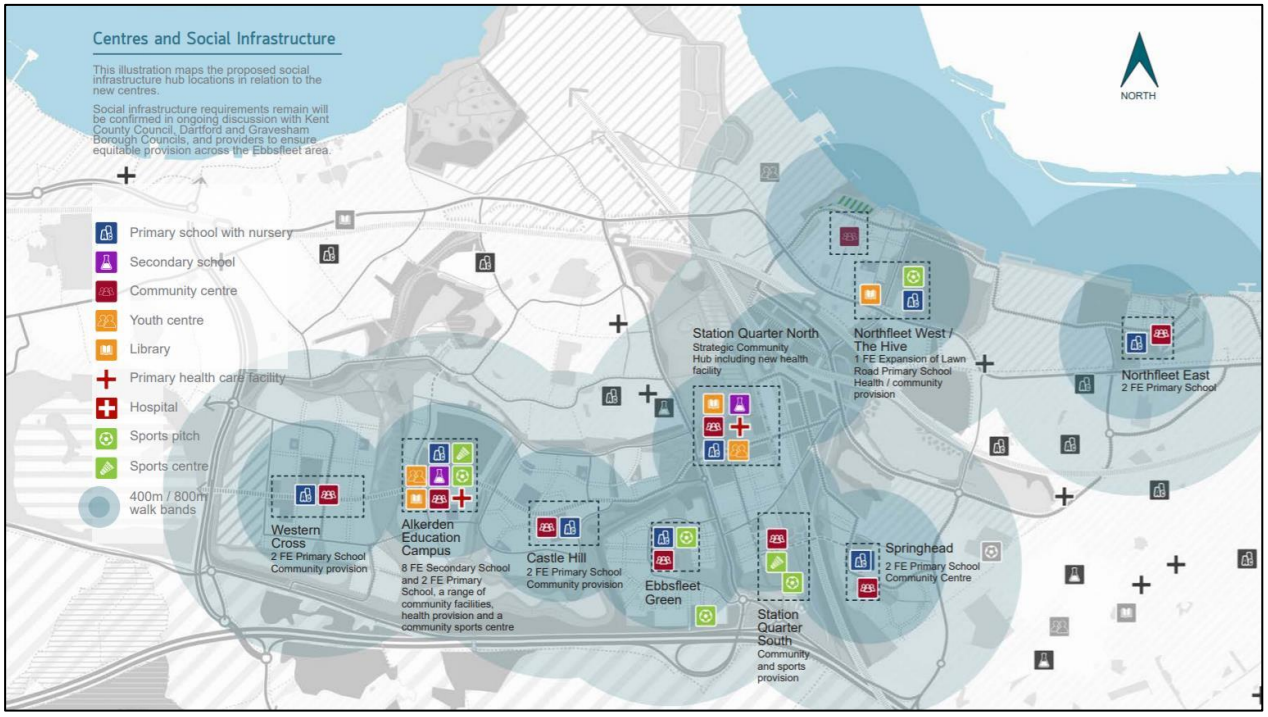
8.3.176 The EDC Implementation Development Framework outlines, for the six existing development proposals with consent, that there is maximum consent for approximately 70,000 sqm of community floorspace. Of this, 50,000 sqm is at Eastern Quarry (along the bottom of the CIA) and 21,000 sqm is in Ebbsfleet Central (in the centre of the CIA).[56]

8.3.177 Diagram 8.3.9 outlines the EDC framework for planned future social infrastructure uses (schools, community centres, youth centres, libraries, sports pitches, sport centres and healthcare provision), many of which will fall within the CIA.

8.3.178 Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) shows that of the two cumulative schemes in the PSB, only one (land west of Springhead Road in Swanscombe) is expected to provide public services and community facilities. Across the CIA, 6 cumulative schemes have set out proposals to provide public services, whilst 5 schemes will include the provision of community facilities. More detail on these proposals can be found in Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3).

[56] Ebbsfleet Development Corporation, Ebbsfleet Implementation Framework, 2017

Diagram 8.3.9 Map of centres and social infrastructure in the EDC



Source: Ebbsfleet Development Corporation, 2017

Potential effect of displacement or change in access to open spaces

8.3.179 As noted in the section above on obesity and physical activity, inactivity and excess weight are significant problems across Dartford, Gravesham and Thurrock.

Exercise

8.3.180 In Kent 24.4% of the 16+ population is a member of a sports club and 21.9% in Thurrock. Overall, sports club membership in the CIA is therefore likely slightly higher than the national average of 22%.

8.3.181 The estimate of the population who utilise outdoor spaces for exercise/health reasons in Kent is 18.7% and in Thurrock 36.9%, compared with the national share of 17.9%. Overall, while physical inactivity seems to be a problem for the area as identified above, good utilisation of sports clubs and outdoor spaces indicates that a lack of facilities is not the driver for this outcome.

8.3.182 As discussed in the earlier section on obesity, obesity and a lack of physical activity are considerable problems within the authorities within which the CIA falls. The under 75 mortality rate from cardiovascular diseases considered preventable is 53 per 100,000 population in Thurrock, much worse than England's 45.3 per 100,000 population, and 39.3 per 100,000 population in Kent, better than in England.

Open space provision in the CIA

8.3.183 The assessment of open spaces and PRoW undertaken within Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) found 41 open spaces within the CIA, none of which are situated within the PSB, and therefore none of them are at risk of displacement.

Marshes

8.3.184 In addition to the open spaces identified, there are three marshes which overlap with the PSB. These are: Black Duck Marsh, Botany Marshes and Broadness Salt Marsh.

8.3.185 Black Duck Marsh is relatively inaccessible due to water levels, although the northern side of the marsh has numerous pathways along the river and flood embankments that are frequently used by local people taking walks through the residential area of Ingress Park.

8.3.186 Botany Marsh is a wildlife reserve managed by the Kent Wildlife Trust and primarily funded by the industrial owners, Cemex. It consists of open waterbodies, reedbeds and aquatic areas, scrub, wet woodland and shingle areas. A network of pathways provide access around the eastern perimeter and into the main marshland areas in the interior of the reserve (although it appears flooding is an issue that is impeding access).

8.3.187 Broadness Salt Marsh on the northern peninsula is currently remote in character and flanked to the east by heavy industrial uses and to the south by further scrubby areas and wetland. The area has been artificially raised by landfill and industrial waste and is not publicly accessible.

8.3.188 Black Duck Marsh and Botany Marshes are accessible by official PRoW to the wider area. These PRoWs are reasonably well utilised. Broadness Salt Marsh is not accessible through official paths, though it is understood that some people do use unofficial paths.

PROWs

8.3.189 The PRoW and route assessment[57] finds that there are ten PRoWs and routes that will be affected by the London Resort. All remaining PRoW and routes that are not discussed in this baseline are assumed to be retained through both the construction and operation phase and are not considered to face significant impacts as a result of the London Resort.

8.3.190 For more detail on open spaces, marshes and PRoWs, including their location and distribution, refer to Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3).

Future baseline

[57] This is informed by a PRoW and routes assessment by EDP. The assessment deals only with those routes affected on the Peninsula. All remaining rights of way that are not discussed in this baseline are to be retained through both the construction and operation phase and are not considered to face significant impacts as a result of the London Resort.

8.3.191 The Ebbsfleet Implementation Framework will be used by the EDC to shape and support its plans. It has the ambition for the garden grid and major parks to focus on delivering an integrated blue and green network, connecting the city's parks and open spaces into a unified network which allows residents to travel across the city within green corridors. It also aims for seven city parks to be developed from existing open spaces within Gravesham and Dartford areas, providing areas for sports, play and informal recreation, as well as long distance views and ecological enhancement. Finally, it has the ambition that Swanscombe Peninsula Park, currently made of three marshes (Botany Marsh, Black Duck Marsh and Broadness Marsh), will be consolidated into one coherent ecological reserve. The proposals for the marshes being developed for this project by the Applicant will give consideration to these ambitions.

Potential effects from displacement of commercial uses

8.3.192 Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) estimates the employment currently supported at the Project Site. In total, 94 businesses have been identified, supporting approximately 1,040 FTEs across c. 69,100 sqm of space, and a range of uses types. The average firm size is 12 jobs per firm, indicating a high concentration of small businesses. Of the 94 identified businesses, 32 have been classed as 'bad neighbour uses'. These uses include heavy industrial functions such as concrete manufacturers, demolition services, metal scrap collectors, vehicle repair centres and large-scale industrial recycling plants.

Numbers unemployed/claimant count

8.3.193 In 2019, 85% of working age residents in the CSA were economically active, higher than the SRCA, RCA, and NCA (81%, 80% and 79% respectively). Additionally, 81% of working age CSA residents were in employment – higher than SRCA (78%), RCA (77%) and the NCA (76%).

Table 8.3.14 Labour market characteristics at relevant geographies, January to December 2019

	Working age pop	Economically active		Employed	
CSA	245,600	208,600	85%	199,900	81%
SRCA	2,121,600	1,712,700	81%	1,652,200	78%
RCA	15,414,900	12,350,700	80%	11,889,500	77%
UK	41,330,500	32,556,700	79%	31,266,400	76%

Source: ONS, Annual Population Survey, 2019

8.3.194 In 2018, there were 8,700 unemployed people in the CSA, equivalent to 3.5% unemployment rate. This is higher than the SRCA (2.9%), RCA (3.0%) and the NCA (3.1%).

Table 8.3.15 Unemployment and unemployment rate at relevant geographies, January to December

2019

	Unemployed	%
CSA	8,700	3.5%
SRCA	60,600	2.9%
RCA	461,000	3.0%
UK	1,290,300	3.1%

Source: ONS, model-based estimates of unemployment, 2019

8.3.195 The economic impact of the COVID-19 pandemic has resulted in adverse employment outcomes for individuals across the UK not captured within this data due to time lags in data production. In the CSA, at the climax of the job retention scheme, 27% of employees within the CSA were placed on furlough leave, which is broadly in line with the level seen across the UK of 26%. Data does not yet exist detailing how labour market outcomes such as unemployment rates have recovered as measures to mitigate unemployment have been lifted, however it can be thought that the labour market within the CSA is in a significantly worse position than the pre-COVID-19 data suggests.

Future baseline

8.3.196 The estimates of current workforce within the PSB are likely to provide a conservative assessment of job numbers which might be displaced. All users within the red line are aware of the status of the project, and within the estimates full occupancy is already assumed. It is therefore viewed unlikely that any additional workforce over and above the existing baseline estimated could be supported by the present uses. The effects are therefore assessed against the current baseline levels.

8.3.197 The EDC Implementation Development Framework outlines, for the six existing development proposals with consent, that there is maximum consent for over 600,000 sqm of office floorspace. Of this, 120,000 sqm is at Eastern Quarry (along the bottom of the CIA) and 450,000 sqm is in Ebbsfleet Central (in the centre of the CIA). In Northfleet Embankment West, 46,000 sqm is allocated to B1 (office), B2 & B8 (industrial). In Northfleet Embankment East, 87,550 sqm is allocated across B1, B2 & B8. In terms of retail space, there is expected to be a maximum of 28,000 sqm delivered across five of the six proposals (26,000 sqm at Eastern Quarry) and 147,000 sqm across an (undefined) split of retail, hotels and leisure in Ebbsfleet Central.[58]

8.3.198 In the future baseline it is therefore likely that in terms of quantum, the new floorspace delivered will more than offset the 69,100 sqm (NIA) of floorspace (72% of which is occupied, and 28% vacant) within the PSB which is lost as a direct result of the London Resort.

Potential health effects from displacement of residential dwellings

[58] Ebbsfleet Development Corporation, Ebbsfleet Implementation Framework, 2017

Baseline – Dartford housing market

8.3.199 One building in the PSB will be displaced. This is a property on the corner of London Road and Pilgrim's Road which is understood to form three dwellings.

8.3.200 Chapter 7: *Land use and socio-economics* (document reference 6.1.7) finds that there were 47,300 dwellings in Dartford in 2019, 87% of which were in the private sector. The detailed baseline finds that the Dartford vacancy rate is slightly lower than the England average (2.7%), but that housing in Dartford is far less affordable than the England average. It has higher median house prices (£311,000 compared to £240,000), higher affordability ratio (9.3 compared to 7.8), higher median monthly rents (£950 compared to £695) and higher proportion of gross monthly income spent on rent (33% compared to 28%). This aligns with consultation feedback from Dartford Borough Council who note that whilst the borough meets its local 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.

8.3.201 Dartford has a comparatively higher rate of rough sleepers (0.27 per 1,000 households) and number accepted as homeless (2.20 per 1,000 households) than England (0.24 and 2.03 respectively), but a lower rate of those in temporary accommodation (1.18 per 1,000 households) than England (2.22). Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) contains more detail on the Dartford housing market.

Future baseline - Dartford housing market

8.3.202 In terms of future housing need, the Dartford five year housing supply (2019 – 2024) identified a requirement for 4,184 additional dwellings within the borough; an average of 837 per year. If all were delivered at this rate, by 2022 Dartford could have added 2,510 additional dwellings. The borough identified 4,718 deliverable dwellings over the five year period, equating to 113% of the requirement. Of these 4,718 dwellings, 3,674 dwellings are forecast at sites where construction has already commenced. This suggests that a large proportion will have been delivered by 2022.

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

8.3.203 A high proportion of households within the NSA have access to a car or van, with only 22% indicating no access to a car or van in 2011. This compares to 27% in the region and 26% nationally.[59] On average, people in the local area travel further for work: 45% travel more than 10 km to work, significantly higher than in the region (34%) and nationally (32%).

8.3.204 As discussed above, obesity and a lack of physical activity are considerable problems within the authorities within which the NSA falls. The under 75 mortality rate from cardiovascular diseases considered preventable is 53 per 100,000 population in

[59] ONS, Census 2011

Thurrock, much worse than England's 45.3 per 100,000 population and 39.3 per 100,000 population in Kent, better than in England.

8.3.205 As the area faces a relatively high level of car dependency, the rate of road traffic accidents across the CSA is relatively high. In total, three local authorities of Dartford, Gravesham and Thurrock that make up the CSA face an average of 57 killed and seriously incidents (KSIs) involving road traffic each year per 100,000 residents, compared to a national average of 43.[60] A full analysis of KSI levels on individual road links in the vicinity of the PSB is undertaken in Chapter 9: *Land Transport* (document reference 6.2.9).

8.3.206 One of the significant advantages of the Project Site, setting it apart from any other major resort of its type, is the availability of public transport options; the development's proximity to available rail services, location adjacent to the River Thames and nearby Fastrack bus services provides a unique opportunity for the accessibility of the Proposed Resort.

8.3.207 The Kent Project Site is within proximity to four railway stations – Ebbsfleet International, Greenhithe, Swanscombe and Northfleet. Dartford and Gravesham are currently served by an extensive range of bus services, include Fastrack which operates between key public transport nodes and the proposed development, as well as Bluewater Shopping Centre. The Essex Project Site is located close to Tilbury Town Railway station and an existing bus service connects the station to the Port of Tilbury. Jetstream Tours operate an existing foot and bicycle passenger ferry between Tilbury and Gravesend, offering services 6 days a week all year.

8.3.208 An active travel audit is a qualitive analysis of the walking and cycling provision surrounding the Project Site. In 2017, an initial site audit was undertaken to determine the existing conditions of highway network and analyse the safety and comfort levels for pedestrians and cyclists using the local walking and cycling network. In September 2020, a supplementary site visit and active travel audit was undertaken to review the observations noted in 2017 and to incorporate Tilbury into the walking and cycling audit. The results of both of these audits are presented within ES Appendix 9.1: *Transport Assessment* (document reference 6.2.9.1).

8.3.209 The area surrounding the Kent Project Site benefits from a wide range of pedestrian facilities. A combination of PRoW, local footpaths and shared or segregated footways are available in the vicinity of the Kent Project Site. In general, the local area benefits from a relatively well-connected non-motorised user (NMU) network with the various PRoWs allowing further direct segregated access to local communities and neighbourhoods. There are several bridges and underpasses over the railway line(s) in the area providing crossing opportunities for active travel trips. The crossing points further enhance the accessibility in the local area.

8.3.210 Given the industrial nature of the area adjacent to the Essex Project Site, the NMU routes

[60] Further information detailing the road traffic accident and incident safety can be found in Chapter 9: *Land Transport* (document reference 6.2.9).

are limited to public footpaths around the Tilbury fort. There is limited access to Tilbury town and residential streets, however the 99 bus service operates between Tilbury Ferry Terminal and Tilbury Town approximately every 30 minutes, connecting the port to the Town centre. In addition to the existing facilities for pedestrians as set out above, both the Kent and Essex Project Sites are accessible to several cycle routes forming part of the National Cycle Network (NCN).

Future baseline

8.3.211 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.

8.3.212 The Lower Thames Crossing (LTC) is also a Nationally Significant Infrastructure Project which is seeking to obtain consent through a DCO application. It is understood that at the time of writing, the LTC DCO has been withdrawn, albeit that the intention is to resubmit as soon as possible. If consented, the LTC would be the longest road tunnel in the UK, stretching 26 miles and would include the implementation of 14.3 miles of new highway. The LTC is an important strategic consideration when developing the transport strategy for the London Resort as its potential implementation by 2027 has been considered in the transport modelling assessment of the London Resort proposals. If the LTC proposals are consented, the scheme will cause significant re-distribution of vehicles on the existing highway network within Kent, Thurrock and ultimately seek to reduce traffic levels as well as congestion at the Dartford Crossing.

8.3.213 Ebbsfleet Garden City is the first in a generation of new sustainable developments which will embrace neighbouring communities and towns to create a community offering a diverse range of opportunities to live, work and play. Reducing reliance away from private vehicle, improving travel options for residents and improving public health and wellbeing by reducing air pollution and improving air quality are all key drivers for KCC in the introduction of Mobility as a Service (MaaS) in Ebbsfleet. The multi-modal transport integration proposed by KCC will seek to include train travel (to/from London and Kent), Fastrack electric bus services, local Arriva bus services, bike and e-bike hire as well as electric car club hire.

Potential effect of construction resulting in changes in noise and vibration

8.3.214 Local authority-level statistics on sleep and night-time disturbance are not publicly reported. Nevertheless, lack of sleep and interrupted sleep are serious national health problems. While the National Sleep Foundation in the USA recommends between 7 and 9 hours of sleep for the average adult[61], the 2017 Great British Bedtime Report of the Sleep Council in the UK has revealed that almost three-quarters (74%) of Brits sleep less

[61] National Sleep Foundation, National Sleep Foundation Recommends New Sleep Times.

than 7 hours per night.[62] Some 12% sleep less than 5 hours.

8.3.215 The rate of noise complaints registered in Dartford in 2018/19 was 8.0 per 1,000 population, in Gravesham 4.6 per 1,000 population and in Thurrock 9.2 per 1,000 population. The national average was 6.8 per 1,000 population. As these three local authorities contain the NSA within their area, the NSA is expected to register broadly similar or slightly higher numbers of noise complaints per resident than occur nationally.[63]

8.3.216 Within Kent the proportion of the population exposed to road, rail, and air transport noise of 65 dB(A) or more during daytime is 4.9%, in Thurrock 2.9%, both better than the national rate of 5.5%. The proportion of the population in Kent exposed to road, rail, and air transport noise of 55 dB(A) or more during night-time is 8.1%, in Thurrock 5.1%, both better than the national rate of 8.5%.[64]

8.3.217 Existing uses within the PSB include several 'bad neighbour' and noise-intensive uses, including local industrial noise sources from scrapyard and metal work businesses operating along Dock Road.

8.3.218 Chapter 15: *Noise and vibration* (document reference 6.1.15) finds that the baseline noise environment in and around the Kent Project Site includes contributions from the following sources of noise:

- Road traffic noise using the existing principal east-west routes past the Kent Project Site: the A226 London Road to the north and the A2(T) to the south.
- Road traffic using the principal north-south route past the Kent Project Site: the B259 Stanhope Road and the B2175 Dover Road.
- Rail traffic on the east west network rail lines serving Greenhithe, Swanscombe and Northfleet stations
- Rail traffic on the high speed (HS1) rail lines serving (and passing through) Ebbsfleet International Station.
- Sources of industrial noise to the west of Swanscombe Marshes off Lower Road / Manor Road.
- Sources of industrial noise south of Swanscombe Marshes and north of London Road off Manor Way.
- Road traffic noise from local roads.

[62] Sleep Council, 2017, Great British Bedtime Report
[63] PHE, Public Health Profiles
[64] Ibid.

- Marine traffic on the Thames.
- Existing wharves on the Thames.
- Occasional aircraft overflight.

8.3.219 The baseline noise and vibration environment on-site in the Essex Project Site is noted on-site to include contributions from the following sources of noise:

- Industrial noise from activities in the Tilbury Port.
- Local industrial noise sources from scrapyard and metal work businesses operating along Dock Road.
- Road traffic from the A1089 (noted to be a route for lorries travelling to and from the port).
- Rail traffic operating at and through the Tilbury Town train station.

8.3.220 At each noise survey location there was found to be no evidence of tactile vibration due to road traffic or other sources during Project Site visits. As such, vibration is not considered to be a significant issue at the Kent Project Site, where the London Resort is understood to be erecting buildings.

8.3.221 The following healthcare and care-home facility noise sensitive receptors (NSRs), have been identified to be located near the Project Site:

Table 8.3.16 Kent and Essex Project Site healthcare and care-home facility NSRs

Kent Project Site NSRs	Essex Project Site NSRs
Swanscombe Health Clinic	Abbey Healthcare
Swanscombe Health Centre	BS Care Management
Eastgate Counselling	The Shehadeh Medical Centre
Kesson House Care Home	Tilbury Health Centre
Blue Care Facilities	

Source: ES Volume 1, Chapter 15: Noise and vibration (document reference 6.1.15)

8.3.222 The following education and research facility noise sensitive receptors (NSRs), have been identified to be located near the Project Site:

Table 8.3.17 Kent and Essex Project Site education and research facility NSRs

Kent Project Site NSRs	Essex Project Site NSRs
Knockhall's Early Birds Nursery and Primary School	Lansdowne Primary Academy
Springfield Lodge Day Nursery	St Mary's RC Primary
The Crayland's School	Olive AP Academy
Cygnets Preschool	Helping Hands Day Nursery
Saplings Nursery	Little Pirates Nursery
Manor Community Primary School	Tilbury Children's Centre
Ebbsfleet Academy	Tilbury Manor Junior School and Pioneer Academy
Cherry Orchard Primary Academy	
Snowden Hill Nursery	
Hope School	
Painters Ash Primary School	
Northfleet School for Girls	
Northfleet Technology College	
Shears Green Infant and Junior School	
Copperfield Academy	
St Botolph's Church of England Primary	
St Josephs	
Rosherville Church of England Primary	
Lawn Community Primary	

Source: ES Volume 1, Chapter 15: Noise and vibration (document reference 6.1.15)

8.3.223 In addition to the NSRs identified above, sensitive receptors are located where noise and vibration has the potential to have a negative impact on wildlife or ecologically sensitive sites.

Future baseline

8.3.224 The assessment of traffic noise and vibration from London Resort operation has been undertaken based on the future traffic flow predictions (road, rail and ferry) presented in detail in Chapter 9: *Land transport* (document reference 6.1.9).

Potential effect of construction resulting in changes in air quality

8.3.225 The picture on respiratory health is generally negative. The standardised mortality ratio measuring deaths at all ages from respiratory diseases is 101.5 in Kent and 122.3 in Thurrock (where 100 is the national average). For those aged under 75, the Kentish mortality rate from respiratory diseases (33.3 per 100,000) is slightly better than the English rate (34.7 per 100,000), but Thurrock's rate is significantly worse (36.8 per 100,000). For those over the age of 65, both authorities perform worse than the

nation.[65]

8.3.226 The literature review found that exposure to air pollution increases the risk of lung cancer. As discussed earlier, lung cancer is a particular problem in both Kent and Thurrock.

8.3.227 In both Kent and Thurrock, however, admissions for respiratory tract infections in children aged under 5, as well as admission rates for asthma for children aged 0-18 are lower than the national average.

8.3.228 The air quality environment around the Project Site is varied. There is an extensive air quality monitoring network near the Project Site, with three monitoring sites situated within the order of limits. Nearby roadside monitoring sites located adjacent to London Road exceeded legal limits of NO_2 in the most recent reporting year. Nearby urban background air quality monitoring sites (which are located away from significant emission sources such as major roads) monitored NO_2 concentrations below legal limits.

8.3.229 Where national air quality limits are exceeded, local authorities should declare these areas as Air Quality Management Areas (AQMAs). These areas are typically located where there are significant sources of air pollution along with relevant human exposure. Part of the Kent Project Site is located within the Northfleet Industrial Area AQMA (Gravesham Borough Council) and near the Dartford AQMA, which has been declared for nitrogen dioxide (NO_2) and particulate matter (PM_{10}) air quality objective exceedances.

8.3.230 Both human and ecological receptors are considered within the air quality chapter of the ES. The impact of the London Resort is predicted at existing receptor locations as well as at proposed onsite receptor locations in order to assess exposure of future site occupants to poor air quality. Receptors include: residential properties, amenity spaces, hospitals, care homes and schools. For a full overview of the receptors that will be considered, and the air quality objectives relevant for those receptors, refer to Chapter 16: *Air quality* (document reference 6.1.16).

Future baseline

8.3.231 Defra provide estimation of background air pollution data for all major pollutants for 1km grid squares across the UK. The website includes projections for future years up to 2030. Future year projections show all pollutant concentrations decreasing due to: improvements in emission control measures from point sources and industrial processes, improvement in emission abatement technology in the transport sector and local policies aimed at improving air quality.

Potential health effect of construction resulting in hazardous waste

8.3.232 Appendix 8.4: *Literature review* (document reference 6.2.8.4) identifies two well-known pathways whereby hazardous waste could impact health: emissions of volatile organic

[65] PHE, Local authority fingertip profiles

compounds (VOC) at landfill sites, and the stresses and fears generated by residing in areas potentially exposed to hazardous waste.

8.3.233 VOC emissions can cause nonspecific irritative respiratory conditions. These symptoms are related to pre-existing conditions. As discussed above in the context of air quality, the picture on respiratory health is generally negative in the NSA. The standardised mortality ratio measuring deaths at all ages from respiratory diseases is 101.5 in Kent and 122.3 in Thurrock (where 100 is the national figure). For those aged under 75, the Kentish mortality rate from respiratory diseases (33.3 per 100,000) is slightly better than the English rate (34.7 per 100,000), but Thurrock's rate is significantly worse (36.8 per 100,000). For those over the age of 65, both authorities perform worse than the nation.[66] The existing negative trend in respiratory health could exacerbate any emissions of hazardous waste materials.

8.3.234 Stress and anxiety can be exacerbated by the fear of potential exposure to hazardous waste. In Kent 21.1% of residents self-reported having a high level of anxiety in 2018/19, and in Thurrock 22.8%; both are above the national figure of 19.7%. However, in terms of the prevalence of the more serious anxiety disorders, only 3.5% of Kent's and 4.3% of Thurrock's 16-74 population is affected, compared with 4.5% across the nation.[67]

8.3.235 The baseline section for hazardous waste of Chapter 19: *Materials and waste* (document reference 6.1.19) includes regional and national hazardous landfill capacities, as recommended by IEMA guidance. The following figures are the remaining capacities at the end of 2018 from the Waste Data Interrogator (Environment Agency). These total capacities include sites for receiving both hazardous commercial and industrial waste, as well as hazardous construction, demolition and excavation waste. At the end of 2018, Kent had a remaining hazardous landfill capacity of approximately 228,000m^3, and England had a total of 19,820,000m^3. Essex reported no active hazardous landfill sites, so it has been excluded from this assessment.

Future baseline

8.3.236 All pollutants, including particulate matter, are expected to face modest decreases in the years until 2030, marginally improving the capacity for receptor populations to respond to changes in pollution. The baseline assessment undertaken within Chapter 19: *Materials and waste* (document reference 6.1.19) identifies the anticipated change in the availability of hazardous landfill capacity across England and within the South East. On the basis on trends in historic data since 2004, hazardous landfill capacity is anticipated to shrink by a further 4% each year beyond 2018 in England, and by a rate of 1% within Kent.

Potential health effects of construction resulting in water contamination

8.3.237 A range of diseases and conditions can be spread through microbial or chemical

[66] PHE, Local authority fingertip profiles
[67] PHE, Local authority fingertip profiles

contamination of water. Many of the chemical pollutants often recorded are carcinogenic, as identified in Appendix 8.4: *Literature review* (document reference 6.2.8.4).

8.3.238 The standardised incidence ratio of all cancer incidences shows which areas are performing better or worse than England as a whole in terms of cancer incidence. Kent's standardised incidence ratio is 100.5 and Thurrock's is 100.3, indicating that cancer incidence in the area is very slightly higher than the England average (100). Mortality data presents a mixed picture: the under 75 mortality rate from all cancers is 131.6 per 100,000 in Kent, slightly better than nationally (132.3), but Thurrock performs significantly worse in this measure, recording 142.2 fatalities under 75 per 100,000 population, despite its lower incidence of cancer.

8.3.239 Chapter 17: *Water resources and flood risk* (document reference 6.1.17) provides a technical assessment of the baseline conditions with respect to water quality in the vicinity of the PSB. Part of the PSB is included in, or is on the border of the Swanscombe Marine Conservation Zone, a national planning designation that aims to keep water quality within the area in a favourable condition as a result of the ecological assets it holds of intertidal mud and the tentacled lagoon worm.

8.3.240 The Water Framework Directive assessment undertaken within Chapter 17: *Water resources and flood risk* (document reference 6.1.17) outlines the following information relevant for the assessment of water quality.

"*Surface water drainage within the Peninsula of the Kent Project Site currently discharges into the River Thames, principally through the Swanscombe Channel. Surface water in the Essex Project Site principally discharges to the River Thames through East Tilbury Dock Sewer. Surface water draining into the River Ebbsfleet to the south east of the Swanscombe Peninsula also discharges into the River Thames. There is potential for on-site activities to influence the water quality of these water bodies through connections and proximity both during construction and connections during the operational phase of the development.*"

8.3.241 Chapter 17: *Water resources and flood risk* (document reference 6.1.17) assesses that the following assets are the most sensitive to changes in water quality:

- River Thames
- Black Duck Marsh and Botany Marsh
- Broadness Marsh
- River Ebbsfleet
- Sawyer's Lake
- Castle Hill
- Water services infrastructure (surface water)
- Water services infrastructure (supply)

Future baseline

8.3.242 Chapter 17: *Water resources and flood risk* (document reference 6.1.17) considers that the future baseline is likely to be similar to the current baseline, given the relatively short period of time under consideration.

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

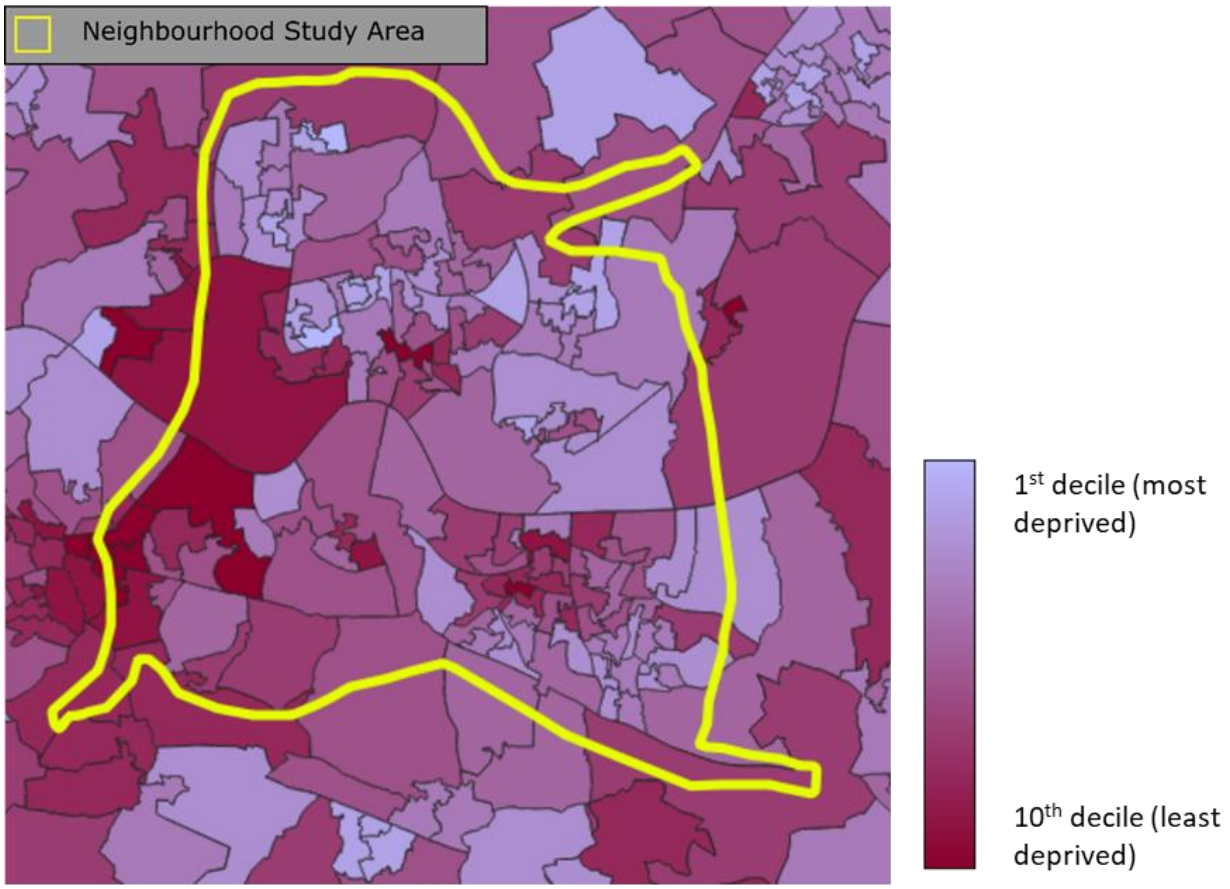
8.3.243 Neighbourhood amenity refers to the quality of private and public physical external space. It depends on several factors, but the construction of the London Resort is expected to impact on neighbourhood amenity through changes to traffic, noise and vibration, air quality and visual amenity.

8.3.244 MHCLG's Index of Multiple Deprivation[68] has a subdomain measuring deprivation related to the quality of the living environment. The neighbourhood amenity health assessment area ranks on average within the 6th decile (where 1st decile is the most deprived 10% of areas), meaning that the area is in the top 50% of England in terms of the quality of its living environment. The area therefore currently performs broadly in line with the national average terms of neighbourhood amenity.

8.3.245 Diagram 8.3.10 shows how each of the NSA LSOAs perform on the IMD's quality of the living environment ranking. Pockets of deprivation exist in the northwest and southeast of the area, but the NSA overall is performing relatively well.

[68] MHCLG, 2019, Index of Multiple Deprivation

Diagram 8.3.10 Quality of living environment deciles in the NSA (1=worst decile)



Source: MHCLG, 2019, Index of Multiple Deprivation

8.3.246 As discussed in the baseline for the noise and vibration effects related to construction activities, most British adults do not get their recommended amount of sleep.

8.3.247 As discussed in the baseline for the air quality impacts related to construction activities, the mortality rate from respiratory diseases in Kent and Thurrock is higher than across England, although hospital admissions for respiratory tract infections for those under 5 and for asthma under 18 are lower in the two areas than nationally.

8.3.248 As discussed in the baseline for the impacts on local traffic and active travel expected during the construction phase, most of the CSA suffers from high rates of obesity and high rates of physical inactivity. The picture is more mixed regarding mortality from cardiovascular diseases, with Kent performing better, and Thurrock worse than the national average. Many of the local transport networks are expected to remain unchanged and operate in a similar manner during the construction period.

8.3.249 Chapter 11: *Landscape and visual effects* (document reference 6.1.11) writes that the Project Site and its surroundings varies considerably in character and cannot be ascribed an overarching character, value or sensitivity. The majority of the Kent Project Site on the Swanscombe Peninsula comprises a large area of open land in a low-lying riverside

landscape beside the River Thames, between the Queen Elizabeth II Bridge and Gravesend.

8.3.250 The Peninsula has a long industrial history relating to the manufacture of cement and the majority of the area is a brownfield site comprising previously developed land, some of which contains contaminated landfill. The landscape fabric across the Swanscombe Peninsula is extremely varied and includes extensive areas of marsh and grassland, semi-mature woodland and scrub, grassed embankments which act as flood defences, and some industrial premises, with public access limited to a small number of public footpaths including Saxon Way, which runs along the western flood embankment. Much of the Peninsula has re-vegetated naturally former industrial areas and spoil heaps, but areas of bare ground remain.

8.3.251 The Essex Project Site is in an area of low-lying and level landscape, similar to that of the Kent Project Site which is not surprising given the Thameside location. Large commercial warehouses, cranes and dockland buildings front onto the Thames and are located throughout the area which dominate the skyline throughout the nearby area. Where the area has not been developed for warehouses of dockside uses, it is mostly hard-surfaced used for the storage of vehicles, containers or bulk materials.

8.3.252 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. It is expected that the visual influence of the Project Site will increase with development.

Future baseline

8.3.253 It is anticipated that, in the absence of development, the Essex Project Site would continue to operate as an International Cruise Terminal and associated car park and storage areas, whilst the Kent Project Site would either continue as an area of previous industrial uses, existing commercial units and marshland or be redeveloped at least in part for other uses. Depending on the management regime, the landscape structure may change particularly with regard to the Swanscombe Peninsula area of the Kent Project Site with continued recolonisation of vegetation leading to increased scrub and trees.

8.3.254 Such variations are unlikely to be significant and would be considered as standard fluctuations. It is near-certain that the existing baseline described above would therefore not appreciably change.

8.3.255 The future baseline for air quality, traffic and noise conditions is considered above.

Potential effects of the presence of the construction workforce

8.3.256 The London Resort is expected to support a large construction workforce. The presence of a large construction workforce can be intimidating for some, and thus detrimental to social wellbeing – even if, as the literature review discusses, the stereotypical image of the anti-social construction worker has little basis in reality, and anti-social behaviour

does not tend to become a problem around construction sites.

8.3.257 As discussed previously, obesity and a lack of physical activity are considerable problems within the CSA authorities. The under 75 mortality rate from cardiovascular diseases considered preventable is 53 per 100,000 population in Thurrock, much worse than England's 45.3 per 100,000 population and 39.3 per 100,000 population in Kent.

Construction worker numbers

8.3.258 In 2019, there were 17,300 working age residents in the CSA that were employed in construction. These accounted for 8.5% of the total residential workforce; a smaller representation than in the SRCA (9.3%) but larger than the RCA (7.4%) and the NCA (7.2%).

Table 8.3.18 Working age residents employed in construction, January to December 2019

	Working Age Residents Employed in Construction	Total Workforce	% of Employed Residents Working in Construction
CSA	17,300	203,000	8.5%
SRCA	161,000	1,723,100	9.3%
RCA	913,700	12,396,300	7.4%
UK	2,335,900	32,551,900	7.2%

Source: ONS, Annual Population Survey, 2019

Construction business counts

8.3.259 In 2019, there were 3,200 construction firms in the CSA, accounting for 22% of all firms. This is a higher proportion than the Sub-Regional Area (19%) and far higher than the regional and national comparators (13%).

Table 8.3.19 Construction business counts at relevant geographies, 2019

	Construction Firms	All Firms	Proportion of all Firms
CSA	3,200	14,800	22%
SRCA	26,600	143,500	19%
RCA	154,700	1,208,900	13%
UK	343,700	2,718,400	13%

Source: ONS, UK Business Counts, 2019

Crime and fear of crime

8.3.260 Crime and the fear of crime may result in lower rates of physical activity and higher rates of mental distress. As discussed in earlier sections, the local authorities which contain the CSA tend to have problems with the physical inactivity of their residents, as well as higher rates of anxiety.

8.3.261 Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) contains detailed information regarding crime in the CSA. Overall, there were 114 crime incidents per 1,000 population in 2019 in the CSA, representing a 35% higher prevalence of crime than across England and Wales (84 per 1,000).[69] The type of crime with the highest rate in the CSA was violence without injury (20 per 1,000), which was almost double the national rate of 11. For many types of crime, the CSA is in line with, or slightly higher than national rates. Criminal damage and arson, shoplifting, stalking and harassment, vehicle offences and violence without injury are all higher.

8.3.262 Across the CSA, approximately 9,000 anti-social behaviour (ASB) incidents were recorded in 2018, equivalent to 23 per 1,000 population. Comparatively, this is relatively lower than the regional average recorded across the SRCA (Kent and Essex), where 80,800 incidents were recorded at a rate of 27 per 1,000 population.

8.3.263 Since 2015, CSA and national crime rates have been rising, however there has been a relatively faster increase in the CSA than other comparators, indicating a growing problem with crime in the CSA. The Index of Multiple Deprivation (IMD) ranks Dartford (6th), Gravesham (19th) and Thurrock (75th) most deprived on crime of 317 local authorities.[70]

Future baseline

8.3.264 In 2019, the Construction Skills Network estimated that 168,500 UK construction jobs would be created between 2019 and 2023, reaching 2.79 million in 2023. This equates to 0.5% annual growth, in line with the whole economy average.[71] Table 8.3.20 displays the growth in relevant regions.

Table 8.3.20 Construction employment growth 2019-2023

	Construction jobs required (2019 to 2023)	Total construction jobs 2023	Growth (2019 – 2023)	Annual growth
South East	13,200	429k	3.9%	0.8%
East of England	24,550	250k	2.0%	0.4%
Greater London	17,800	453k	4.8%	0.9%
UK	168,500	2.79m	2.6%	0.5%

[69] ONS, Crime Statistics, 2019
[70] MHCLG, Index of Multiple Deprivation, 2019
[71] Construction Skills Network forecasts 2019-2023, 2019

Source: CITB, Construction Skills Network forecasts 2019-2023, 2019; Volterra calculations.

8.3.265 As described in Chapter 7: *Land use and socio-economics* (document reference 6.1.7), the cumulative schemes are expected to require a total of 6,060 construction workers in 2023.

8.3.266 As described in Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3), crime levels per 1,000 population in the CSA have generally moved in the same direction as the corresponding trends exhibited by both the RCA and nationally (both rising in the past three years), there has been a relatively faster increase in the rate of crime in the CSA since 2016 than other comparators, indicating a persistently more pronounced problem with crime in the CSA

COVID-19

8.3.267 The adverse impact of the COVID-19 pandemic on the economy at large has been relatively severe since the outbreak began. In particular, the labour market is a segment of the economy that has been heavily affected by the restrictions that have been put in place to curb the virus. Such restrictions have resulted in a contraction in economic activity, forcing many businesses to place their employees on furlough. National statistics indicate that the number of furloughed workers within the construction industry peaked in mid-April, with c. 49% (721,000 jobs) of UK construction workers being furloughed.[72] This number has since fallen: the most recent data shows that in late July, approximately 19% (277,000 jobs) of construction workers were reported to be on the job retention scheme, equivalent to a 62% reduction from peak levels. When compared to other sectors, the recent reduction in furloughed construction workers is the 2nd fastest decrease (out of 19 sectors) in relative terms, indicating the potential for an earlier recovery than other industries.

8.3.268 Whilst the immediate economic effects of the pandemic are highly severe, available initial forecasts point toward a short-term impact with economic recovery to pre-pandemic levels anticipated to have occurred by 2022 (the first year of construction).[73] This sharp decline in GDP is the most severe quarterly reduction since records began in 1955. An economic contraction of this scale over a relatively short period of time, means that the UK economy entered its first recession since the 2008 financial crisis. However, future projections predict that GDP will revert back to its pre-pandemic level by the end of 2021.[74] With that being said, the degree to which these forecasts can be relied upon is largely dependent on how the pandemic evolves and the response of central government, businesses and households over time. Given this uncertainty, these forecasts should be treated with caution.

[72] ONS (2020), Coronavirus Job Retention Scheme statistics: September 2020
[73] HM Treasury (2020) Forecasts for the UK economy
[74] Bank of England (2020) Monetary Policy Report August 2020

Potential effect of work and training opportunities created

8.3.269 The construction activity associated with the London Resort will generate a significant level of employment. As detailed in Appendix 8.4: *Literature review* (document reference 6.2.8.4) low incomes and unemployment have significant detrimental effects on health.

8.3.270 The detailed employment baseline found in Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) is summarised below.

8.3.271 As discussed earlier, in 2019, 85% of working age residents in the CSA were economically active, higher than the SRCA, RCA and NCA (81%, 80% and 79% respectively). Additionally, 81% of working age CSA residents were in employment – higher than SRCA (78%), RCA (77%) and the UK (76%).

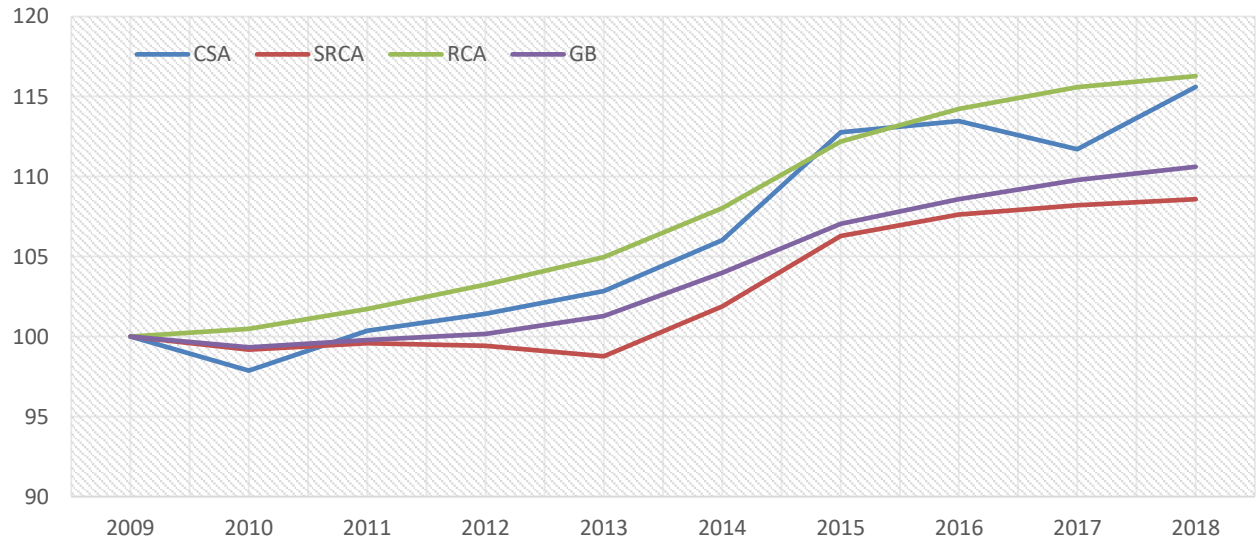
Unemployment

8.3.272 As discussed under 'potential effects from displacement of commercial uses', the unemployment rate was higher in the CSA than in comparator geographies in 2019.

Employment growth

8.3.273 The diagram below displays an index of employment growth across the study areas. Since 2009, the CSA and RCA have grown by 16%, faster than GB (11%) and SRCA (9%). The CSA did experience a dip in 2017 which was not seen in other areas. This was mostly driven by Dartford, who recorded 5,000 less jobs in 2017 than in 2016. Half of these Dartford losses (2,500 jobs) were recovered in 2018.

Diagram 8.3.11 Index of employment growth 2009 to 2018 (2009 = 100)



Source: ONS, Business Register and Employment Survey, 2018

8.3.274 A young person not in education, employment or training (NEET) provides a potential source of workforce for the London Resort. NEETs are a market which may benefit from the employment and skills initiatives offered by the London Resort. Data is not available at the CSA level, therefore SRCA is used to proxy the NEET availability. In the three months to February 2019, there was an average of 3,720 16 to 17 year olds in the SRCA that were classified as NEET. The majority of these were in Kent (2,070). The count of NEETs as a proportion of 16 to 17 year olds was 5.1%, slightly higher than the RCA (4.9%) and slightly lower than England (5.5%). The proportional representation of NEETs is noticeably higher in Medway (6.9%) and Kent (6.4%).

Table 8.3.21 Young people not in education, employment or training (NEETs) 2018-2019

	NEETs (aged 16 to 17)	NEETS (as a proportion of 16 to 17 year olds)	Of which known to be NEET	Of which activity not known
SRCA	3,720	5.1%	2.6%	2.5%
Kent	*2,070*	*6.4%*	*2.8%*	*3.6%*
Medway	*440*	*6.9%*	*2.8%*	*4.1%*
Thurrock	*60*	*1.6%*	*1.6%*	*0.0%*
Essex	*1,150*	*3.7%*	*2.4%*	*1.3%*
RCA	23,410	4.9%	2.3%	2.7%
NCA	61,830	5.5%	2.6%	2.9%

Source: Department for Education, NEET and participation: local authority figures, 2019

Skills in the CSA

8.3.275 The London Resort will provide a significantly valuable opportunity to raise the qualifications of construction workers, providing upskilling and training opportunities. To assess the impact of this, the existing construction labour market, skills and training should be understood. As discussed in Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) in 2019 only 33% of CSA residents were qualified to NVQ4+ level, comparable to the SRCA (35%) but lower than the RCA (46%) and the UK (40%). Of all CSA residents, 9% had no qualifications- slightly higher than the SRCA and UK levels (8%) and higher than the RCA (7%). These imply that residents of the CSA are qualified to a lesser level than other geographical comparators.

Table 8.3.22 Resident qualifications, January to December 2019

	CSA	SRCA	RCA	NCA
NVQ4 or above	33%	35%	46%	40%
NVQ3 or above	52%	54%	62%	58%
NVQ2 or above	72%	73%	78%	76%

	CSA	SRCA	RCA	NCA
NVQ1 or above	83%	85%	87%	86%
Other Qualifications	7%	6%	7%	7%
No Qualifications	9%	8%	7%	8%

Source: ONS, Annual Population Survey, 2019

Future baseline

8.3.276 In 2019, the Construction Skills Network estimated that 168,500 UK construction jobs would be created between 2019 and 2023, reaching 2.79 million in 2023. This equates to 0.5% annual growth, in line with the whole economy average.[75] The table below displays the growth in each relevant region.

Table 8.3.23 Construction employment growth 2019-2023

	Construction jobs required (2019 to 2023)	Total construction jobs 2023	Growth (2019 – 2023)	Annual growth
South East	13,200	429k	3.9%	0.8%
East of England	24,550	250k	2.0%	0.4%
Greater London	17,800	453k	4.8%	0.9%
UK	168,500	2.79m	2.6%	0.5%

Source: Construction Skills Network forecasts 2019-2023, 2019

COVID-19

8.3.277 The construction labour market has experienced several supply-side shocks due to COVID-19, with an estimated peak of 49% (721,000) of UK construction workers being furloughed (14th April 2020). [76] The most recent data (31st July 2020) shows this number has fallen to 19%, which is the 2nd fastest decrease in relative terms when compared to furloughed workers across 19 sectors. This may be an indication of a potential earlier recovery for the construction industry compared to other industries. However, the future impact is uncertain, so this assessment conservatively assesses the sensitivity based on current baseline data and pre-COVID-19 forecasts.

8.3.278 Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) presents more information on the baseline for employment.

[75] Construction Skills Network forecasts 2019-2023, 2019
[76] ONS (2020), Coronavirus Job Retention Scheme statistics: September 2020

Potential health effect of construction workers on health services

8.3.279 Existing healthcare provision should be collected so that the relative additional strain on healthcare provision can be determined. Further details on the extent of these constraints can be found in Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3), which includes the capacity issues raised after formal consultations with relevant health authorities.

Table 8.3.24 GPs in the CIA

Map ID	GP Name	Borough	Total Patients	Total GP FTEs	Patients per GP FTE
1	Commonwealth Health Centre	Thurrock	5,500	2.2	2,500
2	The Shrubbery Surgery	Gravesham	15,900	6.3	2,500
3	Bean Surgery	Dartford	20,400	5.9	3,400
4	Springhead Health	Gravesham	22,800	5.7	4,000
5	Tilbury Health Centre	Thurrock	11,500	2.5	4,600
6	Sai Medical Centre	Thurrock	10,300	1.0	10,300
-	**Total - CIA**	-	**86,400**	**23.6**	**3,700**
-	**Total - CSA**	-	**420,700**	**178.4**	**2,400**

Source: NHS Digital – GP Workforce Statistics March 2020.

8.3.280 Data on GP provision across the CIA shows that there are three GP practices situated on the north side of the river, 2 of which are within a 500m radius (CIA) of the site. On the south side, four GP's have been located, although practice-level data is only available for three of these GPs.[77] Across all six GPs, a total of approximately 86,400 patients are currently registered, and are served by 23.6 FTE practitioners. Consequently, a ratio of 3,700 patients for every GP FTE is estimated.

8.3.281 The study area for this effect has been reassessed based on consultation, and additional facilities have been included in the consideration. Impacts are considered over a broader area as a result.

8.3.282 Data shows that in terms of the supply of GP's, there is one GP for every 7,700 residents across the CSA. At the individual borough level, it is clear that Dartford and Gravesham are struggling to supply sufficient numbers of GP practices to the local population, with the average GP supporting 10,200 and 8,900 residents, respectively. This can be compared to the RCA and national level, where the average GP is accessible to 8,700 and

[77] The 7th GP (Swanscombe Health Centre) has been identified in the CIA, however there is no data available for this surgery.

8,300 residents, respectively.

8.3.283 Additionally, three pharmacies have been identified within the CIA. Two of these pharmacies fall just outside the PSB, namely Ackers Chemists Ltd and Swan Valley Pharmacy. The other pharmacy (Hill Pharmacy) lies just within the CIA boundary.

8.3.284 There are four NHS registered dental surgeries that are situated within the CIA. Across all four surgeries, a total of 14 dental practitioners carry out these dental services. NHS information on each surgery also indicates that only one of these practices is not taking in new patients.

Table 8.3.25 Dental practices within the CIA

Dental practice name	No. of practitioners	Taking in new patients ?
Alignden NK Ltd	5	Yes
Hews House	1	No
Elite Dental Studio	4	Yes
Patiali Limited	4	Yes
Total	**14**	**-**

Source: NHS Dental Statistics, 2019-20

Emergency healthcare

8.3.285 The nearest A&E to the site (falling within the CIA) is Darent Valley Hospital, which is part of the Dartford and Gravesham NHS Trust. The Dartford and Gravesham Trust also covers Queen Mary's Hospital and Erith & District Hospital, but these do not offer A&E services. The nearest major trauma centres to the PSB are the King's College Hospital and Royal London Hospital located in London.

8.3.286 The table below shows the number of A&E attendances in 2018/19 and the percentage of A&E visits that were admitted, transferred or discharged within 4 hours at the Dartford and Gravesham Trust as well as the Basildon and Thurrock Trust. This is compared to that of the three other NHS Trusts falling under the Kent and Medway CCG that have Accident and Emergency (A&E) departments. It can be seen that the Dartford and Gravesham Trust as well as the Basildon and Thurrock Trust are both performing better than two of the other Trusts and slightly better than the national average for England, with respectively 87% and 83% of people being attended to in under 4 hours. No trusts hit the NHS target of 95% of A&E patients admitted, transferred or discharged within 4 hours, however this is also the case at the national level, demonstrating countrywide constraints.

Table 8.3.26 A&E attendances and performance

NHS trust name	A&E attendances 2018-19	Percentage admitted, transferred or discharged in 4 hours or less 2018-19
Dartford and Gravesham NHS Trust	**132,300**	**87%**
Basildon and Thurrock University Hospitals NHS Foundation Trust	**131,290**	**83%**
East Kent Hospitals University NHS Foundation Trust	221,400	70%
Maidstone and Tunbridge Wells NHS Trust	183,400	91%
Medway NHS Foundation Trust	125,900	80%
England	**22,367,800**	**84%**

Source: NHS Digital, 2018/19 - Provider level analysis for HES Accident and Emergency Attendances

Future baseline

8.3.287 The Dartford Borough Council Infrastructure Delivery Plan states that there is to be a new hub facility for lifelong learning at Eastern Quarry within the Ebbsfleet Garden City in order to meet new demand arising from development in the local area.[78] This facility, which will be within the CIA, will be contained within the Health, Education and Innovation Hub to be delivered by EDC by 2025. Consultation with EDC has been undertaken regarding the potential health services to be delivered within this facility. It is understood that the services delivered within the facility have the potential to respond to some of the healthcare demands generated by the London Resort.

8.3.288 In addition, a new primary healthcare facility is being provided at Stone / Greenhithe area (just outside the CIA) providing new facilities for three GP practices in order to meet demand from new housing development nearby. This will be delivered by 2022. The Plan also mentions the potential expansion at Darent Valley Hospital in response to demand from development, but this is uncertain.

8.3.289 Thurrock District Council are planning for the delivery of an Integrated Medical Centre to be developed within the centre of Tilbury and provide additional capacity for healthcare and community health infrastructure. The Integrated Medical Centre will contain GP and outpatient services, alongside community health uses such as mental health services, community diagnostics, and community use floorspace such as library and cafe provision. The timeframe for delivery in unknown, but it is thought following consultation with Thurrock District Council that the facility will be complete and active by the point at which operational phase impacts are assessed.

8.3.290 Current proposals will see the completion of an additional Urgent Treatment Centre at

[78] Dartford Borough Council, 2019, Infrastructure Delivery Plan

Gravesham Hospital. This facility relocates existing urgent care services provided by the Minor Injuries Unit at Gravesham Community Hospital and the White Horse Walk-in Centre at Fleet Health Campus in one location, as well as providing additional patient capacity.

COVID-19

8.3.291 The pandemic has had a variety of effects upon the current baseline for health provision. In some ways, demand has increased dramatically, with far more patients requiring ventilation and intensive care units as a result of the virus. This sudden demand has placed additional stress on an already constrained health care system at the local and national levels.[79] Although, the immediate response to sufficiently meet this enhanced demand, has meant that the operating capacity of hospitals has managed to avoid entering a severe deficit in available capacity.[80]

8.3.292 However, in other ways, demand has decreased dramatically. The NHS stated that millions of people were avoiding seeking treatment given concerns over the virus. In April 2020 (the height of the lockdown measures), A&E attendances were 57% lower than that of the monthly average for 2019. This was made up of a 49% drop in major attendances and a 72% drop in minor injury attendances. At the time of writing, the most recent A&E attendance figures were for August 2020, which are 20% lower than the 2019 monthly average (13% drop for major and 32% drop for minor attendances).[81] For GP surgeries, the total number of appointments recorded in GP systems decreased by 15% between March and August 2020, from 24 million to 20 million.[82] The lack of attendance can, in some cases, mean that the patients' conditions become even more severe as they delay their treatment.

8.3.293 On top of lower demand for health services, a poll of more than 13,000 NHS doctors, 56% stated that care for patients without COVID-19 symptoms had worsened.[83] Many surgeries started telephone appointments so as to decrease the risk to patients coming into the surgery and help them to avoid the virus risks.[84] However, these consultations can often be less effective than in-person.

8.3.294 This all implies that, whilst the complexities of the pandemic mean that it is difficult to fully gauge the overall impact that it is having on current health provision, demand from unseen patients or patients who received lesser quality care throughout 2020 will be carried forward to the future baseline, increasing future supply pressures. Indeed, two in five of more than 13,000 NHS doctors cited the longer-term impact on patient clinical demand as their top concern relating to the coronavirus pandemic.[85] There are fears that

[79] The Health Foundation, 2019, Falling short: the NHS workforce challenge.
[80] The Health Foundation, 2020, COVID-19: Five dimensions of impact.
[81] NHS, 2020, Estimated A&E attendance and emergency admissions timeseries by month.
[82] NHS, 2020, Appointments in General Practice August 2020.
[83] GP Online 2020, Doctors fear 'huge spike in demand' after COVID-19 pandemic.
[84] In August 2020, 43% of appointments took place over the phone compared to 14% in February 2020. NHS, 2020, Appointments in General Practice August 2020
[85] GP Online 2020, Doctors fear 'huge spike in demand' after COVID-19 pandemic

the lack of routine healthcare this year could cause a huge spike in demand in subsequent years. In a recent poll (August 2020), 26% of doctors said that in the last two weeks non-COVID demand had increased to pre-pandemic levels, with 17% saying that demand is now even higher than it was before.[86] There is a lack of data at more localised levels, but it is assumed that these national trends are applicable to the CIA.

8.3.295 Another important aspect of the health impacts associated with the pandemic, is the extent to which mental-health issues have been affected. Comparative analysis on the state of mental health across several demographic groups, found that after factoring in pre-pandemic trends, severe mental health has deteriorated substantially (by 8.1% on average) as a result of the pandemic-induced lockdown.[87] For adults in the UK, specific issues that were cited as affecting well-being the most were uncertainty about the future (63%), anxiety/stress (56%), and boredom (49%).[88] The emergence of these findings has raised concerns on the widening of pre-existing inequalities in mental-health, and with that comes added concern over reduced access to mental health services. Reports show that almost half of psychiatrists have seen increases in urgent and emergency cases during lockdown, yet a similar proportion have seen a decrease in routine appointments.[89] Such avoidance has instilled fears that the post-pandemic period may see a sudden influx of untreated mental illness, particularly from new referrals who have also been growing in numbers.[90] Similar to the data on general healthcare provision, there is also a lack of mental health data at the local levels, but it is assumed that these national trends are applicable to the CIA.

8.3.296 Overall, the uncertainty surrounding the crisis means that all future outcomes with regard to healthcare provision are speculative and are therefore likely to change as the public health situation evolves and develops.

Potential construction health effects related to a changing climate

8.3.297 One of the ways in which climate change could affect human health is through hotter, drier summers and milder, wetter winters. While milder winters could lead to a reduction in excess winter deaths, hot, dry summers could result in deadly heatwaves. PHE calculates that in the summer of 2019 heatwaves led to 892 excess deaths among the 65+ population in England, and expects the frequency and intensity of heatwaves to rise due to climate change.[91] This remains far below the estimated 21,900 excess winter deaths in the 2018 to 2019 winter period in England.[92] The leading cause of death were respiratory diseases (pneumonia), dementia and Alzheimer's disease, and circulatory diseases. The excess winter deaths figure is not strictly comparable to the excess deaths

[86] British Medical Association, 2020, COVID-19: analysing the impact of coronavirus on doctors
[87] IFS, 2020, The mental health effects of the first two months of lockdown and social distancing during the Covid-19 pandemic in the UK.
[88] ONS, 2020, Coronavirus and the social impacts on Great Britain: 5 June 2020
[89] Royal College of Psychiatrists, 2020. Psychiatrists see alarming rise in patients needing urgent and emergency care and forecast a 'tsunami' of mental illness.
[90] NHS Providers, 2020, The Impact of Covid-19 on Mental Health Trusts in the NHS
[91] PHE, 2019. PHE heatwave mortality monitoring
[92] ONS, 2019. Excess winter mortality in England and Wales: 2019 to 2019 (provisional) and 2017 to 2018 (final)

from heatwaves figure, as it encompasses all ages. Nevertheless, most of the deaths occur in the older age groups so that the scale of the difference between excess summer and excess winter deaths allows for the conclusion that climate change would have a beneficial health impact in this regard.

8.3.298 Ozone-related deaths are estimated to be up to 11,900 premature deaths per year currently in the UK, and warmer temperatures could increase this number. As detailed earlier, the picture on respiratory health is generally negative in the NSA. The standardised mortality ratio measuring deaths at all ages from respiratory diseases is 101.5 in Kent and 122.3 in Thurrock (where 100 is the national figure). For those aged under 75, the Kentish mortality rate from respiratory diseases (33.3 per 100,000) is slightly better than the English rate (34.7 per 100,000), but Thurrock's rate is significantly worse (36.8 per 100,000). For those over the age of 65, both authorities perform worse than the nation.[93]

8.3.299 According to Chapter 20: *Greenhouse gas and climate change* (document reference 6.1.20) existing uses on site currently generate 2,124 tonnes of CO2 emissions per year (2020). The highest emitter of onsite uses is storage (1,406 tonnes of CO2), followed by industrial / manufacturing (376 tonnes of CO2). See the table below for details.

Table 8.3.27 Current greenhouse gas emissions of existing uses on site, 2020

Land use type	Occupied area (m2 NIA)	CIBSE[94] TM46 building type	Estimated electricity and fossil usage for assessment year (2020) (kWh/m2/y)	Estimated GHG emissions for assessment year (2020) (tCO2/y)
Retail, store or showroom	700	General retail	115,500	28
Industrial/ manufacturing	8,200	Workshop	1,763,000	376
Light industrial	5,500	Workshop	1,182,500	252
Storage	33,700	Storage facility	6,571,500	1,406
Offices	1,300	General office	279,500	62
Total	**49,400**	**N/A**	**9,912,000**	**2,124**

Source: ES Volume 1, Chapter 20: Greenhouse Gas and Climate Change (document reference 6.1.20)

8.3.300 Arriving and departing cars and ordinary goods vehicles (OGVs) to and from the Site are estimated to emit 27,496 tonnes of CO_2 currently. Existing habitats on the Site are

[93] PHE, Local authority fingertip profiles
[94] The Chartered Institution of Building Services Engineers

estimated to capture 597 tonnes of CO_2 in 2020.

Future baseline

8.3.301 Heatwaves are likely to become more frequent in the future in the UK. At present, the health burden due to low temperature exceeds that of high temperature. However, heat-related mortality, which is currently around 2,000 premature deaths per year, is projected to increase steeply in the UK throughout the 21st century, from around a 70% increase in the 2020s to around 540% in the 2080s. Southern, central and eastern England appear to be most vulnerable to current and future effects of hot weather compared with other UK regions, where the London Resort is located. 540% growth in premature heat-related deaths would mean that excess hot temperature related deaths would increase to up to 10,800 deaths per year, of a similar order of magnitude as excess winter deaths currently (21,900 in England in the winter of 2018 to 2019). [95]

8.3.302 The Health Protection Agency expects[96] ozone-related premature deaths to increase by 4% (approx. 500 premature deaths per year) if UK temperatures increase by 5°C. The South East of England could be the hardest hit.

8.3.303 Annual GHG emissions are expected to decline as coal and gas power stations are further phased out and more renewable energy sources are phased in. Annual GHG emissions related to the built uses at the Project Site would reduce to 2,409 tCO2/y in 2050, a reduction from 2,961 tCO2/y in 2020. Beyond 2050 the annual emissions remain at 2,567 tCO2/y as BEIS projections assume near zero carbon by 2050 before plateauing in their projections to 2100. The majority of the remaining GHG emissions are as a result of the assumption that heating is provided by gas fired boilers. Total cumulative emissions over the 60-year period are estimated to be 155,264 tCO_2.

8.3.304 Assuming that over the 60 year projection period buildings on the Project Site would be replaced at some point (assuming that buildings are replaced on a like-for-like basis), GHG emissions associated with raw materials, construction, delivery and transport and use (maintenance) would be between 68,059 tCO_2 and 79,142 tCO_2, allowing for potential efficiencies in modern construction processes and materials.

8.3.305 GHG emissions associated with car and OGV trips for the current buildings on the Site have been extrapolated over the 60-year lifecycle. The total estimated GHG emissions associated with transport to and from the Site over the 60-year lifecycle is 834,876 tCO_2.

8.3.306 The CO_2 captured by natural habitats on the Site over 60-years are estimated to amount to 35,319 tonnes.

8.3.307 In total, estimated life cycle GHG emissions associated with the future baseline scenario are between 1,058,199 tCO_2 and 1,069,282 tCO_2, excluding carbon capture from green infrastructure. When green infrastructure is taken into account, estimated lifecycle GHG

[95] Health Protection Agency, 2012. Health Effects of Climate Change in the UK 2012.
[96] Ibid.

emissions associated with the future baseline scenario are between 1,022,880 tCO_2 and 1,033,963 tCO_2.

OPERATIONAL PHASE BASELINE

Potential health effects associated with changes in noise and vibration

8.3.308 As discussed in the baseline for the noise and vibration effects related to construction activities, most British adults do not get their recommended amount of sleep.

8.3.309 Refer to the potential effects of changes in noise and vibration during the construction phase for statistics on the health baseline relating to this effect.

Potential health effects associated with changes in air quality

8.3.310 As discussed in the baseline for the air quality impacts related to construction activities, the mortality rate from respiratory diseases in Kent and Thurrock is higher than across England, although hospital admissions for respiratory tract infections for those under 5 and for asthma under 18 are lower in the two areas than nationally.

8.3.311 The construction baseline for air quality effects also presents baseline information relating to existing and future conditions of air quality in the study area. The future baseline air quality in the area is expected to be improved for all pollutants, as a result of improvements in emission control measures from point sources and industrial processes, improvement in emission abatement technology in the transport sector and local policies aimed at improving air quality, as discussed under the baseline air quality conditions related to the construction effects.

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

8.3.312 As discussed in the baseline for the impacts on local traffic and active travel expected during the construction phase, most of the CSA suffers from high rates of obesity and high rates of physical inactivity. The picture is more mixed regarding mortality from cardiovascular diseases, with Kent performing better, and Thurrock worse than the national average.

8.3.313 Many of the local transport networks are expected to remain unchanged and operate in a similar manner as during the construction period. However, a multitude of transport network changes is planned in the region, which will affect the Kent North Thames Coast within which the London Resort is situated.

8.3.314 The host LPA's core strategies envisage that some development would occur at the site, accessed from London Road, with associated travel demand and transport infrastructure. Existing commitments forming part of the Ebbsfleet Garden City and Lower Thames Crossing are also considered.

8.3.315 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.

8.3.316 For the technical baseline assessment undertaken for the assessment of transport impacts, please refer to Chapter 9: *Land transport* (document reference 6.1.9).

Potential health effects associated with changes in electromagnetic field exposure

8.3.317 It has not been possible to assess the baseline for this effect due to a lack of relevant information. This baseline remains under review and more detail will be provided at the ES stage should it become available.

8.3.318 Overall, there is limited information regarding the existing baseline conditions relevant to EMF exposure. The National Policy Statement for Electricity Networks Infrastructure (2011) states that EMFs arise from generation, transmission, distribution and use of electricity and will occur around power lines and electric cables.[97] No major electrical infrastructure, and therefore major sources of EMF exposure exist within the NSA. The Project Site does not contain any electrical sub-station, nor underground cabling connected to the National Grid. There does exist one overhead cabling line and a supporting electrical pylon within the Project Site, connecting the Northfleet East sub-station approximately 3km to the south east of the Project Site to the West Thurrock sub-station located 2km to the north west of the Project Site to the north of the Thames. The construction and operational activity associated with the London Resort are not thought to impact these existing sources of EMF activity.

Potential health effect of increased flooding

8.3.319 Chapter 17: *Water resources and flood risk* (document reference 6.1.17) has undertaken an assessment of flood risk in the area. Parts of the Project Site fall into all of Flood Zones 1-3. The northern part of the Swanscombe Peninsula is located within Flood Zone 2 with a large band across the centre of the peninsula located within Flood Zone 3. The Access Corridor is located almost entirely within Flood Zone 1. The Essex Project Site is located entirely within Flood Zone 3 with the area north of the Tilbury Cruise Terminal buildings benefitting from defences. Whilst the Project Site (Kent and Essex) currently receives protection from a storm surge up to the 1 in 1000-year flood event, climate change is predicted to result in sea level rises and therefore an increased risk of tidal flooding to the Project Site. Chapter 17: *Water resources and flood risk* (document reference 6.1.17) has identified site users (including workers) as sensitive receptors to flood risk. Site users have a high sensitivity to flood risk.

Future baseline

8.3.320 No conclusive data are available regarding the way in which baseline conditions may evolve up until the point of assessment. Chapter 17: *Water resources and flood risk* (document reference 6.1.17) applies guidance from the document 'Flood risk assessments: climate change allowances', published by the EA in February 2016, to estimate peak rainfall intensities and peak river flows. The general trend is for each parameter to increase in the future, which in turn increases the risk of flooding to any

[97] DEFRA, 2011. National Policy Statement for Electricity Networks Infrastructure.

site. Sea levels are also likely to rise in the future.

8.3.321 Flood risk is likely to increase in the future with climate change, and the Flood Risk Assessment and drainage strategy should make an allowance for increases in peak rainfall intensity and sea level rise, in line with a conservative scenario.

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

8.3.322 Baseline conditions for the potential health effects related to hazardous waste during operation are equivalent to those presented within the construction effect. Refer to the baseline for the construction effect, starting at paragraph 8.3.232, for further information.

Potential health effects related to water contamination

8.3.323 Baseline conditions for the potential health effects related to water contamination during operation are equivalent to those presented within the construction effect. Refer to the baseline for the construction effect, starting paragraph 8.3.237, for further information.

Potential health effects related to changes to levels of neighbourhood amenity

8.3.324 Baseline conditions for the potential health effects related to changes to levels of neighbourhood amenity during operation are equivalent to those presented within the construction effect. Refer to the baseline for the construction effect, starting paragraph 8.3.243, for further information.

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

8.3.325 In 2011 there were 4,401 economically active residents in the CIA who had a long-term illness or disability.[98] The unemployment rate for this group was 13%, compared to the non-disabled population's 8%. Rates of economic inactivity are far higher at 83%, compared with the non-disabled population's 22%.

8.3.326 Using a different measure of disability and more recent data from 2019, it is estimated that in Dartford, Gravesham and Thurrock (within which three local authorities the CIA lies), 20% of employed residents were disabled. This compares with 23% of the total 16 to 64 residential population being disabled.[99] In the comparator geographies, in the RCA 14% of employed residents were disabled and made up 19% of the 16 to 64 residential population, and in the NCA 16% of employed residents were disabled and made up 21% of the 16 to 64 residential population. Even taking into account its larger share of disabled residents, the CIA is doing better in terms of the inclusion of disabled people in

[98] ONS, Census 2011
[99] ONS, 2020, Annual Population Survey

the workplace, calculated as the proportion of disabled residents in employment.

8.3.327 Several major theme parks across the UK are known to provide services and facilities that cater to disabled people.[100] In general, Alton Towers, Chessington World of Adventures, Thorpe Park and Legoland (to name a few) all offer some version of an accessibility and restriction guide which outlines relevant information on rides, services, and health facilities for those who are disabled. Alton Towers, for example, provides hotel accommodation that enables visitors to access buttons that turn off colour changing lights and sounds in the lift for those who may be sensitive these effects. At Legoland, on-site wheelchairs are available for disabled visitors.

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

8.3.328 As discussed under the construction effect, the CSA population has grown more swiftly than that of the comparator geographies. A relatively high proportion of residents is working age (16 to 64).

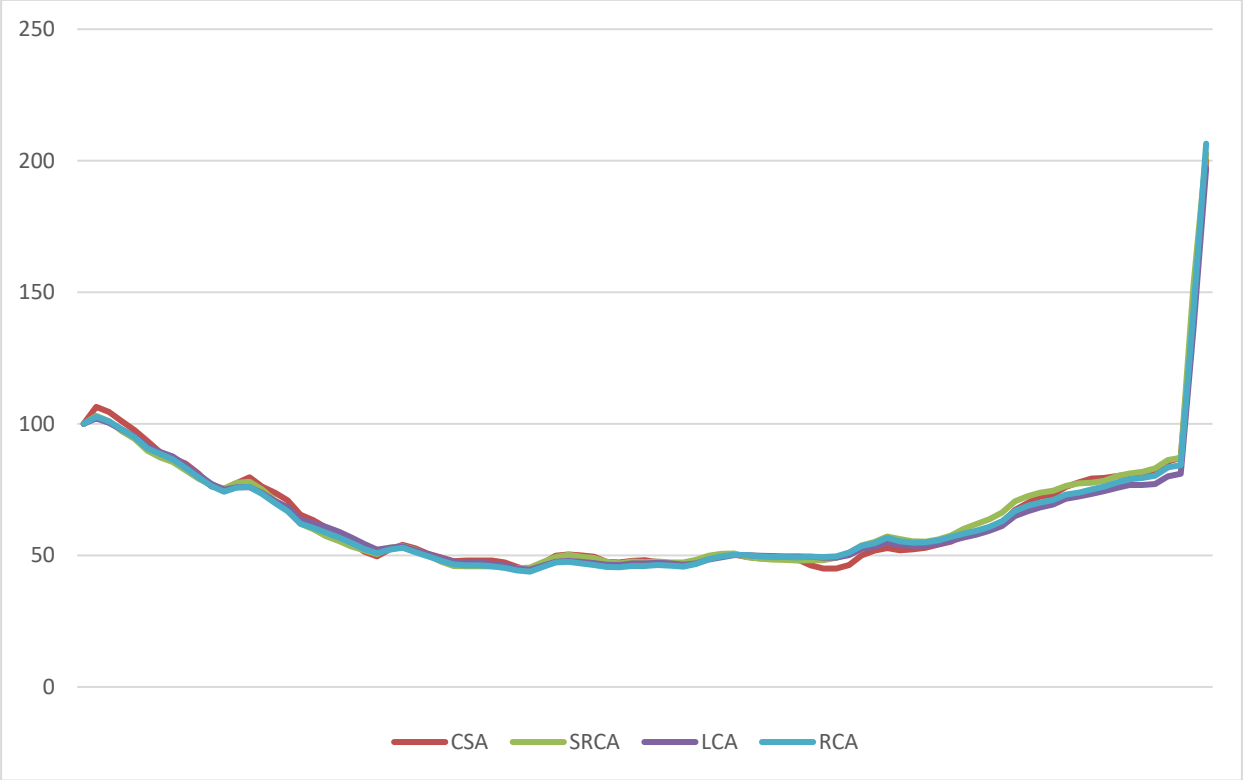
Economic activity of residents

8.3.329 As discussed under the displacement of commercial uses effect, economic activity and employment rates are relatively high in the CSA. Employment growth since 2009 has been higher than in most geographical comparators. However, unemployment is also higher than in most comparators, and the workforce has lower skill levels.

8.3.330 The diagram below shows the index of claimants over time. The recent pandemic has caused a large spike since January 2020. The pattern has been similar across all geographies. In this way, it is deemed that the most recent data is not necessarily the most representative of the workforce; rather, it reflects an unexpected shock. Therefore, the following analysis on claimants will present data for average counts from each month in 2019.

[100] Retrieved from UK Accessible Theme Parks, Firefly, 2018. (URL: https://www.fireflyfriends.com/uk/blog/uk-accessible-theme-parks/)

Diagram 8.3.12 Index of all unemployment benefit claimants, January 2013 = 100



Source: ONS, Claimant Count, 2020

8.3.331 The table below shows that, in 2019 on average the CSA had 6,000 claimants. This represented 2.6% of the 16-64 population; higher than SRCA (2.4%) and RCA (2.2%) but slightly lower than the NCA (2.6%).

Table 8.3.28 Unemployment benefit claimants as a proportion of 16-64 population, 2019

	CSA	SRCA	RCA	GB
All claimants	6,000	51,000	344,000	1,101,000
Proportion of 16-64 year olds	2.6%	2.4%	2.2%	2.6%

Source: ONS, Claimant Count, 2020; ONS, 2019 Mid-year population estimates

Apprenticeship starts (per 1,000 workers, by industry, by age, by level)

8.3.332 In the academic year 17/18, there were 2,490 apprenticeship starts in the CSA. This is a smaller number of starts than seen in any of the other academic years; a pattern seen across all geographies. The 17/18 CSA starts equated to 15.3 starts per 1,000 workers –

on par with rates seen in the SRCA and SE LEP (15.1), slightly higher than England (14.0) and far higher than the RCA rate (10.1) which is mainly brought down by London, who only has 7.2 starts per 1,000 workers.

8.3.333 In 17/18, there were 1,630 achievements in the CSA. Over the period 14/15 to 17/18, the CSA saw an annual average achievement rate of 58%, which is on par with all geographies.

Table 8.3.29 Apprenticeship starts and average annual achievement rates, 14/15 to 17/18

	14/15	15/16	16/17	17/18			
	Starts	Starts	Starts	Starts	Starts per 1,000 workers	Achievements	Annual average achievement rate (14/15 to 17/18)
CSA	2,980	2,930	2,910	2,490	15.3	1,630	58%
SRCA	26,960	27,100	26,340	21,320	15.1	14,410	57%
SE LEP	31,940	32,440	31,610	25,240	15.1	17,270	57%
RCA	151,960	154,520	149,580	121,000	10.1	83,150	57%
England	500,090	509,430	495,070	376,030	14.0	276,350	58%

Source: Department for Education, Apprenticeships and traineeships data, 2019; ONS, Business Register and Employment Survey, 2018

8.3.334 All industries vary slightly in their average annual achievement rates, with the highest tending to be leisure, travel and tourism and the lowest in construction, planning and the built environment.

Table 8.3.30 Apprenticeship starts and average annual achievement rates by industry, 17/18

		Business, Administration and Law	Construction, Planning and the Built Environment	Engineering and Manufacturing Technologies	Health, Public Services and Care	Leisure, Travel and Tourism	Retail and Commercial Enterprise	Other*
Starts	CSA	860	140	450	460	60	330	230
% starts	CSA	34%	6%	18%	18%	2%	13%	9%
	SRCA	30%	7%	16%	23%	2%	14%	8%
	SELEP	30%	7%	15%	24%	2%	14%	8%
	RCA	31%	5%	14%	23%	3%	14%	9%
	England	30%	6%	16%	24%	2%	14%	8%

		Business, Administration and Law	Construction, Planning and the Built Environment	Engineering and Manufacturing Technologies	Health, Public Services and Care	Leisure, Travel and Tourism	Retail and Commercial Enterprise	Other*
Achievements	CSA	490	70	260	440	60	180	140
Average Annual Achievement Rate (14/15 to 17/18)	CSA	56%	48%	53%	60%	65%	62%	63%
	SRCA	55%	44%	57%	55%	69%	63%	62%
	SE LEP	55%	44%	57%	55%	70%	63%	62%
	RCA	53%	47%	63%	54%	70%	61%	61%
	England	56%	51%	61%	55%	72%	61%	60%

*Source: Department for Education, Apprenticeships and traineeships data, 2019. *Note: 'Other' industries consist of: Agriculture, Horticulture and Animal Care, Arts, Media and Publishing, Education and Training, Information and Communication Technology and Science and Mathematics.*

8.3.335 For more detail on earnings, employment conditions, skills, and apprenticeships in the area refer to Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3).

Future baseline

8.3.336 Based on the forecasts below employment in the CSA is expected to grow by an average rate of 1.3% a year, which is higher than the national annual growth rate (0.5%).

Table 8.3.31 Do-nothing (without the London Resort) employment projections by assessment year

Area	Source for Forecast	Implied compound annual growth rate	2018	2022	2023	2025	2030	2038
Thurrock	Forecast growth in labour force in the 2017 SHMA (2014 – 2037).[101]	1.1%	68,000	71,000	72,000	73,000	77,000	84,000
Gravesham	Forecast jobs growth from the North Kent SHENA (2012-2028).[102]	0.9%	33,000	34,000	34,000	35,000	37,000	39,000
Dartford	Forecast jobs growth in Dartford between 2013 and 2031.[103]	1.8%	61,000	66,000	67,000	69,000	76,000	88,000

[101] Turley Economics (2017), Addendum to the South East Strategic Housing Market Assessment. Table 3.2.
[102] GVA (2017), North Kent Strategic Housing & Economic Needs Assessment: Employment Land Needs Assessment. Table 24.
[103] KCC (2018), Growth and Infrastructure Framework.

Area	Source for Forecast	Implied compound annual growth rate	2018	2022	2023	2025	2030	2038
CSA	Sum of the above	1.3%	162,000	171,000	173,000	178,000	190,000	211,000
National	Forecast jobs growth from the OBR between Q1 2018 and Q1 2024.[104]	0.5%	32.3m	32.9m	33.0m	33.4m	34.1m	35.4m

8.3.337 These projections have been sense checked against the Ebbsfleet proposals and they appear broadly consistent with the anticipated employment growth planned within the EDC.

COVID-19

8.3.338 As per the construction baseline, COVID-19 has had a severe impact on employment, increasing worklessness across the country. However, these impacts are expected to be short term, and recovery is expected to have largely occurred by 2024 (opening year, recovery is actually largely expected before this time).

Potential health effects of provision of worker accommodation

8.3.339 Overcrowding can have a range of negative health effects, as discussed in Appendix 8.4: *Literature review* (document reference 6.2.8.4). These include respiratory diseases, as well as mental health issues. According to the 2011 Census, 9% of the CSA's households were living in overcrowded conditions,[105] which is lower than the 12% of households living in overcrowded conditions in the RCA, and in line with the 9% in the NCA.

8.3.340 Only about 16% of homes in the CSA are in the private rented sector, compared with 20% on average in England. Workers moving to the area on lower wages and thus unable to buy outright or with a mortgage could struggle to find suitable accommodation.

8.3.341 It is difficult to accurately establish the housing conditions those who work at the London Resort specifically would be coming from. It is assumed that their pre-intervention housing conditions would broadly mirror those of the CSA population.

Future baseline

8.3.342 Chapter 7: *Land use and socio-economics* (document reference 6.1.7) identified that of the CSA authorities, only Dartford appears able to demonstrate a five year housing supply. Thurrock in particular is anticipating difficulty delivering the required housing target. Whilst Dartford is meeting targets, stakeholder consultation identified that much of the delivery of additional housing units is being taken up by people moving out of London, with many of the new homes not accessible to local residents

[104] Office for Budget Responsibility (2020), The Economy Forecast: The Labour Market.
[105] ONS, Census 2011

Potential health effects of change in the demand for residential accommodation

8.3.343 Secure and affordable housing has a range of health benefits, including better mental health outcomes, and more leftover funds after housing costs for individuals to satisfy their health needs.

8.3.344 Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) provides a detailed housing baseline, which is summarised below.

8.3.345 In 2019, there were 158,600 dwellings in the CSA, 84% of which were in the private sector, comparable to 83% across England. The ONS estimate that, in the CSA, this 84% is split between 68% owner occupied (compared to 63% in England) and 16% are in the private rented sector (compared to 20% in England). MHCLG also note that 11% of CSA dwellings are local authority owned, higher than the 7% across England. By contrast, only 4% of CSA dwellings are private registered providers, compared to 10% in England.

Table 8.3.32 Dwelling stock by tenure type, 2019

	Total dwellings	Local authority owned	Private registered provider	Other public sector	Owner occupied	Private rented sector
CSA	158,600	19,800	5,800	10	108,200	24,800
		11%	4%	0%	68%	16%
England	24,414,000	1,587,200	2,561,000	41,700	15,338,600	4,827,300
		7%	10%	0%	63%	20%

Sources: MHCLG, Live tables on dwelling stock (including vacants), Table 100 Dwelling stock: Number of Dwellings by Tenure and district: England; 2019; ONS, Subnational dwelling stock by tenure estimates, England, 2018

8.3.346 According to MHCLG, there are 3,500 vacant dwellings in the CSA, equating to 2.2% of total dwellings. This is slightly lower than England, which is reported to have 638,100 vacant dwellings or 2.7% of total. In the CSA, there were 155 vacant local authority owned dwellings, equivalent to 0.8% of total local authority owned dwellings. This is far lower than the 1.5% vacancy across all local authority owned dwellings in England.

House prices and affordability

8.3.347 The table below summarises affordability metrics within the CSA. Chapter 7: *Land use and socio-economics* (document reference 6.1.7) provides detail on each local authority in the CSA. Overall, it finds that homes in the CSA are far less affordable than the England average in both the PRS and OOS, with faster growth in house prices since 2010 than England.

Table 8.3.33 Housing affordability in the CSA

	CSA	England
Median house price (£ '000)	296	240
% growth since 2010	71%	33%
Affordability ratio[106]	9.1	7.8
Affordability ratio % growth since 2010	51%	14%
Median monthly rents	£900	£695
% of gross monthly income[107]	34%	28%

Sources: MHCLG, Live tables on dwelling stock (including vacant properties), Table 100 Dwelling stock: Number of Dwellings by Tenure and district: England; 2019; ONS, Subnational dwelling stock by tenure estimates, England, 2019

Housing need

8.3.348 The table below summarises the detailed baseline findings with key statistics on homelessness within the CSA, finding generally higher rates than England. The CSA has also experienced very high growth in all metrics of homelessness relative to England, although many of these are starting from a low base.

Table 8.3.34 Summary of key housing need statistics in the CSA

Metric (most recent year available)	CSA		England	
	Most recent year	Growth since 2010	Most recent year	Growth since 2010
Number of rough sleepers (2018)	42	1,300%	4,677	165%
per 1,000 households	0.30	1,461%	0.24	151%
Number accepted as being homeless (2017)	395	46%	56,595	28%
per 1,000 households	2.60	36%	2.45	21%
Number in temporary accommodation (2017)	325	195%	80,657	67%
per 1,000 households	2.14	174%	3.50	58%
Number of households on local authority waiting list (2019) (% of local authority dwellings)	10,600 (54%)	31%	1.2m (73%)	-34%

[106] The affordability ratio was 9.1 in the CSA in 2019, meaning that a CSA resident on a median wage would need just over nine years' worth of income to afford a house.
[107] Where 30% is considered affordable

Future baseline

8.3.349 The table below summarises the most recent five year housing supply statements for each CSA borough, comparing the number of deliverable dwellings against the required number of dwellings. Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3) provides further detail. Only Dartford appears able to deliver sufficient dwellings to meet its targets; both Gravesham and Thurrock have identified less than 100% of the required dwellings. Thurrock in particular is anticipating difficulty delivering the required amount of housing, with only 35% of the required supply accounted for in the identified deliverable supply of land.

Table 8.3.35 Summary of five year identified deliverable dwellings, and requirements in the CSA

	Deliverable dwellings	Requirement	% of requirement
Dartford (2019 – 2024)	4,718	4,184	113%
Gravesham (2018 – 2023)	2,585	2,941	88%
Thurrock (2020 – 2025)	2,475	7,040	35%

Sources: Dartford Borough Council Five Year Housing Supply 2019 – 2024; Gravesham Borough Council Five Year Deliverable Housing Land Supply Statement 2018 – 2023; Informed by consultation with Thurrock council.

8.3.350 The five year housing supply statements specify delivery progress and key growth areas for housing in the CSA local authorities.

Table 8.3.36 Housing delivery in the CSA

	Delivery progress	Key delivery areas
Dartford (2019 – 2024)	Of the 4,718 deliverable dwellings, 3,674 dwellings are forecast at sites that have already commenced (76% total forecast.	Dartford town centre / Northern Gateway, the Thames Waterfront, and Ebbsfleet to Stone
Gravesham (2018 – 2023)	Given shortfall of deliverable sites for the current five year period, the Government requires local planning authorities to identify sites from years 6-10 which can be brought forward into the five-year land supply period. Gravesham council is working in partnership with the Ebbsfleet Development Corporation to bring forward development within the area. Both Dartford and Gravesham Borough Councils have adopted the EDC's Framework Master Plan for the area, as well as progressing discussions with developers and site owners to expedite delivery of development. To date this has resulted in delivery of Springhead, Ebbsfleet at a greater pace than previously envisaged, as well as	Of the total 6,170 dwellings required over 2011 – 2028 (plan period), 1,030 are expected at Northfleet Embankment and Swanscombe Peninsula East Opportunity Area.

	Delivery progress	Key delivery areas
	an increase in the quantum and pace of development at Northfleet Embankment East.	
Thurrock (2020 – 2025)	There were 4,825 dwellings with planning permission on 34 sites as of 1st April 2020. The vast majority of these are on small and medium sized sites that are likely to come forward within 5 years. There is one single permission for 2,850 at the Purfleet Centre that is likely to be developed well beyond five years. It is estimated that 500 of the permitted dwellings at the Purfleet Centre will come forward within 5 years giving an estimated 5 year supply of 2,475.	500 sites at Purfleet Central to be delivered within the next five years. 2,850 homes to be delivered at Purfleet Central beyond five years.

Sources: Dartford Borough Council Five Year Housing Supply 2019 – 2024; Gravesham Borough Council Five Year Deliverable Housing Land Supply Statement 2018 – 2023; Gravesham Local Plan Core Strategy, 2014; Informed by consultation with Thurrock Council.

8.3.351 Considering the years past the plan periods, according to Kent and Medway, Dartford is forecast to deliver 18,100 units between 2011 and 2031, and Gravesham is forecast to deliver 7,100 over the same period.[108] This equates to 905 and 335 average per annum for each borough, respectively. This would mean that Dartford might expect to deliver 4,525 units between 2026 (the end of the plan period) to 2031. For Gravesham, they might expect to deliver 1,065 units between 2028 (the end of the plan period) and 2031. Additionally, the EDC Implementation Framework (covering the years to 2037) indicates that five existing development proposals with planning permission will provide land for some 11,000 homes (6,000 in Eastern Quarry and 3,000 in Ebbsfleet Central). The majority of these are in Dartford, but some also appear in Gravesham.[109] The inclusion of these housing projections mean that the future baseline is inherently cumulative for housing effects.

Potential effects from a change in the demand for health services

8.3.352 Existing healthcare provision should be collected so that the relative additional strain on healthcare provision can be determined. Further details on the extent of these constraints can be found in Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3), which includes the capacity issues raised after formal consultations with relevant health stakeholders.

8.3.353 As discussed under 'potential health effect of construction workers on health services', GP provision in the CIA is very constrained, with 3,700 patients per GP FTE, compared to an NHS target of at most 1,800 patients per GP FTE

8.3.354 Additionally, three pharmacies have been identified within the CIA. There are also four

[108] Kent County Council, Understanding Kent and Medway's Growth Requirements, 2017
[109] Ebbsfleet Development Corporation, Ebbsfleet Implementation Framework, 2017

NHS registered dental surgeries that are situated within the CIA.

Emergency healthcare

8.3.355 As discussed under 'potential health effect of construction workers on health services', the nearest A&E to the site (falling within the CIA) is Darent Valley Hospital, which is part of the Dartford and Gravesham NHS Trust.

8.3.356 The Dartford and Gravesham Trust is performing slightly better, and the Basildon and Thurrock Trust is performing slightly worse than the national average for England, with respectively 87% and 83% of people being attended to in under 4 hours (84% in England).

Future baseline

8.3.357 As discussed under the construction effect new healthcare facilities could be provided within Ebbsfleet Garden City, in the Stone / Greenhithe area, and Darent Valley Hospital could be expanded too in response to demand. Thurrock Council are also planning the delivery of an Integrated Medial Centre within the centre of Tilbury.

COVID-19

8.3.358 Paragraphs 8.3.291 to 8.3.296 discuss the impact of COVID-19 on health services in the context of the effect during the construction phase.

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

8.3.359 Baseline conditions for this effect are expected to mirror those identified for the construction effect. Paragraphs 8.3.169 to 8.3.178 discuss these aspects in more detail.

Potential effects associated with open space provision and amenity space

8.3.360 As detailed in the earlier baseline on the construction phase's displacement of open space, obesity and physical inactivity are significant problems across Dartford, Gravesham and Thurrock. Paragraphs 8.3.179 to 8.3.183 present more detail on open space.

8.3.361 Chapter 7: *Land use and socio-economics* (document reference 6.1.7) notes that of the two cumulative schemes within the PSB, only one (land west of Springhead Road in Northfleet) will be providing new open space. There are also 10 additional future developments in the CIA or near which have the potential to impact on the provision of open spaces and PRoW, which are described in Appendix 7.3: *Detailed baseline* (document reference 6.2.7.3).

Potential effects from changes in community cohesion

8.3.362 While no direct data on the strength of community cohesion is available at the level of the CIA, the Community Life Survey[110] indicates that only 70% of Londoners or those from the South East meet up with friends in person at least once a week, compared with 74% in the East of England and nationally. Therefore 71% of the RCA population is estimated to meet up at least once a week with friends. London also has the lowest proportion of people agreeing that there are people who would be there for them if they needed help (93%, compared with 95% nationally), while the South East and East of England perform relatively well on this measure (96% for both; RCA: 95%). London has the lowest proportion agreeing that if they wanted company or to socialise there are people they could call on (89%, compared with 91% nationally) of all English regions; the South East and East of England figure is 92% (RCA: 91%). Those living in urban areas are more likely to feel lonely (6%, compared with 4% in rural areas) and those living in the most deprived areas tend to feel lonelier than those in the least deprived areas (8% compared with 4%).

8.3.363 The picture regarding overcrowding is mixed. Kent performs better (3.6% of households in overcrowded conditions) than the national average (4.8% of households in overcrowded conditions), but Thurrock performs worse (5.6%). The South Essex Strategic Housing Market Assessment summarises market signals for Thames Gateway South Essex and neighbouring authorities, which include Dartford and Gravesham. They ranked each local authority on a number of metrics where a low rank of 1 implies the greatest worsening on the indicator and a rank of 14 implies the lowest. On changes in overcrowding between 2001 and 2011, Dartford ranked 1 and Gravesham ranked 2, indicating considerable issues.

Future baseline

8.3.364 Limited information is available detailing the evolution of community cohesion over the period of the future baseline. The assessment of the effect considers the information contained within existing baseline conditions.

Potential effects from changes in crime and community safety

8.3.365 Crime and the fear of crime may result in lower rates of physical activity and higher rates of mental distress. The baseline for crime and community safety is summarised in paragraphs 8.3.260 to 8.3.263 and is relevant for the assessment of the effects during the operational phase.

Future baseline

8.3.366 As discussed in paragraph 8.3.266, crime in the CSA has been rising relatively faster than in comparator geographies since 2016.

[110] Department for Digital, Media, Culture & Sport, 2019, Community Life Survey 2018-19

Potential health effects from changes to access to healthy and unhealthy food

8.3.367 Obesity, and particularly childhood obesity, is a key issue within the CSA. Table 8.3.37 presents the proportion of residents aged 10-11 categorised as medically obese, alongside the proportion of adults (aged 18+) categorised as having excess weight.

Table 8.3.37 Obesity and overweight in the CSA, 2018/19

	Prevalence of overweight or obesity (10-11 year old)	Adults (18+) overweight or obese
Dartford	37.3%	75.1%
Gravesham	37.0%	65.1%
Thurrock	37.9%	75.9%
England	34.3%	62.3%

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

8.3.368 As can be seen, both childhood and adult obesity and overweight are more prevalent in the CSA authorities than in England as a whole. However, this trend is not mirrored in data on hospital admissions related to obesity (Table 8.3.38) (note that data is available only at the upper-tier authority level, the data for Dartford and Gravesham are subsumed by the Kent data).

Table 8.3.38 Hospital admissions related to obesity, 2018/19

	Hospital admissions with a primary or secondary diagnosis of obesity	Hospital admissions with a primary or secondary diagnosis of obesity, per 100,000 persons
Kent	20,280	1,315
Thurrock	1,405	891
England	875,663	1,615

NHS Digital, 2020, Statistics on Obesity, Physical Activity and Diet 2020, England

8.3.369 Appendix 8.4: *Literature review* (document reference 6.2.8.4) identifies that the prevalence of fast-food outlets may have an impact on obesity. The following table shows that overall fast-food outlets are less prevalent per 100,000 population in the CSA than across England.

Table 8.3.39 Fast-food density in the CSA, 2017

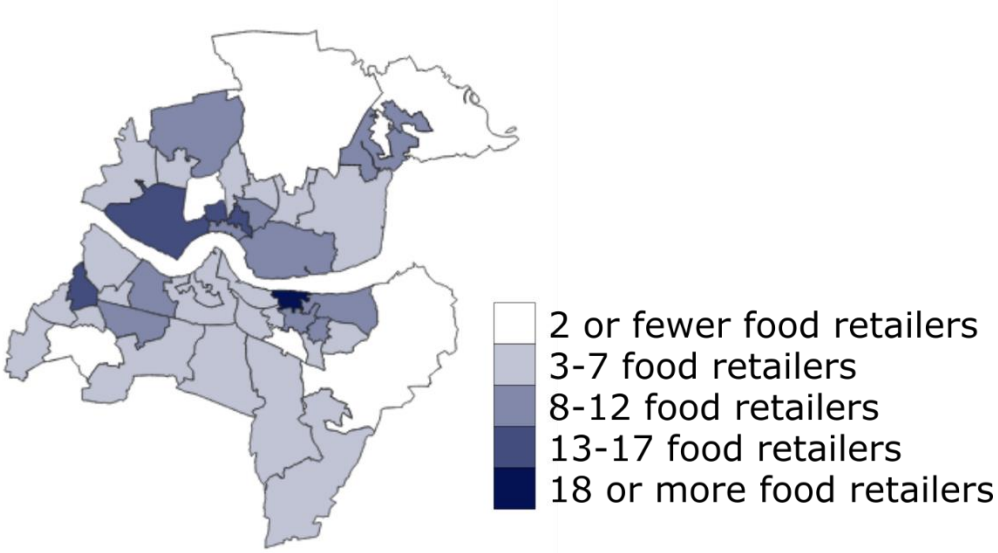
	Fast-food outlets per 100,000 population	Rank out of 325 local authorities
Dartford	95.1	124
Gravesham	86.6	168
Thurrock	89.7	145
England	94.8	N/A

Source: Public Health England, 2018, Fast food outlets: density by local authority in England

8.3.370 While fast food outlets provide access to unhealthy foodstuffs, a lack of a variety of food retailers may lead to an area having no access to healthy foodstuffs. There has been much talk in public about the existence or non-existence of so-called food deserts (areas with little access to healthy food) in the UK. Although an imperfect measure, the Social Market Foundation (SMF) has used UK business count data to gauge the level of provision within small areas. Data is available by 5-digit industry code to middle-layer super output area (MSOA) level. The SMF analysis is reproduced here for the CSA local authorities; SIC-code 47110 businesses are considered. It should be noted that business counts are rounded to 5, and that entirely accurate representation is therefore not possible.

8.3.371 Diagram 8.3.13 below shows that at least 3 different food retailers are present in nearly all (82%) MSOAs of the CSA authorities, and that 33% of the CSA MSOAs contain at least 8 different food retailers.

Diagram 8.3.13 CSA, number of food retailers per MSOA, 2019



Source: ONS, 2020, UK Business Counts – local units by industry and employment size band

8.3.372 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.

Future baseline

8.3.373 Limited information is available regarding the evolution of baseline conditions relevant for the assessment of health effects arising from changes in access to healthy food. IBIS World finds that in the US market consumers are increasingly health conscious and this is reflected in the offering of food outlets. Soy and almond milk are increasingly preferred to cow milk, and frozen yogurts (containing less fat than ice cream) were expected to grow at an annualised rate of 22.5% between 2014 and 2019, while ice cream sales rose by only 1.3% per year. [111] There is rising interest in high quality food, and the environmental sustainability of dishes.

Potential health effects related to changes in the transmission of communicable diseases

8.3.374 Although outbreaks of communicable diseases are rare, the consequences out outbreaks can result in significant impacts on health outcomes, as demonstrated by the COVID-19 pandemic. Stakeholder consultation has suggested the inclusion of an assessment of the potential impacts of the London Resort upon the transmission of communicable diseases. In the context of the COVID-19 pandemic, public awareness of the impact of the transmission of communicable diseases has heightened, and therefore the fear of transmission of communicable disease develops a further pathway for health effects.

8.3.375 According to PHE data, the mortality rate from a range of communicable diseases is higher in Dartford, but lower in Gravesham and Thurrock than in England (see Table 8.3.40).

Table 8.3.40 Mortality rate from a range of specified communicable diseases including influenza, 2016-18

	Mortality rate from a range of specified communicable diseases
Dartford	12.6
Gravesham	9.6
Thurrock	9.8
England	11.3

Source: PHE, 2020, Local Authority Fingertip Health Profiles

[111] IBIS World, 2014. Serving Up Diversity: Major trends in the food-services sector

8.3.376 Data on the coronavirus pandemic shows that the CSA authorities have had a slightly higher number of cases per 1,000 people (7.9) than did the RCA (7.5), although much lower than the UK as a whole (12.0).

Table 8.3.41 COVID-19 statistics in the CSA, as of 22.10.2020

	Cases	Total pop [2018]	Cases per 1,000
Dartford	1,004	109,709	9.2
Gravesham	880	106,385	8.3
Thurrock	1,174	172,525	6.8
CSA	**3,058**	**388,619**	**7.9**
London	77,839	8,908,081	8.7
SE	60,903	9,133,625	6.7
East	44,222	6,201,214	7.1
RCA	**182,964**	**24,242,920**	**7.5**
UK	**789,229**	**65,851,526**	**12.0**

Source: coronavirus.data.gov.uk [accessed 22.10.2020]

8.3.377 In terms of the death rate, the CSA performs worse, having recorded 96.8 deaths per 100,000 population, higher than in the RCA (86.4) and the UK (88.3).

Table 8.3.42 COVID-19 deaths, March 1 to July 31

	Deaths	Population (2018)	Deaths per 100,000 population
Dartford	125	109,709	113.9
Gravesham	102	106,385	95.9
Thurrock	149	172,525	86.4
CSA	**376**	**388,619**	**96.8**
London	8,536	8,908,081	95.8
SE	7,321	9,133,625	80.2
East	5,096	6,201,214	82.2
RCA	**20,953**	**24,242,920**	**86.4**
UK	**58,164**	**65,851,526**	**88.3**

Source: ONS, 2020, Deaths involving COVID-19 by local area and deprivation

8.3.378 Confirmed cases of Invasive Meningococcal Disease per 100,000 are generally higher in the CSA authorities than in England, with Thurrock being the exception where confirmed cases of Invasive Meningococcal Disease are lower than in England (Table 8.3.43).

Table 8.3.43 Invasive Meningococcal Disease confirmed cases rate/100,000, 2017/18

	Invasive Meningococcal Disease confirmed cases rate per 100,000
Dartford	1.86
Gravesham	2.83
Thurrock	1.17
England	1.36

Source: PHE, 2020, Local Authority Fingertip Health Profiles

8.3.379 Sexually transmitted infections (STIs) are another type of communicable disease. The CSA authorities all perform relatively well on STIs, and have STI diagnosis rates per 100,000 well below the England average (Table 8.3.44).

Table 8.3.44 All new STI diagnosis rate per 100,000, 2018

	All new STI diagnosis rate per 100,000
Dartford	478
Gravesham	505
Thurrock	564
England	779

Source: PHE, 2020, Local Authority Fingertip Health Profiles

Future baseline

8.3.380 As discussed earlier, PHE identified infectious diseases and environmental threats as significant public health challenges. Certain STIs have been spreading at increasing rates across England, whereas certain other diseases such as measles have been able to gain a foothold as a result of decreasing vaccination rates.

COVID-19

8.3.381 Even before the current pandemic the World Economic Forum wrote that *"The frequency and diversity of disease outbreaks are expected to grow steadily"*.[112] This is explained by the interconnectedness of modern work, travel, and trade, growing urbanisation, deforestation and climate change. Epidemics have long been an underappreciated risk factor. Each month, the World Health Organization (WHO) tracks 7,000 new signals of potential outbreaks, generating 300 follow-ups, 30 investigations, and 10 full risk

[112] World Economic Forum, 2019. Outbreak Readiness and Business Impact Protecting Lives and Livelihoods across the Global Economy

assessments.[113]

8.3.382 In the context of the recovery from the COVID-19 pandemic, awareness of the impact of communicable diseases has dramatically increased. It is not thought that the COVID-19 pandemic will still be a cause of direct health issues during the operational phase of the London Resort, although some see a possibility of the virus's resurgence as late as 2025.[114] The pandemic will have lasting impacts on the treatment and fear of the spread of communicable disease. The danger from epidemics is increasingly recognised, as well as the necessity of managing and adequately mitigating such risks.

Potential health effects related to a changing climate

8.3.383 As discussed under the construction effect, climate change is expected to result in hotter, drier summers and wetter, milder winters. This could lead to a decline in excess winter deaths, and an increase in excess summer deaths (due to heatwaves). Excess winter deaths are currently far larger a problem than deaths due to hot weather in the summer.

8.3.384 Ozone-related deaths are also expected to increase as a result of warmer temperatures, particularly in the South East of England.

8.3.385 As mentioned earlier, according to Chapter 20: *Greenhouse gas and climate change* (document reference 6.1.20) existing uses on site currently generate 3,212 tonnes of CO2 emissions per year (2020). The highest emitter of on site uses is storage (2,157 tonnes of CO2), followed by industrial / manufacturing (514 tonnes of CO2).

8.3.386 To assess climate change resilience, the table below provides a summary of climatic conditions for the South of England in 2019.

Table 8.3.45 Climatic conditions in the South of England, 2019

Month	Max temperature (degrees C)	Min temperature (degrees C)	Rain (mm)	Sun (hours)
January	7.6	2.0	33.2	56.4
February	12.4	3.3	34.2	120.2
March	13.1	5.8	49.6	119.0
April	15.8	5.7	12.8	170.1
May	18.6	8.4	36.0	176.3
June	21.8	11.9	81.8	170.1
July	25.5	14.9	50.8	194.5
August	25.2	14.1	33.6	201.2

[113] World Economic Forum, 2019. The global economy is woefully unprepared for biological threats. This is what we need to do [accessible at: https://www.weforum.org/agenda/2019/03/our-economy-is-woefully-underprepared-for-biological-threats/]

[114] Kissler, S.M., et al., 2020. Projecting the transmission dynamics of SARS-CoV-2 through the post pandemic period

Month	Max temperature (degrees C)	Min temperature (degrees C)	Rain (mm)	Sun (hours)
September	21.2	11.8	63.0	156.8
October	15.5	8.6	92.8	74.0
November	10.3	4.3	74.8	51.3
December	10.2	4.0	89.6	56.2

Source: ES Volume 1, Chapter 20: Greenhouse gas and climate change (document reference 6.1.20)

Future baseline

8.3.387 As discussed under the construction effect, according to the Health Protection Agency, deaths due to heatwaves could increase by 540% by the 2080s.[115] Premature deaths related to ozone could also increase by 500 per year.

8.3.388 CO_2 emission estimates are the same as for the construction effect, summarised in paragraph 8.3.307.

8.3.389 The below table summarises the projected mean summer and winter mean temperature and precipitation changes up to the 2090s for RCP 8.5**.**

Table 8.3.46 Forecast climatic conditions

Season	Variation	Time period	5th percentile	10th percentile	50th percentile	90th percentile	95th percentile
Winter	Mean temperature (degrees C)	2030s	-0.1	0.1	0.9	1.8	2
		2050s	0.2	0.5	1.7	2.9	3.3
		2070s	0.4	0.9	2.5	4.2	4.8
		2090s	1	1.5	3.6	5.8	6.4
	Mean precipitation (%)	2030s	-9	-5	8	23	27
		2050s	-10	-5	13	34	40
		2070s	-12	-5	20	49	58
		2090s	-10	-3	27	63	75
Summer	Mean temperature (degrees C)	2030s	0.1	0.4	1.3	2.4	2.6
		2050s	0.8	1.1	2.5	4	4.4
		2070s	1.2	1.8	3.9	6.1	9.5
		2090s	2.2	2.9	5.8	8.7	9.5
		2030s	-36	-30	-9	13	19
		2050s	-55	-48	-22	5	14

[115] Health Protection Agency, 2012. Health Effects of Climate Change in the UK 2012

Season	Variation	Time period	5th percentile	10th percentile	50th percentile	90th percentile	95th percentile
	Mean precipitation (%)	2070s	-69	-61	-30	1	9
		2090s	-85	-77	-41	-3	7

Source: ES Volume 1, Chapter 20: Greenhouse gas and climate change (document reference 6.1.20)

8.3.390 Temperature - UKCP18 projections show that there is more warming in the summer than in the winter. In summer there is a pronounced north/south contrast, with greater increases in maximum summer temperatures over the southern UK compared to northern Scotland.

8.3.391 Precipitation - Rainfall patterns across the UK are not uniform and vary on seasonal and regional scales and will continue to vary in the future. While UKCP18 projections show a clear shift to higher probability levels of dry summers, they also suggest that the likelihood of individual wet summers reduces only slightly. The projections show a pattern of larger increases in winter precipitation over southern and central England and some coastal regions towards the end of the century. Summer rainfall reductions tend to be largest in the south of England.

8.3.392 Sea level rise and storm surge - According to UKCP18 projections, global sea level has risen over the 20th century and will continue to rise over the coming centuries. The amount of sea level rise depends on the location around the UK and increases with higher emissions scenarios. There is likely to be a greater amount of sea level rise in the south of the UK than the north of the UK. Sea level rise over the coming centuries may affect tidal characteristics substantially (including tidal range).

8.3.393 Snow - According to UKCP18 projections, for the period 2061-2080, under a high emissions scenario (RCP8.5), the regional (12km) and local (2.2km) projections show a decrease in both falling and lying snow across the UK relative to the 1981-2000 baseline. In general, the decreases are smaller in both falling and lying snow in mountainous regions (e.g. Scottish Highlands) than in low-lying regions (e.g. southern England).

8.3.394 Wind - There are no compelling trends in storminess, as determined by maximum gust speeds, from the UK wind network over the last four decades. UKCP18 projections over the UK show an increase in near surface wind speeds over the UK for the second half of the 21st century for the winter season when more significant effects of wind are experienced. This is accompanied by an increase in frequency of winter storms over the UK. However, the increase in wind speeds is modest compared to interannual variability. Winds associated with major storm events can be some of the most damaging and disruptive events for the UK with implications for property, power networks, road and rail transport and aviation.