South Essex Authorities

South Essex Joint Strategic Plan Integrated Impact Assessment Scoping Report

Draft report
Prepared by LUC
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South Essex Authorities

South Essex Joint Strategic Plan Integrated Impact Assessment

Scoping Report

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Introduction

1.1 The South Essex Local Planning Authorities (Basildon, Brentwood, Castle Point, Rochford, Southend-on-Sea and Thurrock) commissioned LUC in 2018 to produce an Integrated Impact Assessment (IIA), combining Sustainability Appraisal (SA) and Health Impact Assessment (HIA), for their Joint Strategic Plan (JSP).

1.2 SA is an assessment process designed to consider and communicate the significant sustainability issues and effects of emerging Plans and Policies, including their alternatives. SA iteratively informs the plan-making process by helping to refine the contents of such documents, so that they maximise the benefits of development and land use change and minimise the potential for adverse effects. HIA aims to ensure that health related issues are integrated into the plan making process, resulting in improved health outcomes.

1.3 The purpose of this IIA Scoping Report is to provide the context for, and determine the scope of, the IIA[1] and to set out the assessment framework for undertaking the later stages of the IIA.

1.4 The Scoping Report starts by setting out the policy context for the JSP. It then describes the current and likely future environmental, social and economic conditions in the South Essex Local Authorities. This contextual information is used to identify the key sustainability issues and opportunities that the JSP can address. The key sustainability issues and opportunities are then used to develop a framework of IIA Objectives that will be used to appraise the likely significant effects of the constituent parts of the JSP, including policies and any site allocations.

1.5 The purpose of this consultation is to seek views on this framework in particular:

1. Whether the proposed scope of the IIA is appropriate, considering the role of the South Essex JSP to help meet and manage South Essex's growth needs and development ambition.
2. Whether there are any additional plans, policies or programmes that are relevant to the IIA policy context that should be included.

[1] incorporating Strategic Environmental Assessment (SEA) and Health Impact Assessment (HIA) – see chapter 2 for more detail.

3. Whether the baseline information provided is robust and sufficient to provide a suitable baseline for the IIA of the South Essex JSP.

4. Whether there are any additional sustainability issues relevant to the JSP that should be identified.

5. Whether the IIA Framework is appropriate and includes a suitable set of IIA objectives and site-based assumptions for assessing the effects of the South Essex JSP proposals and reasonable alternatives.

South Essex JSP

1.6 As shown in **Figure 1.1** below, the JSP area stretches along the north bank of the Thames through Thurrock, Basildon and Castle Point to Southend and Rochford in the east. Brentwood lies to the north of Thurrock, away from the Thames.

1.7 Building on the strengths of the area and the identified potential for growth, the South Essex Authorities aim to deliver a minimum of 90,000 new homes and over 52,000 new jobs by 2038. To coordinate and take this and other related work forward, in early 2018 the Authorities agreed to establish the Association of South Essex Local Authorities (ASELA). As a strategic document, the JSP is expected to focus on housing numbers, type and distribution, as well as economic development needs. It will identify strategic corridors for growth and/or strategic growth locations and may also include policies on design quality, blue and green infrastructure, social inclusion and infrastructure requirements to accommodate growth.

1.8 Alongside the JSP, each South Essex Authority is also preparing a Local Plan which will reflect the scale and distribution of new housing and economic development set out in the JSP.[2]

[2] Request for Quotation for South Essex JSP SA and HRA, 2018

SA and HRA of the South Essex Joint Strategic Plan

Figure 1.1: Location of South Essex Sub-Region

Authority boundaries

Map Scale @ A4: 1:5,000,000

LUC

CB:LA EB:Archer_L LUC FIG_1_1_10440_Location_A4L 30/01/2019

Sustainability Appraisal and Strategic Environmental Assessment

1.9 Under the Planning and Compulsory Purchase Act 2004, SA is mandatory for Development Plan Documents. For these documents it is also necessary to conduct an environmental assessment in accordance with the requirements of the Strategic Environmental Assessment Directive (European Directive 2001/42/EC), as transposed into law in England by the SEA Regulations[3]. Therefore, it is a legal requirement for the JSP to be subject to SA and SEA throughout its preparation.

1.10 The requirements to carry out SA and SEA are distinct, although it is possible to satisfy both using a single appraisal process (as advocated in the National Planning Practice Guidance[4]), whereby users can comply with the requirements of the SEA Regulations through a single integrated SA process – this is the process that is being undertaken in South Essex. From here on, the term 'SA' should therefore be taken to mean 'SA incorporating the requirements of the SEA Regulations'.

1.11 The SA process comprises a number of stages, with scoping being Stage A as shown in **Figure 1.2:** below.

Figure 1.2: Main stages in Sustainability Appraisal

Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope.

Stage B: Developing and refining options and assessing effects.

Stage C: Preparing the Sustainability Appraisal Report.

Stage D: Consulting on the JSP Part 1 Review and the SA report.

Stage E: Monitoring the significant effects of implementing the JSP Part 1 Review.

Key international plans, policies and programmes

1.12 Despite the UK's exit from the European Union, at the international level, Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the 'SEA Directive') and Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') are particularly significant as they require Strategic Environmental Assessment (SEA) and Habitats Regulations Assessment (HRA) to be undertaken in relation to the emerging JSP. These processes will be undertaken iteratively and integrated into the production of the JSP, to ensure that any potential negative environmental effects (including on international nature conservation designations) are identified and can be mitigated.

1.13 There are a wide range of other international agreements and EU Directives that have been transposed into UK law and national policy. These are summarised in the relevant subject area chapters.

1.14 The UK left the EU in January 2020, although it is still subject to most EU legislation until the end of the transition period. Following the UK's exit from the EU and the transition period, most EU law will continue to apply as a result of provisions in the European Union (Withdrawal) Act 2018 (EUWA) and the 'EU Exit' amendments to domestic legislation, which are already in place.

Health Impact Assessment

1.15 Health Impact Assessment (HIA) is a means of assessing the likely health effects of plans, programmes and projects. In itself, it is not a statutory requirement, but in 2005 the Office of the Deputy Prime Minister (ODPM) published 'A Practical Guide to the Strategic Environmental Assessment Directive', which noted that:

"*Responsible Authorities may find it helpful to draw on the methods of Health Impact Assessment when considering how a plan or programme might affect people's health*."

1.16 Health Impact Assessment will be integrated into the SA, as described further in **Chapter 10**. From here on, the term 'IIA' should be taken to mean 'SA incorporating the requirements of the SEA Regulations and Health Impact Assessment'.

Approach to scoping

1.17 Figure 1.3: below sets out the tasks involved in the Scoping stage.

Figure 1.3: Stages in Scoping

Stage A1: Setting out the policy context for the IIA of the South Essex JSP, i.e. key Government policies and strategies that influence what the JSP and the IIA needs to consider.

Stage A2: Setting out the baseline for the IIA of the South Essex JSP, i.e. the current and likely future

[3] The Environmental Assessment of Plans and Programmes Regulations 2004 (SI 2004 No. 1633)
[4] http://planningguidance.planningportal.gov.uk/blog/guidance/strategic-environmental-assessment-and-sustainabilityappraisal/ strategic-environmental-assessment-and-sustainability-appraisal-and-how-does-it-relate-to-strategic-environmentalassessment/

environmental, social and economic conditions in South Essex.

Stage A3: Drawing on A1 and A2, identify the particular sustainability problems and/or opportunities ('issues') that the JSP and IIA should address.

Stage A4: Drawing on A1, A2 and A3, develop a framework of IIA Objectives and assessment criteria to appraise the constituent parts of the JSP in isolation and in combination.

Stage A5: Consulting on the scope of the IIA.

1.18 This Scoping Report fulfils the requirements set out above and provides the foundations for later appraisal of the likely effects of constituent parts of the JSP, as plan-making progresses. In accordance with national Planning Practice Guidance the Scoping Report is proportionate and relevant to the South Essex JSP, focussing on what is needed to assess likely significant effects.

Meeting the requirements of the SEA Regulations

1.19 Table 1.1: below signposts the relevant sections of the Scoping Report that are considered to meet the SEA Regulations requirements (the remainder will be met during subsequent stages of the IIA of the South Essex JSP). This table will be included in the full IIA Report at each stage of the IIA to show how the requirements of the SEA Regulations have been met through the IIA process.

Table 1.1: Meeting the requirements of the SEA Regulations

SEA Regulations requirement	Covered in this Scoping Report?
Environmental Report	
Where an environmental assessment is required by any provision of Part 2 of these Regulations, the responsible Authority shall prepare, or secure the preparation of, an environmental report in accordance with paragraphs (2) and (3) of this regulation. The report shall identify, describe and evaluate the likely significant effects on the environment of: implementing the plan or programme; and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme. (Regulation 12(1) and (2) and Schedule 2).	The full IIA Report produced to accompany consultation on the South Essex JSP will constitute the 'environmental report' and will be produced at a later stage in the IIA process.
An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.	**Chapter 1 to Chapter 9.**
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	
The environmental characteristics of areas likely to be significantly affected.	
Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC on the conservation of wild birds and the Habitats Directive.	
The environmental protection, objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental, considerations have been taken into account during its preparation.	
The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive effects, and secondary, cumulative and synergistic effects, on issues such as: (a) biodiversity; (b) population;	Requirement will be met at a later stage in the IIA process.

SEA Regulations requirement	Covered in this Scoping Report?
(c) human health; (d) fauna; (e) flora; (f) soil; (g) water; (h) air; (i) climatic factors; (j) material assets; (k) cultural heritage, including architectural and archaeological heritage; (l) landscape; and (m) the interrelationship between the issues referred to in sub-paragraphs (a) to (l).	
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	Requirement will be met at a later stage in the IIA process.
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Requirement will be met at a later stage in the IIA process.
A description of the measures envisaged concerning monitoring in accordance with regulation 17.	Requirement will be met at a later stage in the IIA process.
A non-technical summary of the information provided under paragraphs 1 to 9.	Requirement will be met at a later stage in the IIA process.
The report shall include such of the information referred to in Schedule 2 to these Regulations as may reasonably be required, taking account of: current knowledge and methods of assessment; the contents and level of detail in the plan or programme; the stage of the plan or programme in the decision-making process; and the extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment. (Regulation 12 (3))	This Scoping Report and the Environmental Report at each stage of the IIA will adhere to this requirement.
Consultation	
When deciding on the scope and level of detail of the information that must be included in the environmental report, the responsible Authority shall consult the consultation bodies. (Regulation 12(5))	This Scoping Report will be published for consultation for a minimum of five weeks.
Every draft plan or programme for which an environmental report has been prepared in accordance with regulation 12 and its accompanying report ("the relevant documents") shall be made available for the purposes of consultation in accordance with the following provisions of this regulation. As soon as reasonably practical after the preparation of the relevant documents, the responsible Authority shall: send a copy of those documents to each consultation body; take such steps as it considers appropriate to bring the preparation of the relevant documents to the attention of the persons who, in the Authority's opinion, are affected or likely to be affected by, or have an interest in the decisions involved in the assessment and adoption of the plan or programme concerned, required under the	This Scoping Report will be published on each Council's website and interested parties informed of the consultation. Public consultation on the JSP and accompanying IIA Reports will continue as the Plan develops.

SEA Regulations requirement	Covered in this Scoping Report?
Environmental assessment of Plans and Programmes Directive ("the public consultees"); inform the public consultees of the address (which may include a website) at which a copy of the relevant documents may be viewed, and the period within which, opinions must be sent. The period referred to in paragraph (2) (d) must be of such length as will ensure that the consultation bodies and the public consultees are given an effective opportunity to express their opinion on the relevant documents. (Regulation 13 (1), (2), and (3))	
Where a responsible Authority, other than the Secretary of State, is of the opinion that a plan or programme for which it is the responsible Authority is likely to have significant effects on the environment of another Member State, it shall, as soon as reasonably practicable after forming that opinion: notify the Secretary of State of its opinion and of the reasons for it; and supply the Secretary of State with a copy of the plan or programme concerned, and of the accompanying environmental report. (Regulation 14 (1))	Unlikely to be relevant to the JSP, as it is anticipated there will be no effects beyond the UK.
Taking the environmental report and the results of the consultations into account in decision-making (relevant extracts of Regulation 16)	
As soon as reasonably practicable after the adoption of a plan or programme for which an environmental assessment has been carried out under these Regulations, the responsible Authority shall: make a copy of the plan or programme and its accompanying environmental report available at its principal office for inspection by the public at all reasonable times and free of charge. (Regulation 16(1))	Requirement will be met after adoption of the JSP.
As soon as reasonably practicable after the adoption of a plan or programme: the responsible Authority shall inform (i) the consultation bodies; (ii) the persons who, in relation to the plan or programme, were public consultees for the purposes of regulation 13; and (iii) where the responsible Authority is not the Secretary of state, the Secretary of State, that the plan or programme has been adopted, and a statement containing the following particulars: how environmental considerations have been integrated into the plan or programme; how the environmental report has been taken into account; how opinions expressed in response to: (i) the invitation in regulation 13(2)(d); (ii) action taken by the responsible Authority in accordance with regulation 13(4), have been taken into account; how the results of any consultations entered into under regulation 14(4) have been taken into account; the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with; and the measures that are to be taken to monitor the significant environmental effects of the implementation of the plan or programme.	Requirement will be met after adoption of the JSP.
Monitoring	

SEA Regulations requirement	Covered in this Scoping Report?
The responsible Authority shall monitor the significant effects of the implementation of each plan or programme with the purpose of identifying unforeseen adverse effects at an early stage and being able to undertake appropriate remedial action. (Regulation 17(1))	Requirement will be met after adoption of the JSP.

Habitats Regulations Assessment

1.20 The requirement to undertake Habitats Regulations Assessment (HRA) of development plans was confirmed by the amendments to the Habitats Regulations published for England and Wales in July 2007 and updated in 2010[5] and again in 2012[6] and 2017[7]. The regulations translate Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) and 79/409/EEC (Birds Directive) into UK law. The purpose of HRA is to assess the impacts of a land-use plan against the conservation objectives of a European Site and to ascertain whether it would adversely affect the integrity of that site.

1.21 The HRA will be undertaken separately but the findings will be taken into account in the IIA where relevant (for example to inform judgements about the likely effects of potential development locations on biodiversity).

Structure of the Scoping Report

1.22 This chapter describes the background to the production of the South Essex JSP and the requirement to undertake SA and other assessment processes. The remainder of this Scoping Report is structured around a set of subject areas designed to examine the full range of possible sustainability effects of the South Essex JSP, including all the SEA topics listed in Schedule 2 of the SEA Regulations (2004)

1.23 Each chapter sets out the policy context and baseline for each subject area. The subject area chapters are as follows:

- **Chapter 2:** Population, Growth, Health and Wellbeing.
- **Chapter 3**: Economy.
- **Chapter 4**: Transport Connections and Travel Habits.
- **Chapter 5**: Air, Land and Water Quality.
- **Chapter 6**: Climate Change Adaptation and Mitigation.
- **Chapter 7**: Biodiversity.
- **Chapter 8**: Historic Environment.
- **Chapter 9**: Landscape.

1.24 SEA Guidance recognises that data gaps will exist but suggests that where baseline information is unavailable or unsatisfactory, Authorities should consider how it will affect their assessments and determine how to improve it for use in the assessment of future plans. Where there are data gaps in the baseline and forthcoming reports, these are highlighted in the text. The collection and analysis of baseline data is regarded as a continual and evolving process, given that information can change or be updated on a regular basis.

1.25 Relevant baseline information will be updated during the IIA process as and when data is published.

1.26 The end of each chapter identifies the key sustainability issues for South Essex relating to that subject area, informed by the preceding policy context and baseline, and sets out their likely evolution without the JSP. **Chapter 10** sets out the IIA Framework against which the effects of the JSP will be assessed and explains how this has been developed.

[5] The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007. HMSO Statutory Instrument 2007 No. 1843. From 1 April 2010, these were consolidated and replaced by the Conservation of Habitats and Species Regulations 2010 (SI No. 2010/490). Note that no substantive changes to existing policies or procedures have been made in the new version.

[6] The Conservation of Habitats and Species (Amendment) Regulations 2012. Statutory Instrument 2012 No. 1927.

[7] *The Conservation of Habitats and Species Regulations 2017* (Statutory Instrument 2017 No. 1012) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments.

Chapter 2
Population, health and wellbeing

Policy context

International

2.1 United Nations Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the 'Aarhus Convention') (1998): Establishes a number of rights of the public (individuals and their associations) with regard to the environment. The Parties to the Convention are required to make the necessary provisions so that public authorities (at national, regional or local level) will contribute to these rights to become effective.

2.2 United Nations Declaration on Sustainable Development (Johannesburg Declaration) (2002): Sets broad framework for international sustainable development, including building a humane, equitable and caring global society aware of the need for human dignity for all, renewable energy and energy efficiency, sustainable consumption and production and resource efficiency.

2.3 European Environmental Noise Directive (2002): Sets out a hierarchy for the avoidance, prevention and reduction in adverse effects associated with environmental noise, including noise generated by road and rail vehicles, infrastructure, aircraft and outdoor, industrial and mobile machinery[8].

National

2.4 National Planning Policy Framework (NPPF)[9] contains the following:

- The NPPF promotes healthy, inclusive and safe places which promote social integration, are safe and accessible, and enable and support healthy lifestyles.
- One of the core planning principles is to "t*ake into account and support the delivery of local strategies to improve health, social and cultural well-being for all sections of the community".*

[8] Whilst the UK left the EU in January 2020, most EU legislation continues to apply to the UK until the end of the implementation period (31st December 2020). After this time, the majority of EU legislation will be 'saved' in UK law, as set out in the European Union (Withdrawal)Act 2018 (c. 16), as amended by The European Union (Withdrawal) Act 2018 (Exit Day) (Amendment) (No. 2) Regulations 2019 (No. 859) and The European Union (Withdrawal) Act2018 (Exit Day) (Amendment) (No. 3) Regulations 2019 (No. 1423).

[9] Ministry of Housing, Communities and Local Government (2019) National Planning Policy Framework [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

- The plan should "*contain policies to optimise the use of land in their area and meet as much of the identified need for housing as possible".* To determine the minimum number of homes needed strategic policies should be informed by the application of the standard method set out in national planning guidance, or a justified alternative approach.
- The framework states that "*access to a network of high quality open spaces and opportunities for sport and recreation is important for the health and well-being of communities*".
- The NPPF states "*good design is a key aspect of sustainable development*" and requires development supported by planning decisions to function well and add to the overall quality of the area over its lifetime. The importance for planning decisions to result in development which is of a quality which incorporates good architecture and appropriate and effective landscaping as to promote visual attractiveness, raise the standard more generally in the area and address the connections between people and places is emphasised.
- The NPPF promotes the retention and enhancement of local services and community facilities in villages, such as local shops, meeting places, sports, cultural venues and places of worship.
- The framework also seeks to ensure that developments create safe and accessible environments where crime and disorder, and fear of crime, do not undermine quality of life or community cohesion.
- There is a need set out in the document to take a "*proactive, positive and collaborative approach*" to bring forward development that will "*widen choice in education*", including sufficient choice of school places.
- Paragraph 72 states that "*The supply of large numbers of new homes can often be best achieved through planning for larger scale development, such as new settlements or significant extensions to existing villages and towns, provided they are well located and designed and supported by the necessary infrastructure and facilities".* As such the NPPF provides support for the identification of locations which are suitable for this type of development in a manner which would help to meet needs identified in a sustainable way.

2.5 National Planning Practice Guidance (PPG)[10] contains the following:

- Local planning Authorities should ensure that health and wellbeing, and health infrastructure are considered in local and neighbourhood plans and in planning decision making.

2.6 Select Committee on Public Service and Demographic Change report Ready for Ageing?[11]: warns that society is underprepared for the ageing population. The report states "*longer lives can be a great benefit, but there has been a collective failure to address the implications and without urgent action this great boon could turn into a series of miserable crises".* The report highlights the under provision of specialist housing for older people and the need to plan for the housing needs of the older population as well as younger people.

2.7 Fair Society, Healthy Lives[12]: investigated health inequalities in England and the actions needed in order to tackle them. Subsequently, a supplementary report was prepared providing additional evidence relating to spatial planning and health on the basis that there is "*overwhelming evidence that health and environmental inequalities are inexorably linked and that poor environments contribute significantly to poor health and health inequalities*".

2.8 Planning Policy for Traveller Sites[13]: Sets out the Government's planning policy for traveller sites, replacing the older version published in March 2012. The Government's overarching aim is to ensure fair and equal treatment for travellers, in a way that facilitates the traditional and nomadic way of life of travellers while respecting the interests of the settled community.

2.9 Laying the foundations: a housing strategy for England[14]: Aims to provide support to deliver new homes and improve social mobility.

2.10 Healthy Lives, Healthy People: Our strategy for public health in England[15]: Sets out how the Government's approach to public health challenges will:

[10] Department for Communities and Local Government (2016) National Planning Practice Guidance [online] Available at: https://www.gov.uk/Government/collections/planning-practice-guidance
[11] Select Committee on Public Service and Demographic Change (2013) Ready for Ageing? [online] Available at: https://publications.parliament.uk/pa/ld201213/ldselect/ldpublic/140/140.pdf
[12] The Marmot Review (2011) Fair Society, Healthy Lives. [online] Available at: http://www.parliament.uk/documents/fair-society-healthy-lives-full-report.pdf
[13] Department for Communities and Local Government (2015) Planning policy for traveller sites [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/457420/Final_planning_and_travellers_policy.pdf
[14] HM Government (2011) Laying the Foundations: A Housing Strategy for England [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/7532/2033676.pdf
[15] HM Government (2010) Healthy Lives, Healthy People: Our strategy for public health in England [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/216096/dh_127424.pdf

- Protect the population from health threats – led by central Government, with a strong system to the frontline.
- Empower local leadership and encourage wide responsibility across society to improve everyone's health and wellbeing and tackle the wider factors that influence it.
- Focus on key outcomes, doing what works to deliver them, with transparency of outcomes to enable accountability through a proposed new public health outcomes framework.
- Reflect the Government's core values of freedom, fairness and responsibility by strengthening self-esteem, confidence and personal responsibility; positively promoting healthy behaviours and lifestyles; and adapting the environment to make healthy choices easier.
- Balance the freedoms of individuals and organisations with the need to avoid harm to others, use a 'ladder' of interventions to determine the least intrusive approach necessary to achieve the desired effect and aim to make voluntary approaches work before resorting to regulation.

2.11 A Green Future: Our 25 Year Plan to Improve the Environment[16]: Sets out goals for improving the environment within the next 25 years. It details how the Government will work with communities and businesses to leave the environment in a better state than it is presently. Identifies six key areas around which action will be focused. Those of relevance to this chapter are 'using and managing land sustainably' and 'connecting people with the environment to improve health and wellbeing'. Actions that will be taken as part of these two key areas are as follows:

- Using and managing land sustainably:
  - Embed an 'environmental net gain' principle for development, including housing and infrastructure.
- Connecting people with the environment to improve health and wellbeing:
  - Help people improve their health and wellbeing by using green spaces including through mental health services.
  - Encourage children to be close to nature, in and out of school, with particular focus on disadvantaged areas.
  - 'Green' our towns and cities by creating green infrastructure and planting one million urban trees.
  - Make 2019 a year of action for the environment, working with Step Up To Serve and other partners to help children and young people from all backgrounds to engage with nature and improve the environment.

Sub-national

2.12 Essex Transport Strategy (2011)[17]: The plan addresses the County Council's priorities and strategic objectives for improving the transport network across Essex, including by encouraging the use of sustainable transport modes. Note that whilst Thurrock and Southend-on-Sea are included in this document, they also both have their own, more up to date transport plans/strategies (see below).

2.13 Thurrock Transport Strategy 2013-2026[18]: The strategy sets out the aims, objectives and policies for delivering transport improvements in Thurrock, including (but not limited to) to respond to large scale growth at Lakeside, Tilbury Port and London Gateway. A key aim of the strategy is to ensure that this and future growth is sustainable. This strategy also sets out the long-term approach to walking and cycling in the borough.

2.14 Southend's Local Transport Plan 3 2012-2026[19]: The plan sets out the Council' priorities for the transport network, focusing on creating a high quality accessible and free-flowing transport system that supports sustainable economic growth and regeneration.

2.15 Draft Essex Walking Strategy (2019)[20]: This strategy sets out the key barriers, challenges and opportunities to increase levels of walking throughout the County. It identifies nine key objectives and outlines funding priorities and opportunities. Note that Thurrock and Southend-on-Sea are in the process of producing their own walking strategies.

[16] HM Government (2018) A Green Future: Our 23 Year Plan to Improve the Environment [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/673203/25-year-environment-plan.pdf
[17] Essex County Council (2011) Essex Transport Strategy: the Local Transport Plan for Essex [online] Available at: https://www.essexhighways.org/uploads/docs/essex_ltp.pdf
[18] Thurrock Council (date not available) Thurrock Transport Strategy 2013-2026 [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/strategy_transport_2013.pdf
[19] Southend-on-Sea Borough Council (2015) Southend Local Transport Plan 3 Strategy Document 2011-2026 [online] Available at: https://www.southend.gov.uk/downloads/file/3491/local_transport_plan_3_-_strategy_document_2012-2026_-_revised_january_2015
[20] Essex County Council (2019) Draft Essex Walking Strategy [online] Available at: https://consultations.essex.gov.uk/rci/essex-walking-strategy-resident-consultation/supporting_documents/Essex%20Walking%20Strategy%20Draft%20August.pdf

2.16 Essex Cycling Strategy (2016)[21]: This strategy outlines the overall aspiration to support cycling across the County. It sets out nine areas of strategic action that are necessary to delivering growth in cycling throughout the County. It also outlines funding priorities and opportunities. Note that Thurrock and Southend-on-Sea are in the process of producing their own cycling strategies.

2.17 Green Essex Strategy (2019)[22]: This Strategy seeks to enhance, protect and create an inclusive and integrated network of high-quality green infrastructure in Greater Essex, to create a county-wide understanding of green infrastructure – its functions and values, and to identify opportunities for implementing green infrastructure. Note that a Green and Blue Infrastructure Strategy has been commissioned for South Essex. Brentwood also has a Green Infrastructure Strategy[23] and Thurrock has an emerging Green and Blue Infrastructure Strategy.

2.18 Essex Climate Change Action Plan: In October 2019 Essex County Council announced the Essex Climate Change Action Plan and the creation of an independent cross-party commission on climate change.

2.19 Essex Adapting to Climate Change Action Plan (2016)[24]: This plan looks at how severe climatic events could disrupt our services. By preparing for extreme weather, the plan seeks to build resilience into the County Council's services and aims to reduce potential damage and cost of extreme weather. Headline actions identified in the plan include preparation of a water management action plan, adhering to the winter maintenance plan for highways, allowing flexible working, providing alternative waste disposal options (e.g. for when closures are triggered by high winds) and identifying those most at risk from prolonged hot summers and colder weather.

2.20 Open space studies (various years)[25,26,27,28,29,30]: Provides an audit of the quantity and quality of existing provision in each of the Local Authority areas and assesses the need for future provision. The studies identify open space standards, relating to quantity and quality of parks and gardens, natural and semi-natural greenspace, green corridors, amenity green space, allotments, cemeteries and churchyards, educational fields, and children and young peoples' space.

2.21 South Essex Playing Pitch Strategy Overarching Strategy (2018)[31]: This strategy assess outdoor sport facility needs across the individual authorities, as well as considering these needs in a wider context across the region. Its three main aims are to protect the existing supply of outdoor sports facilities where it is needed to meet current and future needs, enhance outdoor sports provision and ancillary facilities through improving quality and management of sites, and provide new outdoor sports facilities where there is current or future demand to do so. Note that many of the South Essex authorities also have their own, finer grain playing pitch strategies.

2.22 The Essex Joint Health and Wellbeing Strategy (2018)[32]: This strategy outlines the vision for health and wellbeing in Essex, addressing four key areas of focus:

- Improving mental health and wellbeing.
- Addressing obesity, improving diet and increasing physical activity.
- Influencing conditions and behaviours linked to health inequalities.
- Enabling and supporting people with long-term conditions and disabilities.

2.23 Note that whilst this strategy covers Essex as a whole, many of the South Essex authorities also have their own health and wellbeing strategies.

[21] Essex County Council (2016). Essex Cycling Strategy [online] Available at: https://www.essexhighways.org/uploads/docs/ecc-cycling-strategy-novemeber-2016.pdf
[22] Essex County Council (2019) Green Essex Strategy [online] Available at: https://consultations.essex.gov.uk/rci/green-essex-strategy/supporting_documents/Green_Essex_Strategy_30042019%201.pdf
[23] Groundwork (2015) Brentwood Borough Council Green Infrastructure Strategy [online] Available: http://www.brentwood.gov.uk/pdf/29012016122803u.pdf
[24] Essex County Council (2016) Managing the risks from weather extremes – Adaptation in Action
[25] Basildon Borough Council (2015) Open Space Assessment Gap Analysis [online] Available at: https://www.basildon.gov.uk/media/6612/Basildon-Council-Open-Space-Assessment-Gap-Analysis-Dec-2015/pdf/Basildon_Council_-_Open_Space_Assessment_Gap_Analysis_-_Dec_2015.pdf?m=635896611202570000
[26] Brentwood Borough Council (2016) Sport, Leisure and Open Space Assessment [online] Available at: http://www.brentwood.gov.uk/pdf/20012017115329u.pdf
[27] Castle Point Council (2012) Open Space Appraisal Update [online] Available at: https://www.castlepoint.gov.uk/download.cfm?doc=docm93jijm4n839.pdf&ver=987
[28] Rochford District Council (2009) Open Space Study [online] Available at: https://www.rochford.gov.uk/sites/default/files/planning_evibase_openspacestudy.pdf
[29] Thurrock Council (unknown) Community Needs and Open Spaces Study [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/ldf_tech_openspaces_report.pdf
[30] Southend-on-Sea Council (2004) Open Space and Recreation Assessment in Southend-on-Sea Borough [online] Available at: http://www.southend.gov.uk/download/downloads/id/1630/a_study_of_open_space_and_recreation_southend_-_final_reportpdf.pdf
[31] Knight, Kavanagh & Page (2018) South Essex Playing Pitch Strategy Overarching Strategy And Action Plan [online] Available at: https://www.castlepoint.gov.uk/download.cfm?doc=docm93jijm4n3828.pdf&ver=6464
[32] Future of Essex (2018) Essex Joint Health and Wellbeing Strategy 2018-2022 [online] Available at: https://www.livingwellessex.org/media/621973/jhws-2018-cabinet-aug-2018.pdf

2.24 Essex Sustainable Modes of Travel Strategy (2019)[33]: The Sustainable Modes of Travel Strategy aims to reduce the number of private vehicles using the highway network and increase the use of more active and sustainable modes available to businesses, residents and schools within Essex. A key objective is to improve health, welfare and safety of Essex residents by encouraging an active lifestyle through walking and cycling.

2.25 Essex Joint Strategic Needs Assessment (JSNA) (2019)[34]: The JSNA includes a county-wide report, covering the whole of Essex, and profiles for each local authority area. Potential areas of future focus include reducing excess weight and obesity across all age groups, increasing physical activity in adults, close the gap in life expectancy between the highest and lowest performing areas, reduce the numbers of KSI (killed or seriously injured) in road traffic accident and reducing self-harm and suicide levels.

2.26 Thurrock JSNAs (various dates)[35,36,37,38,39,40]: Thurrock has published a number of JSNA documents looking at different elements in health in Thurrock. These look at the health needs of local people and therefore help commission health, wellbeing and social care services in the borough as well as helping to improve physical and mental wellbeing of individuals and communities. The JSNAs inform the Health and Wellbeing strategy.

2.27 Southend-on-Sea Joint Strategic Needs Assessment (2019)[41]: The JSNA looked into population trends, health and wellbeing baseline information and identifying wider determinants of health and wellbeing in the borough. It links the thematic areas of the JSNA to the themes and outcomes of the 'Southend 2050' vision set out by the Council. Relevant outcomes include ensuring Southend residents are remaining well enough to enjoy fulfilling lives; protecting and improving quality of life, particularly for the most vulnerable; people in all parts of the borough feel safe and secure at all times; and the benefits of community connection are evident.

Current baseline

Population

2.28 The population of South Essex in 2018 was 794,600. The overall population is expected to increase significantly between 2018-2041 by 17.2%[42]. Basildon, Thurrock and Southend-on-Sea have the highest populations out of the six Local Authorities that comprise the sub-region. The population of all the Local Authorities is expected to increase; however, the Authorities closer to London, namely Thurrock, Basildon and Brentwood are expected to have the highest percentage increase in population from 2018 to 2041 increasing by 21.3%, 19% and 18.5% respectively[43]. Evidence suggests that the majority of this growth is expected to occur in and around existing urban areas such as Brentwood, Grays, Tilbury and Basildon[44].

2.29 The average age of residents of the South Essex Authorities is 42.3 which is broadly in line with the England average of 39.8[45].

2.30 Southend-on-Sea is the most densely populated borough within the sub-region, with 43.7 persons per hectare, which is more than double any of the other Local Authorities[46]. Castle Point comes second, with 20.0 persons per hectare. Rochford and Brentwood have 5.1 and 5.0 persons per hectare, respectively, making them the least dense boroughs. Basildon and Thurrock have a density of 16.9 and 10.6 persons per hectare, respectively. Overall, South Essex has a density of 10.2 persons per hectare[47].

2.31 South Essex has an ageing population (see **Table 2.2:**). The proportion of those over 65 is due to increase from 19%

[33] Essex County Council (2019) Sustainable Modes of Travel Strategy(Covering Workplaces, Residential Developments and Schools including Further Education Establishments) [online] Available at: https://assets.ctfassets.net/knkzaf64jx5x/5T3h7kDuqTwZg7tzYY21E0/d98a73ccd9fa2e9e5cb4451ecd74cde5/sustainable-modes-travel-strategy-essex-county-council.pdf
[34] Essex County Council (2019) Joint Strategic Needs Assessment 2019
[35] Thurrock Council (2020) Sexual Violence and Abuse: A Thurrock Joint Strategic Needs Assessment [online] Available at: https://www.thurrock.gov.uk/healthy-living/joint-strategic-needs-assessment
[36] Thurrock Council (2018) Special Educational Needs and Disabilities JSNA [online] Available at: https://www.thurrock.gov.uk/healthy-living/joint-strategic-needs-assessment
[37] Thurrock Council (2018) Adult Mental Health JSNA [online] Available at: https://www.thurrock.gov.uk/healthy-living/joint-strategic-needs-assessment
[38] Thurrock Council (2018) Children and Young People's Mental Health JSNA [online] Available at: https://www.thurrock.gov.uk/healthy-living/joint-strategic-needs-assessment
[39] Thurrock Council (2018) Young Persons Substance Misuse JSNA [online] Available at: https://www.thurrock.gov.uk/healthy-living/joint-strategic-needs-assessment
[40] Thurrock Council (2017) Whole Systems Obesity JSNA [online] Available at: https://www.thurrock.gov.uk/healthy-living/joint-strategic-needs-assessment
[41] Southend-on-Sea Borough Council (2019) Joint Strategic Needs Assessment (JSNA) [online] Available at: https://www.southend.gov.uk/downloads/download/356/joint_strategic_needs_assessments
[42] ONS (2016) Population projections for local Authorities: Table 2 [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localAuthoritiesinenglandtable2
[43] Ibid.
[44] Brentwood Borough Council (2016) Brentwood Draft Local Plan: Preferred Site Allocations, Thurrock Council (2018) Growth Areas: https://www.thurrock.gov.uk/growth, Basildon Borough Council (2018): Revised Publication Local Plan 2014-2034
[45] ONS (2018) Population estimates: median ages for administrative, electoral and census geographies [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/adhocs/009301populationestimatesmedianagesforadministrativeelectoralandcensusgeographies
[46] ONS (2019) Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland
[47] Ibid.

to 24% across South Essex. Meanwhile, the proportion of those aged 0-29 and between 30-64 will decrease by 2% and 3%, respectively. The degree to which populations are ageing varies between the constituent Local Authorities. Southend-on-Sea, Castle Point and Rochford will see the largest percentage increase at 7%. Brentwood and Thurrock are expected to see a 4% increase in those over 65, and Basildon a 5% increase.

2.32 White British is the most common ethnicity in all local authorities in South Essex, by a substantial margin. The local authorities further away from London are generally less diverse. Castle Point and Rochford are the least diverse local authority areas, with over 95% of the population being White British. Thurrock is the most diverse authority, with 81% of the population being White British, just under 8% of the population being black (the highest proportion in South Essex) and the remainder being primarily White Other and Asian. In Thurrock, Basildon, Brentwood and Southend, between 3% and 5% of the population is White Other and between 2.5% and 4% of the population is Asian. For Castle Point and Rochford these figures are around 1.5% for White Other and 1% for Asian[48].

[48] UK Government (2018) Ethnic population by local authority – Spreadsheet [online] Available at: https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/national-and-regional-populations/regional-ethnic-diversity/latest

Table 2.1: Population of South Essex Authorities[49]

	Population 2018[50]	Predicted Population 2038	Forecast % increase population	Total area (hectares)	Persons/per hectare	Average age
Basildon	185,900	221,300	19.0	11,003	16.9	39.4
Brentwood	76,600	90,800	18.5	15,312	5.0	43.4
Castle Point	90,100	101,300	12.4	4,507	20.0	46.8
Rochford	87,000	97,700	12.3	16,950	5.1	45.9
Southend	182,500	211,000	15.6	4,175	43.7	41.5
Thurrock	172,500	209,200	21.3	16,338	10.6	36.8
South Essex	794,600	931,000	17.2	68,285	10.2	40.5

Table 2.2: Projected population age structure for South Essex (thousands of residents)[51]

	2018[52]			2041		
	0-29	30-64	65+	0-29	30-64	65+
Basildon	69.1 (37%)	84.8 (46%)	31.9 (17%)	78.8 (36%)	94.8 (43%)	47.8 (22%)
Brentwood	25.7 (34%)	35.3 (46%)	15.6 (20%)	29.4 (33%)	39.3 (43%)	22.0 (24%)
Castle Point	28.7 (34%)	38.6 (43%)	22.7 (23%)	31.1 (31%)	39.3 (39%)	30.6 (30%)
Rochford	27.8 (32%)	39.1 (45%)	20.0 (23%)	29.1 (30%)	39.7 (41%)	29 (30%)
Southend	62.9 (35%)	84.4 (46%)	35.1 (19%)	67.3 (32%)	89.0 (42%)	54.8 (26%)
Thurrock	68.1 (39%)	80.7 (47%)	23.8 (14%)	78.6 (38%)	92.3 (44%)	38.4 (18%)
South Essex	282.3 (35.5 %)	362.9 (45.7 %)	149.1 (18.8 %)	314.3 (33.7 %)	394.4 (42.3 %)	222.6 (23.9 %)

Housing

2.33 South Essex is forecast to experience significant growth in housing need alongside increases in population.

2.34 The South Essex Strategic Housing Market Assessment (SHMA)[53,54] has identified the Objectively Assessed Need (OAN), up to 2037, for the Thames Gateway South Essex (TGSE) Authorities, which comprise Basildon, Castle Point, Rochford, Southend and Thurrock. This excludes Brentwood, which is considered as a separate housing market area.

2.35 Overall, for the TGSE Authorities, the OAN was assessed as between 3,750 and 4,000 dwellings per annum. Additionally, calculations suggest that there is a total need for 2,239 affordable homes annually in TGSE over the next five years and 2,128 affordable homes annually thereafter. Lack of affordable housing is a significant issue across the sub-region, where for example in Castle Point 66% of first-time buyers cannot afford a flat or maisonette based on mortgage at 3.0 times their income.[55]

[49] Figures sourced from ONS 2016-based projections and NOMIS- Local Area Reports, 2011 Census
[50] ONS (2019) Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland
[51] Figures sourced from ONS 2016-based projections
[52] ONS (2019) Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland
[53] Strategic Housing Market Assessment, South Essex, May 2016 [online] Available at: https://www.rochford.gov.uk/sites/default/files/SE_strategichousing_2016.pdf
[54] Turley Economics (2017) Addendum to the South Essex Strategic Housing Market Assessment [online] Available at: https://www.housingessex.org/assets/uploads/2018/06/Addendum_to_the_South_Essex_SHMA_May_17.pdf
[55] South Essex Housing Market Trends, Quarterly Report (April 2017) [online] Available at: http://www.tgessex.co.uk/downloads/TGSE_Housing_Market_Trends_Quarterly_Report_Apr_17.pdf

2.36 A separate SHMA for Brentwood, completed by Peter Brett Associates in 2018, identifies the OAN as 380 dwellings per annum with and an affordable housing need of 109 dwellings per annum.

Scale of housing growth

2.37 It is expected there will be considerable housing growth with an overall growth of 23.4% likely to occur between 2014 and 2037. This compares to around 22% for England. This scale of growth suggests sustained need for housing with a resultant need for approximately 3,021 dwellings per annum over the full projection period. This level of need accommodates the natural growth and strong level of annual net migration, equivalent to almost 3,300 people per annum (**Table 2.3**).

There is noticeable variation in the level of projected housing growth. Southend-On-Sea, Thurrock and Basildon are expected to experience significant household growth of above 750 dwellings per year. The expected scale of housing growth in Rochford and Castle Point is considerably less relative to other areas in South Essex at under 250 dwellings per year, although these two authorities have a much smaller population than other South Essex authorities.

Table 2.3: 2014-based Population and household projections 2014-2037[56]

	Population change 2014-2037	% increase	Households	% increase	Net migration (avg. per year)	Dwellings (avg. per year)
Basildon	34,197	18.9	17,396	23.0	588	770
Castle Point	9,723	10.9	5,561	15.0	669	250
Rochford	10,464	12.3	5,740	16.7	475	256
Southend-on-Sea	33,359	18.7	19,151	24.9	980	876
Thurrock	41,062	25.1	19,502	30.2	574	869
TGSE	128,805	18.5	67,350	23.4	3,286	3,021

2.38 Castle Point and Southend are both projected to see the highest levels of net migration, with an inflow of 669 and 980 persons per annum respectively on average. In contrast, Thurrock, despite a high population growth projection, has the second lowest level of net migration, behind only Basildon. Rochford is likely to see a low level of population growth compared to other areas and is in the middle of the pack when comparing net in-migration (see **Table 2.3**). This suggests that there are other drivers of growth, primarily natural change, and this highlights the important differences between components of population change across TGSE. [57,58]

2.39 In Brentwood, Government[59] household projections indicate a requirement of 348 net new homes per year.[60] Additionally, the average house price in Brentwood increased by 0.7% from September 2018 to September 2019, £427,543 to £430,623 respectively.[61]

2.40 The annual house price growth in May 2019 for South Essex (excluding Brentwood) was -0.12%. Between May 2018 and May 2019, prices fell in Basildon and Thurrock, by as much as £9,096 or 2.7%. Basildon saw the greatest reduction in price, whilst Southend-on-Sea and Rochford saw the highest price rises of £4,683 and £2,833, respectively. The table below sets out the average house price differences between 2018 and 2019 for each of the Authorities.[62] The percentage change in annual house price growth between May 2018 and May 2019 rose in Castle Point, Rochford and Southend-on-Sea, but fell in Basildon and Thurrock. All of the

[56] Turley Economics (2017) Addendum to the South Essex Strategic Housing Market Assessment [online] Available at: https://www.housingessex.org/assets/uploads/2018/06/Addendum_to_the_South_Essex_SHMA_May_17.pdf
[57] Strategic Housing Market Assessment, South Essex, May 2016 [online] Available at: https://www.rochford.gov.uk/sites/default/files/SE_strategichousing_2016.pdf
[58] Turley Economics (2017) Addendum to the South Essex Strategic Housing Market Assessment [online] Available at: https://www.housingessex.org/assets/uploads/2018/06/Addendum_to_the_South_Essex_SHMA_May_17.pdf
[59] Now called the Ministry of Housing, Communities and Local Government (MHCLG)
[60] Peter Brett Associates (2018) Strategic Housing Market Assessment for Brentwood Borough Council [online] Available at: http://www.brentwood.gov.uk/pdf/25102018093817000000.pdf
[61] HM Land Registry (2019) UK House Price Index: September 2019 [online] Available at: http://landregistry.data.gov.uk/app/ukhpi/browse?from=2018-09-01&location=http%3A%2F%2Flandregistry.data.gov.uk%2Fid%2Fregion%2Fbrentwood&to=2019-09-01
[62] South Essex Housing Market Trends, Quarterly Report (April 2017) [online] Available at: https://www.housingessex.org/assets/uploads/2019/07/SE-Housing-Market-Trends-Quarterly-Report-July-2019.pdf

South Essex Local Authorities have a higher average house price than England's average (£237,110).

2.41 In terms of affordability, Brentwood and Rochford have the highest gross weekly pay by place of residence[63] and are also the most expensive places to live in terms of house prices. However, gross weekly pay by place of work[64] is much lower for Brentwood and Rochford than gross weekly pay by place of residence, which suggests housing in these local authorities is less affordable to those who work there. Thurrock is the most affordable of the Local authorities, with the average house price being around 467 week's wages (based on weekly pay by place of residence). Basildon is the least affordable, with the average house price being around 550 week's wages.

Table 2.4: Change in house prices in South Essex 2018-2019 [65,66]

	2018	2019	Change in price
Basildon	£341,993	£332,897	£9,096 (-2.7%)
Brentwood	£427,543	£430,623	£3,080 (+0.7%)
Castle Point	£330,824	£331,129	£305 (+0.1%)
Rochford	£376,211	£379,044	£2,833 (+0.8%)
Southend-on-Sea	£323,156	£327,839	£4,683 (+1.5%)
Thurrock	£296,172	£295,349	£823 (-0.3%)

Role of migration

2.42 The SHMA highlights the importance of migration in influencing the South Essex housing market.

2.43 Evidence suggests that within individual TGSE Authorities, there is a relatively low level of containment of moves, i.e. those moving house often move to a different local authority area. However, there is a relatively high degree of self-containment across the TGSE as a whole (see **Table 2.5:**). This is particularly the case for Southend-on-Sea with around 80% of moves into the Borough originating from the TGSE Authorities. On the other hand, Thurrock has a lower level of self-containment, suggesting a sizeable flow from elsewhere. This is likely to reflect the proximity of Thurrock to London.

2.44 Whilst there are significant flows from within the TGSE such as a net flow from many Authorities to Southend-on-Sea, there are also significant net inflows from areas outside of this geography. In particular, there is a significant flow from east London – particularly from the London Boroughs of Havering, Newham and Barking and Dagenham – mainly to Thurrock, Basildon and Southend-on-Sea.

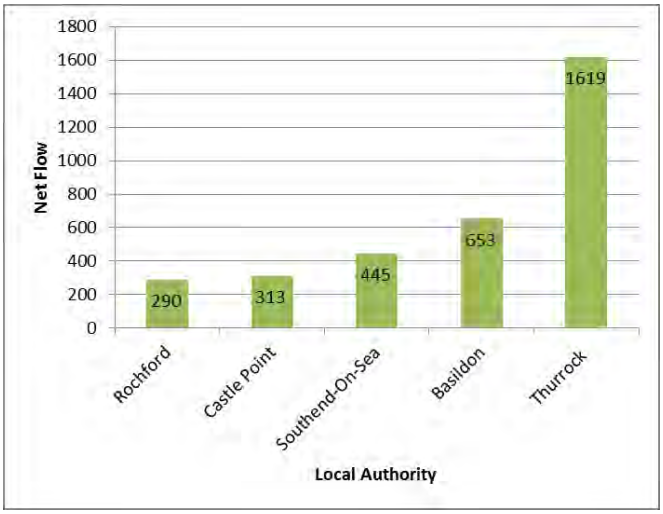
2.45 Overall, the TGSE Authorities' relationship with London can be seen as a key driver of population growth. All Authorities experience net inflow from London (see **Figure 2.1:**), although there is considerable variation. For example, in 2011, Thurrock saw the greatest net inflow from Greater London whereas Rochford and Castle Point saw a smaller net inflow.

[63] Median earnings in pounds for employees living in the area who are on adults rates of pay and whose pay was not affected by absence.
[64] Median earnings in pounds for employees working in the area who are on adult rates of pay and whose pay was not affected by absence.
[65] South Essex Housing Market Trends, Quarterly Report (July 2019) [online] Available at: https://www.housingessex.org/assets/uploads/2019/07/SE-Housing-Market-Trends-Quarterly-Report-July-2019.pdf
[66] HM Land Registry (2019) UK House Price Index: September 2019 [online] Available at: http://landregistry.data.gov.uk/app/ukhpi/browse?from=2018-09-01&location=http%3A%2F%2Flandregistry.data.gov.uk%2Fid%2Fregion%2Fbrentwood&to=2019-09-01

Table 2.5: Origin of migrants 2010/2011 South Essex Authorities (excluding Brentwood)[67]

	Moved from within Authority	Moved from within TGSE
Basildon	60.6%	70.5%
Castle Point	54.5%	78.6%
Rochford	44.5%	76.0%
Southend-On-Sea	64.2%	80.1%
Thurrock	61.6%	66.6%
TGSE	N/A	74.0%

Figure 2.1: Net flow from Greater London for South Essex Authorities (excluding Brentwood)[68]



Education

2.46 Overall, South Essex has low skill levels. Some 25% of South Essex residents have no qualifications compared with an England average of 7.6%. Compared to England, South Essex also has a lower percentage of persons with Level 4 Qualifications and above with 21% compared to 38.3% in England.

2.47 There are variations in educational attainment within the sub-region. For example, Brentwood has considerably lower percentage of people with no qualifications (19%) compared to Thurrock and Castle Point (26.5% and 29.9% respectively).

2.48 The total pupil numbers for primary and secondary schools for the Local Authorities of Basildon, Brentwood, Castle Point and Rochford, have increased from 2012 to 2017. The total has increased from 62,575 to 64,969 pupils. A continued increase in pupil numbers for both primary and secondary levels across Essex is predicted to continue. The 10 Year Plan for the Essex School Organisation Service anticipates an additional 1,045 primary school places and 890 secondary school places are required over the plan period of 2019-2028.[69]

Table 2.6: Qualifications of residents aged 16 and over[70]

	Residents aged 16 and over	% with No Qualifications	% with Level 1 Qualifications	% Level 2 Qualifications	% Level 3 Qualifications	% Level 4 Qualifications and above
Basildon	139,198	26.6	18.4	17.6	10.7	18.6
Brentwood	60,115	19.4	14.2	17.2	11.4	30.7
Castle Point	73,142	29.9	18.0	17.8	10.6	14.6

[67] Strategic Housing Market Assessment, South Essex, May 2016 [online] Available at: https://www.rochford.gov.uk/sites/default/files/SE_strategichousing_2016.pdf
[68] Strategic Housing Market Assessment, South Essex, May 2016 [online] Available at: https://www.rochford.gov.uk/sites/default/files/SE_strategichousing_2016.pdf
[69] Essex School Organisation Service (2019) 10 Year Plan, Meeting the demand for school places in Essex 2019-2028 [online] Available at: https://assets.ctfassets.net/knkzaf64jx5x/2bM36X1QCrhipNs9ioBPEG/915cf257efb1b96cdc5322fa4bb8ea47/10-year-plan-Essex-schools-places.pdf
[70] NOMIS – Local Area Reports, 2011 Census

	Residents aged 16 and over	% with No Qualifications	% with Level 1 Qualifications	% Level 2 Qualifications	% Level 3 Qualifications	% Level 4 Qualifications and above
Rochford	68,271	23.6	17.8	18.4	11.9	20.0
Southend	140,621	24.6	16.4	17.5	11.4	21.8
Thurrock	123,407	26.5	18.1	17.5	10.9	17.4
South Essex	604,754	25	17	18	11	21
England	34,950,900	7.6	10.9	16.1	17.3	38.3

Deprivation

2.49 The English Indices of Deprivation 2019[71] is a measure of multiple deprivation in small areas or neighbourhoods within England, called Lower-layer Super Output Areas (LSOAs). There are 468 LSOAs in South Essex[72] and 32,844 LSOAs nationally.

2.50 There is considerable variation in the levels of deprivation within the Local Authorities across South Essex. The overall Index of Multiple Deprivation (IMD) indicates that the South Essex authorities, with the exception of Brentwood and Rochford, contain at least one neighbourhood that falls within the 10% most deprived in the country. Basildon contains 12 LSOAs within the 10% most deprived in the country, whilst Southend-on-Sea contains nine, Thurrock contains 4 and Castle Point contains one. Generally, these neighbourhoods are located in the more densely populated urban areas, such as Basildon town, Landon, Southend-On-Sea town and Tilbury.

2.51 The IMD indicates that all South Essex authorities, with the exception of Thurrock, include neighbourhoods that fall within the 10% least deprived in the country. Brentwood contains 16 LSOAs within the 10% least deprived in the country, whilst Basildon and Southend-on-Sea contain 15, Thurrock contains 13 and Castle Point contains three[73].

2.52 There are seven domains of deprivation, which combine to create the IMD. With regard to the 'Crime' domain of the IMD, Basildon compared relatively badly to the remaining South Essex Authorities, with 35 LSOAs falling within the 10% most deprived with regard to crime. In contrast, no neighbourhoods in Brentwood, Castle Point and Rochford were recorded as falling within the 10% most deprived in relation to crime.

2.53 Basildon also performed relatively badly with regard to the 'Education, Sills and Training' domain of the IMD, with 21 LSOAs falling within the 10% most deprived with regard to career training. No neighbourhoods in Brentwood were recorded as falling within the 10% most deprived areas in relation to career training[74].

2.54 Figure 2.2: shows the Indices of Multiple Deprivation for areas within South Essex.

Health

2.55 The 2011 Census shows that, overall, all of the Local Authorities that make up South Essex have reasonably good levels of health with an average of 82% of residents reporting themselves to be in very good or good health[75].

2.56 According to Public Health England, two of the authorities perform better than the England average: Brentwood and Rochford. Both of these authorities fall within the least 20% deprived authorities in England.

2.57 Table 2.7 below shows the average life expectancy for both males and females at birth within each Local Authority, South Essex and England. Average life expectancy in South Essex is slightly higher than England, for both males and females.

[71] DCLG (2019) The English Indices of Deprivation
[72] DCLG (2019) The English Indices of Deprivation: File 1: Index of multiple deprivation
[73] DCLG (2019) The English Indices of Deprivation: File 1: index of multiple deprivation.
[74] DCLG (2019) The English Indices of Deprivation: File 2: domains of deprivation.
[75] Office for National Statistics, Census 2011, General Health

Table 2.7: Average life expectancy in South Essex and England, 2015-2017[76]

Local Authority	Male	Female
Basildon	79.6	82.7
Brentwood	81.2	84.3
Castle Point	79.9	83.0
Rochford	81.0	84.8
Southend	78.7	82.4
Thurrock	78.8	82.3
South Essex	79.9	83.3
England	79.6	83.1

2.58 Despite slightly above average life expectancy in South Essex, there are some notable health issues. During the period 2017/18, more than 50% of the adults (aged 18+) in South Essex were classified as overweight or obese, with an average of 65.6% for South Essex, compared to the England average of 62%. Similarly, the rate of under 75s mortality rate from cancer, is 138.3 per 100,000 people in South Essex. The England average is lower with 134.6 per 100,000 people.[77]

2.59 Analysis of IMD health deprivation and disability domain indicates there are significant inequalities in health across South Essex.[78] The health deprivation and disability domain of the IMD 2019 is made up of indicators including premature death, poor physical or mental health, morbidity and disability. Notable areas of health deprivation and disability can be seen in Basildon Town, Southend-on-Sea, Tilbury and South Ockendon.

2.60 In Basildon, life expectancy is 11.5 years lower for men and 7.4 years lower for women in the most deprived areas of the Borough than in the least deprived areas. Similarly, in Southend-on-Sea, life expectancy is 10.5 years lower for men and 9.4 years lower for women between the most and least deprived areas. The figures are around half this in other, more affluent parts of South Essex. For example, in Rochford life expectancy is 3.3 years lower for men and 4.1 years lower for women. With regard to percentage of adults classified as overweight or obese, these figures are higher than the England average in Basildon, Castle Point, Southend-on-Sea and Thurrock. In Brentwood and Rochford, the percentage is lower than the England average.

2.61 Just under 20% of children in Basildon, Southend-on-Sea and Thurrock live in low income families, compared to 14.7% in Castle Point, 10% in Brentwood and 9.9% in Rochford. Child health varies across these authorities, with higher numbers of children classified as obese in Basildon, Southend-on-Sea and Thurrock. Levels of teenage pregnancy and GCSE attainment are worse in Basildon and Thurrock than the England average.

Open spaces, sports and recreation

2.62 Additional open space will need to be provided to address existing deficiency and to serve new development alongside population growth. Furthermore, enhancement to quality of the sub-region's existing open spaces will be required. The Overarching Playing Pitch Strategy[79] for South Essex identifies that there are a number of poor-quality playing pitch facilities across south Essex, and the strategy notes that many artificial grass pitches, athletics tracks, and tennis and netball courts will need refurbishment in the near future. The strategy highlights that there is an increasing need for 3G pitches for rugby and football, with 21 full size pitches required across the five local authorities to meet current demand (Basildon (2), Castle Point (3), Rochford (6), Southend-on-Sea (4), Thurrock (6)). In addition, new pitches for hockey are required for Southend-on-Sea and Rochford

[76] Life Expectancy at Birth by Sex, UK 2015-2017, https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/datasets/lifeexpectancyatbirthandatage65bylocalareasuk
[77] Public Health England, Local Authority Health Profiles, https://fingertips.phe.org.uk/profile/health-profiles/data#page/0/gid/1938132701/pat/6/par/E12000006/ati/101/are/E07000075/iid/10101/age/169/sex/4
[78] DCLG (2019) The English Indices of Deprivation
[79] Knight, Kavanagh & Page (2018) South Essex Playing Pitch Strategy Overarching Strategy And Action Plan [online] Available at: https://www.castlepoint.gov.uk/download.cfm?doc=docm93jijm4n3828.pdf&ver=6464

based demand, and there are shortfalls in cricket facilities in Basildon, Thurrock and Castle Point.

2.63 Each Borough has an open space strategy; the findings of which are summarised below:

2.64 Basildon: Basildon Borough Council completed an open space assessment in December 2015.[80] Between 2010 and 2015 the amount of open space within the Borough has increased from 1,381.5 ha to 1,385.9 ha. The majority of the increase falls within the category of natural and semi-natural open space. While the total area of open spaces has increased, this increase has not matched the corresponding increase in population size. Urban parks and gardens with amenity green spaces now fall below the recommended standard of 3.1ha/1000 population by 0.24ha/1000 population. Natural and semi-natural open space also falls below the recommended standard of 2.6ha/1000 population by 0.15ha/1000 population. Outdoor sports facilities fall short of previous supply by 0.13ha/1000 population. The overall finding of the study was that the existing level of provision should be maintained into the future, while contributions should be secured to assist with their ongoing investment to help meet the pressures open spaces face from an increasing population.[81]

2.65 Brentwood: A Sports, Leisure and Open Space Assessment was completed for Brentwood Borough Council in August 2016.[82] Across six categories of open spaces this assessment identified some 288 sites across the Borough, covering a total of 893.33 hectares or 11.68 hectares per 1,000 population. The assessment notes that overall there are relatively good levels of access to green spaces in Brentwood, although there are some concerns regarding quality. It is noted that demand pressure on open spaces will be exacerbated by an anticipated increase in population of some 17% by 2030. The assessment further notes it is important to protect and where necessary improve existing provision of open space unless it can be demonstrated that the land is surplus to requirement.[83]

2.66 Castle Point: An Open Space assessment was completed for Castle Point in September 2012. The study notes there are 142 open spaces within the Borough.[84] The assessment notes there are overall good levels of open space within the Borough, although there remains a number of issues, including deficiency in particular typologies of open space, accessibility and quality. The Open Spaces Strategy of 2008-2013 stated that, in regard to country parks, currently there are 2.578 ha per 1,000 people, but it recommended that the levels of quantity increase to 2.963 ha per 1,000 people. Additionally, in regard to accessibility it was recommended that it be updated to be 2,400 metres or a 10-minute drive to the nearest site.[85]

2.67 Rochford: Rochford's Open Space Strategy of 2015 includes an action plan for the Borough to increase the quantity and value of public open space, especially in areas with deficiencies.[86]

2.68 Southend-on-Sea: An open space assessment was completed in 2004. The study highlighted quantity, quality and accessibility in relation to different open spaces. For example, the study notes that several areas are not within walking distance of any kind of park.

2.69 Thurrock: A draft Thurrock Open Space assessment report87 was completed in May 2017. It follows on from the preceding Open Space Standards Report completed in September 2016.88 The studies highlight a number of different issues, including deficiency in quantity of parks and gardens and allotments, a number of poor-quality open spaces across and deficient access to open space in a number of areas.

Crime

2.70 The crime rate for South Essex (86 crimes per 1,000 population) is slightly below the crime rate for England (88.4 crimes per 1,000 population). However, as mentioned previously, Basildon has a relatively high number of neighbourhoods that fall within the 10% most deprived areas in relation crime. These areas tend to fall within the 10% most deprived areas in the country overall[89].

2.71 In Basildon, the most deprived LSOAs where relatively high crime rates are recorded are located in the following wards: Laindon Park, Lee Chapel North, St Martin's, Fryems, Pitsea North West, Pitsea South East, Vange and Nethermayne. In these wards, relatively low levels of

[80] Basildon Borough Council, Open Space Assessment Gap Analysis (December 2015) [online] Available at: http://www.basildon.gov.uk/CHttpHandler.ashx?id=6612&p=0.
[81] Basildon Borough Council, Open Space Assessment Gap Analysis (December 2015) [online] Available at: https://www.basildon.gov.uk/media/6612/Basildon-Council-Open-Space-Assessment-Gap-Analysis-Dec-2015/pdf/Basildon_Council_-_Open_Space_Assessment_Gap_Analysis_-_Dec_2015.pdf?m=635896611202570000
[82] Brentwood Borough Council, Sport, Leisure and Open Space Assessment Final Report, August 2016 [online] Available at: http://www.brentwood.gov.uk/pdf/20012017115329u.pdf
[83] Brentwood Borough Council, Sport, Leisure and Open Space Assessment Final Report, August 2016 [online] Available at: http://www.brentwood.gov.uk/pdf/20012017115329u.pdf
[84] Castle Point Council, Parks, https://www.castlepoint.gov.uk/parks
[85] Castle Point Open Spaces Strategy 2008-2013 [online] Available at: http://castlepoint.limehouse.co.uk/file/659586
[86] Rochford District Council (March 2015), Open Spaces Strategy [online] Available at: https://www.rochford.gov.uk/sites/default/files/pps_openspacesstrategy_0.pdf
[87]KKP Consultants (2017) Thurrock Open Space Assessment Draft
[88] KKP Consultants (2016) Thurrock Open Space Standards Paper
[89] DCLG (2019) The English Indices of Deprivation: File 2: domains of deprivation.

education, skills development and training have been recorded.

2.72 Thurrock and Southend-on-Sea also have relatively high crime rates compared to Brentwood, Castle Point and Rochford, where crime rates are comparatively lower (see **Table 2.8**). These areas coincide with the areas recorded as being most deprived overall.

2.73 Nationally, average crime rates are lower in rural areas than in urban areas and this trend is reflected in South Essex[90].

2.74 Within Essex, anti-social behaviour and violent crime account for over half of all crimes committed[91].

Table 2.8: Crime statistics South Essex Authorities

Area	Total number of crimes 2018[92]	Population 2018[93]	Crimes per 1000 population[94]
Basildon	17,399	185,900	100
Brentwood	5,289	76,600	78.7
Castle Point	5,681	90,100	69.0
Rochford	4,288	87,000	52.5
Southend-On-Sea	18,876	182,500	112.7
Thurrock	16,178	172,500	103.1
South Essex	67,711	794,600	86
England	4,838,267	55,977,178	88.4

Noise and traffic

2.75 The Local Authorities within South Essex are in close proximity to London, which results in higher traffic congestion relative to other parts of England. London Gateway Port, Tilbury Port and London Southend airport act as strategic gateways to London for people and goods and therefore generate traffic flows[95].

2.76 London Southend Airport regularly monitors its noise generation. In the period March 2018 – February 2019, a total of 1,505 noise complaints were received. This was an increase from 278 in the previous year (441% increase). Of the 1,505 complaints received, more than half (51%) came from four properties.

2.77 The results of 2018 noise assessment carried out on behalf of London Southend Airport identified 14 properties that fell within the 63 Db LAeq noise contour of the airport, and therefore qualified for inclusion in the Sound and Thermal Insulation Grant Scheme. This scheme offers eligible residents the opportunity for their property to be insulated[96].

2.78 A number of major roads run through South Essex. These include, the A13, A12 and the A127, which link to the M25 with strong connections to service key markets in London, the South East and further afield. Brentwood is only separated from Greater London by a narrow gap of open land through which the M25 passes.[97]

2.79 Industrial developments, such as those in and around Tilbury Docks and London Gateway/DP World, also generate noise in their vicinity.

2.80 There are over 20 Air Quality Management Areas (AQMA) within South Essex, which tend to be in areas where there are high levels of congestion. Paragraphs 5.42 to 5.47 provide more detail regarding congestion and AQMAs.

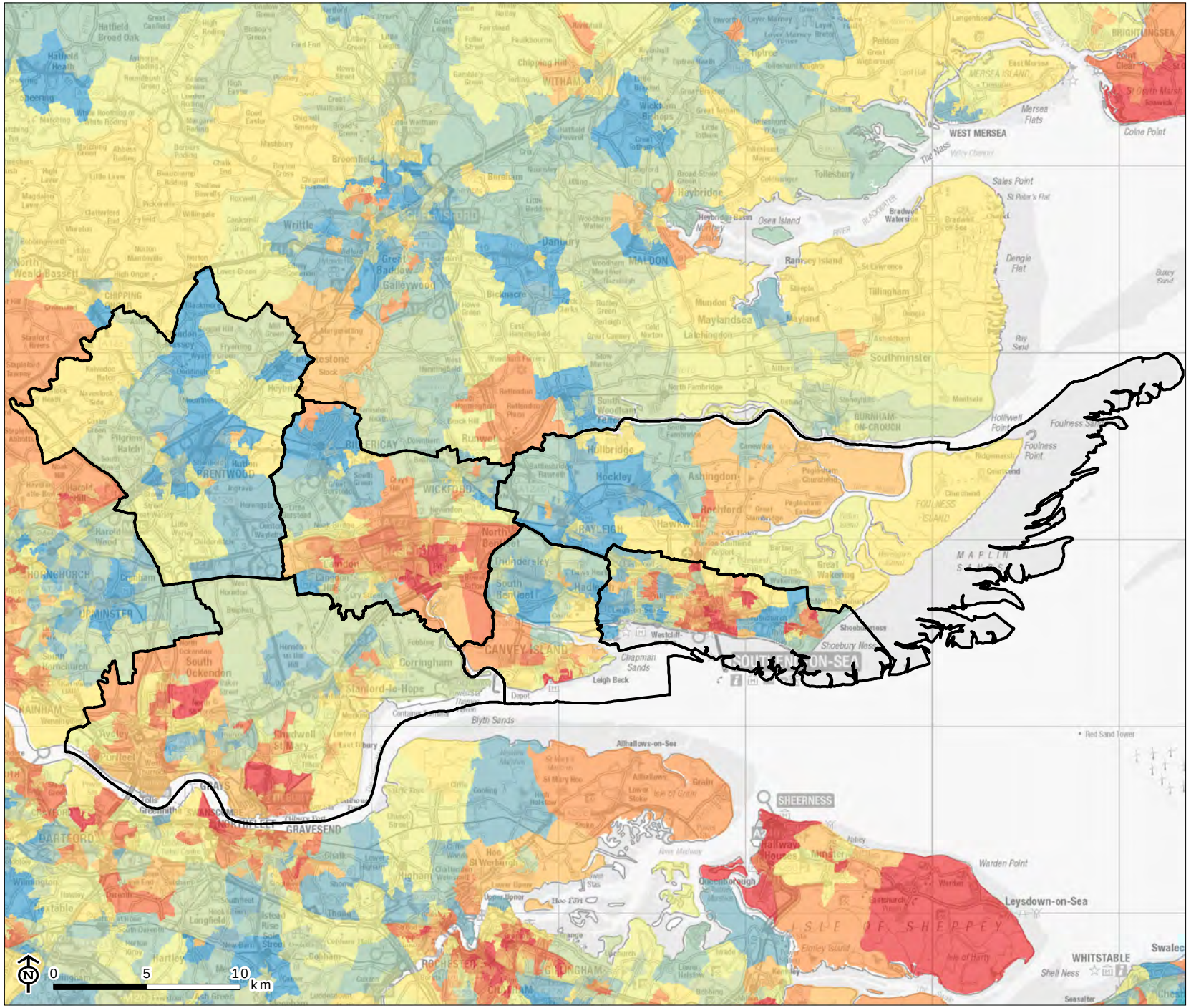
[90] Indices of Deprivation 2019 explorer: Crime Domain. Accessible at: http://dclgapps.communities.gov.uk/imd/iod_index.html#
[91] UK Crime Stats (2019). Essex Police. http://www.ukcrimestats.com/Police_Force/Essex_Police
[92] ONS 2019. Recorded crime data at Community Safety Partnership / Local Authority level
[93] ONS (2019) Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland
[94] ONS (2019) Recorded crime data by Community Safety Partnership area [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/datasets/recordedcrimedatabycommunitysafetypartnershiparea
[95] Request for Quotation for South Essex JSP SA and HRA, 17/05/2018
[96] London Southend Airport (2019) Annual Report 2018-2019: https://d1z15fh6odiy9s.cloudfront.net/files/lsaannualreport2018-2019finalweb2-f8faabf6.pdf.
[97] Brentwood Borough Council, Sport, Leisure and Open Space Assessment Final Report, August 2016 [online] Available at: http://www.brentwood.gov.uk/pdf/20012017115329u.pdf

Table 2.9: Key sustainability issues for South Essex and likely evolution without the JSP

Key sustainability issues for South Essex	Likely evolution without the JSP
Population growth and demographic change will place additional demand on key services and facilities such as health, education and social care. Additionally, an ageing population will put significant stress on health and social care most notably in Southend-on-Sea, Castle Point and Rochford (IIA objective 2).	Without the JSP it is likely that services and facilities will still be delivered. However, it is less likely that these will be in appropriate locations, or of sufficient quality and quantity to keep pace with demand arising from new residential development. The JSP offers an opportunity to deliver these in a coherent, sustainable manner alongside development.
There is a need for all types of housing across South Essex. There is expected to be a substantial increase (22.4%) in the number of households between 2014 and 2037. Population growth and associated increases in housing need are likely to be greatest in the western part of the sub-region (Thurrock, Basildon and Brentwood). At present the average house prices in the sub-region are higher than the national average, other than in Thurrock (IIA objective 1).	Without the JSP is likely that house prices will continue to rise across the sub-region and levels of affordable housing will be low. The JSP offers the opportunity to facilitate and expedite the delivery of affordable housing.
There is a need to reduce inequality between those living in the most deprived areas of South Essex and those living in the least deprived areas of South Essex. (IIA objective 4).	Without the JSP, it is possible that the gap between the most and least deprived areas in the sub-region will remain. The JSP presents the opportunity to address this through the planning of new and improved communities and infrastructure, particularly within the areas that are amongst the 30% most deprived in the country.
Levels of obesity in the sub-region exceed the national average (IIA objective 4).	Without the JSP levels of obesity in the sub-region may continue to rise, although national campaigns may work to reduce this. The JSP could further contribute to tackling obesity through policies that encourage active travel and access to green space and other recreation opportunities.
Currently, there is a deficit of open space in the sub-region and new and improved open space is needed to serve new development and population growth (IIA objective 4).	Without the JSP it is likely that the deficit in open spaces will remain. The JSP offers the opportunity to address this by ensuring that the accessibility and quality of open space is high and new green spaces are planned alongside new development.
Anti-social behaviour and violent crime are two principal contributors of crime (IIA objective 3).	The JSP will contribute, alongside other local and national measures, to reducing crime through policies which aim to make the local environment and streets safer, for example by ‘designing out’ crime.

SA and HRA of the South Essex Joint Strategic Plan

Figure 2.2: Index of Multiple Deprivation



Authority boundaries

Index of Multiple Deprivation (2019) Decile

- 0 - 10% (most deprived)
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100% (least deprived)

Map Scale @ A4: 1:290,000

LUC

CB:LA EB:Stenson_K LUC FIG_2_2_10440_IMD_A4L 13/11/2019

Source: MHCLG

Chapter 3
Economy

Policy context

International

3.1 There are no specific international or European economic policy agreements relevant to the preparation of the JSP IIA, although there are a large number of trading agreements, regulations and standards that set down the basis of trade with other nations.

National

3.2 National Planning Policy Framework (NPPF)[98] contains the following:

- The economic role of the planning system is to contribute towards building a "*strong, responsive and* competitive *economy*" by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation. There is also a requirement for the planning system to identify and coordinate the provision of infrastructure.
- Planning policies should address the specific locational requirements of different sectors.
- Local planning Authorities should *incorporate planning policies which "support the role that town centres play at the heart of local communities, by taking a positive approach to their growth, management and adaptation*".
- When considering edge of centre and out of centre proposals, preference should be given to accessible sites which are well connected to the town centre. Sustainable growth and expansion of all types of business and enterprise in rural areas should be supported, both through conversion of existing buildings and well-designed new buildings.
- The NPPF requires Local Plans to "*set out a clear economic vision and strategy which positively and proactively encourages sustainable economic growth, having regard to Local Industrial Strategies and other local policies for economic development and regeneration*."

[98] Department for Communities and Local Government (2019) National Planning Policy Framework [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

3.3 National Planning Practice Guidance (PPG)[99]: Reiterates the importance for Local Plans to include a positive strategy for town centres to enable sustainable economic growth and provide a wide range of social and environmental benefits.

3.4 The Local Growth White Paper (2010)[100]: Highlights the importance of economic policy that focusses on the delivery of strong, sustainable and balanced growth of income and employment over the long-term, growth which is broad-based industrially and geographically to provide equality of access and opportunity and build businesses that are competitive internationally.

3.5 Rural White Paper 2000 (Our Countryside: the future – A fair deal for rural England)[101] : Sets out the Government's Rural Policy Objectives:

- To facilitate the development of dynamic, competitive and sustainable economies in the countryside, tackling poverty in rural areas.
- To maintain and stimulate communities and secure access to services which is equitable in all the circumstances, for those who live or work in the countryside.
- To conserve and enhance rural landscapes and the diversity and abundance of wildlife (including the habitats on which it depends).
- To promote Government responsiveness to rural communities through better working together between central departments, local Government, and Government agencies and better co-operation with non-Government bodies.

3.6 LEP Network Response to the Industrial Strategy Green Paper Consultation (2017)[102]: The aim of the document is to ensure that all relevant local action and investment is used in a way that maximises the impact it has across the Government's strategy. Consultation responses set out how the 38 Local Enterprise Partnerships will work with Government using existing and additional resources to develop and implement a long term Industrial Strategy.

Sub-national

3.7 South Essex Economic Development Needs Assessment (2017)[103]: This assessment provides an evidenced, guidance compliant analysis of the economic and employment land opportunities and challenges for South Essex and establishes a strategic, multi-authority strategy for realising the area's economic opportunity.

3.8 Economic Plan for Essex (2014)[104]: The Economic Plan for Essex sets out plans for unlocking economic growth across the County. The Plan seeks to improve workforce skills across Essex, focus infrastructure investment on strategic growth corridors, and enhance productivity within the Essex economy. Whilst this document refers to working in partnership with the unitary authorities of Thurrock and Southend-on-Sea, the unitary authorities both have their own economic growth strategies (Thurrock Economic Growth Strategy 2016-2021 and Southend-on-Sea Economic Growth Strategy 2017-2022).

3.9 South Essex Productivity Strategy (2019)[105]: The strategy sets out four programmes to improve productivity across South Essex over a 5 year period. These programmes are as follows: Vibrant Places; Enterprise Growth; Future Work; and Data Transformation.

Current baseline

3.10 Analysis of Nomis Labour Markets Statistics shows that that South Essex has a slightly lower proportion of residents at working age (61.0%) than in Great Britain (62.7%) but higher than the rest of Essex (60.6%) (see **Table 3.1:**). Rochford has the highest percentage of those who are economically active (85.6%). Brentwood and Basildon have considerably the lowest proportion of those economically active (77.5% and 73.4% respectively) (see **Table 3.1:**).

3.11 South Essex has low skills levels, as described in **Chapter 2**. Its rate of unemployment among economically active residents aged 16-64 at 3.3% (see **Table 3.2:**) is slightly higher than that of the County (2.7%) and the region (3.2%). At the Local Authority level, unemployment is relatively high in Thurrock (4.1%) and Basildon (4.8%). Rochford and Castle Point have the lowest level of unemployment at 2.3% and 2.8% respectively.

[99] Department for Communities and Local Government (2016) National Planning Practice Guidance [online] Available at: https://www.gov.uk/Government/collections/planning-practice-guidance
[100] Department for Business, Innovation and Skills (2010) Local Growth: Realising Every Place's Potential. Available at: https://www.gov.uk/Government/publications/local-growth-realising-every-places-potential-hc-7961
[101] HM Government (2000) Rural White Paper (Our Countryside: the future – A fair deal for rural England) [online] Available at: http://www.tourisminsights.info/ONLINEPUB/DEFRA/DEFRA%20PDFS/RURAL%20WHITE%20PAPER%20-%20FULL%20REPORT.pdf
[102] LEP Network (2017) Response to the Industrial Strategy Green Paper Consultation [Online] Available at: https://www.lepnetwork.net/media/1470/lep-network-industrial-strategy-response-april-2017-final.pdf
[103] GVA (2017) South Essex Economic Development Needs Assessment [online] Available at: https://www.castlepoint.gov.uk/download.cfm?doc=docm93jijm4n3555.pdf&ver=5937
[104] Essex County Council (2014) Economic Plan for Essex [online] Available at: https://www.essex.gov.uk/plans-and-strategies
[105] Opportunity South Essex, South Essex 2050 (2019) South Essex Productivity Strategy (Summary) [online] Available at: https://www.southeastlep.com/app/uploads/2019/11/20191120-Summary-Productivity-Strategy.pdf

Table 3.1: Population aged 16-64 in 2018[106]

Local Authority	Population 2017	Working age number (16-64)	Working age (%)
Basildon	185,900	115,200	62.0
Brentwood	76,600	46,700	61.0
Castle Point	90,100	52,100	57.8
Rochford	87,000	52,000	61.0
Southend-on-Sea	182,500	111,700	61.2
Thurrock	172,500	108,900	63.1
Essex	1,477,800	895,400	60.6
South Essex	794,600	486,600	61.0
East	-	-	61.0
Great Britain	-	-	62.7

Table 3.2: Employment and unemployment July 2018-June 2019

Local Authority	Economically active numbers	Economically active (%)	Unemployed (numbers)	% Unemployed
Basildon	92,400	77.5	3500	3.8
Brentwood	36,500	73.4	1300	3.4
Castle Point	44,500	80.1	1300	2.8
Rochford	45,800	85.6	1100	2.3
Southend-on-Sea	93,500	81.6	3300	3.5
Thurrock	90,700	80.6	3700	4.1
Essex	748,300	80.3	19,900	2.7
South Essex	401,800	79.8	15600	3.3
East	-	80.9	-	3.2
Great Britain	-	78.9	-	4.1

3.12 The South Essex Economic Development Needs Assessment (EDNA) was completed by GVA Consultants in November 2017[107]. This provides an economic baseline for the sub-region, including Basildon, Castle Point, Rochford, Southend-on-Sea and Thurrock. It should be noted that the EDNA does not include Brentwood.

3.13 The EDNA notes most people in South Essex are engaged in higher value added occupations such as administrative and secretarial occupations (15.1%),

[106] Nomis Labour Market Statistics. Labour Market Profile of South Essex Authorities
[107] GVA (2017) South Essex Economic Development Needs Assessment, Final Report) [online] Available at: https://www.rochford.gov.uk/sites/default/files/SouthEssexEDNAFinalReport20171211.pdf

professional occupations (13.5%), and associate professional and technical occupations (12.4%), but when compared to benchmark areas, these proportions are towards the lower end. These proportions vary among Boroughs and Districts within the sub-region, yet administrative and secretarial occupations remain the primary occupation. The proportion of residents engaged in low skill elementary occupations (10.6%) is lower than the country but higher than the county. Sales and customer service occupations (8.7%) and process plant and machine operatives (8.1%) are more prevalent in South Essex yet there is variation within the sub-region. Both Basildon and Thurrock have high levels of residents with no qualifications and a high amount in elementary occupations. These two districts are also recorded as having the highest levels of unemployment. Interestingly, out of the six authorities, Basildon and Thurrock are considered the most deprived in the Index of Multiple Deprivation.

3.14 Castle Point has a relatively low proportion of its population in elementary occupations despite high levels of residents with no qualifications. The case of Castle Point is likely to be attributable to the age structure of the population, with an older population more likely to be employed in senior position or have developed skilled trades.

3.15 Table 3.3: provides a list of industries by broad sectors and the percentage of South Essex residents who work in each of these industries in 2014 compared to the England percentages. It should be noted Brentwood is not included in the South Essex figure.

Table 3.3: South Essex proportion of employment by broad industries for residents 2014[108]

Local Authority	Hotels & Restaurants	Public admin education & health	Finance and Professional services	Transport & communication	Manufacturing	Construction	Other services
Basildon	25.3%	23.5%	21.6%	10.3%	9.3%	6.1%	3.5%
Castle Point	28.0%	29.1%	16.9%	6.2%	7.9%	7.5%	4.2%
Rochford	25.2%	23.3%	15.8%	7.8%	12.3%	8.0%	6.1%
Southend	23.1%	33.6%	21.0%	5.0%	6.8%	4.3%	5.5%
Thurrock	36.4%	20.0%	14.6%	14.8%	5.0%	5.2%	2.8%
South Essex	27.6%	25.7%	18.9%	9.4%	7.7%	5.7%	4.1%
England	23.0%	26.6%	22.8%	8.9%	8.3%	4.3%	4.4%

3.16 The EDNA notes the economic opportunities for South Essex are considerable. Its location, connections, labour force and land assets can enable the sub-region to capture a greater share of the Greater South East (and London's) ongoing growth, whilst also delivering employment opportunities driven by existing businesses and a growing residential population. In recent years, the sub-region has undergone a number of strategic changes and long term trends that are fundamentally changing the way employment land and floorspace is used and demand generated. These include: the 'London' effect[109], growth of new commercial transport hubs, strengthening of specialist clusters, a changing population and other institutions and drivers.

3.17 South Essex has experienced some loss of traditional manufacturing and distribution employment which has been replaced in other low value industries. The 2008 recession had a marked impact locally, and the return of values to pre-recession levels have been hindered by poor productivity. Further, socio-economic characteristics across the sub-region display some concentrations of deprivation and economic growth has shown significant spatial variation.

3.18 It is important to acknowledge the distinctions between the Local Authorities that form South Essex. Castle Point and Rochford, although different in spatial area, have similar population sizes, which are approximately half of that of Basildon, Southend and Thurrock. This population size

[108] South Essex Economic Development Needs Assessment, Final Report (December 2017) [online] Available at: https://www.rochford.gov.uk/sites/default/files/SouthEssexEDNAFinalReport20171211.pdf

[109] Where businesses have been squeezed out of London and have sought space within South Essex.

distinction has a significant influence on industry, services and overall economic output. Each Authority area has a different industrial composition, which, alongside economic output, is expected to continue to diverge.

3.19 The districts recorded as having the highest gross weekly pay by place of residence[110] are Brentwood and Rochford at £811.10 and £734.80, respectively. This is compared to £632.40 in Thurrock, £614.40 in Southend-on-Sea, £610.70 in Castle Point and £604.70 in Basildon. Interestingly, when looking at gross weekly pay by place of work[111], these figures are much lower for Brentwood and Rochford at £628.50 and £610.10 respectively. However, they are also lower for Castle Point, Southend-on-Sea and Thurrock. It is only Basildon where gross weekly pay is higher per place of work.

3.20 There are a number of differences between the South Essex authorities and it's likely that each authority will be affected by the below factors in different ways, depending on the location of development and access to it. They are as follows:

- the expansion of the London Southend Airport and associated development through the Joint Area Action Plan (JAAP);
- the establishing and continued development of the London Gateway Port and the Port of Tilbury;
- major residential development within South Essex and neighbouring Authorities;
- residential market displacement from London;
- proposals for a major leisure destination at the theme park development in Dartford/Gravesham, which may attract visitors and employees;
- major town centre regeneration;
- tourism and waterfront regeneration proposals; and
- the construction and delivery of the Lower Thames Crossing.[112]

3.21 The EDNA notes a number of overarching weaknesses and threats in relation to the economy. These include:

- An economic base formed of lower value, less knowledge intensive activity, which is a weak foundation for economic growth.
- Generally lower skills levels in the local workforce than in benchmark areas.
- Further, high-skill jobs that are available in the sub-region tend to be taken up by labour commuting into South Essex rather than residents.
- High levels of deprivation.
- Poor containment rate of its labour force with significantly lower values for each of the individual Local Authorities and loses most of its highly skilled workers to the central London Boroughs.
- An over stretched and congested strategic road network, with poor north/south connectivity between strategic employment sites and urban centres, and a lack of HGV parking facilities.
- Delays on the rail network, with local calls to deliver dual tracks and electrification, and a need to improve rail and bus interchanges to support an uptake in use of public transport.
- Underinvestment in local infrastructure that poorly accommodates investment in development locations and on key/new routes.

3.22 The EDNA notes that it is uncertain what effect Brexit will have on the South Essex economy, particularly given its excellent transport links to the continent and the rest of the UK.

3.23 It is noted that tourism is an important sector in the area, particularly for the Southend economy (7 million visitors in 2019)[113].

Essex Grow-on Space Feasibility Study

3.24 This 2016 study[114] looked at the need for 'grow-on space' in Essex, i.e. space for existing businesses in Essex to expand. It concluded that there is a mismatch between the supply of, and demand for, grow-on space across Essex, for both office and industrial space. At the time of writing, there was just one year's worth of supply of industrial space available in Essex, and 2.5 years' worth of office space available.

3.25 Identified reasons for this mismatch included higher returns and lower risks to developers from other types of development, as well as a shortage of available land, with a focus on housing development in many places meaning that development of grow-on space is not financially viable. Where grow-on industrial or office space is available, the quality of much of it is sub-optimal, both in terms of the building fabric

[110] Median earnings in pounds for employees living in the area who are on adults rates of pay and whose pay was not affected by absence.
[111] Median earnings in pounds for employees working in the area who are on adult rates of pay and whose pay was not affected by absence.
[112] South Essex Economic Development Needs Assessment, Final Report (December 2017) [online] Available at: https://www.rochford.gov.uk/sites/default/files/SouthEssexEDNAFinalReport20171211.pdf
[113] Client Communication
[114] Grow-on Space Feasibility Study (October 2016) [online] Available at:

and the facilities available, such as digital infrastructure and parking.

South Essex Retail Study

3.26 The South Essex Retail Study has identified the scale of need for new retail and commercial leisure floorspace as established in the existing retail evidence base for each South Essex Authority.[115] Like the EDNA, the retail Study does not consider Brentwood. Need for new retail floorspace for each South Essex Authority (excluding Brentwood) up to 2031, using the baseline scenario and constant market share by authority, is given below. Note that capacity to support additional comparison floorspace is higher for a housing-led scenario. In the short term (to 2021) there is no overall capacity for additional comparison retail floorspace, due to the scale of committed development (namely Lakeside) under both scenarios. There is no overall capacity for additional convenience retail floorspace to 2026 for both scenarios, because of the scale of committed development and the limited amount of expenditure growth expected.

- Castle Point: No capacity for additional comparison floorspace (-1,334 sqm) and 1,191 sqm convenience floorspace by 2031.
- Southend: Capacity for 25,759 sqm net comparison floorspace and need for 2,699 sqm net convenience floorspace by 2031.
- Thurrock: 36,641 sqm net comparison floorspace and no capacity for additional convenience floorspace by 2031 (-3,734 sqm).
- Rochford: 6,607 sqm net comparison floorspace and 574 sqm net convenience floorspace by 2031.
- Basildon: 27,350 sqm net comparison floorspace and 3,158 sqm net convenience floorspace by 2031.

Brentwood Retail and Commercial Leisure Study[116]

3.27 The retail needs assessment identified floorspace requirements for the Borough over the Plan period to 2030. The short to medium term capacity figures up to 2020 suggest surplus of available convenience goods expenditure could support an additional 2,151 sqm net (3,074 sqm gross), primarily concentrated in Brentwood town centre. In the long term, surplus expenditure at 2030 could support 3,833 sqm net of sales floorspace (5,475 sqm gross) in the Borough as a whole.

3.28 For comparison goods, for the Borough as a whole, the surplus expenditure could support an additional 1,193 sqm net (1,591 sqm gross) by 2020. The surplus expenditure at 2030 could support 4,844 sqm net (6,458 sqm gross). The vast majority of this surplus is for Brentwood town centre, with only a very limited amount identified for the rest of the Borough.

3.29 The assessment also identifies a requirement for 2,954 sqm gross of food and drink (A3-A5) floorspace and 1,654 sqm gross of other class A1 service uses up to 2030.

Brentwood industry mix

3.30 Analysis of Nomis Labour Market statistics shows that Brentwood has a comparatively high proportion of employees working in higher value occupations such as Professional, Scientific and Technical Activates, Information and Communications when compared with the other South Essex Authorities (see **Table 3.4**:).

3.31 The new East of England Forecasting Model (EEFM), form 2017, shows that the number of jobs in Brentwood is projected to increase from 40,700 in 2013 to 43,200 by 2035. This projection is slightly lower than the previous 2016 EEFM, which between 2013 and 2035 the old EEFM forecast 46,000 jobs in Brentwood (6% higher than the new EEFM projections). The EEFM notes that unemployment continues to be low, below the regional average and outward commuting increases over the period. The fact that outward commuting increases suggest that neighbouring economies are stronger than the Brentwood economy, but the change is marginal, and the effect is small.[117]

3.32 Job growth in office-based sectors was the main driver of growth, with the number of jobs increasing by 6,100 between 1997 and 2016. From 1997-2016 the sectors that performed the strongest were mainly service based. The sectors that doubled in size over the time include: specialised construction activities (228.6%); professional services (204.5%); administrative and supportive services (178.9%); telecoms (100.0%) and computing and information services (100.0%). These sectors all significantly outperformed the East of England averages over the same time period. However, Brentwood underperformed in insurance and pensions, utilities, public administration and defence and real estate

[115] South Essex Retail Study, Volume 1: Main Report (November 2017) [online] Available at: https://www.rochford.gov.uk/sites/default/files/GrowonSpaceFeasibilityStudy.pdf https://www.rochford.gov.uk/sites/default/files/SouthEssexRetailStudyVolume%201.pdf

[116] Nathanial Lichfield & Partners (2014) Brentwood Retail and Commercial Leisure Study [online] Available at: https://www.brentwood.gov.uk/pdf/19122014124931u.pdf

[117] Brentwood Borough Council, Strategic Housing Market Assessment Part One, January 2018 [online] Available at: http://www.brentwood.gov.uk/pdf/29012018102504000000.pdf

compared to the East of England over the same period of time.[118]

Table 3.4: Employee jobs by industry South Essex 2018[119]

	Brentwood (%)	Basildon (%)	Castle Point (%)	Rochford (%)	Thurrock (%)	Southend-On-Sea (%)	South Essex (%)	East (%)	Great Britain (%)
C: Manufacturing	5.7	8.2	7.1	8.0	4.5	6.2	6.6	7.6	8.1
F: Construction	11.4	5.9	7.1	8.0	6.7	3.8	7.2	5.5	4.7
G: Wholesale and Retail Trade; Repair of Motor Vehicles And Motorcycles	11.4	18.8	19	15.9	25.4	15.4	17.7	16.7	15.2
I: Accommodation and Food Service Activities	5.7	5.3	7.1	6.8	6.7	7.7	6.6	6.7	7.6
J: Information and Communication	7.1	4.1	1.7	2.0	1.3	1.9	3.0	3.6	4.2
K: Financial and Insurance Activities	6.4	4.1	1.7	2.0	0.9	2.7	3.0	2.4	3.5
M: Professional, Scientific and Technical Activities	14.3	9.4	7.1	10.2	3.7	9.2	9.0	9.8	8.7
N: Administrative and Support Service Activities	11.4	8.2	9.5	5.7	9.0	6.9	8.5	10.6	9.1
P: Education	7.1	7.1	14.3	11.4	9.0	10.8	10.0	9.2	8.9
Q: Human Health and Social Work Activities	8.6	14.1	10.7	10.2	9.0	18.5	11.9	12.0	13.2

[118] Brentwood Economic Futures 2013-2033, Final Report, January 2018 [online] Available at: http://www.brentwood.gov.uk/pdf/29012018122226000000.pdf

[119] Nomis Labour Market Statistics. Labour Market Profile of South Essex Authorities

Table 3.5: Key sustainability issues for South Essex and likely evolution without the JSP

Key sustainability issues for South Essex	Likely evolution without the JSP
South Essex has low skills levels and a higher rate of unemployment compared to the County and region (IIA objective 5).	It is uncertain how the job market will change without the implementation of the JSP and some degree of change is inevitable. However, the JSP offers the opportunity to create and safeguard jobs through the allocation and promotion of employment generating uses and office and industrial spaces and promotion of the rural economy, as well as promoting access and opportunity for all. In doing so the JSP could help improve people's quality of life, including ability to buy or rent suitable housing.
South Essex has a high potential for future growth. Its location, connections, labour force and land assets can enable the sub-region to capture a greater share of the Greater South East (and London's) ongoing growth, whilst also delivering employment opportunities driven by existing businesses and a growing residential population (IIA objective 5).	It is uncertain how economic growth will change without the implementation of the JSP and some degree of change is inevitable. However, the JSP offers the opportunity to ensure growth is being allocated to areas in need and ensure specific types of growth are being met. The JSP policy could reflect the current strengths and opportunities at the centres in South Essex with consideration for existing weaknesses and emerging pressures to protect these locations and encourage new centres in terms of their importance for economic growth and job provision.

Chapter 4
Transport connections and travel habits

Policy context

International

4.1 The Trans-European Networks (TEN): Created by the European Union by Articles 154-156 of the Treaty of Rome (1957), with the stated goals of creating an internal market and the reinforcement of economic and social cohesion. These include the Trans-European Transport Networks (TEN-T), which includes High Speed 1, and the Trans-European Telecommunications Networks (eTEN).

National

4.2 National Planning Policy Framework (NPPF)[120]: Encourages Local planning Authorities to consider transport issues from the earliest stages of plan making so that: opportunities to promote sustainable transport are identified and pursued; the environmental impacts of traffic and transport infrastructure can be identified and assessed; and opportunities from existing or proposed transport infrastructure and changing transport technology and usage are realised. The framework also states that the planning system should actively manage growth patterns in support of these objectives.

4.3 National Planning Practice Guidance (PPG)[121] **:** Reiterates the requirement for Local planning Authorities to undertake an assessment of the transport implications of reviewing their Local Plan.

4.4 Department for Transport, The Road to Zero (2018)[122]: Sets out new measures towards cleaner road transport, aiming to put the UK at the forefront of the design and manufacturing of zero emission vehicles. It explains how cleaner air, a better environment, zero emission vehicles and a strong, clean economy will be achieved. One of the main aims of the document is for all new cars and vans to be effectively zero emission by 2040.

[120] Department for Communities and Local Government (2019) National Planning Policy Framework [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

[121] Department for Communities and Local Government (2016) National Planning Practice Guidance [online] Available at: https://www.gov.uk/Government/collections/planning-practice-guidance

[122] Department for Transport, The Road to Zero (2018) [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/739460/road-to-zero.pdf

Sub-national

4.5 Essex Transport Strategy (2011)[123]: The Essex Transport Strategy outlines the County Council's priorities and strategic objectives for improving the transport network across Essex, including by improving transport-related air quality. In order to achieve improvements to air quality, the plan encourages a modal shift towards public transport, walking and cycling over single occupancy car journeys. The Plan supports the use of cleaner, lower carbon transport technologies, and car share schemes. Note that whilst Thurrock and Southend-on-Sea are included in this document, they also both have their own, more up to date transport plans/strategies (see below).

4.6 Thurrock Transport Strategy 2013-2026[124]: The Thurrock Transport Strategy sets out the Council's transport strategy for the period 2013 to 2026. The strategy focusses on the need to address the following key areas: Delivering Accessibility, Tackling Congestion, Improving Air Quality and Addressing Climate Change, Safer Roads and Facilitating Regeneration. This strategy also sets out the long-term approach to walking and cycling in the borough.

4.7 Southend's Local Transport Plan 3 2012-2026[125]: The plan sets out the Council' priorities for the transport network, focusing on creating a high quality accessible and free-flowing transport system that supports sustainable economic growth and regeneration.

4.8 Draft Essex Walking Strategy (2019)[126]: This strategy sets out the key barriers, challenges and opportunities to increase levels of walking throughout the County. It identifies the following nine key objectives.

- Increase walking for everyday trips.
- Improve road safety for pedestrians.
- Better design and enhanced accessibility.
- Enabling physical activity and walking for health.
- Enabling more walking to schools.
- Promoting walking for leisure.
- Supporting economic development.
- Improving neighbourhoods and supporting the development of new communities.
- Encourage walking by changing attitudes and behaviour.

4.9 Note that Thurrock and Southend-on-Sea are in the process of producing their own walking strategies.

4.10 Essex Cycling Strategy (2016)[127]: This strategy outlines the overall aspiration to support cycling across the County. It sets out nine areas of strategic action that are necessary to delivering growth in cycling throughout the County, and outlines funding priorities and opportunities. The key objectives are as follows.

- Double the number of cycling stages (trips) in Essex from 2014 levels by 2025 at monitored counter sites and other key routes.
- Cultivate a mind-set that sees cycling as a normal, enjoyable and everyday activity for the majority of short journeys.
- Establish cycling as an enjoyable participation activity for health gain and a popular competitive sport.

4.11 Note that Thurrock and Southend-on-Sea are in the process of producing their own cycling strategies.

4.12 Green Essex Strategy (2019)[128]: This Strategy seeks to enhance, protect and create an inclusive and integrated network of high-quality green infrastructure in Greater Essex. The Strategy promotes the use of the green infrastructure network for sustainable and active modes of transport such as walking and cycling. Note that a Green and Blue Infrastructure Strategy has been commissioned for South Essex. Brentwood also has a Green Infrastructure Strategy[129] and Thurrock has an emerging Green and Blue Infrastructure Strategy.

4.13 Asset management strategy (2019)[130]: This Asset Management Strategy for Essex's highways seeks to ensure effective management of the Council's highways infrastructure assets. The strategy outlines 12 key strategic priorities which fall within four strategic aims:

[123] Essex County Council (2011) Essex Transport Strategy: the Local Transport Plan for Essex [online] Available at: https://www.essexhighways.org/uploads/docs/essex_ltp.pdf
[124] Thurrock Council (date not available) Thurrock Transport Strategy 2013-2026 [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/strategy_transport_2013.pdf
[125] Southend-on-Sea Borough Council (2015) Southend Local Transport Plan 3 Strategy Document 2011-2026 [online] Available at: https://www.southend.gov.uk/downloads/file/3491/local_transport_plan_3_-_strategy_document_2012-2026_-_revised_january_2015
[126] Essex County Council (2019) Draft Essex Walking Strategy [online] Available at: https://consultations.essex.gov.uk/rci/essex-walking-strategy-resident-consultation/supporting_documents/Essex%20Walking%20Strategy%20Draft%20August.pdf
[127] Essex County Council (2016). Essex Cycling Strategy [online] Available at: https://www.essexhighways.org/uploads/docs/ecc-cycling-strategy-novemeber-2016.pdf
[128] Essex County Council (2019) Green Essex Strategy [online] Available at: https://consultations.essex.gov.uk/rci/green-essex-strategy/supporting_documents/Green_Essex_Strategy_30042019%201.pdf
[129] Groundwork (2015) Brentwood Borough Council Green Infrastructure Strategy [online] Available: http://www.brentwood.gov.uk/pdf/29012016122803u.pdf
[130] Essex County Council (2019) Asset Management Strategy [online] Available at: https://www.essexhighways.org/uploads/files/Asset%20Management%20Strategy%20January%202019.pdf

- enable inclusive economic growth;
- help people get the best start and age well;
- help create great places to grow up, live and work; and
- transform the council to achieve more with less.

4.14 As unitary authorities, Thurrock and Southend-on-Sea both have their own asset management strategies (see below).

4.15 Thurrock Highways Asset Management Strategy (2018)[131]: The purpose of this strategy is to set out strategies for investment in key highways asset groups, define affordable service standards, improve how the highway asset is managed, enable more effective and efficient value for money highways services, align asset management practices to the corporate plan and vision for Thurrock Council.

4.16 Southend-on-Sea Borough Council Highway Infrastructure Asset Management Plan (2017)[132]: The purpose of this plan is to provide a long-term highway infrastructure asset management framework that meets statutory responsibilities and manages highway assets to a service level that is affordable, achievable, efficient and cost-effective.

4.17 Greater Essex Growth and Infrastructure Framework 2016-2036 (2017)[133]: The Growth and Infrastructure Framework outlines the emerging development and infrastructure requirements to support growth from 2016 to 2036. Each local authority (including unitary authorities) will also have an Infrastructure Delivery Plan, setting out the infrastructure needed to support planned levels of growth.

4.18 Sustainable Modes of Travel Strategy (2019)[134]: The Sustainable Modes of Travel Strategy aims to reduce the number of private vehicles using the highway network and increase the use of more active and sustainable modes available to businesses, residents and schools within Essex.

4.19 London Southend Airport and Environs Joint Area Action Plan Walking and Cycling 'Greenway Network' - Linking the Community (2016)[135]: The Report outlines proposals for a new traffic free greenway network near Southend Airport Business Park. The greenway network will provide a means for local residents to access employment, education, services and key attractors using sustainable and active modes of transport.

Current baseline

4.20 South Essex's location at the edge of Greater London means that it is a key location in terms of the strategic highway network, with the M25, A13, A12 and the A127 passing through the sub-region, and well connected to London. Generally, most strategic transport links run west-east, with more limited connections north-south. The west-east routes, such as the A13 and A127 form barriers to north-south movement, particularly by sustainable modes of transport. Trains north can only be accessed by going into London or from Brentwood and the most direct routes north are through Chelmsford. The River Thames forms a barrier to travel southwards and the primary crossing, the Dartford Crossing, suffers from congestion.

4.21 Within the sub-region are a number of key transport hubs where passengers or cargo are exchanged between vehicles and/or between transport modes. These include the major urban areas of Basildon, Southend-On-Sea, and Grays, and London Southend Airport and Tilbury Port.

4.22 The rail network in South Essex forms part of Network Rail's Anglia region. The Essex Thameside route runs from London Fenchurch Street to Shoeburyness and carries a mixture of commuter and leisure traffic along with container traffic to and from the ports at Tilbury and London Gateway. The Great Eastern Main Line runs between London Liverpool Street and Norwich and carries key commuter flows into London, including from stations in Chelmsford and Brentwood districts. Havering and Brentwood are also served by TfL Rail services. Forecast growth in passengers is significant across most of the Anglia region to 2043. Since much of peak level demand is driven by rail commuting to and from London, passenger growth will be driven by employment growth rather than people transferring from other modes of transport. Passenger crowding is expected to be a problem across much of the network in South Essex by 2043 without investment to improve rail services. Forecast growth in freight is also significant across the region, particularly in container traffic. Investment in a variety of priority schemes identified by

[131] Thurrock Council (2018) Highways Asset Management Strategy [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/highways-assets-strategy-2018-v01.pdf
[132] Southend-on-Sea Borough Council (2017) Highway Infrastructure Asset Management Plan [online] Available at: https://www.southend.gov.uk/downloads/file/5371/highway_infrastructure_asset_management_plan_-_june_17
[133] AECOM (2017) Greater Essex Growth and Infrastructure Framework 2016-2036 [online] Available at: https://data.essex.gov.uk/dataset/greater-essex-growth-and-infrastructure-framework-2016-2036
[134] Essex County Council (2019) Sustainable Modes of Travel Strategy (Covering Workplaces, Residential Developments and Schools including Further Education Establishments) [online] Available at: https://assets.ctfassets.net/knkzaf64jx5x/5T3h7kDuqTwZg7tzYY21E0/d98a73ccd9fa2e9e5cb4451ecd74cde5/sustainable-modes-travel-strategy-essex-county-council.pdf
[135] Sustrans (2016) London Southend Airport and Environs Joint Area Action Plan Walking and Cycling 'Greenway Network' - Linking the Community [online] Available at: https://www.rochford.gov.uk/sites/default/files/planning_newevibasecycling2016.pdf

Network Rail will be necessary if these issues are to be avoided.[136]

4.23 London Southend Airport is located north of the urban area of Southend-on-Sea, being partly located in Southend-on-Sea Borough and Rochford District. It is a regionally important asset, serving London as well as Essex and beyond. The airport served around 2 million business and leisure passengers in 2019. It offers flights to over 50 destinations across Europe and is accessible to and from trains from London Liverpool Street and Stratford. The airport plans to continue growing, including runways upgrades and flying to additional destinations[137].

4.24 The planned Lower Thames Crossing is a Nationally Significant Infrastructure Project (NSIP) intended to provide a new road crossing across the Thames and is likely to have a significant impact on the transport network in the sub-region. The existing Dartford crossing has been the single road link across the Thames to East London for the last fifty years and sees fifty million vehicle crossings a year. The intended scheme should improve the resilience of the road network and reduce travel times, with a positive impact on the distribution industry in the sub-region which is a large contributor to the Thurrock economy (£6 billion).[138]

4.25 Figure 4.1: shows the major transport links in the sub-region.

4.26 Table 4.1: shows that most of the authorities in South Essex have significant net commuting outflows with only Basildon and Brentwood being relatively balanced. The table also list the top three destinations for these commuting outflows, showing that the City of London exerts a strong pull on all districts in South Essex, with Basildon also significant. Other transport trends specific to each local authority area are outlined in the following paragraphs.

4.27 Basildon: A cross-boundary impact appraisal, using the forecast year of 2034 was developed which concluded that some significant increases in traffic along the A127 corridor towards Brentwood are expected in both percentage increase and absolute flows as there are various schemes on the A127 Corridor for Growth currently at various stages of planning development. In addition, the A13 to/from Thurrock is likely to experience traffic increases of 10-15% as it is a key strategic cross boundary route that also provides access to the Port of Tilbury and the London Gateway. The Basildon Publication Local Plan expects there to be an approximate increase in traffic of 22% in Basildon[139].

4.28 In Basildon, 63% of employed people travel to work via car (including as a passenger). Some 9% travel on foot and 2% cycle to work[140].

4.29 Brentwood: The A127 corridor is of strategic importance to the district. However, there have been indications that the reliance on private cars is falling in recent years throughout all of England. Whilst the population and the number of employees have increased within the district, the number of commute trips has declined. There are currently three key railway stations that serve Brentwood and the wider area. The 2011 Census indicated that 15.8% of commute trips by residents within Brentwood were by car, which compares to 7% for Essex and 10.8% for Basildon. The opening of the Elizabeth Line, which will include Brentwood on its route, will assist in delivering more capacity for rail use in the future and the JSP is an opportunity to further enable growth and move away from the private car.[141]

4.30 In Brentwood, 56% of employed people travel to work via car (including as a passenger). 8% travel on foot and 1% cycle to work[142].

4.31 Castle Point: The borough has higher than average levels of car ownership, with a higher than average number of residents owning 3-4 cars. The number of commuters using the train is greater on average, compared to the regional and national statistics. The number of residents who commute to work by car is similar to the regional and national averages. The largest outflow of commuters is to London and the greatest inflow is from Southend[143].

4.32 In Castle Point, 68% of employed people travel to work via car (including passengers). 6% travel on foot and 2% cycle to work[144].

[136] Network Rail (2016) Anglia Route Study [online] Available at https://cdn.networkrail.co.uk/wp-content/uploads/2016/12/Anglia-Route-Study-summary-document-March-2016.pdf
[137] London Southend Airport website [online] (2020) Available at: https://southendairport.com/about/about-us Accessed: 21/04/2020
[138] South Essex Economic Development Needs Assessment, Final Report (December 2017) [online] Available at: https://www.rochford.gov.uk/sites/default/files/SouthEssexEDNAFinalReport20171211.pdf
[139] Basildon Local Plan (2018) Part 2- Publication Local Plan Transport & Highway Impact Assessment [online] Available at: https://www.basildon.gov.uk/media/8313/Basildon-Council-Publication-Local-Plan-Transport-and-Highway-Impact-Assessment-Main-Report-March-2018/pdf/Basildon_Council_-_Publication_Local_Plan_Transport_and_Highway_Impact_Assessment_Main_Report_-_Marc.pdf?m=636668147921500000
[140] NOMIS (2011) Methods of travel to work: https://www.nomisweb.co.uk/census/2011/QS701EW/view/1946157210?rows=cell&cols=rural_urban.
[141] Brentwood Borough Local Plan, Transport Assessment, October 2018 [online] Available at: http://www.brentwood.gov.uk/pdf/26102018091217000000.pdf
[142] NOMIS (2011) Methods of travel to work: https://www.nomisweb.co.uk/census/2011/QS701EW/view/1946157212?rows=cell&cols=rural_urban.
[143] Castle Point Borough Council Local Plan, SA Scoping Report, August 2018 [online] Available at: https://www.castlepoint.gov.uk/download.cfm?doc=docm93jijm4n3678.pdf&ver=6230
[144] NOMIS (2011) Methods of travel to work: https://www.nomisweb.co.uk/census/2011/QS701EW/view/1946157213?rows=cell&cols=rural_urban.

4.33 Rochford: The district has high levels of car ownership with only 14.5% of households not owning a car or van (2011 Census). The district is also subject to high levels of out-commuting and has limited public transport provision in rural areas. Residents' usual method of travel to work is train (10.6%), bus (2.2%), car/van (39.6%), bicycle (0.8%), walk (3.4), other (0.9%) and those not in employment or who work from home account for 39.7%. Rochford has a significant proportion of residents travelling to work by train due to high levels of commuting into Greater London. The number of residents opting to walk or cycle to work is lower than the regional and county levels, possibly due to the rural nature of much of the district and high levels of long-distance commuting. National Cycle Route 16 runs to the south of Rayleigh town centre, providing a 41-mile cycle link between Southend, Shoeburyness and Basildon.[145]

4.34 In Rochford, 67% of employed people travel to work via car (including passengers). 6% travel on foot and 1% cycle to work[146]

4.35 Southend: There are good levels of accessibility to key services, schools, employment sites and leisure facilities by public transport. Connectivity to and from the Borough is restricted by geography due to the Borough's eastern and southern borders being bound by the River Thames and the North Sea. The main transport corridors to the west are the A13 and the A127, and the A130, which is outside the Borough boundary but provides access to Chelmsford. Because of the relative ease of accessibility to neighbouring towns the Borough has a large catchment area for its labour supply. Almost a third of people working in Southend commute in from outside the Borough boundary, adding to congestion levels. As with the national trend, rail patronage in the Borough has increased over time. There is excellent rail connectivity and frequency both within the Borough, through its nine railway stations, and to London. A new railway station has also been built in Rochford but which is close to Southend-on-Sea, to serve London Southend Airport. More than half of commuting journeys are undertaken by car or van[147].

4.36 In Southend-on-Sea, 55% of employed people travel to work via car (including passengers). 14% travel on foot and 3% cycle to work[148].

4.37 Thurrock: Thurrock suffers from congestion on strategic road network in some areas, particularly along the A13. This is largely because a high proportion of the workplace and resident population travel by car. In addition, there is a high proportion of HGVs on the network. In Thurrock, the M25 and A13 are routes of national and regional importance. Adverse traffic conditions on these routes often have knock-on effects on local roads, leading to localised gridlock on occasion and impacting negatively on economic productivity. The Dartford Crossing adds an additional element of traffic risk, as the bridge and the tunnels are more sensitive to accidents and congestion, which leads to widespread effects on Thurrock's local road network.

4.38 Thurrock has seven rail stations that provide service between Southend and London, all of which are underutilised for journeys within the Borough. However, overall capacity of the rail network overall is nearing capacity, including potential issues on freight services from Tilbury Port and London Gateway in future, as described above. Spatial analysis shows that the majority of Thurrock residents are within a 1 to 2-mile radius of a rail station.

4.39 In Thurrock, 67% of employed people travel to work via car (including passengers). Some 6% travel on foot and 1% cycle to work[149].

4.40 The Local Development Framework for Thurrock sets out that the Council will work with partners to deliver improvements to national and regional transport networks to ensure growth does not result in routes being above capacity. Priority will be given to routes that provide access, especially for freight, to key strategic economic hubs, the ports at London Gateway, Tilbury and Purfleet, and regeneration areas. Key improvements include:

- A13/A126 East Facing Access scheme – The implementation of an A13 East Facing Access road project (often referred to as 'East Facing Slip Roads') is a long-held ambition for Thurrock Council. Access improvements will enhance capacity at J30 of the M25 (a nationally significant part of the strategic road network) and will support free-flowing traffic on the A13 and unlock congestion and gridlock issues across Thurrock, South Essex and the wider Thames Estuary area. The project is fundamentally focused on simplifying the A126/A13 access arrangements leading to significant benefits in terms of relieving congestion and associated potential environmental improvements by reducing traffic flows and travel distances on the adjacent road network,

[145] Rochford District Council – Authority Monitoring Report 2016-2018: Transport [online] Available at: https://www.rochford.gov.uk/sites/default/files/AMR_10_1.pdf
[146] NOMIS (2011) Methods of travel to work: https://www.nomisweb.co.uk/census/2011/QS701EW/view/1946157219?rows=cell&cols=rural_urban.
[147] Southend Local Transport Plan 3, Strategy Document (2011-2026) Revised January 2015
[148] NOMIS (2011) Methods of travel to work: https://www.nomisweb.co.uk/census/2011/QS701EW/view/1946157203?rows=cell&cols=rural_urban.
[149] NOMIS (2011) Methods of travel to work: https://www.nomisweb.co.uk/census/2011/QS701EW/view/1946157204?rows=cell&cols=rural_urban.

including the A1306 and B186. The Outline Business case for the EFA scheme is to be submitted to DfT for funding approval at the end of Summer 2020.

- Tilbury Link Road – The Council is working in partnership with HE and others to identify and deliver a link road scheme that will provide important access improvements to/from the LTC route, facilitate growth in Tilbury, East Tilbury, CSM and beyond and provide a strategic link to port activities in Tilbury. HE are likely to lead on developing scheme options (with support from the Council's OAR work to date) and securing an appropriate funding route for the scheme.
- A1306 capacity enhancements & bus priority – Thurrock Council submitted an Expression of Interest to the DfT Local Pinch Point fund in January 2020. The EoI identifies the need for funding to be made available to address capacity and bus priority enhancements on the A1306 and other roads accessing the Lakeside basin and West Thurrock area. The A1306, A126 and B186 suffer from regular periods of significant congestion, in both the AM and PM peak, as a result of traffic leaving the A13 or M25 in advance of J30 and utilising the A1306, A126, B186 as a 'rat-run' alternative through residential areas. This creates a Pinch-Point scenario on the road network as traffic attempts to access the SRN and Dartford River Crossing while also accessing the busy road network serving the Lakeside Basin and wider West Thurrock area. A successful bid will provide an opportunity to address existing pinch point issues, remove barriers to investment and development and open the way to an improved environment for bus use, walking and cycling.
- A126 West Thurrock Way capacity improvements – The Council is exploring funding opportunities to enhance capacity and bus priority on the A126 between MSA roundabout and Cygnet View. The scheme will address congestion issues and public transport access into the Lakeside basin. The scheme will include localised road widening to accommodate a dedicated bus lane, removal of the existing roundabout arrangement and implementation of a 4-arm signalised junction.
- SLH rail station - Plans are under way for a major redevelopment of Stanford-le-Hope railway station, creating a modern transport hub with space for buses, cyclists and vehicle drop-offs. Stanford-le-Hope rail station and transport connections are vital for access to new jobs at London Gateway and the Thames Enterprise Park, as well as local housing developments. Work is being funded by the government's Local Growth Deal, the National Stations Improvement Programme (NSIP) and planning obligation funding from DP World. Our project partners are DP World, c2c and Network Rail.
- SERT – a version of South Essex Rapid Transit has been identified for further discussion within the ASELA Connectivity work. This build on the aspirations of SERT and looks to provide improved public transport connectivity between growth areas / corridors within South Essex.

4.41 The Council also aims to deliver at least a 10% reduction in car traffic from the 2026 levels that have been forecast and a 10% reduction in forecast traffic levels by 2021 in the Thurrock Urban Area.[150]

For all of the Local Authorities, apart from Southend-on-Sea, the largest percentage of residents get to work by driving a private vehicle to work. In Southend-on-Sea the category with the largest percentage is residents who are not employed, but residents who drive to work is the second largest category.[151]

4.42 More people commute out of the local authorities than commute in. For each borough, London is in the top three locations that people commute out to. The table below highlights the net change in commuting results for each South Essex Local Authority.

[150] Thurrock Council, Thurrock Transport Strategy 2013-2026 [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/strategy_transport_2013.pdf

[151] NOMIS method of travel to work (2011) Maidstone borough [online] available at: https://www.nomisweb.co.uk/census/2011/QS701EW/view/1946157316?rows=cell&cols=rural_urban

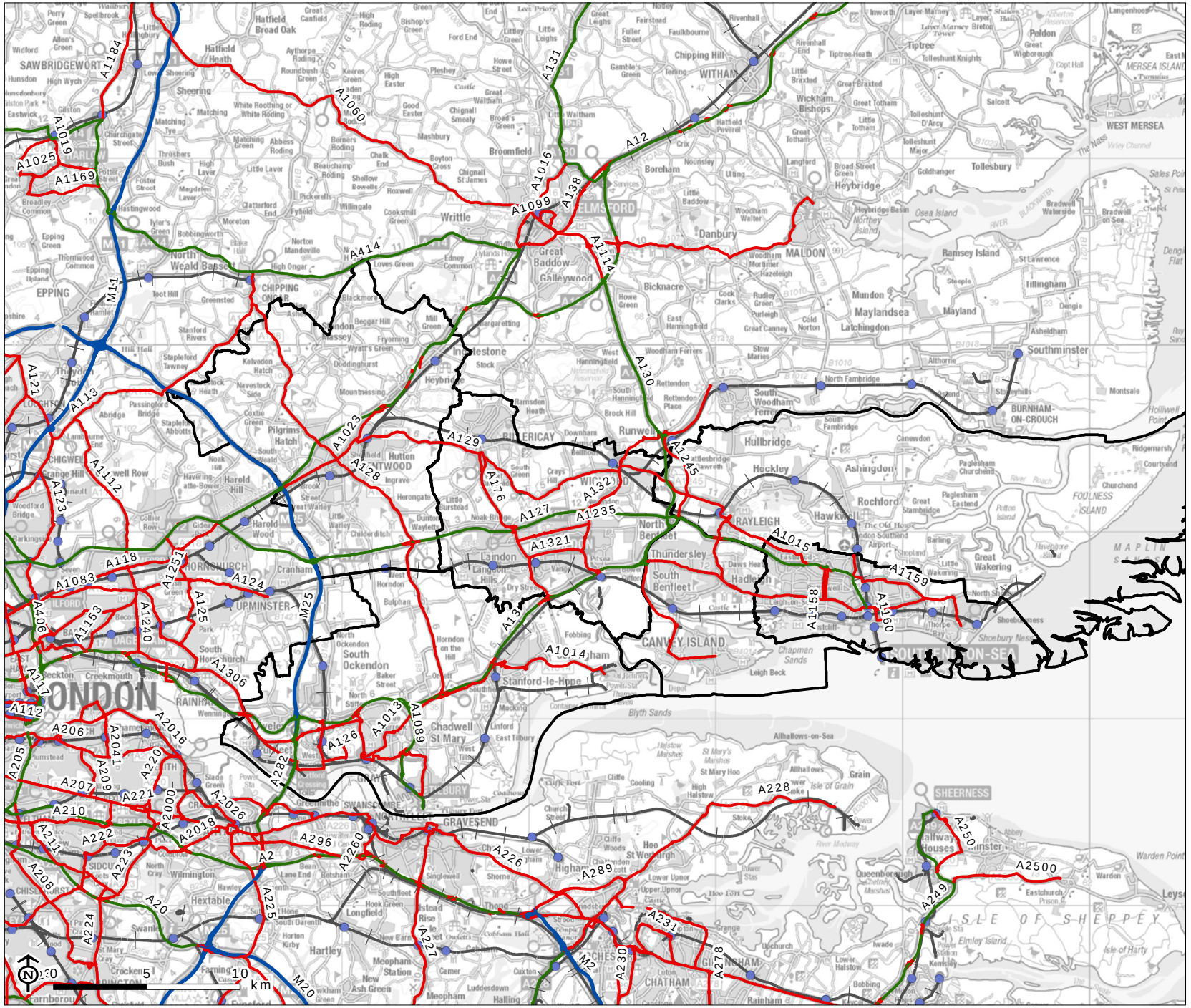
Table 4.1: Commuting inflows and outflows in South Essex 2011[152]

	Inflow	Outflow	Net Change	Top 3 outflows
Basildon	36,096	36,243	-147	1. Westminster, City of London 2. Thurrock 3. Chelmsford
Brentwood	17,752	20,103	-2,351	1. Westminster, City of London 2. Havering 3. Basildon
Castle Point	7,470	23,573	-16,103	1. Basildon 2. Southend-on-Sea 3. Westminster, City of London
Rochford	10,416	24,441	-14,025	1. Southend-on-Sea 2. Basildon 3. Westminster, City of London
Southend	20,683	29,946	-9,263	1. Westminster, City of London 2. Rochford 3. Basildon
Thurrock	21,813	35,032	-13,219	1. Basildon 2. Westminster, City of London 3. Havering

Table 4.2: Key sustainability issues for South Essex and likely evolution without the JSP

Key sustainability issues for South Essex	Likely evolution without the JSP
The major traffic routes of the M25, A13, A12 and the A127 pass through South Essex. The sub-region also contains several key travel hubs, such as London Southend Airport and Tilbury Port. These experience high levels of air pollution and traffic congestion. Population growth has the potential to exacerbate these problems (IIA objectives 4 and 6).	Without the JSP, it is anticipated that congestion will continue to increase with the rising population. The JSP presents an opportunity to address this, through providing clarity for infrastructure providers and policy that promotes alternative forms of transport and sustainable locations for development that minimise the need to travel by car on the local network and will complement measures taken by highways authorities to combat congestion on the strategic road network.
A high proportion of the sub-region's residents drive to work. The uptake of more sustainable travel options is limited in some parts of the sub-region (IIA objective 6).	Without the JSP, car dependency may continue to be high. The JSP provides an opportunity to prevent this rising further and minimise car use through the promotion of sustainable and active transport (based on sufficient population densities) and sustainable development locations.

[152] NOMIS, Location of Usual Residence and Place of Work by Method of Travel to Work (2011)



SA and HRA of the South Essex Joint Strategic Plan

Figure 4.1: Key Transport Links in South Essex

- Authority boundaries
- Railway station
- Railway lines
- Motorway
- Primary road
- A road

Map Scale @ A4: 1:290,000

LUC

CB:LA EB:Bean_C LUC FIG_4_1_10440_Transport_links_A4L 07/02/2020

Chapter 5
Air, land and water quality

Policy context

International

5.1 The following list of policies includes a number of EU Directives. Whilst the UK left the EU in January 2020, most EU legislation continues to apply to the UK until the end of the implementation period (31st December 2020). After this time, the majority of EU legislation will be 'saved' in UK law, as set out in sections 3 and 20(1), and Schedule 6, to the European Union (Withdrawal) Act 2018 (c. 16), as amended by regulation 2 of The European Union (Withdrawal) Act 2018 (Exit Day) (Amendment) (No. 2) Regulations 2019 (No. 859) and regulation 2 of The European Union (Withdrawal) Act 2018 (Exit Day) (Amendment) (No. 3) Regulations 2019 (No. 1423).

5.2 European Nitrates Directive (1991): Identifies nitrate vulnerability zones and puts in place measures to reduce water pollution caused by the introduction of nitrates.

5.3 European Urban Waste Water Directive (1991): Protects the environment from the adverse effects of urban waste water collection, treatment and discharge, and discharge from certain industrial sectors.

5.4 European Air Quality Framework Directive (1996) and **Air Quality Directive** (2008): Put in place measures for the avoidance, prevention, and reduction in harmful effects to human health and the environment associated with ambient air pollution and establish legally binding limits for the most common and harmful sources of air pollution.

5.5 European Drinking Water Directive (1998): Protects human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean.

5.6 European Landfill Directive (1999): Prevents and reduces the negative effects on the environment from the landfilling of waste by introducing stringent technical requirements for waste and landfills.

5.7 European Water Framework Directive (2000): Protects inland surface waters, transitional waters, coastal waters and groundwater.

5.8 European Waste Framework Directive (2008): Sets out the waste hierarchy requiring the reduction of waste

production and its harmfulness, the recovery of waste by means of recycling, re-use or reclamation and final disposal that does not harm the environment, including human health.

5.9 European Industrial Emission Directive (2010): Lays down rules on integrated prevention and control of pollution arising from industrial activities. It also lays down rules designed to prevent or, where that is not practicable, to reduce emissions into air, water and land and to prevent the generation of waste, in order to achieve a high level of protection of the environment taken as a whole.

National

5.10 National Planning Policy Framework (NPPF)[153] contains the following:

- The planning system should protect and enhance soils in a manner commensurate with their statutory status or quality identified in the development plan.
- New and existing development should be prevented from contributing to, being put at an unacceptable risk from, or being adversely affected by, soil, air, water or noise pollution or land instability.
- "*Despoiled, degraded, derelict, contaminated and unstable land*" should be remediated and mitigated where appropriate.
- The reuse of previously developed land is encouraged where suitable opportunities exist.

5.11 National Planning Practice Guidance (PPG)[154]: Requires Local planning Authorities to demonstrate every effort has been made to prioritise the use of poorer quality agricultural land for development where it has been demonstrated that significant development is required on agricultural land.

5.12 Waste management plan for England[155]: Provides an analysis on the current waste management situation in England and evaluates how it will support implementation of the objectives and provisions of the revised Water Framework Directive.

5.13 National Planning Policy for Waste (NPPW)[156]: Key planning objectives are identified within the NPPW, requiring planning Authorities to:

- Help deliver sustainable development through driving waste management up the waste hierarchy.
- Ensure waste management is considered alongside other spatial planning concerns.
- Provide a framework in which communities take more responsibility for their own waste.
- Help secure the recovery or disposal of waste without endangering human health and without harming the environment.
- Ensure the design and layout of new development supports sustainable waste management.

5.14 Safeguarding our Soils – A Strategy for England[157]: Sets out how England's soils will be managed sustainably. It highlights those areas which Defra will prioritise and focus attention in tackling degradation threats, including: better protection for agricultural soils; protecting and enhancing stores of soil carbon; building the resilience of soils to a changing climate; preventing soil pollution; effective soil protection during construction and; dealing with contaminated land.

5.15 Water White Paper[158]: Sets out the Government's vision for the water sector including proposals on protecting water resources and reforming the water supply industry. It states outlines the measures that will be taken to tackle issues such as poorly performing ecosystem, and the combined impacts of climate change and population growth on stressed water resources.

5.16 Water for Life White Paper[159]: Sets out how to build resilience in the water sector. Objectives of the White Paper are to:

- Paint a clear vision of the future and create the conditions which enable the water sector and water users to prepare for it.
- Deliver benefits across society through an ambitious agenda for improving water quality, working with local

[153] Department for Communities and Local Government (2019) National Planning Policy Framework [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf
[154] Department for Communities and Local Government (2016) National Planning Practice Guidance [online] Available at: https://www.gov.uk/Government/collections/planning-practice-guidance
[155] Department for Environment, Food and Rural Affairs (2013) Waste management plan for England [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/265810/pb14100-waste-management-plan-20131213.pdf
[156] Department for Communities and Local Government (2014) National Planning Policy for Waste [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/364759/141015_National_Planning_Policy_for_Waste.pdf
[157] Department for Environment, Food and Rural Affairs (2009) Safeguarding our Soils: A Strategy for England [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/69261/pb13297-soil-strategy-090910.pdf
[158] Department for Environment, Food and Rural Affairs (2012) The Water White Paper [online] Available at: https://publications.parliament.uk/pa/cm201213/cmselect/cmenvfru/374/374.pdf
[159] Department for Environment, Food and Rural Affairs (2011) Water for life [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/228861/8230.pdf

communities to make early improvements in the health of our rivers by reducing pollution and tackling unsustainable abstraction.

- Keep short- and longer-term affordability for customers at the centre of decision making in the water sector.
- Protect the interest of taxpayers in the policy decisions that we take.
- Ensure a stable framework for the water sector which remains attractive to investors.
- Stimulate cultural change in the water sector by removing barriers to competition, fostering innovation and efficiency, and encouraging new entrants to the market to help improve the range and quality of services offered to customers and cut business costs.
- Work with water companies, regulators and other stakeholders to build understanding of the impact personal choices have on the water environment, water resources and costs.
- Set out roles and responsibilities – including where Government will take a stronger role in strategic direction setting and assessing resilience to future challenges, as well as clear expectations on the regulators.

5.17 The Air Quality Strategy for England, Scotland, Wales and Northern Ireland[160]: Sets out a way forward for work and planning on air quality issues by setting out the air quality standards and objectives to be achieved. It introduces a new policy framework for tackling fine particles and identifies potential new national policy measures which modelling indicates could give further health benefits and move closer towards meeting the Strategy's objectives. The objectives of the Strategy are to:

- Further improve air quality in the UK from today and long term.
- Provide benefits to health quality of life and the environment.

5.18 Future Water: The Government's water strategy for England[161]: Sets out how the Government wants the water sector to look by 2030, providing an outline of steps which need to be taken to get there. These steps include: improving the supply of water; agreeing on important new infrastructure such as reservoirs; proposals to time limit abstraction licences; and reducing leakage. The document also states that pollution to rivers will be tackled, whilst discharge from sewers will be reduced.

5.19 A Green Future: Our 25 Year Plan to Improve the Environment[162]: Sets out goals for improving the environment within the next 25 years. It details how the Government will work with communities and businesses to leave the environment in a better state than it is presently. Identifies six key areas around which action will be focused. Those of relevance to this chapter are: using and managing land sustainably; recovering nature and enhancing the beauty of landscapes; and increasing resource efficiency and reducing pollution and waste. Actions that will be taken as part of these three key areas are as follows:

- Using and managing land sustainably:
  - Embed a 'net environmental gain' principle for development, including natural capital benefits to improved and water quality.
  - Protect best agricultural land.
  - Improve soil health and restore and protect peatlands.
- Recovering nature and enhancing the beauty of landscapes:
  - Respect nature by using our water more sustainably.
- Increasing resource efficiency and reducing pollution and waste:
  - Reduce pollution by tackling air pollution in our Clean Air Strategy and reduce the impact of chemicals.

5.20 UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations[163]: Sets out the Government's ambition and actions for delivering a better environment and cleaner air, including £1 billion investment in ultra-low emission vehicles, a £290 million National Productivity Investment Fund, a £11 million Air Quality Grant Fund and £255 million Implementation Fund to help Local Authorities to prepare Air Quality Action Plans and improve air quality, an £89 million Green Bus Fund, £1.2 billion Cycling and Walking Investment

[160] Department for Environment Food and Rural Affairs (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf
[161] HM Government (2008) Future Water: The Government's water strategy for England [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/69346/pb13562-future-water-080204.pdf
[162] HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/673203/25-year-environment-plan.pdf
[163] Department for Environment Food and Rural Affairs and Department for Transport (2017) UK plan for tackling roadside nitrogen dioxide concentrations [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/633269/air-quality-plan-overview.pdf

Strategy and £100 million to help improve air quality on the National road network.

5.21 Clean Air Strategy 2019[164]: The strategy sets out the comprehensive action that is required from across all parts of Government and society to meet these goals. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem. These will support the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanisms. The UK has set stringent targets to cut emissions by 2020 and 2030.

5.22 Department for Transport, The Road to Zero (2018)[165]: Sets out new measures towards cleaner road transport, aiming to put the UK at the forefront of the design and manufacturing of zero emission vehicles. It explains how cleaner air, a better environment, zero emission vehicles and a strong, clean economy will be achieved. One of the main aims of the document is for all new cars and vans to be effectively zero emission by 2040.

Sub-national

5.23 Essex Minerals Local Plan (2014)[166]: The Minerals Local Plan sets the vision and direction – the amounts, broad locations and priorities – for future mineral extraction in Essex. It will guide the more specific locations for any new quarries in the future. The 14 objectives of the Plan can be categorised into eight main aims, including the below:

- Promote sustainable development.
- Promote a reduction in greenhouse gas emissions and to ensure that new development is adaptable to changes in climatic conditions.
- Promote social inclusion, human health and well-being.
- Promote the efficient use of minerals.
- Protect and safeguard existing mineral reserves.
- Protect and enhance the natural, historic and built environment in relation to mineral extraction.

5.24 Minerals planning in Thurrock and Southend-on-Sea is guided by the relevant policies in their adopted Core Strategies[167,168].

5.25 Essex and Southend Waste Local Plan (2017)[169]: The plan sets out how Essex and Southend-on-Sea aim to manage waste for its duration. It also seeks to deal with waste more sustainably, encouraging recycling and reducing reliance on landfill. Waste planning in Thurrock is guided by the relevant policies in the adopted Core Strategy and Policies for Management of Development[170].

5.26 Essex Transport Strategy (2011)[171]: The Essex Transport Strategy outlines the County Council's priorities and strategic objectives for improving the transport network across Essex, including by improving transport-related air quality. In order to achieve improvements to air quality, the plan encourages a modal shift towards public transport, walking and cycling over single occupancy car journeys. The Plan supports the use of cleaner, lower carbon transport technologies, and car share schemes. Note that whilst Thurrock and Southend-on-Sea are included in this document, they also both have their own, more up to date transport plans/strategies (see below).

5.27 Thurrock Transport Strategy 2013-2026[172]: The strategy sets out the aims, objectives and policies for delivering transport improvements in Thurrock, including (but not limited to) to respond to large scale growth at Lakeside, Tilbury Port and London Gateway. A key aim of the strategy is to ensure that this and future growth is sustainable. This strategy also sets out the long-term approach to walking and cycling in the borough.

5.28 Southend's Local Transport Plan 3 2012-2026[173]: The plan sets out the Council' priorities for the transport network, focusing on creating a high quality accessible and free-flowing transport system that supports sustainable economic growth and regeneration.

5.29 Sustainable Modes of Travel Strategy (2019)[174]: The Sustainable Modes of Travel Strategy aims to reduce the

[164] DEFRA, Clean Air Strategy 2019 [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf
[165] Department for Transport, The Road to Zero (2018) [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/739460/road-to-zero.pdf
[166] Essex County Council (2014) Essex Minerals Local Plan [online] Available at: https://assets.ctfassets.net/knkzaf64jx5x/5UZuVtnjZbJ81olvZoZKVX/90acfc65df6fa8ee8ab20df3f0cda1c8/essex-minerals-local-plan-adopted-july-2014.pdf
[167] Thurrock Council (2015) Core Strategy and Policies for Management of Development (as amended)
[168] Southend-on-Sea (2007) Core Strategy
[169] Essex County Council (2017) Essex and Southend-on-Sea Waste Local Plan [online] Available at: https://www.essex.gov.uk/minerals-waste-planning-policy/waste-local-plan
[170] Thurrock Council (2015) Core Strategy and Policies for Management of Development (as amended)
[171] Essex County Council (2011) Essex Transport Strategy: the Local Transport Plan for Essex [online] Available at: https://www.essexhighways.org/uploads/docs/essex_ltp.pdf
[172] Thurrock Council (date not available) Thurrock Transport Strategy 2013-2026 [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/strategy_transport_2013.pdf
[173] Southend-on-Sea Borough Council (2015) Southend Local Transport Plan 3 Strategy Document 2011-2026 [online] Available at: https://www.southend.gov.uk/downloads/file/3491/local_transport_plan_3_-_strategy_document_2012-2026_-_revised_january_2015
[174] Essex County Council (2019) Sustainable Modes of Travel Strategy (Covering Workplaces, Residential Developments and Schools including Further

number of private vehicles using the highway network and increase the use of more active and sustainable modes available to businesses, residents and schools within Essex. A key objective is to manage congestion during peak times and improve the environment by reducing the need to travel by car and potentially reducing CO2 and other emissions.

5.30 Essex Local Flood Risk Management Strategy (2018)[175]: The Essex Flood Risk Management Strategy (LFRMS) has been produced by Essex County Council as Lead Local Flood Authority (LLFA). The Flood Water Management Act places a legal duty on each LLFA to produce a LRMS and this document creates a framework around which flood risk management will be undertaken by the LLFA. As unitary authorities, Thurrock and Southend-on-Sea have their own LFRMS' (see below).

5.31 Thurrock Local Flood Risk Management Strategy (2015)[176]: This strategy sets out how Thurrock Council, alongside other Risk Management Authorities (RMAs), are responding to identified flood risk in Thurrock. Among other things, the strategy specifies the flood and coastal erosion risk management functions that may be exercised by RMAs, objectives and measures for managing local flood risk and implementation details for these.

5.32 Southend-on-Sea Local Flood Risk Management Strategy (2015)[177]: The LFRMS outlines the priorities for local flood risk management in the borough and provides a delivery plan to manage the risk until 2021. The objectives for management of local flood risk include improved understanding of flood risk, including likely effects of climate change, encouraging development to provide betterment to flood risk, and pursuing flood risk management measures that provide multiple benefits.

5.33 Preliminary Flood Risk Assessment (2011)[178]: The Preliminary Flood Risk Assessment (PFRA) provides a high-level overview of flood risk across Essex.

5.34 South Essex Surface Water Management Plan (2012)[179]: The Surface Water Management Plan identifies and assesses surface water flood risk across South Essex.

5.35 Surface Water Management Plan (2015)[180,181]: The Surface Water Management Plan for each of the Local Authorities identifies and assesses surface water flood risk across each respective Authority.

5.36 Essex Thames Gateway Water Cycle Study – Scoping Study (2009)[182] and **Technical Report** (2011)[183]: The Water Cycle Study (WCS) seek to ensure that future development does not have a damaging effect on the water environment across South Essex and the surrounding areas. It seeks to ensure that all the elements of the water cycle and water infrastructure can be addressed as part of the delivery of the long-term planning provision for growth in the area. The study identifies a clear programme of required water services infrastructure and its implementation to support the delivery of sustainable growth up to 2031. It defines the existing capacity of the water environment, identifies key 'water' constraints, and provides mitigation to facilitate future development.

5.37 South Essex Strategic Flood Risk Assessment (2018)[184]: The South Essex Strategic Flood Risk Assessment (SFRA) outlines a number of flood risk objectives that should be considered in development management policies, which can be broadly categorised into the following categories:

- Seeking flood risk reduction through spatial planning and site design.
- Reducing surface water runoff from new developments.
- Enhancing and restoring the river corridor.
- Protecting and promoting areas for future flood alleviation schemes.
- Improving flood awareness and emergency planning.

5.38 Thurrock and Southend-on-Sea both have their own SFRAs (see below).

Education Establishments) [online] Available at: https://assets.ctfassets.net/knkzaf64jx5x/5T3h7kDuqTwZg7tzYY21E0/d98a73ccd9fa2e9e5cb4451ecd74cde5/sustainable-modes-travel-strategy-essex-county-council.pdf

[175] Essex County Council (2018) Local Flood Risk Management Strategy [online] Available at: https://flood.essex.gov.uk/our-strategies-and-responsibilities/our-local-flood-risk-management-strategy/

[176] Thurrock Council (2015) Thurrock Local Flood Risk Management Strategy [online] Available at: https://democracy.thurrock.gov.uk/documents/s6554/Appendix%201%20-%20Thurrock%20Local%20Flood%20Risk%20Management%20Strategy.pdf

[177] AECOM (2015) Southend-on-Sea Local Flood Risk Management Strategy

[178] URS/Scott Wilson (2011) Preliminary Flood Risk Assessment [online] Available at: https://www.rochford.gov.uk/sites/default/files/evibase_98eb49.pdf

[179] Scott Wilson (2012) South Essex Surface Water Management Plan [online] Available at: https://www.basildon.gov.uk/media/5316/South-Essex-Surface-Water-Management-Plan-April-2012/pdf/URS_Scott_Wilson_-_South_Essex_Surface_Water_Management_Plan_-_April_2012.pdf?m=635255559414000000

[180] AECOM (2015) Southend-on-Sea Surface Water Management Plan [online] Available at: https://www.southend.gov.uk/downloads/file/3770/sbc_surface_water_management_plan_-_november_2015

[181] JBA Consulting (2015) Surface Water Management Plan for Brentwood [online] Available at: https://www.brentwood.gov.uk/pdf/29052015103139u.pdf

[182] Scott Wilson (2009) Essex Thames Gateway Water Cycle Study, Scoping Study [online] Available at: https://www.rochford.gov.uk/sites/default/files/planning_essex_thames_gateway_water_cycle%20Study.pdf

[183] URS Scott Wilson (2011) South Essex Outline Water Cycle Study, Technical Report [online], Available at: https://www.rochford.gov.uk/sites/default/files/planning_evidencebase_watercycle.pdf

[184] AECOM (2018) South Essex Level 1 Strategic Flood Risk Assessment [online] Available at: https://bit.ly/30g0LKc

5.39 Thurrock Borough Council Level 1 Strategic Flood Risk Assessment (2018)[185]: The SFRA provides an overview of flood risk from all sources across Thurrock. It identified the tidal and fluvial flood plains associated with the River Thames, main rivers and some ordinary watercourses. A revised Level 2 SFRA will be produced in the near future.

5.40 Southend-on-Sea Strategic Flood Risk Assessment (2010)[186]: The Southend-on-Sea SFRA includes both a level 1 and level 2 assessment, although these are dated (from 2010). Both looks to establish flood risk across the area, although the level 2 SFRA includes sites where the Exception Test is required. The level 1 SFRA confirmed the main sources of flooding are tidal flooding from the Thames Estuary and fluvial flooding from the Prittle Brook, Eastwood Brook and Willingale watercourse.

5.41 Open Space Studies (various years)[187,188,189,190,191,192]: Open Space Studies assess the quality, quantity and accessibility of the existing provision for publicly accessible open spaces in each of the Local Authorities in South Essex.

Current baseline

Air quality

5.42 Basildon is one of several Local Authorities in South Essex where action is required and a plan should be produced to improve air quality, although there are currently no AQMAs declared in Basildon. The main cause of poor air quality in Basildon is vehicle emissions. The national model indicates that, in relation to Basildon, there is a risk of statutory NO_2 levels being exceeded at stretches along the A127 in the period to 2022, before declining in accordance with national trends to levels below the EU Limit Value[193]. At present, there is a 50mph zone on the A127 to meet a Direction issued by Defra in respect of the Air Quality Framework Directive.

5.43 There are three AQMAs in Brentwood; four others have been revoked following years of compliance with the Air Quality Objectives and a trend towards improved air quality. All of these are near to busy roads and the main source of air pollution in Brentwood is road traffic emissions for major roads, notably the M25, A12, A127, A128, A1023 and A129. The three current AQMAs are situated around the M25, A12 and the A128/A1023 junction.[194,195]

5.44 Rochford declared an AQMA for particulate matter in an area encompassing an Industrial Estate in Rayleigh in June 2010, but it was subsequently revoked in March 2013 following measured improvements. Another AQMA, covering Rayleigh town centre remains, and is declared for exceedance of NO_2 limit values due to road traffic emissions.[196,197]

5.45 The main source of air pollution in the Borough of Castle Point is road traffic emissions, particularly from the principal roads (A13, A127 and A130). There is also pollution from commercial, industrial and domestic sources, potential transboundary pollution sources, such as power stations along the Thames Estuary and the oil refinery in Thurrock. There are currently no AQMAs in Castle Point.[198]

5.46 Thurrock currently has 18 AQMAs; these are a result of traffic related pollution along busy roads. Many of these roads are the main commuter routes or used for logistical purposes. The main pollutant of concern is NO_2 and to a lesser extent particulate matter (PM_{10}); both of these arise from road traffic emissions[199]. In addition, there is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions and cardiovascular diseases. Thurrock's Air Quality Annual Status Report 2017 notes that

[185] AECOM (2018) Thurrock Borough Council Level 1 Strategic Flood Risk Assessment [online] Available at: https://regs.thurrock.gov.uk/online-applications-skin/thurrock-strategic/sfra_201806/lptech-thurrock-sfra1-201806-v01.pdf
[186] Scott Wilson (2010) Southend-on-Sea Borough Council Strategic Flood Risk Assessment [online] Available at: https://www.southend.gov.uk/downloads/download/303/concert_series
[187] Basildon Borough Council (2015) Open Space Assessment Gap Analysis [online] Available at: https://www.basildon.gov.uk/media/6612/Basildon-Council-Open-Space-Assessment-Gap-Analysis-Dec-2015/pdf/Basildon_Council_-_Open_Space_Assessment_Gap_Analysis_-_Dec_2015.pdf?m=635896611202570000
[188] Brentwood Borough Council (2016) Sport, Leisure and Open Space Assessment [online] Available at: http://www.brentwood.gov.uk/pdf/20012017115329u.pdf
[189] Castle Point Council (2012) Open Space Appraisal Update [online] Available at: https://www.castlepoint.gov.uk/download.cfm?doc=docm93jijm4n839.pdf&ver=987
[190] Rochford District Council (2009) Open Space Study [online] Available at: https://www.rochford.gov.uk/sites/default/files/planning_evibase_openspacestudy.pdf
[191] Thurrock Council (unknown) Community Needs and Open Spaces Study [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/ldf_tech_openspaces_report.pdf
[192] Southend-on-Sea Council (2004) Open Space and Recreation Assessment in Southend-on-Sea Borough [online] Available at: http://www.southend.gov.uk/download/downloads/id/1630/a_study_of_open_space_and_recreation_southend_-_final_reportpdf.pdf
[193] Basildon Council, Air Quality Topic Paper, August 2017 [online] Available at: https://www.basildon.gov.uk/media/7833/Basildon-Council-Air-Quality-Topic-Paper-Aug-2017/pdf/Basildon_Council_-_Air_Quality_Topic_Paper_-_Aug_2017.pdf?m=636476545530100000
[194] Brentwood Borough Council (2019) Air Quality [online] Available at: http://www.brentwood.gov.uk/index.php?cid=399
[195] Brentwood Borough Council (2019) Air Quality Annual Status Report [online] Available at: http://www.essexair.org.uk/Reports/Brentwood_Borough_Council_2019_ASR.pdf
[196] UK Air (2019) Local Authority Details Rochford District Council [online] Available at: https://uk-air.defra.gov.uk/aqma/local-Authorities?la_id=210
[197] Rayleigh AQMA details [online] Available at: https://uk-air.defra.gov.uk/aqma/details?aqma_ref=1588
[198] Castle Point Borough Council Local Plan, SA Scoping Report, August 2018 [online] Available at: https://www.castlepoint.gov.uk/download.cfm?doc=docm93jijm4n3678.pdf&ver=6230
[199] 2017 Air Quality Annual Status Report, October 2017 [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/air-quality-report-2017.pdf

while the focus of air quality policies and actions are targeted at exceedances of NO_2 in individual AQMAs, it is acknowledged that many of the interventions proposed will also have beneficial reductions in $PM_{2.5}$.

5.47 The main source of air pollution in the Southend-on-Sea borough is road traffic emissions from major roads, notably the A13, A127 and A1159. Southend has one AQMA at the Bell Junction. The AQMA has been extended to include an area where the air quality is within 10% of exceeding the national guidelines. The junction is where A127 and A159 meet.[200,201]

5.48 According to London Southend Airport's Annual Report[202], air quality in the area surrounding the airport is generally good and remains below the 40 µh/m^3 value limit of NO_2. The Government would require further assessment and the implementation of an Air Quality Action Plan if it were to exceed this limit.

5.49 The Airport carries out monthly testing at four sites in close proximity to the residential properties nearest the Airport. In 2018, the highest level of NO_2 recorded was on Rochford Road, at 28.85 µh/m^3. The lowest level of NO_2 recorded was on Anne Boleyn Drive, at 20.00 µh/m^3. Therefore, concentration levels of NO_2 remain below Government limits. The Airport's Annual Report states that the pollutants of greatest concern in the local area are oxides of nitrogen, which come from road traffic.

5.50 The distribution of AQMAs in South Essex is shown in **Figure 5.1**:. The pattern of existing air pollution for NO_2, PM_{10}, and $PM_{2.5}$ is shown in **Figure 5.2**:, **Figure 5.3**:, and **Figure 5.4**: respectively.

Land quality and soils

5.51 The Agricultural Land Classification (ALC) system classifies agricultural land in five categories according to versatility and suitability for growing crops. The main settlements are classified as 'urban'. A number of areas are classified as 'other land primarily in non-agricultural use', including areas of coastal marshland. However, South Essex contains a large amount of productive agricultural land. Large parts of northern Thurrock, Brentwood and Rochford are rated as 'good to moderate' agricultural land (Grade 3). There are areas to the east, principally parts of Rochford and some areas of Southend-on-Sea, which are rated 'very good' or 'excellent' quality (Grades 1 and 2) (See **Figure 5.5**:).

5.52 Soilscapes published by Cranfield University[203] shows what the likely soil conditions are at any point in the landscape by reference to one of 27 different broad types of soil. The main soil types in the area include:

- Loamy and clayey soils of coastal flats with naturally high groundwater along the east coast and along parts of the Thames Estuary. This soil has lime-rich to moderate fertility.
- Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. This occurs throughout many central areas within the region. This soil has moderate fertility.
- Freely draining slightly acid loamy soils located in parts of Thurrock and parts of Southend-on-Sea and Rochford. This soil has low fertility
- Slightly acid loamy and clayey soils with impeded drainage. This soil type is spread in occupies northern areas of Basildon, western areas of Southend-on-Sea, parts of Brentwood and Thurrock. This soil has moderate to high fertility.
- Slowly permeable seasonally wet acid loamy and clayey soils. This soil type is located in Brentwood, around Billericay and Southend-on-Sea. This soil has low fertility.
- Freely draining slightly acid but base-rich soils located in western parts of Thurrock. This soil has high fertility.

5.53 Continued urban expansion of settlements could affect the overall supply of agricultural land in the region. This risk is particularly apparent in areas closer to London, which are forecast to experience significant growth such as Brentwood, parts of Thurrock and Basildon.

5.54 A significant issue with potential to impact soil quality is soil erosion. The sandy soils of the Essex heathlands and hills and ridges are susceptible to erosion. Climate change is likely to increase the risk of soil erosion as soil becomes more susceptible to wind erosion in the predicted hotter and drier periods and water erosion in the wetter, colder periods.[204]

Geology and minerals

5.55 Essex County Council is the minerals and waste planning Authority for the County of Essex, which includes the South Essex sub-region. Thurrock and Southend-on-Sea are unitary

[200] Air Quality, Southend-On-Sea, https://www.southend.gov.uk/info/200370/protecting_our_environment_and_emergencies/755/air_quality/2
[201] Essex Air, Southend-on-Sea [online] Available at: http://www.essexair.org.uk/AQInEssex/LA/Southend.aspx
[202] London Southend Airport (2019) Annual Report 2018-2019: https://d1z15fh6odiy9s.cloudfront.net/files/lsaannualreport2018-2019finalweb2-f8faabf6.pdf.
[203] Cranfield University (2018). Soilscapes. [online] Available at: http://www.landis.org.uk/soilscapes/ [Accessed 28 Nov. 2018].
[204] Natural England (2013). NCA Profile:111 Northern Thames Basin [online] http://publications.naturalengland.org.uk/publication/4721112340496384?category=587130

authorities, which are responsible for their own minerals and waste planning. At present, minerals planning in Thurrock and Southend-on-Sea is guided by relevant policies in their adopted Core Strategies. A Minerals Local Plan for Essex was adopted in 2014, which provides up-to-date planning policy for minerals development in Essex until 2029. Essex holds reserves in a number of key minerals which are extracted economically, notably Aggregates, Silica Sand, Brick Clay, Brickearth, Chalk.[205]

5.56 Approximately 0.6 Mt per annum (22%) of land-won sand and gravel production in Essex is exported to other parts of the country. London is the largest market for land-won sand and gravel produced in Essex. Other markets include Southend-on-Sea and Thurrock.

5.57 Most aggregate produced in Essex is transported within the County by Heavy Goods Vehicles (HGV's) on the road network. Only certain roads are appropriate for HGV traffic and the Highway Authority has defined a main road network where such traffic is acceptable. Rail and water-borne transport are more commonly used to transport bulk minerals over longer distances such as when importing hard rock and exporting sand and gravel in and out of the County.

5.58 There is an extensive road and rail network in Essex, but the rail network is considerably less flexible for practical aggregate movement around the County. The movement of people takes much of the available rail capacity. Compared to neighbouring areas such as London, Thurrock, north Kent, and Suffolk, the County has a limited water-based transport network and loading/unloading facilities.

5.59 Major development within the region may require aggregates for their construction, including the proposed Lower Thames Crossing.

5.60 The main mineral that is safeguarded in South Essex is Brickearth which is mostly found in parts of Rochford[206]

5.61 Previous industrial history has left areas of contaminated land in South Essex.[207] This includes contamination of soils by chemicals or other hazardous substances, migration of contaminants to groundwater and surface waters and the production of hazardous gases from decomposing organic material in landfills etc. The presence of contamination does not necessarily present an unacceptable risk. Risk exists when a source (a contaminant) and a vulnerable receptor (e.g. people, controlled waters or the wider environment) both exist at a site with a pathway linking the two.

Water quality

5.62 The South Essex sub-region overlaps with the Thames (covering the west of the sub-region) and the Anglian River Basin Districts (covering the east of the sub-region) (RBD).

5.63 The water quality of watercourses in the Essex Thames Gateway varies from good to poor. As well as wastewater discharges, runoff from development will need to be managed to ensure that increases in developed land does not lead to an increase in urban pollution and further impacts on water quality.

5.64 The River Basin Districts' Management Plans identify the following key issues in relation to water quality:

- Physical modifications - affecting 44% of water bodies in the Thames RBD and 51% in the Anglian RBD.
- Pollution from waste water - affecting 45% of water bodies in the Thames RBD and 50% in the Anglian RBD.
- Pollution from towns, cities and transport - affecting 17% of water bodies in the Thames RBD and 10% in the Anglian RBD.
- Changes to natural flow and level of water - affecting 12% of water bodies in the Thames RBD and 10% in the Anglian RBD.
- Negative effects of invasive non-native species - affecting 3% of water bodies the Thames RBD and 6% in the Anglian RBD.
- Pollution from rural areas - affecting 27% of water bodies in Thames RBD and 47% in the Anglian RBD.

5.65 Thurrock, Basildon and Castle Point lie within the Essex South Management Catchment. This surface water catchment contains one or more of the following types of water bodies: river, lake, transitional (estuarine) coastal. In terms of water quality, the three types of water bodies in Essex South achieved moderate ecological water quality and good chemical water quality. Two principal reasons were given for not achieving good status, the sectors of agriculture and rural land management and the water industry. [208]

5.66 The east of the sub-region is covered by the Essex Combined Catchment[209], within which are two catchment areas overlapping the South Essex sub-region, notably the Crouch and Roach and Chelmer.

[205] Essex County Council (2014). Essex Minerals Local Plan
[206] Essex County Council (2014). Essex Minerals Local Plan: Policies Map
[207] Essex Contaminated Land Consortium (2014) Land Affected by Contamination: Technical Guidance for Applications & Developers [online] Available at: http://www.basildon.gov.uk/CHttpHandler.ashx?id=694&p=0
[208] Essex South, Environment Agency (2016) http://environment.data.gov.uk/catchment-planning/ManagementCatchment/3084/Summary
[209] Environment Agency (2016). Essex Combined. https://environment.data.gov.uk/catchment-planning/ManagementCatchment/3018

5.67 There are eight main water bodies in the Crouch and Roach catchment[210]. The ecological status of seven of these water bodies was assessed as 'moderate' and one water body was assessed poor. Seven of the water bodies achieved 'good' chemical status whilst one water body was assessed as failing. The principal reason for not achieving good status was related to agricultural and rural management. The main reason for deterioration in water quality was related to urban and transport, and water industry.

5.68 There are 20 main water bodies in the Chelmer catchment.[211] The ecological status of 13 of these water bodies is assessed as moderate for 13, poor for six water bodies and good for one water body. The chemical status is assessed as good for all 20 water bodies. The main reason for not achieving good status was agricultural and rural management. The main reason for deterioration in water quality was related to urban and transport, and water industry.

Water resources

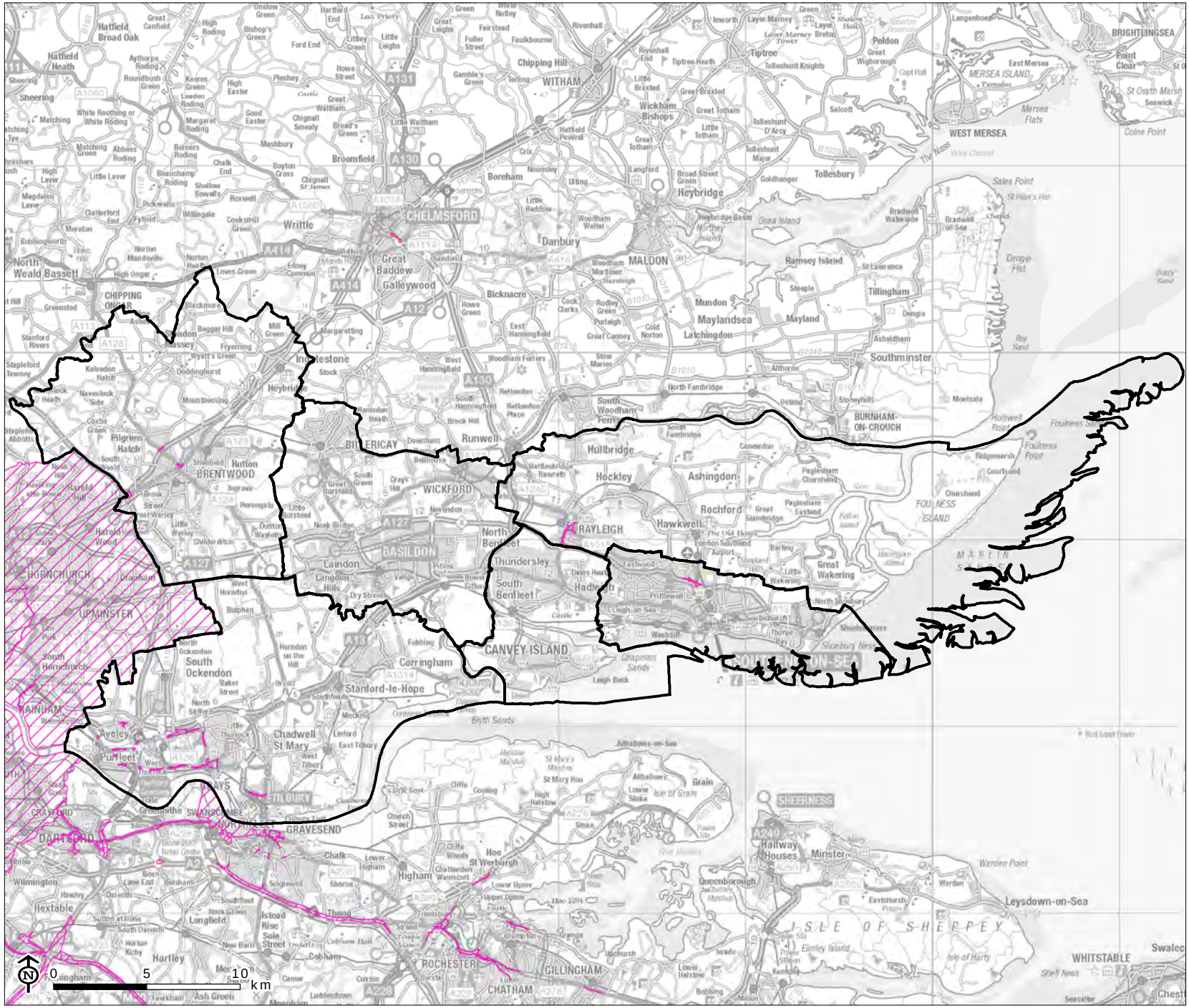
5.69 The sub-region does not have sufficient water resources to supply existing development. As a result, the area is reliant on transfer of raw and treated water to the area from the Thames Region and from Norfolk and Suffolk. Therefore, there is limited water available for further abstraction from surface or groundwater sources and therefore further transfer of water resources will be required to supply water to new development within the Essex Thames Gateway area. Future water demand is expected to be met through the increase in storage at Abberton Reservoir, for which an expansion project was completed in 2015, and the commensurate increase in abstraction and transfer from the Ely-Ouse transfer scheme, which was approved in 2014.

5.70 For the majority of wastewater treatment works within the sub-region there is sufficient treatment capacity and capacity in the network to allow planned development.[212]

[210] Environment Agency (2016).Crouch and Roach Operational Catchment. https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3118
[211] Environment Agency (2016). Chelmer Operational Catchment. https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3077
[212] Scott Wilson (2011) South Essex Outline Water Cycle Study Available at: https://www.basildon.gov.uk/media/4062/Basildon-Borough-Council-Scott-Wilson-South-Essex-WCS-2011/pdf/Basildon_Borough_Council_-_Scott_Wilson_-_South_Essex_WCS_2011.pdf?m=634770102469070000

Table 5.1: Key sustainability issues for South Essex and likely evolution without the JSP

Key sustainability issues for South Essex	Likely evolution without the JSP
There are 28 Air Quality Management Areas in South Essex (the majority within Thurrock), which have been designated because these areas exceed the annual mean Air Quality Strategy objective for NO_2 and $PM_{10,}$ caused primarily by road traffic emissions (IIA objective 10).	How air quality will change in the absence of a JSP is unknown, given that the sub-region accommodates a high volume of through traffic. Recent national policies and the emergence of new technologies are likely to improve air pollution, for example, through cleaner fuels/energy sources. Nonetheless, the JSP provides an opportunity to contribute to improved air quality in the sub-region through: locating development sustainably (with good access to services and sustainable transport modes); support for sustainable travel choices (e.g. requiring sustainable modes to be available on occupation of new homes and workplaces); support for provision of electric vehicle charging infrastructure; a requirement for applications for major development to include an assessment of their air quality impacts as part of their Transport Assessments/Statements; and a requirement for major developments which may impact on areas at risk of exceeding EU limit values to provide for ongoing air quality monitoring that confirms the effectiveness of proposed mitigation of the traffic and air quality impacts of development.
South Essex contains a large amount of productive agricultural land. Additionally, the sandy soils of the County suffer from soil erosion. The risk of soil erosion is expected to increase due to climate change (IIA objective 8).	The JSP provides an opportunity to ensure these natural assets are not lost or compromised, by prioritising brownfield sites and lower quality agricultural land for development and by safeguarding higher quality agricultural land.
Some water bodies in South Essex are failing to meet the Water Framework Directive objective of 'Good Status'. This issue may be exacerbated by population growth (IIA objective 9).	Without the JSP it is possible that un-planned development could be located in areas that will exacerbate existing water quality issues, although existing safeguards, such as the EU Water Framework Directive, would provide some protection. The JSP will provide the opportunity to ensure that development is located and designed to take into account the sensitivity of the water environment and provide an opportunity to plan for adequate wastewater infrastructure.
There is limited water available for further abstraction from surface or groundwater sources and therefore further transfer of water resources will be required to supply water to new development within the Essex Thames Gateway area. This issue may be exacerbated by population growth and development (IIA objective 9).	Without the JSP, it is possible that un-planned development could be located in areas that will intensify the strain on water resources. The JSP will provide the opportunity to ensure that development is located and designed to take into account water resource availability issues and provide an opportunity to encourage better and more sustainable use of water resources.



SA and HRA of the South Essex Joint Strategic Plan

Figure 5.1: Air Quality Management Areas in South Essex

Authority boundaries

Air Quality Management Areas

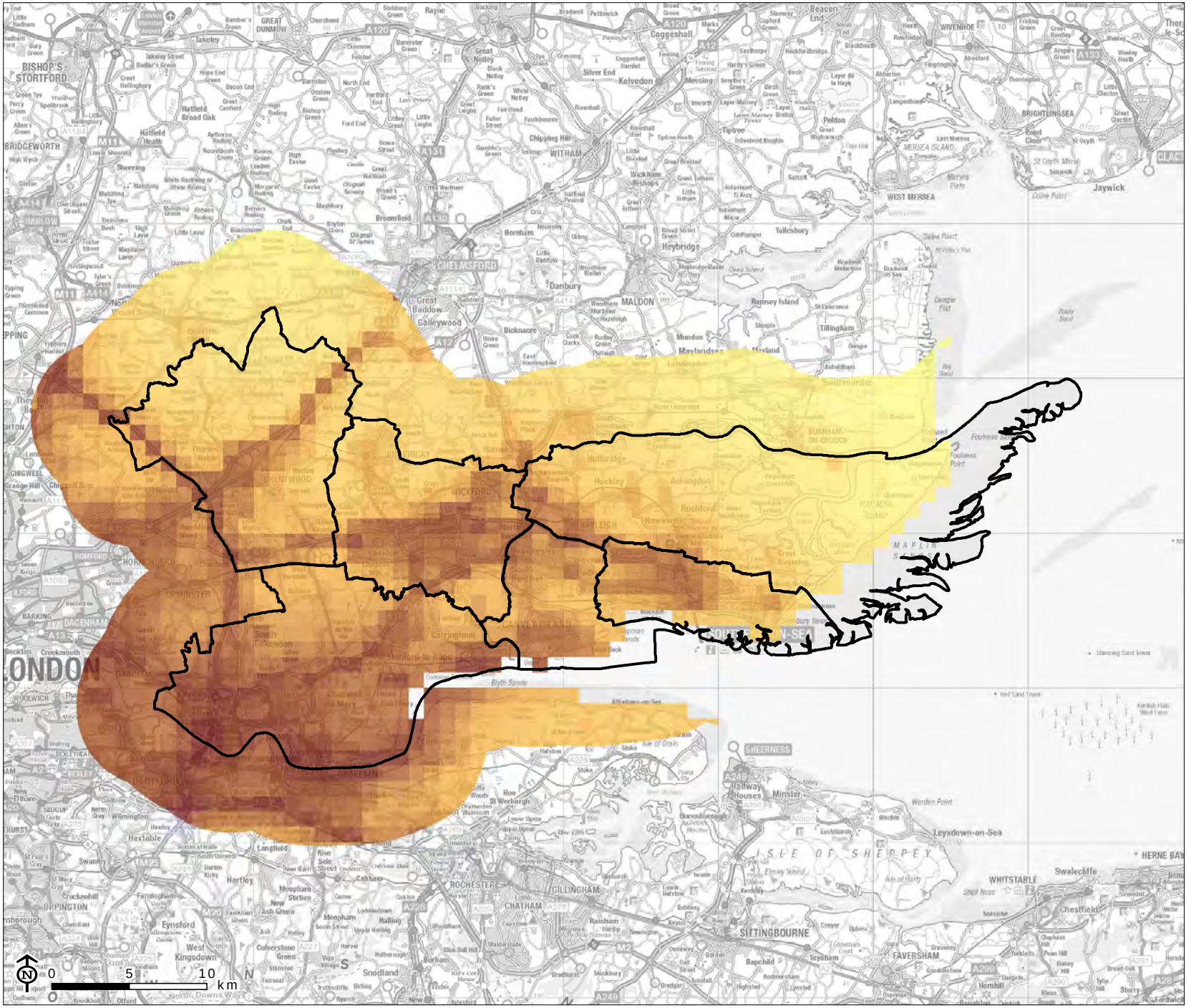
Map Scale @ A4: 1:290,000

LUC

CB:LA EB:Archer_L LUC FIG_5_1_10440_AQMA_A4L 30/01/2019

Source: DEFRA

Figure 5.2: Air Pollution - NO_2 Concentration



*Notes:
European Directive annual mean not to exceed 40 µg/m3. Estimated 2018 background air pollution maps (base year 2017). Total annual mean concentrations based on 1 km x 1 km grid squares are provided.

Map Scale @ A4: 1:350,000

LUC

CB:CB EB:Manson D LUC FIG5_2_10440_NO2_A4L 20/05/2020

Source: DEFRA

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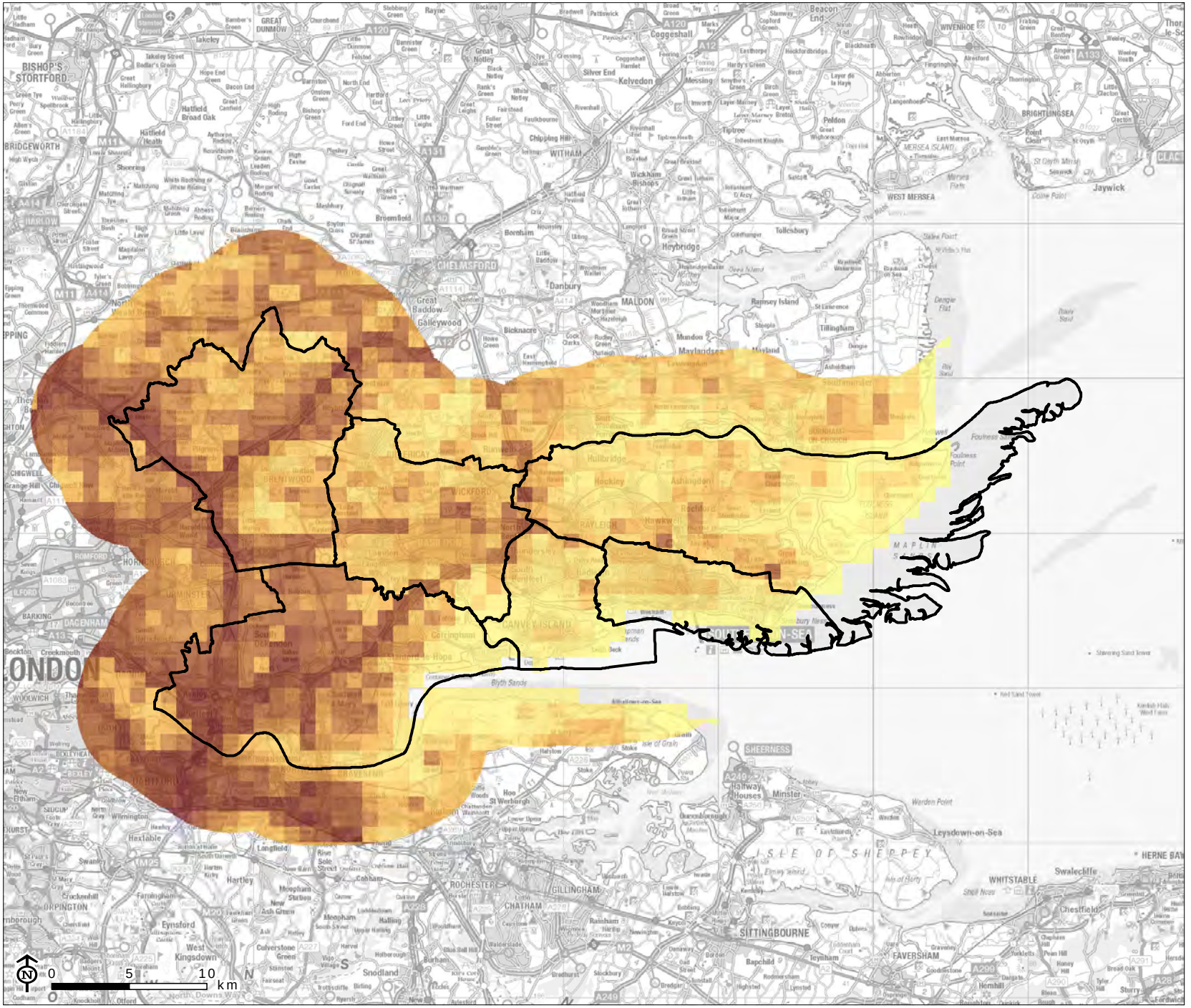
Figure 5.3: Air Pollution - PM_{10} Concentration



*Notes:
PM10 concentrations in gravimetric units. European Directive annual mean not to exceed 40 µg/m3. Estimated 2018 background air pollution maps (base year 2017). Total annual mean concentrations based on 1 km x 1 km grid squares are provided.

Map Scale @ A4: 1:350,000

LUC

CB:CB EB:Manson D LUC FIG5_3_10440_PM10_A4L 20/05/2020

Source: DEFRA

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Figure 5.4: Air Pollution - $PM_{2.5}$ Concentration

Authority boundaries

$PM_{2.5}$ Concentration*

13.7 µg/m3

0 µg/m3

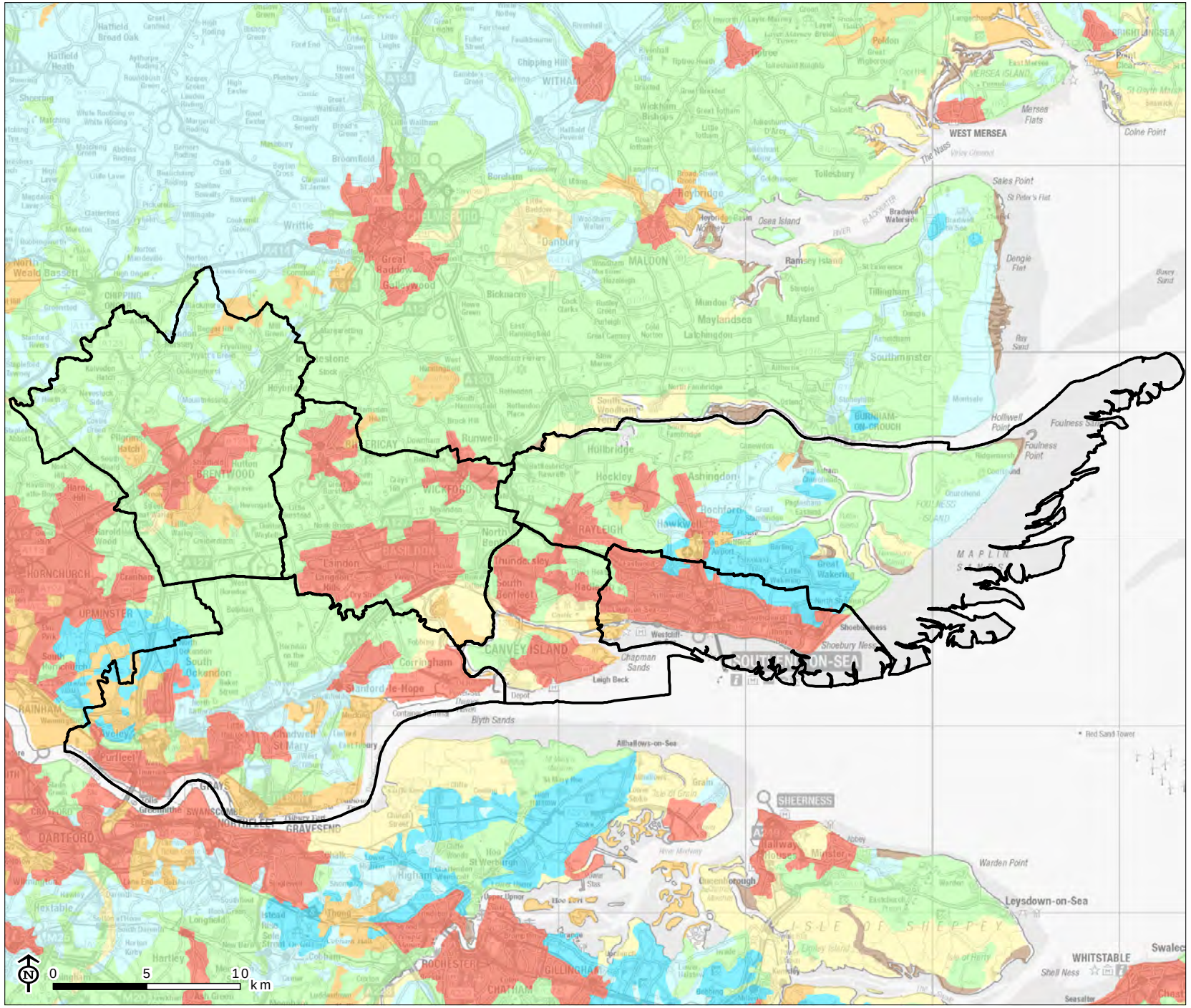
*Notes:
PM2.5 concentrations in gravimetric units. European Directive annual mean not to exceed 25 µg/m3. Estimated 2018 background air pollution maps (base year 2017). Total annual mean concentrations based on 1 km x 1 km grid squares are provided.

Map Scale @ A4: 1:350,000

LUC

CB:CB EB:Manson D LUC FIG5_4_10440_PM25_A4L 20/05/2020

Source: DEFRA



SA and HRA of the South Essex Joint Strategic Plan

Figure 5.5: Agricultural Land Classification in South Essex

Authority boundaries

Agricultural Land Classification

- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Non agricultural
- Urban

Map Scale @ A4: 1:290,000

LUC

CB:LA EB:Manson D LUC FIG_5_5_10440_ALC_A4L 20/05/2020 Source: NE

Chapter 6
Climate change adaptation and mitigation

Policy context

International

6.1 The following list of policies includes a number of EU Directives. Whilst the UK left the EU in January 2020, most EU legislation continues to apply to the UK until the end of the implementation period (31st December 2020). After this time, the majority of EU legislation will be 'saved' in UK law, as set out in sections 3 and 20(1), and Schedule 6, to the European Union (Withdrawal)Act 2018 (c. 16), as amended by regulation 2 of The European Union (Withdrawal) Act 2018 (Exit Day) (Amendment) (No. 2) Regulations 2019 (No. 859) and regulation 2 of The European Union (Withdrawal) Act2018 (Exit Day) (Amendment) (No. 3) Regulations 2019 (No. 1423).

6.2 European Floods Directive (2007): A framework for the assessment and management of flood risk, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage and economic activity.

6.3 European Energy Performance of Buildings Directive (2010): Aims to promote the energy performance of buildings and building units. Requires the adoption of a standard methodology for calculating energy performance and minimum requirements for energy performance.

6.4 United Nations Paris Climate Change Agreement (2015): International agreement to keep global temperature rise this century well below 2 degrees Celsius above pre-industrial levels.

National

6.5 National Planning Policy Framework (NPPF)[213]: Contains the following:

- One of the core planning principles is to “support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion

[213] Department for Communities and Local Government (2019) National Planning Policy Framework [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

of existing buildings; and support renewable and low carbon energy and associated infrastructure".

- Inappropriate development in areas at risk of flooding should be avoided. Where development is necessary, it should be made safe for its lifetime without increasing flood risk elsewhere.
- Local planning Authorities should adopt a proactive approach to mitigate and adapt to climate change, taking full account of flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures.

6.6 National Planning Practice Guidance (PPG)[214]: Supports the content of the NPPF by promoting low carbon and renewable energy generation, including decentralised energy, the energy efficiency of existing and new buildings and sustainable transport.

6.7 Climate Change Act 2008[215]: Sets targets for UK greenhouse gas emission reductions of at least 100% by 2050, against a 1990 baseline (this was previously 80% but was updated to a net zero target in June 2019).

6.8 Flood and Water Management Act (2010)[216]: Sets out measures to ensure that risk from all sources of flooding is managed more effectively. This includes: incorporating greater resilience measures into the design of new buildings; utilising the environment in order to reduce flooding; identifying areas suitable for inundation and water storage to reduce the risk of flooding elsewhere; rolling back development in coastal areas to avoid damage from flooding or coastal erosion; and creating sustainable drainage systems (SuDS).

6.9 The UK Renewable Energy Strategy[217]: Sets out the ways in which we will tackle climate change by reducing our CO_2 emissions through the generation of a renewable electricity, heat and transport technologies.

6.10 The Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK[218]: Aims to realise the wider energy efficiency potential that is available in the UK economy by maximising the potential of existing dwellings by implementing 21st century energy management initiatives on 19th century homes.

6.11 The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting: Making the country resilient to a changing climate[219]**:** Sets out visions for the following sectors:

- People and the Built Environment – "to promote the development of a healthy, equitable and resilient population, well placed to reduce the harmful health impacts of climate change...buildings and places (including built heritage) and the people who live and work in them are resilient and organisations in the built environment sector have an increased capacity to address the risks and make the most of the opportunities of a changing climate."
- Infrastructure – "an infrastructure network that is resilient to today's natural hazards and prepared for the future changing climate."
- Natural Environment – "the natural environment, with diverse and healthy ecosystems, is resilient to climate change, able to accommodate change and valued for the adaptation services it provides."
- Business and Industry – "UK businesses are resilient to extreme weather and prepared for future risks and opportunities from climate change."
- Local Government – "Local Government plays a central role in leading and supporting local places to become more resilient to a range of future risks and to be prepared for the opportunities from a changing climate."

6.12 Understanding the risks, empowering communities, building resilience: The national flood and coastal erosion risk management strategy for England[220]: This Strategy sets out the national framework for managing the risk of flooding and coastal erosion. It sets out the roles for risk management authorities and communities to help them understand their responsibilities. The strategic aims and objectives of the Strategy are to:

- Manage the risk to people and their property.

[214] Department for Communities and Local Government (2016) National Planning Practice Guidance [online] Available at: https://www.gov.uk/Government/collections/planning-practice-guidance
[215] HM Government (2008) Climate Change Act 2008 [online] Available at: https://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf
[216] HM Government (2010) Flood and Water Management Act 2010 [online] Available at: http://www.legislation.gov.uk/ukpga/2010/29/pdfs/ukpga_20100029_en.pdf
[217] HM Government (2009) The UK Renewable Energy Strategy [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/228866/7686.pdf
[218] Department of Energy & Climate Change (2012) The Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/65602/6927-energy-efficiency-strategy--the-energy-efficiency.pdf
[219] HM Government (2018) The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting: Making the country resilient to a changing climate [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/727252/national-adaptation-programme-2018.pdf
[220] HM Government (2011) Understanding the risks, empowering communities, building resilience: The national flood and coastal erosion risk management strategy for England [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/228898/9780108510366.pdf

- Facilitate decision-making and action at the appropriate level – individual, community or Local Authority, river catchment, coastal cell or national.
- Achieve environmental, social and economic benefits, consistent with the principles of sustainable development.

6.13 A Green Future: Our 25 Year Plan to Improve the Environment[221]: Sets out goals for improving the environment within the next 25 years. It details how the Government will work with communities and businesses to leave the environment in a better state than it is presently. Identifies six key areas around which action will be focused. Those of relevance to this chapter are: using and managing land sustainably; and protecting and improving our global environment. Actions that will be taken as part of these two key areas are as follows:

- Using and managing land sustainably:
  - Take action to reduce the risk of harm from flooding and coastal erosion including greater use of natural flood management solutions.
- Protecting and improving our global environment:
  - Provide international leadership and lead by example in tackling climate change and protecting and improving international biodiversity.

Sub-national

6.14 Thames Estuary 2100 (2012)[222]**:** the document sets out the Environment Agency's recommendations for flood risk management for London and the Thames Estuary through to the end of the century and beyond. The Plan sets out the future shape of flood risk management, strategic action that is needed and options to achieve this, local actions that are needed, and how the impact of rising sea levels needs to be addressed. Action Zones 5, 6, 7and 8 covers the sub-region. Actions have been identified which include hard and soft measures including a floodplain management programme, partnership arrangements to ensure that new development is safe, review and maintain future partnership arrangements and principles and management of defences.

6.15 Essex Transport Strategy (2011)[223]: The Essex Transport Strategy outlines the County Council's priorities and strategic objectives for improving the transport network across Essex, including by encouraging a modal shift towards public transport, walking and cycling over single occupancy car journeys. The Plan supports the use of cleaner, lower carbon transport technologies, and car share schemes.

6.16 Note that whilst Thurrock and Southend-on-Sea are included in this document, they also both have their own, more up to date transport plans/strategies (see below).

6.17 Thurrock Transport Strategy 2013-2026[224]: The strategy sets out the aims, objectives and policies for delivering transport improvements in Thurrock, including (but not limited to) to respond to large scale growth at Lakeside, Tilbury Port and London Gateway. A key aim of the strategy is to ensure that this and future growth is sustainable. This strategy also sets out the long-term approach to walking and cycling in the borough.

6.18 Southend's Local Transport Plan 3 2012-2026[225]: The plan sets out the Council' priorities for the transport network, focusing on creating a high quality accessible and free-flowing transport system that supports sustainable economic growth and regeneration.

6.19 Essex Local Flood Risk Management Strategy (2018)[226]: The Essex Flood Risk Management Strategy (LFRMS) has been produced by Essex County Council as Lead Local Flood Authority (LLFA). The Flood Water Management Act places a legal duty on each LLFA to produce a LRMS and this document creates a framework around which flood risk management will be undertaken by the LLFA. As unitary authorities, Thurrock and Southend-on-Sea have their own LFRMS' (see below).

6.20 Thurrock Local Flood Risk Management Strategy (2015)[227]: This strategy sets out how Thurrock Council, alongside other Risk Management Authorities (RMAs), are responding to identified flood risk in Thurrock. Among other things, the strategy specifies the flood and coastal erosion risk management functions that may be exercised by RMAs, objectives and measures for managing local flood risk and implementation details for these.

[221] HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/673203/25-year-environment-plan.pdf
[222] Environment Agency (2012) Thames Estuary 2100 Plan Managing flood risk through London and the Thames Estuary [online] available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/322061/LIT7540_43858f.pdf
[223] Essex County Council (2011) Essex Transport Strategy: the Local Transport Plan for Essex [online] Available at: https://www.essexhighways.org/uploads/docs/essex_ltp.pdf
[224] Thurrock Council (date not available) Thurrock Transport Strategy 2013-2026 [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/strategy_transport_2013.pdf
[225] Southend-on-Sea Borough Council (2015) Southend Local Transport Plan 3 Strategy Document 2011-2026 [online] Available at: https://www.southend.gov.uk/downloads/file/3491/local_transport_plan_3_-_strategy_document_2012-2026_-_revised_january_2015
[226] Essex County Council (2018) Local Flood Risk Management Strategy [online] Available at: https://flood.essex.gov.uk/our-strategies-and-responsibilities/our-local-flood-risk-management-strategy/
[227]Thurrock Council (2015) Thurrock Local Flood Risk Management Strategy [online] Available at: https://democracy.thurrock.gov.uk/documents/s6554/Appendix%201%20-%20Thurrock%20Local%20Flood%20Risk%20Management%20Strategy.pdf

6.21 Southend-on-Sea Local Flood Risk Management Strategy (2015)[228]: The LFRMS outlines the priorities for local flood risk management in the borough and provides a delivery plan to manage the risk until 2021. The objectives for management of local flood risk include improved understanding of flood risk, including likely effects of climate change, encouraging development to provide betterment to flood risk, and pursuing flood risk management measures that provide multiple benefits.

6.22 South Essex Surface Water Management Plan (2012)[229]: The Surface Water Management Plan identifies and assesses surface water flood risk across South Essex. It recognises the importance of considering the potential impacts on flood risk that will arise from climate change.

6.23 Surface Water Management Plan (2015)[230,231]: The Surface Water Management Plan for each of the Local Authorities identifies and assesses surface water flood risk across each respective Authority, including the potential impacts arising from climate change.

6.24 Green Essex Strategy (2019)[232]: This Strategy seeks to enhance, protect and create an inclusive and integrated network of high-quality green infrastructure in Greater Essex. The Strategy promotes the use of the green infrastructure network for sustainable modes of transport such as public transport, walking and cycling. Note that a Green and Blue Infrastructure Strategy has been commissioned for South Essex. Brentwood also has a Green Infrastructure Strategy[233] and Thurrock has an emerging Green and Blue Infrastructure Strategy.

6.25 South Essex Strategic Flood Risk Assessment (2018)[234]: The South Essex Strategic Flood Risk Assessment (SFRA) outlines how flood risk should be managed, taking climate change into account. It outlines several flood risk objectives that should be considered in development management policies, which can be broadly categorised into the following categories:

- Seeking flood risk reduction through spatial planning and site design.
- Reducing surface water runoff from new developments.
- Enhancing and restoring the river corridor.
- Protecting and promoting areas for future flood alleviation schemes.
- Improving flood awareness and emergency planning.

6.26 Thurrock and Southend-on-Sea both have their own SFRAs (see below).

6.27 Thurrock Borough Council Level 1 Strategic Flood Risk Assessment (2018)[235]: The SFRA provides an overview of flood risk from all sources across Thurrock. It identified the tidal and fluvial flood plains associated with the River Thames, main rivers and some ordinary watercourses. A revised Level 2 SFRA will be produced in the near future.

6.28 Southend-on-Sea Strategic Flood Risk Assessment (2010)[236]: The Southend-on-Sea SFRA includes both a level 1 and level 2 assessment, although these are dated (from 2010). Both looks to establish flood risk across the area, although the level 2 SFRA includes sites where the Exception Test is required. The level 1 SFRA confirmed the main sources of flooding are tidal flooding from the Thames Estuary and fluvial flooding from the Prittle Brook, Eastwood Brook and Willingale watercourse. **Local Energy Strategy** (2018)[237]: This Strategy covers South-east England, including Essex. The strategy seeks to maximise decarbonisation efforts by making targeted interventions to reduce emissions in the electricity, heat and transport sectors. It also seeks to foster 'clean growth' by supporting the use of low carbon technologies. The Strategy identifies 5 key themes:

- Low carbon heating.
- Energy saving and efficiency.
- Renewable generation.
- Smart energy system.
- Transport revolution.

[228] AECOM (2015) Southend-on-Sea Local Flood Risk Management Strategy
[229] Scott Wilson (2012) South Essex Surface Water Management Plan [online] Available at: https://www.basildon.gov.uk/media/5316/South-Essex-Surface-Water-Management-Plan-April-2012/pdf/URS_Scott_Wilson_-_South_Essex_Surface_Water_Management_Plan_-_April_2012.pdf?m=635255559414000000
[230] AECOM (2015) Southend-on-Sea Surface Water Management Plan [online] Available at: https://www.southend.gov.uk/downloads/file/3770/sbc_surface_water_management_plan_-_november_2015
[231] JBA Consulting (2015) Surface Water Management Plan for Brentwood [online] Available at: https://www.brentwood.gov.uk/pdf/29052015103139u.pdf
[232] Essex County Council (2019) Green Essex Strategy [online] Available at: https://consultations.essex.gov.uk/rci/green-essex-strategy/supporting_documents/Green_Essex_Strategy_30042019%201.pdf
[233] Groundwork (2015) Brentwood Borough Council Green Infrastructure Strategy [online] Available: http://www.brentwood.gov.uk/pdf/29012016122803u.pdf
[234] AECOM (2018) South Essex Level 1 Strategic Flood Risk Assessment [online] Available at: https://localplan.southend.gov.uk/new-evidence
[235] AECOM (2018) Thurrock Borough Council Level 1 Strategic Flood Risk Assessment [online] Available at: https://regs.thurrock.gov.uk/online-applications-skin/thurrock-strategic/sfra_201806/lptech-thurrock-sfra1-201806-v01.pdf
[236] Scott Wilson (2010) Southend-on-Sea Borough Council Strategic Flood Risk Assessment [online] Available at: https://www.southend.gov.uk/downloads/download/303/concert_series
[237] Energy South2East (2018) Local Energy Strategy [online] Available at: https://www.southeastlep.com/app/uploads/2019/03/Local-Energy-Strategy-FINAL.pdf

6.29 Sustainable Modes of Travel Strategy (2019)[238]: The Sustainable Modes of Travel Strategy aims to reduce the number of private vehicles using the highway network and increase the use of more active and sustainable modes available to businesses, residents and schools within Essex. A key objective is to manage congestion during peak times and improve the environment by reducing the need to travel by car and potentially reducing CO2 and other emissions.

Current baseline

6.30 Of the six local Authorities within the sub-region, to date Southend-on-Sea is the only one that has declared a climate emergency, although Essex County Council has also declared a climate emergency. In July 2019, the Council agreed to address a wide range of environmental issues including scientific agreement of the emerging climate emergency. The Council commits to six actions: ensuring action is taken to achieve net-zero carbon by 2030, ensuring climate action is embedded within all leadership teams, working with partners across the Borough, reporting on the level of investment in the fossil fuel industry alongside sustainable and renewable energy schemes that are part of the Council's pension plan, ensuring that all reports in preparation from 2020/2021 budget cycle will take into account the climate emergency and considering other actions that could be implemented, such as renewable energy generation and storage, increasing the efficiency of buildings etc.[239]

6.31 Changes to the climate will bring new challenges to the sub-region's built and natural environments. Hotter, drier summers may have adverse health impacts and may exacerbate the adverse environmental effects of air and water pollution. The Met Office has released the UK Climate Projections 2018 study (UKCP18), which provide up to date information on how the climate of the UK is expected to change in the period up to the end of the 21st Century. In the highest emissions scenario, which may result based on current emissions reduction trends, summer temperatures in the UK could be 5.4°C warmer by 2070 than the average summer between 1981 and 2000. Average summer rainfall would fall by 47% in this scenario. Winters could be up to 4.2C warmer, with up to 35% more rainfall by 2070.

6.32 The greatest warming in the UK will be in the South East where summer temperatures may increase another 3 to 4°C relative to present day[240].

6.33 Essex is the driest county in England. As a result, the South Essex Water Cycle Study indicates that new development in the South Essex area is likely to impact on water quality. This will require mitigation within new development. The study found that it would be preferable to ensure that water efficiency is achieved in new developments, and that Sustainable Drainage Systems (SUDS) are secured as part of new development proposals in order to minimise impacts on water quality.[241]

6.34 Rising sea levels are also a concern for South Essex, given that a large part of the sub-region is either coastal or adjacent to the tidal Thames. Sea levels, and associated flooding, is expected to increase with climate change.

6.35 A changing climate may place pressure on some native species and create conditions suitable for new species, including invasive non-native species.

Water and flooding

6.36 The main rivers in South Essex are the River Crouch, River Roach, Prittle Brook, Eastwood Brook, The Thames Estuary and Willingale Brook.

6.37 It should be noted that that the South Essex Level 1 strategic flood risk assessment 2018 was prepared for the councils of Basildon, Castle Point, Rochford and Southend.[242] Flooding has a number of effects, including economic effects as a result of damage to property and infrastructure, effects on people, including health and wellbeing effects and damage to homes, and effects on nature, due to flooded habitats. Some parts of Essex include habitats that are adapted to regular flooding, such as mudflats and grazing marsh, whereas other habitats would be damaged by flooding.

6.38 There are Critical Drainage Areas (CDAs) in all South Essex Authorities.[243,244,245] These are areas at greatest risk of flooding.

6.39 A number of sources of flooding pose a risk to Basildon Borough. Fluvial flood risk from the River Crouch and its

[238] Essex County Council (2019) Sustainable Modes of Travel Strategy(Covering Workplaces, Residential Developments and Schools including Further Education Establishments) [online] Available at: https://assets.ctfassets.net/knkzaf64jx5x/5T3h7kDuqTwZg7tzYY21E0/d98a73ccd9fa2e9e5cb4451ecd74cde5/sustainable-modes-travel-strategy-essex-county-council.pdf
[239] Southend-On-Sea Borough Council (2019) Meeting of the Council [online] Available at: https://democracy.southend.gov.uk/documents/g3488/Printed%20minutes%2018th-Jul-2019%2018.30%20The%20Council.pdf?T=1
[240] Met Office (2018) UKCP18 Factsheet: Derived projections [Online] Available at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-fact-sheet-derived-projections.pdf
[241] URS (2011) South Essex Outline Water Cycle Study: Technical Report, Available at: https://basildon.gov.uk/media/9299/EV138-Basildon-Borough-Council-Scott-Wilson-South-Essex-Water-Cycle-Study-2011/pdf/EV138_Basildon_Borough_Council_-_Scott_Wilson_-_South_Essex_Water_Cycle_Study_-_2011.pdf?m=636899904167430000
[242] AECOM (2018) South Essex Level 1 Strategic Flood Risk Assessment [online] Available at: https://localplan.southend.gov.uk/new-evidence
[243] AECOM (2018) South Essex Level 1 Strategic Flood Risk Assessment [online] Available at: https://localplan.southend.gov.uk/new-evidence
[244] Thurrock Council (2014) Surface Water Management Plan
[245] AECOM (2015) Southend-on-Sea Surface Water Management Plan

tributaries poses a significant risk to the residential areas of Wickford and Basildon. Fluvial flood risk posed by the Mountnessing Brook and Haveringsgrove Brook pose a risk to the west of Billericay. The tidal estuaries of Vange Creek and East Haven Creek and Timberman's Creek are located to the south eastern part of the Borough and pose a residual flood risk. In addition, the majority of Basildon is within Flood Zone 1, with about 2% of the Borough in Flood Zone 2 and 9% defined as Flood Zone 3. The Environment Agency AIMS data shows that that the Basildon Borough is protected by high ground along the edge of the River Crough and its tributaries. There are three Environment Agency Flood Warning Areas in Basildon:

- River Crouch from Noak Bridge to Run well, including Wickford (tidal flooding);
- Canvey Island North (within the Thames Estuary); and
- Shellhaven to Grays including Tilbury (fluvial flooding from the River Crouch).

6.40 In Castle Point, tidal and fluvial flooding poses the most significant flood risk, in particular Canvey Island and Hadleigh Marshes. The topography and location of watercourses on Canvey Island means that the entire island is at risk from tidal and fluvial flooding. Most of Castle Point is within Flood Zone 1 (56%); however, 39% is located within Flood Zone 3 and 5% falls within Flood Zone 2. Surface water flooding within Castle Point is particularly driven by local topography which predominantly slopes towards watercourse channels and their tributaries. It is noted that there is potential flood risk to the C2C rail line in the longer term.[246]

6.41 Tidal and fluvial flooding pose the most significant flood risk to Rochford. The River Roach and River Crouch are tidally influenced by the North Sea. Fluvial flooding primarily affects Rochford town, where the River Roach, Nobles Green Ditch and Eastwood Brook meet. About half of the Rochford District is within Flood Zone 1, with 2% of the district in Flood Zone 2 and 44% defined as Flood Zone 3.

6.42 For Southend, the coastline of the Borough is at risk from tidal flooding from the Thames Estuary and the North Sea. Although Southend is protected by the presence of a sea wall flood defence, it is still at residual risk of flooding if the defences were to fail or to be overtopped. Three main watercourses pose a fluvial flood risk to the Borough, these are: Willingale Brook, Prittle Brook and Eastwood Brook. The majority of Southend is defined as Flood Zone 1 (89%), with 3% defined as Flood Zone 2 and 8% as Flood Zone 3.[247]

6.43 Thurrock is affected by flooding from several local sources: surface water, ordinary watercourses, sewer and groundwater. In addition to local sources, Thurrock is also at flood risk from Main Rivers, Mar Dyke and Stanford Brook, and the sea. Surface water flood risk is widespread across Thurrock, with the highest risk located in the more urbanised areas and in areas where water ponds behind railway embankments.[248]

6.44 Fluvial flood risk within Brentwood is of limited spatial extent and most of the area that is covered by Flood Zone 2 and 3 is largely rural. A few urban areas are at risk including Heybridge, Ingatestone and areas to the east and west of Brentwood town.[249]

Carbon emissions

6.45 Data on carbon dioxide emissions, along with a number of other gases, is collected nationally in order to monitor progress towards UK targets (set under the Climate Change Act 2008) to reduce carbon dioxide emissions (CO_2) by 34% by 2020 and be net zero by 2050. The data is broken down by Local area and is only available on a two-year time lag; as of 2019, the latest data therefore represents the situation from 2017.

6.46 As can be seen in **Table 6.1:** the latest CO_2 emissions figures show that each Local Authority within South Essex's per capita emissions have reduced from 2012 to 2017.

The main sources of emissions emanate from the transport and domestic sectors of the sub-region depending on the Local Authority. For Basildon, Brentwood and Thurrock the transport sector emits the most CO_2 emissions. However, within Castle Point, Rochford and Southend-on-Sea the domestic sector emits the highest amount of CO_2 emissions.[250]

[246] Client communication
[247] AECOM (2018) South Essex Level 1 Strategic Flood Risk Assessment [online] Available at: https://localplan.southend.gov.uk/new-evidence
[248] Thurrock Local Flood Risk Management Strategy, Final, December 2015 [online] Available at: https://www.thurrock.gov.uk/sites/default/files/assets/documents/flood-risk-management-201512-v01.pdf
[249] Brentwood Level 1 Strategic Flood Risk Assessment, Final Report, January 2011 [online] Available at: http://www.brentwood.gov.uk/pdf/21032011162645u.pdf
[250] UK local authority and regional carbon dioxide emissions national statistics: 2005-2016

Table 6.1: CO_2 emissions per capita in South Essex 2012-2017 (t)

	2012	2013	2014	2015	2016	2017
Basildon	5.7	5.3	4.7	4.5	4.3	4.2
Brentwood	7.4	7.2	6.6	6.5	6.4	6.2
Castle Point	4.1	4.0	3.5	3.4	3.3	3.2
Rochford	4.7	4.5	4.0	3.8	3.6	3.5
Southend	4.4	4.2	3.6	3.5	3.3	3.1
Thurrock	8.2	7.4	6.5	6.2	6.0	5.7
England	6.8	6.6	5.9	5.7	5.4	5.1

6.47 The table below shows the total emissions, which includes emissions from industry and commercial, domestic and transport. Since 2012 there has been a reduction across all sectors throughout the sub-region.

Table 6.2: Total CO_2 emissions 2012-2016 (kt)[251]

	2012	2013	2014	2015	2016	2017
Basildon	1,001.9	954.4	859.0	828.3	798.7	769.7
Brentwood	502.5	491.6	453.7	439.9	428.3	415.8
Castle Point	364.1	353.8	314.7	306.6	295.2	286.5
Rochford	395.5	381.8	341.1	327.3	312.1	302.2
Southend	755.5	728.0	628.7	609.1	576.4	553.0
Thurrock	1,210.4	1,089.8	964.0	925.0	891.3	864.0
England	366,120.8	357,006.6	321,882.0	313,743.4	295,686.2	284,921.0

6.48 The capacity for renewable energy has been calculated by the number of installations at Local Authority Level as at the end of 2018. With regard to the six local authorities within the sub-region a total of 6,701 renewable energy installations have been completed with the vast majority being photovoltaics. It is noted that the grid has some areas of vulnerability, including for adding new generators to the system.[252] Out of the six authorities, Brentwood has completed the least with 631 installations and Basildon has completed the most with 1,629 installations.[253]

6.49 According to Fuel Poverty Statistics, 9.8% of the population of the region of the East of England is fuel poor compared to 10.9% for England.[254]

6.50 In the context of planned growth in the sub-region additional low carbon and appropriate renewable energy infrastructure, as well as an increase in uptake of energy efficiency initiatives will be needed. Green Infrastructure should also be implemented throughout the sub-region as it is multifunctional. The Green Essex Strategy advocates for high quality green space and green infrastructure in Essex. By investing in the green infrastructure in Essex it can deliver a broad range of benefits in terms of environmental (i.e. combatting climate change), social (i.e. enable recreation and improved health and wellbeing) and economic (i.e. attract

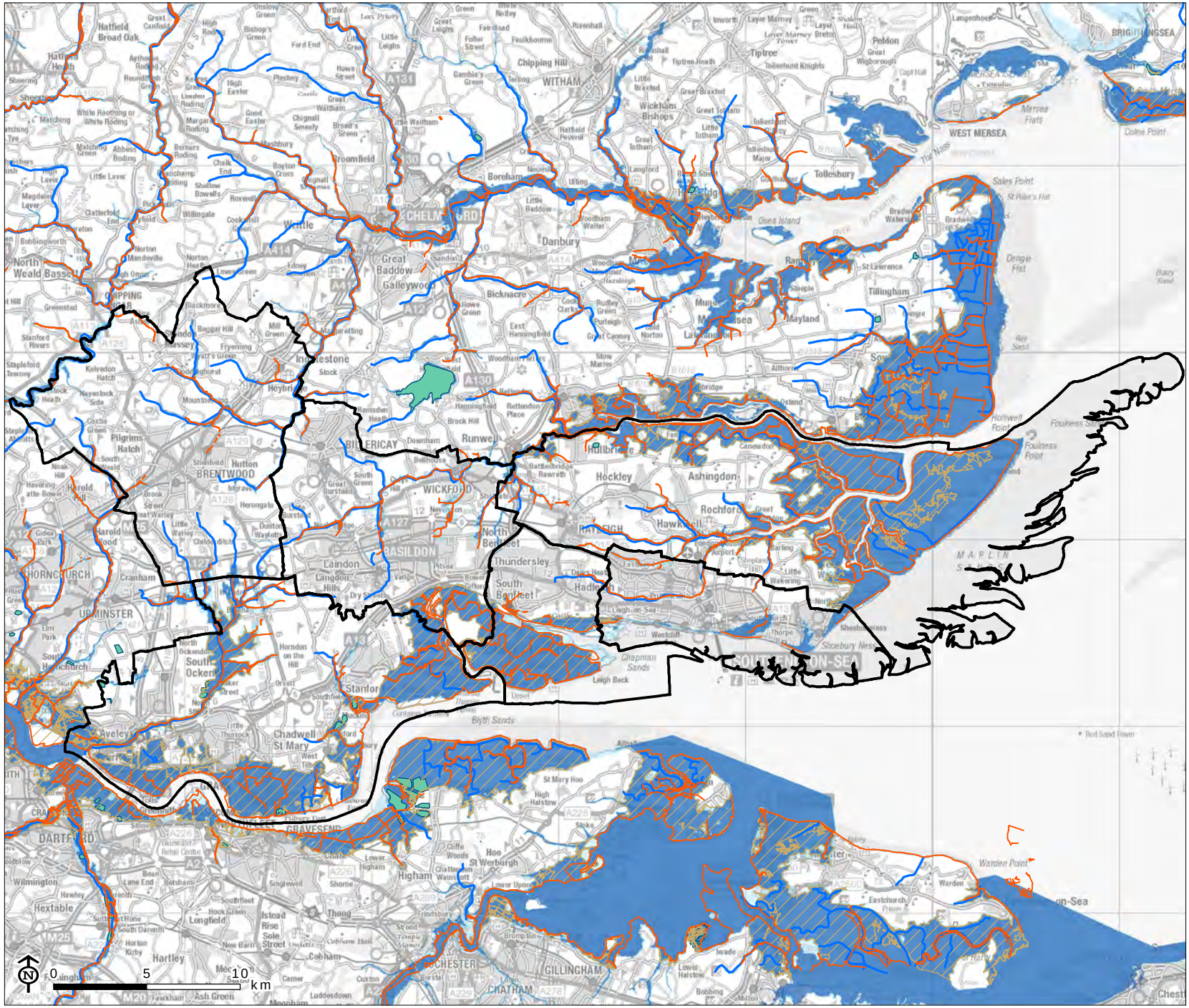
[251] UK local and regional carbon dioxide emissions national statistics 2005-2017
[252] Client communication
[253] Department for Business, Energy and Industrial Strategy (2018) Renewable Electricity by Local Authority
[254] Department for Business, Energy and Industrial Strategy (2019) Fuel Poverty Statistics: Detailed Tables, 2017 data

business and residents) outcomes.[255] A Green and Blue Infrastructure Strategy for South Essex is currently being prepared.

Table 6.3: Key sustainability issues for South Essex and likely evolution without the JSP

Key sustainability issues for South Essex	Likely evolution without the JSP
Flood risk to South Essex is dominated by tidal and fluvial flooding. The expected magnitude and probability of significant fluvial, tidal ground and surface water flooding is increasing in the sub-region due to climate change (IIA objective 11).	The JSP is not expected to reduce the likelihood of tidal or fluvial flooding. However, it does present the opportunity, alongside national measures, to avoid increasing flood risk and to mitigate the effects of potential future flooding. The JSP can help to locate development in sustainable locations that would not be significantly impacted by flooding and ensure it is designed to be flood resilient where appropriate.
The sub-region has an obligation to contribute to the national carbon reduction targets through the generation of low carbon and renewable energy, including decentralised energy networks, and encouraging energy efficiency measures in new and existing buildings (IIA objective 6). JSP	The sub-region will continue to have an obligation to reduce carbon emissions with or without the JSP. The JSP provides a way to contribute to these targets being met, by promoting sustainable development, for example by reducing the need to travel, and through encouraging low-carbon design, promotion of renewable energy and sustainable transport.
The effects of climate change in the sub-region are likely to result in extreme weather events (e.g. intense rainfall, prolonged high temperatures and drought) becoming more common and more intense.	Climate change will adversely affect the sub-region with or without the JSP. However, the JSP provides a way to adapt and mitigate to the climatic factors by promoting sustainable development, for example by reducing the need to travel, use of green infrastructure and through encouraging low-carbon design, promotion of renewable energy and sustainable transport.

[255] Essex County Council (2019) Green Essex Strategy [online] Available at: https://consultations.essex.gov.uk/rci/green-essex-strategy/supporting_documents/Green_Essex_Strategy_30042019%201.pdf



SA and HRA of the South Essex Joint Strategic Plan

Figure 6.1: Flood Risk in South Essex

- Authority boundaries
- Rivers
- Lakes
- Flood zone 3
- Flood zone 2
- Flood defences
- Areas benefitting from flood defences

Map Scale @ A4: 1:290,000

LUC

CB:LA EB:Archer_L LUC FIG_6_1_10440_Flood_risk_A4L 30/01/2019

Source: EA

Chapter 7
Biodiversity

Policy context

International

7.1 The following list of policies includes EU Directives. Whilst the UK left the EU in January 2020, most EU legislation continues to apply to the UK until the end of the implementation period (31st December 2020). After this time, the majority of EU legislation will be 'saved' in UK law, as set out in sections 3 and 20(1), and Schedule 6, to the European Union (Withdrawal)Act 2018 (c. 16), as amended by regulation 2 of The European Union (Withdrawal) Act 2018 (Exit Day) (Amendment) (No. 2) Regulations 2019 (No. 859) and regulation 2 of The European Union (Withdrawal) Act2018 (Exit Day) (Amendment) (No. 3) Regulations 2019 (No. 1423).

7.2 International Convention on Wetlands (Ramsar Convention) (1976): International agreement with the aim of conserving and managing the use of wetlands and their resources.

7.3 European Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) (1979): Aims to ensure conservation and protection of wild plant and animal species and their natural habitats, to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species).

7.4 International Convention on Biological Diversity (1992): International commitment to biodiversity conservation through national strategies and action plans.

7.5 European Habitats Directive (1992): Together with the Birds Directive, the Habitats Directive sets the standard for nature conservation across the EU and enables all 27 Member States to work together within the same strong legislative framework in order to protect the most vulnerable species and habitat types across their entire natural range within the EU. It also established the Natura 2000 network.

7.6 European Birds Directive (2009): Requires the maintenance of all species of naturally occurring birds in the wild state in the European territory at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements.

7.7 United Nations Declaration on Forests (New York Declaration) (2014): international commitment to cut natural forest loss by 2020 and end loss by 2030.

National

7.8 National Planning Policy Framework (NPPF)[256]: Encourages plans to "identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation". Plans should also promote conservation, restoration and enhancement of priority habitats and species, ecological networks and measurable net gains for biodiversity.

7.9 The framework states that a strategic approach to maintaining and enhancing networks of habitats and green infrastructure is also to be supported through planning policies and that there should also be support for the enhancement of natural capital at a catchment or landscape scale across Local Authority boundaries.

7.10 National Planning Practice Guidance (PPG)[257]: Supports the NPPF by requiring Local Plans to include strategic policies that conserve and enhance the natural environment through sustainable development.

7.11 Natural Environment and Rural Communities Act 2006[258]: Places a duty on public bodies to conserve biodiversity.

7.12 Biodiversity 2020: A strategy for England's wildlife and ecosystem services[259]: Guides conservation efforts in England up to 2020 by requiring a national halt to biodiversity loss, supporting healthy ecosystems and establishing ecological networks. The Strategy includes 22 priorities which include actions for the following sectors: Agriculture, Forestry, Planning & Development, Water Management, Marine Management, Fisheries, Air Pollution and Invasive Non-Native Species.

7.13 Biodiversity offsetting in England Green Paper[260]: Biodiversity offsets are conservation activities designed to compensate for residual losses. The Green Paper sets out a framework for offsetting.

7.14 A Green Future: Our 25 Year Plan to Improve the Environment[261]: Sets out goals for improving the environment within the next 25 years. It details how the Government will work with communities and businesses to leave the environment in a better state than it is presently. Identifies six key areas around which action will be focused. Those of relevance to this chapter are: recovering nature and enhancing the beauty of landscapes; securing clean, productive and biologically diverse seas and oceans; and protecting and improving our global environment. Actions that will be taken as part of these three key areas are as follows:

- Recovering nature and enhancing the beauty of landscapes:
  - Develop a Nature Recovery Network to protect and restore wildlife and provide opportunities to re-introduce species that have been lost from the countryside.
- Securing clean, healthy, productive and biologically diverse seas and oceans:
  - Achieve a good environmental status of the UK's seas while allowing marine industries to thrive and complete our economically coherent network of well-managed marine protected areas.
- Protecting and improving our global environment:
  - Provide international leadership and lead by example in tackling climate change and protecting and improving international biodiversity.
  - Support and protect international forests and sustainable agriculture.

Sub-national

7.15 Essex Biodiversity Action Plan (1999)[262]: Although now rather dated, the document provides an evidence base and framework for the protection and conservation of threatened species and habitats across Essex. The BAP includes 10 Habitat Plans, and 25 Species Plans.

[256] Department for Communities and Local Government (2019) National Planning Policy Framework [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf
[257] Department for Communities and Local Government (2016) National Planning Practice Guidance [online] Available at: https://www.gov.uk/Government/collections/planning-practice-guidance
[258] HM Government (2006) Natural Environment and Rural Communities Act 2006 [online] Available at: http://www.legislation.gov.uk/ukpga/2006/16/pdfs/ukpga_20060016_en.pdf
[259] Department for Environment, Food and Rural Affairs (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf
[260] Department for Environment, Food and Rural Affairs (2013) Biodiversity offsetting in England Green Paper [online] Available at: https://consult.defra.gov.uk/biodiversity/biodiversity_offsetting/supporting_documents/20130903Biodiversity%20offsetting%20green%20paper.pdf
[261] HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/673203/25-year-environment-plan.pdf
[262] Essex Biodiversity Action Plan, 1999 [online] Available at: https://www.rochford.gov.uk/sites/default/files/planning_EssexBiodiversityActionPlan.pdf

7.16 East of England Biodiversity Delivery Plan[263]: The East of England Biodiversity Forum comprises public agencies, county partnerships, local authorities, conservation NGOs (see Glossary), professional and amateur experts. Its activities include auditing existing biodiversity assets, establishing biodiversity targets, overseeing biodiversity mapping, and encouraging projects. To co-ordinate activity the Forum has produced a detailed Delivery Plan and has adopted an integrated approach that combines habitat targets with key species considerations.

7.17 Green Essex Strategy (2019)[264]: This Strategy seeks to enhance, protect and create an inclusive and integrated network of high-quality green infrastructure in Greater Essex, to create a County-wide understanding of green infrastructure – its functions and values, and to identify opportunities for implementing green infrastructure. The Strategy recognises the importance of GI in terms of environmental benefits, including biodiversity. The Strategy highlights the importance of GI in providing ecological networks of all scales, from regional to neighbourhood scale. Note that a Green and Blue Infrastructure Strategy has been commissioned for South Essex. Brentwood also has a Green Infrastructure Strategy[265] and Thurrock has an emerging Green and Blue Infrastructure Strategy.

7.18 Southend-on-Sea Biodiversity Action Plan (2012)[266]: The document provides an evidence base and framework for wildlife conservation priorities across Southend-on-Sea. This includes the conservation and protection of 18 priority habitats and 14 species.

7.19 Thurrock Biodiversity Action Plan 2007-2012 (2007)[267]: The document provides an evidence base and framework for wildlife conservation priorities across Thurrock. This includes the conservation and protection of priority habitats that support many species. The main objectives of the BAP are to:

- Raise awareness of the importance of biodiversity.
- Raise awareness of all biodiversity action plans, habitats and species.
- Monitor populations of BAP species and areas of BAP habitats in Thurrock.
- Maintain the existing areas of habitats and population of species listed in the BAP and work to increase these where possible.
- Ensure that habitats are managed and maintained in the light of their ecological value.
- Encourage responsible maintenance of land in Thurrock.

7.20 Castle Point Borough Strategic Biodiversity Assessment (2019)[268]: The core purpose of the strategy is to conserve and enhance biodiversity by:

- Protecting and enhancing existing sites with nature conservation designations.
- Recognising and improving the connections between such sites.
- Creating new habitats for biodiversity.
- Where possible, enhancing the biodiversity value of land outside of recognised ecological networks.

Current baseline

7.21 There are multiple European sites that lie within or to the east of the Local Authorities of South Essex. Specifically:

- Thames Estuary and Marshes (Special Protection Area (SPA) and Ramsar site).
- Outer Thames Estuary (SPA).
- Benfleet and Southend Marshes (SPA and Ramsar site).
- Crouch & Roach Estuaries (SPA, Ramsar site, Special Area of Conservation (SAC) and Potential SPA (pSPA) [marine]).
- Blackwater Estuary (SPA, Ramsar site and SAC).
- Essex Estuaries (SAC).
- Foulness (SPA and Ramsar site).

7.22 Additionally, Brentwood is in close proximity to Epping Forest (SAC). European designations within the South Essex sub-region cover approximately18% of sub-regions land area (15,055 ha).[269]

[263] East of England Biodiversity Forum [online] Available at: http://www.eoebiodiversity.org/delivery-plan-reveal.html
[264] Essex County Council (2019) Green Essex Strategy [online] Available at: https://consultations.essex.gov.uk/rci/green-essex-strategy/supporting_documents/Green_Essex_Strategy_30042019%201.pdf
[265] Groundwork (2015) Brentwood Borough Council Green Infrastructure Strategy [online] Available: http://www.brentwood.gov.uk/pdf/29012016122803u.pdf
[266] Southend-on-Sea Borough Council (2012) Southend-on-Sea Local Biodiversity Action Plan[online] Available at: https://www.southend.gov.uk/downloads/download/138/local_biodiversity_action_plan
[267] Thurrock District Council (2007) Thurrock Biodiversity Action Plan 2007-2012 [online] Available at: https://thurrock.moderngov.co.uk/Data/Cabinet/200702141900/Agenda/$8276%20-%208257.doc.pdf
[268] Place Services (2019) Castle Point Borough Biodiversity Assessment [online] Available at: https://www.castlepoint.gov.uk/download.cfm?doc=docm93jijm4n4495.pdf&ver=7526
[269] LUC analysis

7.23 The sub-region of South Essex contains 25 sites that are designated Sites of Special Scientific Interest (SSSIs), covering approximately 19% of the South Essex's land area (16,079 ha). These are listed below with Natural England's SSSI condition summary shown in brackets after each SSSI:

- Foulness SSSI – (favourable).
- Hockley Woods SSSI – (unfavourable – recovering).
- Great Wood & Dodd's Grove SSSI – (favourable).
- Garrold's Meadow SSSI – (unfavourable – recovering).
- Thundersley Great Common SSSI – (unfavourable – recovering).
- Pitsea Marsh SSSI – (favourable).
- Norsey Wood SSSI – (favourable).
- Mill Meadows SSSI – (unfavourable – recovering).
- Curtismill Green SSSI – (unfavourable – recovering).
- The Coppice, Kelvedon Hatch SSSI – (favourable).
- Thorndon Park SSSI – (unfavourable – recovering).
- Lion Pit SSSI – (favourable).
- Purfleet Road, Aveley SSSI – (unfavourable – no change).
- Purfleet Chalk Pits SSSI – (favourable).
- Grays Thurrock Chalk Pit SSSI – (unfavourable – recovering).
- Globe Pit SSSI – (favourable).
- Hangman's Wood and Deneholes SSSI – (favourable).
- West Thurrock Lagoon and Marshes SSSI – (unfavourable – declining).
- Inner Thames Marshes SSSI – (favourable).
- Crouch and Roach Estuaries SSSI – (unfavourable – recovering).
- Vange & Fobbing Marshes SSSI – (unfavourable - recovering).
- Canvey Wick SSSI – (favourable).
- Holehaven Creek SSSI – (favourable).
- Langdon Ridge SSSI - (unfavourable - recovering).
- Thurrock - Mucking flats and marshes SSSI (favourable).
- Benfleet and Southend Marshes SSSI (unfavourable - recovering).[270]

7.24 UK priority habitats cover a wide range of semi-natural habitat types and were those that were identified as being the most threatened and requiring conservation action under the UK Biodiversity Action Plan. The UK priority habitats present within Essex include:

- Semi-natural woodland: Ancient woodland and Old orchards.
- Coastal: seagrass beds and saline lagoons.
- Lowland grass and heath: Heathland and Coastal grazing marsh.
- Freshwater.
- Arable, Cereal Margins: Cereal field margin.
- Reed beds and fens: Reedbeds.
- Hedges: Hedgerows.[271]

7.25 Natural England has identified 76 different Natural Areas across England based on distinct ecological divisions, of which four are relevant to South Essex:

- Suffolk Coast – the area is characterised by some stretches of low cliff, numerous shingle beaches, lagoons and saltmarshes.
- London Basin – the area is characterised by lowland wet and dry heath, lowland calcareous grassland and wet and dry neutral grasslands.
- Chilterns – the area is characterised by lowland beech and yew woodland, box woodland and some areas of lowland mixed deciduous woodland.
- Greater Thames Estuary – the area is characterised by several shingle spits, large areas of saltmarsh, intertidal mudflats and lagoons.[272]

7.26 Note that the Natural Areas relevant to South Essex are for the entire region of the East of England.

7.27 Several protected and rare species are found in the County including nationally important bats, nesting birds, invertebrates, great crested newts, water voles, otters, reptiles, badgers, and white-clawed crayfish.[273]

[270] Natural England Designated Sites View, https://designatedsites.naturalengland.org.uk/SearchCounty.aspx
[271] Integrating Biodiversity into Development, updated January 2007 [online] Available at: http://www.essexwtrecords.org.uk/sites/default/files/planning_files/Integrating%20Biodiversity%20into%20Development.pdf
[272] English Nature, Natural Areas in the East of England Region, 2011 Available at: http://publications.naturalengland.org.uk/publication/70046?category=59048
[273] Integrating Biodiversity into Development, updated January 2007 [online] Available at: http://www.essexwtrecords.org.uk/sites/default/files/planning_files/Integrating%20Biodiversity%20into%20Development.pdf

7.28 There is one National Nature Reserve (NNR) in South Essex: Leigh NNR. The NNR consists primarily of mudflats but also includes saltmarsh and coastal and floodplain grazing marsh (small areas of other habitat, such as reedbeds and woodland are also present). It supports a wide variety of birds, particularly migratory species and only part of the NNR is accessible, at Two Tree Island.

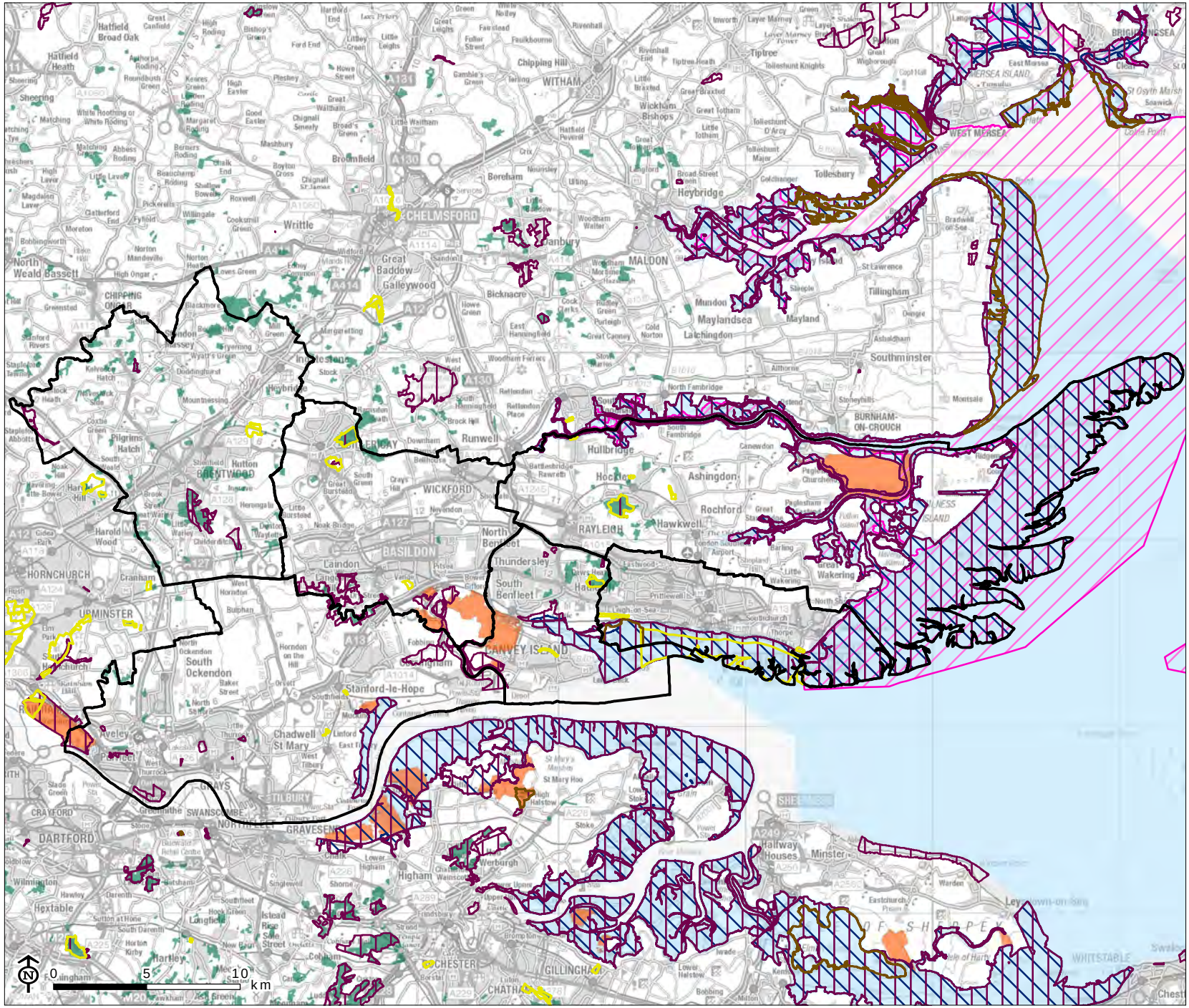
7.29 There are currently around 360 local wildlife sites (LWSs) within South Essex.[274] The diverse range of habitats within Essex is reflected in the LWSs that are spread throughout the County. LWSs support both locally and nationally threatened species and habitats. The Essex Biodiversity Action Plan highlights the important species and habitats within the County and outlines their status in the UK, in Essex, factors causing loss and decline and finally objectives and an action plan to conserve and maintain. Note that the Essex Biodiversity Action Plan represents the entire County, not just the sub-region of South Essex.[275]

7.30 Currently, the biodiversity of the sub-region is feeling pressure from industry and infrastructure (waste disposal and mineral extraction sites, transport routes, ports and prominent power stations) and urban development, including housing and caravan sites. These structures now occupy what are often highly visible sites within the low-lying marshes of the Greater Thames Estuary. Major development such as the Thames Gateway, regeneration of urban areas and the construction of new industry and housing may have a further impact on the character of the area. Heavy recreational use of estuary waters and beaches also acts as a key pressure on the area.[276] Additionally, increased construction and commercial-scale farming are heightening pressures on water availably, water flow, soil quality, biodiversity and sense of place. While housing and other construction and agriculture are significant for the area it is important that these are developed in a sustainable way so that predicted changes in climate and the effects on the area's character are considered and sense of place and history are preserved.[277]

Table 7.1: Key sustainability issues for South Essex and likely evolution without the JSP

Key sustainability issues for South Essex	Likely evolution without the JSP
South Essex contains many biodiversity sites, habitats and species which could be impacted by climate change and / or harmed by inappropriate development (IIA objective 12).	Even without the JSP, some important habitats and biodiversity sites will continue to receive statutory protection. However, without the JSP it is possible that development could be sited inappropriately and adversely impact biodiversity sites, even if indirectly. The JSP presents an opportunity to manage the sensitivities of the sites and biodiversity networks, for example by locating development away from the most sensitive locations, provide for new green infrastructure, and ensure that growth does not adversely affect their current condition but where possible contributes to their improvement.

[274] http://www.essexwtrecords.org.uk/LoWSfinder?tid=All&field_district_tid=All&field_lows_status_tid=All&=Apply
[275] Essex Biodiversity Action Plan, 1999 [online] Available at: https://www.rochford.gov.uk/sites/default/files/planning_EssexBiodiversityActionPlan.pdf
[276] Natural England (2013) NCA Profile: 81 Greater Thames Estuary [online] Available at: http://publications.naturalengland.org.uk/publication/4531632073605120?category=587130
[277] Natural England (2013) NCA Profile: 111 Northern Thames Basin [online] Available at: http://publications.naturalengland.org.uk/publication/4721112340496384?category=587130



SA and HRA of the South Essex Joint Strategic Plan

Figure 7.1: Biodiversity Designations in South Essex

- Authority boundaries
- National Nature Reserve
- Local Nature Reserve
- Site of Special Scientific Interest
- Special Area of Conservation
- Ramsar
- Special Protection Area
- RSPB reserve
- Ancient Woodland Inventory

Map Scale @ A4: 1:290,000

LUC

CB:LA EB:Stenson_K LUC FIG_7_1_10440_Biodiversity_A4L 16/12/2019

Source: NE, RSPB

Chapter 8
Historic environment

Policy context

8.1 European Convention for the Protection of the Architectural Heritage of Europe (1985): Defines 'architectural heritage' and requires that the signatories maintain an inventory of it and take statutory measures to ensure its protection. Conservation policies are also required to be integrated into planning systems and other spheres of Government influence as per the text of the convention.

8.2 Valletta Treaty (1992) formerly the European Convention on the Protection of the Archaeological Heritage (Revisited)[278]: Aims to protect the European archaeological heritage "as a source of European collective memory and as an instrument for historical and scientific study".

National

8.3 National Planning Policy Framework (NPPF)[279]: Plans should "set out a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. This strategy should take into account:

a. the desirability of sustaining and enhancing the significance of heritage assets, and putting them to viable uses consistent with their conservation;

b. the wider social, cultural, economic and environmental benefits that conservation of the historic environment can bring;

c. the desirability of new development making a positive contribution to local character and distinctiveness; and

d. opportunities to draw on the contribution made by the historic environment to the character of a place."

8.4 National Planning Practice Guidance (PPG)[280]: Supports the NPPF by requiring that Local plans include strategic policies for the conservation and enhancement of the historic environment, including a positive strategy for the conservation and enjoyment of the historic environment. It also states that Local planning Authorities should identify

[278] Council of Europe (1992) Valletta Treaty [online] Available at: https://rm.coe.int/168007bd25
[279] Department for Communities and Local Government (2019) National Planning Policy Framework [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf
[280] Department for Communities and Local Government (2016) National Planning Practice Guidance [online] Available at: https://www.gov.uk/Government/collections/planning-practice-guidance

specific opportunities for conservation and enhancement of heritage assets.

8.5 The Government's Statement on the Historic Environment for England 2010[281]: Sets out the Government's vision for the historic environment. It calls for those who have the power to shape the historic environment to recognise its value and to manage it in an intelligent manner in light of the contribution that it can make to social, economic and cultural life. Includes reference to promoting the role of the historic environment within the Government's response to climate change and the wider sustainable development agenda.

8.6 The Heritage Statement 2017[282]: Sets out how the Government will support the heritage sector and help it to protect and care for our heritage and historic environment, in order to maximise the economic and social impact of heritage and to ensure that everyone can enjoy and benefit from it.

8.7 Sustainability Appraisal and Strategic Environmental Assessment, Historic England Advice Note 8[283]: Sets out requirements for the consideration and appraisal of effects on the historic environment as part of the Sustainability Appraisal/Strategic Environmental Assessment process.

Sub-national

8.8 Essex Historic Landscape Characterisation Project (2013)[284]: This project seeks to characterise the distinctive historic dimension of the current rural landscape. The project identifies 54 HLC types across Essex which are broadly categorised into 10 categories (enclosed land, open land, woodland, Parks & Gardens, coastal, settlement, industrial, horticulture, military and land use).

8.9 The Thames Gateway Delivery Plan[285]: seeks to celebrate the character and heritage of the Thames Gateway area, including the rivers and recognises that heritage assets can help build economic prosperity and create quality of life.

Current baseline

8.10 South Essex contains 1,355 listed buildings, 51 Scheduled Monuments and four registered historic parks and gardens. Specifically:

- Basildon contains 128 listed buildings: 2 Grade 1, 114 Grade II and 12 Grade II*. It also has 3 Scheduled Monuments and 4 Conservation Areas.
- Brentwood has 12 Scheduled Monuments, 13 Conservation Areas that contain 520 listed buildings (481 Grade II, 27 Grade II* and 12 Grade I), and 3 registered historic parks and gardens.
- Castle Point contains 34 listed buildings (28 Grade II and 3 of both Grade I and II*), 7 Scheduled Monuments and one Conservation area.
- Rochford contains 330 listed buildings (312 Grade II, 17 Grade II* and 1 Grade I), 6 Scheduled Monuments and 10 Conservation areas.
- Southend contains 102 listed buildings (91 Grade II, 6 Grade II* and 5 Grade I), 6 Scheduled Monuments and 14 Conservation areas.
- Thurrock contains 241 listed buildings (209 Grade II, 19 Grade II* and 13 Grade I), 17 Scheduled Monuments, a registered historic park and garden, and 7 Conservation Areas.[286]

8.11 Only Brentwood, Southend and Thurrock have buildings on the 'heritage at risk' register.

- Brentwood: two listed buildings – Chantry Chapel and Mausoleum, Thorndon Park and Thoby Priory ruins, Thoby Lane, Mountnessing and one listed place of worship – Church of St. Paul, Mores Lane, Brentwood
- Southend has one listed building- Manor House, Suttons Road, South Shoebury and one Conservation area – Crowstone, Westcliff-on-sea
- Thurrock has one listed building- State Cinema, George Street, Grays, two Scheduled Monuments- Coalhouse Fort, Tilbury and Crop mark complex, Orsett and one Registered Park and Garden – Belhus Park. In addition,

[281] HM Government (2010) The Government's Statement on the Historic Environment for England 2010 [online] Available at: https://www.gov.uk/Government/publications/the-Governments-statement-on-the-historic-environment-for-england
[282] Department for Digital, Culture Media and Sport (2017) Heritage Statement 2017 [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/664657/Heritage_Statement_2017__final_-_web_version_.pdf
[283] Historic England (2016) Sustainability Appraisal and Strategic Environmental Assessment: Historic England Advice Note 8 [online] Available at: https://content.historicengland.org.uk/images-books/publications/sustainability-appraisal-and-strategic-environmental-assessment-advice-note-8/heag036-sustainability-appraisal-strategic-environmental-assessment.pdf/
[284] Historic England and Essex County Council (2013) Essex Historic Landscape Characterisation Essex Historic Landscape Characterisation [online] Available at: https://archaeologydataservice.ac.uk/archives/view/essex_hlc_2013/downloads.cfm
[285] Communities and Local Government (2007), Thames Gateway: The Delivery Plan
[286] Historic England (2018), Search the List [online] Available at: https://historicengland.org.uk/listing/the-list/results/?searchType=NHLE+Simple&search=South+Essex

one Conservation area- East Tilbury is on the 'heritage at risk register'[287]

8.12 With regard to locally listed assets, Rochford currently has 127 locally listed assets within the District. The Local List has become part of the Council Local Development Framework in the form of an SPD to provide advice and guidance.

8.13 Southend-on-Sea has about 150 historic assets on the Local List of buildings and structures.

8.14 Castle Point has 37 locally listed buildings of architectural or historic interest. The list is currently being reviewed as part of the work on the new Local Plan.

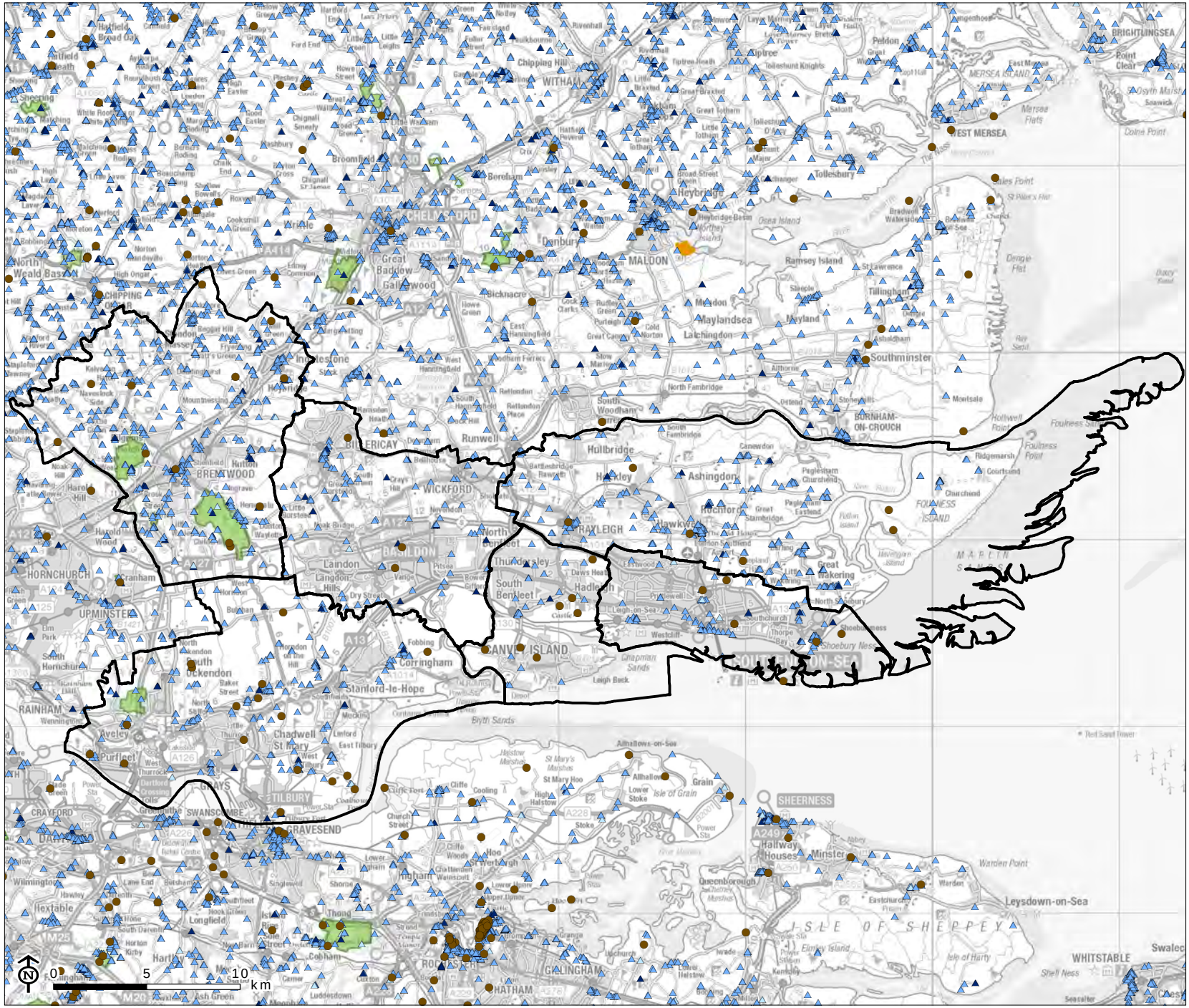
8.15 Basildon Council is in the process of assessing the public nomination of various local heritage assets to compile a Local List. Once published the Local List of Heritage Assets will be used to inform the emerging Local Plan which will look to conserve important environmental assets including buildings and areas of heritage importance. The Essex Thames Gateway Historic Environment Characterisation notes that the historic settlement pattern developed around an intricate and integrated relationship between gravel/London clay upland, grazing marsh, creeks and estuaries. The field boundaries of South Essex preserve rectilinear landscape patterns of antiquity. The woods of south-east Essex were a particularly valuable resource in the medieval period and ownership was divided amongst a number of, often quite distant, manors. The economically very important marshland pasture was often divided up in the same way. Surviving grazing marshes are of great importance as historic landscapes and as wildlife habitats.[288]

8.16 A Landscape Character Assessment of the Essex Coast was conducted in 2005 which included Castle Point, Rochford, Southend-on-Sea and Thurrock. Archaeological survey work of the coastal zone of Essex has revealed some of the best and most extensive evidence for prehistoric settlements in the County.[289]

Table 8.1: Key sustainability issues for South Essex and likely evolution without the JSP

Key sustainability issues for South Essex	Likely evolution without the JSP
There are many sites, features and areas of historical and cultural interest in the sub-region, a number of which are at risk, and which could be adversely affected by poorly located or designed development (IIA objective 13).	While a number of the heritage assets in the sub-region, for example listed buildings and scheduled monuments, will continue to be protected by statutory designations, without the JSP it is possible that these, and undesignated assets, will be adversely affected by inappropriate development. The JSP provides an opportunity to protect these assets (including their setting) from inappropriate development, as well as enhancing the historic environment and improving accessibility and interpretation of distinctive features of local heritage.

[287] Historic England (2019) Heritage At Risk Register [online] Available at: https://historicengland.org.uk/advice/heritage-at-risk/search-register/
[288] Essex County Council (2007) Essex Thames Gateway Historic Environment Characterisation [online] Available at: https://www.castlepoint.gov.uk/download.cfm?doc=docm93jijm4n826.pdf&ver=974
[289] Essex County Council and Essex Estuaries Partnership (2005) Landscape Character Assessment of the Essex Coast [online] Available at: https://www.rochford.gov.uk/sites/default/files/evibase_EB6_landscape_character_assess.pdf



SA and HRA of the South Essex Joint Strategic Plan

Figure 8.1: Historic Environment in South Essex

- Authority boundaries
- Registered Park and Garden
- Registered battlefield
- Scheduled monument

Listed Buildings

- Grade I
- Grade II
- Grade II*

Map Scale @ A4: 1:290,000

LUC

CB:LA EB:Stenson_K LUC FIG_8_1_10440_Historic_environment_A4L 16/12/2019

Source: HE

Chapter 9
Landscape

Policy context

International

9.1 European Landscape Convention (2000): Promotes landscape protection, management and planning. The Convention is aimed at the protection, management and planning of all landscapes and raising awareness of the value of a living landscape.

National

9.2 National Planning Policy Framework (NPPF)[290]: Planning principles include:

- Recognising the intrinsic beauty and character of the countryside.
- Protecting and enhancing valued landscapes. Development should be sympathetic to local character and history, including the surrounding built environment and landscape setting.
- Conserve and enhance landscape and scenic beauty in National Parks, The Broads and Areas of Outstanding Natural Beauty.

9.3 A Green Future: Our 25 Year Plan to Improve the Environment[291]: Sets out goals for improving the environment within the next 25 years. It details how the Government will work with communities and businesses to leave the environment in a better state than it is presently. Identifies six key areas around which action will be focused. Those of relevance to this chapter are 'recovering nature' and 'enhancing the beauty of landscapes'. Actions that will be taken as part of this key area are as follows:

- Working with AONB authorities to deliver environmental enhancements.
- Identifying opportunities for environmental enhancement of all England's Natural Character Areas, and monitoring indicators of landscape character and quality.

[290] Department for Communities and Local Government (2019) National Planning Policy Framework [online] Available at: https://assets.publishing.service.gov.uk/Government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf

[291] HM Government (2018) A Green Future: Our 23 Year Plan to Improve the Environment [online] Available at: https://www.gov.uk/Government/uploads/system/uploads/attachment_data/file/673203/25-year-environment-plan.pdf

Sub-national

9.4 Essex Landscape Character Assessment (2003)[292]: The Essex Landscape Character Assessment outlines the landscape character across Essex. The Assessment identifies seven broad landscape character types, which are sub-divided into smaller sections, including 35 landscape character areas. Most of the local authorities also have either existing or emerging landscape character and/or landscape sensitivity studies. However, the landscape typologies are not consistent between these. Thurrock was not included in the Essex 2003 Landscape Study but is undertaking its own Landscape Character Assessment.[293]

9.5 Green Essex Strategy (2019)[294]: This Strategy seeks to enhance, protect and create an inclusive and integrated network of high-quality green infrastructure in Greater Essex, to create a County-wide understanding of green infrastructure – its functions and values, and to identify opportunities for implementing green infrastructure. The Strategy notes that enhancing environmental and landscape quality is one of the functions of green infrastructure. Note that a Green and Blue Infrastructure Strategy has been commissioned for South Essex. Brentwood also has a Green Infrastructure Strategy[295] and Thurrock has an emerging Green and Blue Infrastructure Strategy.

Current baseline

Landscape character

9.6 The sub-region contains no landscape designations, but the Kent Downs AONB lies to the south, which can be seen in **Figure 9.1**. A Landscape Character Assessment was completed by Essex County Council in 2003. The study covered all the South Essex Authorities, with the exception of Thurrock. The study identifies a number of landscape character types which overlaps with these Authorities (See **Figure 9.2:**). These include:

- **The Thames Estuary (F1)** – The Thames Estuary is primarily a seascape. Large expanses of open water, and broad tidal mudflats and sands are the main influence on character. The daily rhythms of tide and changes in weather and lighting conditions mean this is also a constantly changing dynamic landscape. In the east a broad band of rough low grazing saltmarsh with an intricate pattern of narrow creeks and runnels, extends around the Hadleigh/Ray Channels, adding variety and seasonal colour to the area. The area's rich wildlife, with thousands of wading birds overwintering on the saltmarshes and mudflats, also provides interest. The towns of Southend-on-Sea and Canvey Island lie on the northern boundary and are prominent in views northwards from the foreshore. Despite this, overall character is undeveloped, with no buildings and very few man-made structures within the area.
- **Crouch & Roach Farmland (F2)** - The coastal character of the area is defined by the narrow estuaries which penetrate far inland, with associated mudflats, saltmarsh and reclaimed marshlands, sometimes including grazing marsh. The land between the estuaries and their immediate margins is gently or strongly undulating arable farmland. Moderate to steep sided estuary valley sides are a distinctive backdrop either side of the Crouch. Typically, thick hedgerows dominated by scrub elm follow the rectilinear field boundaries. However, there has been significant loss of hedgerows especially in the south of the area, as well as the general loss of elm the formerly characteristic hedgerow tree, resulting in a fairly open character. The settlement pattern is sparse along the edge of the estuaries, and mostly small settlements tend to hug the slightly higher drier land. Large parts of the area have a tranquil character.
- **Dengie and Foulness Coast (F3)** - distinctive extensive area of reclaimed marshlands, and of sweeping tidal mudflats and sands beyond the sea wall. It is a flat open and exposed landscape, dominated by the sky and/or the sea. A large-scale pattern of arable fields on the marshlands is defined by straight or sinuous ditches, with very few trees. Settlement is very sparse. The older marshlands have occasional farmsteads and lanes, but on the more recent reclaimed areas, there are just a few isolated barns and farmsteads. No major roads cross the area, so this increases its remote tranquil character.
- **South Essex Coastal Areas (G3)** - The South Essex Coastal Towns is an area of very mixed character, but unified by the overall dominance of urban development, with frequent views of an urban skyline. The major towns spread over gently undulating or flat land, but locally extend over prominent ridgelines and hillsides as well. A distinctive steep sided south facing escarpment between Hadleigh and Basildon retains significant areas of open grassland, as well as a patchwork of small woods, including woods on former plotlands and small pastures.

[292] Chris Blandford Associates (2003) Essex Landscape Character Assessment [online] Available at: https://www.essexdesignguide.co.uk/media/2277/lca_essex_2002.pdf
[293] LUC (2018) Thurrock Integrated Landscape Character Assessment (2018)
[294] Essex County Council (2019) Green Essex Strategy [online] Available at: https://consultations.essex.gov.uk/rci/green-essex-strategy/supporting_documents/Green_Essex_Strategy_30042019%201.pdf
[295] Groundwork (2015) Brentwood Borough Council Green Infrastructure Strategy [online] Available: http://www.brentwood.gov.uk/pdf/29012016122803u.pdf

Contrasting flat coastal grazing marsh lies to the south. In some parts such as south of Hadleigh, and around Hockley, the urban form is softened by very large woodlands and the Roach Valley is largely undeveloped.

- **Brentwood Hills (D2)** - The Brentwood Hills have a varied topography comprising a series of ridges and rounded hills. The landform is strongly rolling towards the edges of the character area, flattening out towards the centre on high ground. To the south a slight escarpment occurs between Childerditch and Little Burstead. It is a wooded landscape with many small scattered woods, some large blocks of woodland, tree belts of historic parkland and hedgerow trees. As a result, views are often quite confined, but in parts long views are possible over more open farmland and from high ground. Small unenclosed greens, commons and scattered ponds add interest and variety of the area. A number of isolated churches on hilltops are also a distinctive feature. Villages, hamlets, cottages and farmsteads are typically strung out along the narrow lanes, with a dense urban settlement concentrated along the main road and rail routes running through the centre of the area

9.7 Thurrock was not included in the Essex 2003 Landscape Study. However, Thurrock is undertaking its own Landscape Character Assessment.[296] Thurrock is generally a low-lying area with a ridge running though from Langdon Hills Country Park on the Basildon boundary, through Horndon on the Hill and Grays to Aveley and Kennington Park in the west of the Local Authority area. Thurrock exhibits a mosaic of markedly contrasting landscapes, from open and relatively tranquil and undeveloped farmland in the rural parts of Thurrock to the north, to the densely developed urban areas and industrial development adjacent to windswept grazing marshes along the Thames riverside.

9.8 South Essex overlaps with two National Character Areas (NCAs) developed by Natural England (See **Figure 9.3**) These include:

- **The Northern Thames Basin** is diverse area which extends from Hertfordshire in the west to the Essex coast in the east. It is separated from the North Sea and Thames Estuary by a narrow band of land that makes up the Greater Thames Estuary National Character Area (NCA). Although arable agriculture is a large industry in the area the soil quality ranges from good to poor quality. The London Clay provides poor quality soil that becomes waterlogged in winter and cracks and shrinks in summer. Better quality soil is found in areas that contain alluvial deposits from the Thames and other rivers in the area as they formed and changed position over time. The Northern Thames Basin is an area rich in geodiversity, archaeology and history and diverse landscapes. Urban expansion has historically been a feature in this area which has put increased pressure on the landscape from housing developments, schools and other necessities for expanding populations, with a consequential reduction in tranquillity. Though tranquil areas are still found in many parts of South Essex in areas with a more dispersed settlement pattern. There are a wider variety of semi-natural habitats in this area, which support important species. However, the habitats have become fragmented over time.
- **The Greater Thames Estuary[297] -** predominantly a remote and tranquil landscape of shallow creeks, drowned estuaries, low-lying islands, mudflats and broad tracts of tidal salt marsh and reclaimed grazing marsh that lies between the North Sea and the rising ground inland. It forms the eastern edge of the London Basin and encompasses the coastlines of South Essex and North Kent, along with a narrow strip of land following the path of the Thames into East London. NCA contains some of the least settled areas of the English coast, with few major settlements and medieval patterns of small villages and hamlets on higher ground and the marsh edges. This provides a stark contrast to the busy urban and industrial areas towards London where population density is high and development pressures are increasing. Sea defences protect large areas of reclaimed grazing marsh and its associated ancient fleet and ditch systems, and productive arable farmland. Historic military landmarks are characteristic features of the coastal landscape.

9.9 Basildon: The Basildon Borough Landscape Character Assessment [298] identified 14 landscape character areas. These are primarily farmlands and settled claylands. Bowers and Vange Estuary Marshlands was identified as a distinct landscape character, as was Pisteahall Island Restored Landforms, and Langdon Hills.

9.10 Brentwood: A Landscape Character Assessment has not been undertaken from Brentwood. A Landscape Sensitivity and Capacity Study was published in 2018[299] but this relates

[296] LUC (2018) Thurrock Integrated Landscape Character Assessment (2018)
[297] Natural England. National Character Profile: Greater Thames Estuary
[298] The Landscape Partnership (2014) Landscape Character Assessment of Basildon Borough [online] Available at: https://www.basildon.gov.uk/media/6573/Basildon-Council-Landscape-Study-Volume-1-Landscape-Character-Assessment-Dec-2014/pdf/Basildon_Council_-_Landscape_Study_Volume_1_Landscape_Character_Assessment_-_Dec_2014.pdf?m=635894123807770000
[299] Crestwood Environmental (2018) Landscape Sensitivity and Landscape Capacity Study: Potential and Strategic Allocation Options [online] Available at: http://www.brentwood.gov.uk/pdf/3010201812292300000.pdf

to the sensitivity and capacity of specific site options being considered for allocation in the Local Plan.

9.11 Castle Point: The Castle Point Green Belt Landscape Assessment[300] sought to identify the sensitivity of different areas in the Green Belt to development. This identified 28 different areas of the Green Belt, which were assessed for their sensitivity to development. The study recognises both coastal and farmland landscapes and notes that the borough includes a large area of land designated for its nature conservation value, many woodlands and dramatic topography, with the Rayleigh hills sloping steeply down towards Benfleet Creek and the estuary. It also notes that Hadleigh Castel is prominent on a spur beneath the hillside

9.12 Rochford: A joint Landscape Character, Sensitivity and Capacity Study has been commissioned for Rochford and Southend-on-Sea, but this has not yet been published.

9.13 Southend-on-Sea: As mentioned above, a joint Landscape Study has been commissioned for Rochford and Southend-on-Sea. A Borough-wide Character Study was published in 2011.[301] This study identified that the urban forms and architectural styles in Southend can be divided into two main types: urban (around the historic centres, characterised by relatively dense development) and arcadian (lower density, inspired by the garden city movement). It also notes that much of the borough is defined by a regular grid pattern of development, planed out in the Victorian and Edwardian periods. The seafront also has a range of characters, from Leigh Port and the Old Town, to the more modern centre, residential areas and the cliffs.

9.14 Thurrock: LUC is currently preparing an Integrated Landscape Character Assessment for Thurrock. This has identified seven strategic scale landscape types and 12 local landscape types within these. Landscape types identified include river catchments, wooded and farmed areas, chalk ridges and marshland.

Landscape sensitivity and capacity

9.15 The South Essex authorities have carried out or commissioned landscape sensitivity/capacity Studies[302,303,304,305,306]. These assess the relative capacity of the landscape to accommodate development in each of the respective local authority areas.

Landscape drivers for change

9.16 Within the south of South Essex, within the Greater Thames Estuary NCA, there are several drivers for change that will put pressure on the flat estuary landscape. These include[307]:

- New industrial complexes and major transport links such as the Lower Thames Crossing and Tilbury Energy Centre in Thurrock.
- Housing provision urban expansion within the main settlements such as Canvey Island.
- Major port developments such as Tilbury 2 and London Gateway.
- Increased tourism and recreation-related uses of the Estuary, such as nature parks, boating, water and jet skiing, new marinas, which may increase visitor pressure and reduce the feeling of remoteness and wilderness in some areas.
- Sea level rise is likely to result in significant losses of salt marsh and other habitats (including sand dunes, coastal vegetated shingle and mudflats) through coastal squeeze, with increased pressure on coastal defence structures due to reduced wave attenuation by the salt marsh and pressure on active dynamic coastal processes.
- A substantial alteration of estuary morphology may occur due to changes in sedimentary processes, with extensive mudflats likely to become sandier, affecting composition of bird species, changes in community composition of estuarine habitats due to increased submergence levels and a continuing and potentially accelerating reduction in sediment supply to recharge shingle beach systems.
- Increased sedimentation and barrier breaches would result in the loss of saline lagoons. Increased saline intrusion would potentially result in a significant alteration to, and the loss of, other species and habitats, including a reduction in quality of coastal arable farmland.
- Likely impacts of climate change on grazing marsh habitat include the loss of species due to saline intrusion, drying out in summer, and unpredictable inundation due to wetter winters and more frequent

[300] Essex Landscape Design (2010) Green Belt Landscape Assessment [online] Available at: castlepoint.gov.uk/download.cfm?doc=docm93jijm4n832.pdf&ver=980
[301] Urban Practitioners (2011) Southend Borough-wide Character Study
[302] Basildon Council (2017) Outline Appraisals of Potential Strategic Development Sites
[303] Brentwood Council (2018) Landscape Sensitivity & Capacity Study
[304] Castle Point Council (2010) Green Belt Landscape Assessment
[305] Rochford and Southend Councils (commissioned 2019) Landscape Sensitivity & Capacity Study
[306] LUC for Thurrock Council (unpublished draft 2019) Landscape Capacity & Sensitivity Study
[307] Natural England. National Character Profile: Greater Thames Estuary

storm events with increased silt loading and loss of breeding habitat for wetland birds.

- A change in the arable landscape may also occur, with the appearance of species and crops adapted to new climatic conditions and a longer growing season potentially leading to double cropping.

9.17 Further north, within Northern Thames Basin NCA, drivers for change include:

- Continued urban expansion of settlements, including in Basildon, Grays, Brentwood and Southend-on-Sea putting pressure their landscape setting.
- Provision of new open space to improve health and wellbeing, which could lead to habitat fragmentation and an altered landscape character.
- Increased development of infrastructure (transport, logistics and industrial), particularly in proximity to the London area. The Lower Thames Crossing, which will run through the Thurrock area.
- Continued demand for minerals across South Essex
- Climate change will lead to increased wind erosion in hotter and drier periods and water erosion in the wetter, colder periods.
- Loss of brownfield sites in developed areas putting pressure on invertebrate habitats.
- Decreased water availability with potential loss of specific drought intolerant species and water quality of water bodies.

Table 9.1: Key sustainability issues for South Essex and likely evolution without the JSP

Key sustainability issues for South Essex	Likely evolution without the JSP
The sub-region contains a number of nationally and locally distinct landscape character areas that have already been adversely affected by climate change, industry and population increase and could be harmed further by inappropriate development (IIA objective 14).	The sub-region contains national and local landscape character areas that may be left without protection and/or enhancement in the absence of the JSP and could be harmed by inappropriate development. The JSP offers an opportunity to ensure that the variation in landscape character is taken into account in the design and siting of development and opportunities for the protection and enhancement of the landscape are maximised. For example, the JSP could improve management practices and restore, maintain and enhance the network of vegetation to combat habitat fragmentation within the sub-region.

SA and HRA of the South Essex Joint Strategic Plan

Figure 9.1: Landscape Designations in South Essex

Authority boundaries

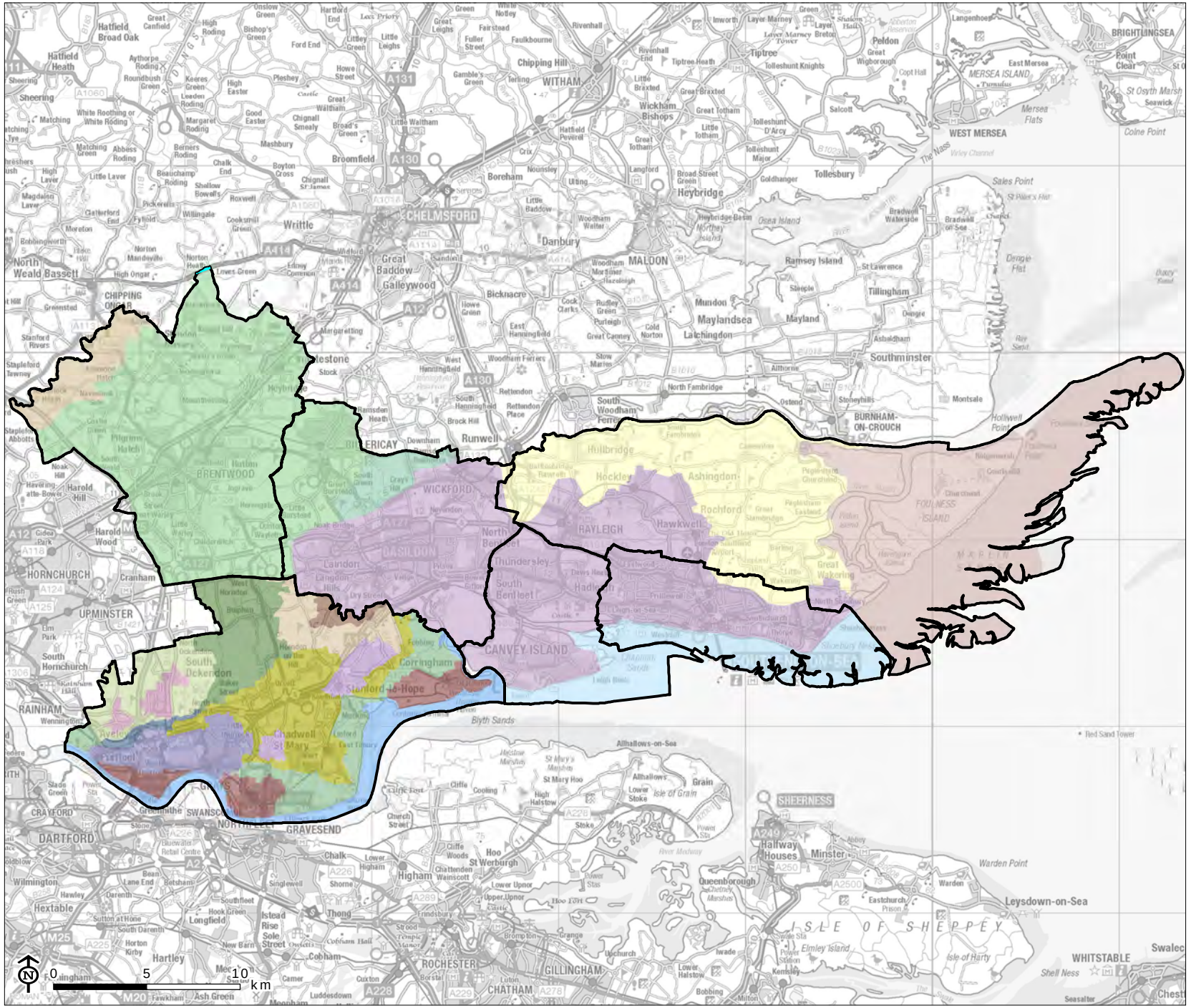
Kent Downs AONB

Map Scale @ A4: 1:290,000

LUC

CB:LA EB:Archer_L LUC FIG_9_1_10440_Landscape_designations_A4L 30/01/2019

Source: NE



SA and HRA of the South Essex Joint Strategic Plan

Figure 9.2: Landscape Character Areas within South Essex

Authority boundaries

Thurrock Landscape Character Areas

- Fenland
- River Valley
- Farmed River Terrace Gravels
- Towns on River Terrace Gravels
- Settled Chalk Ridge
- Undeveloped Marsh
- Developed Marsh
- Open Undulating Farmland
- Towns on Farmland
- Lower Hill Slopes
- Higher Hills
- Local River Reaches

Essex Landscape Character Areas

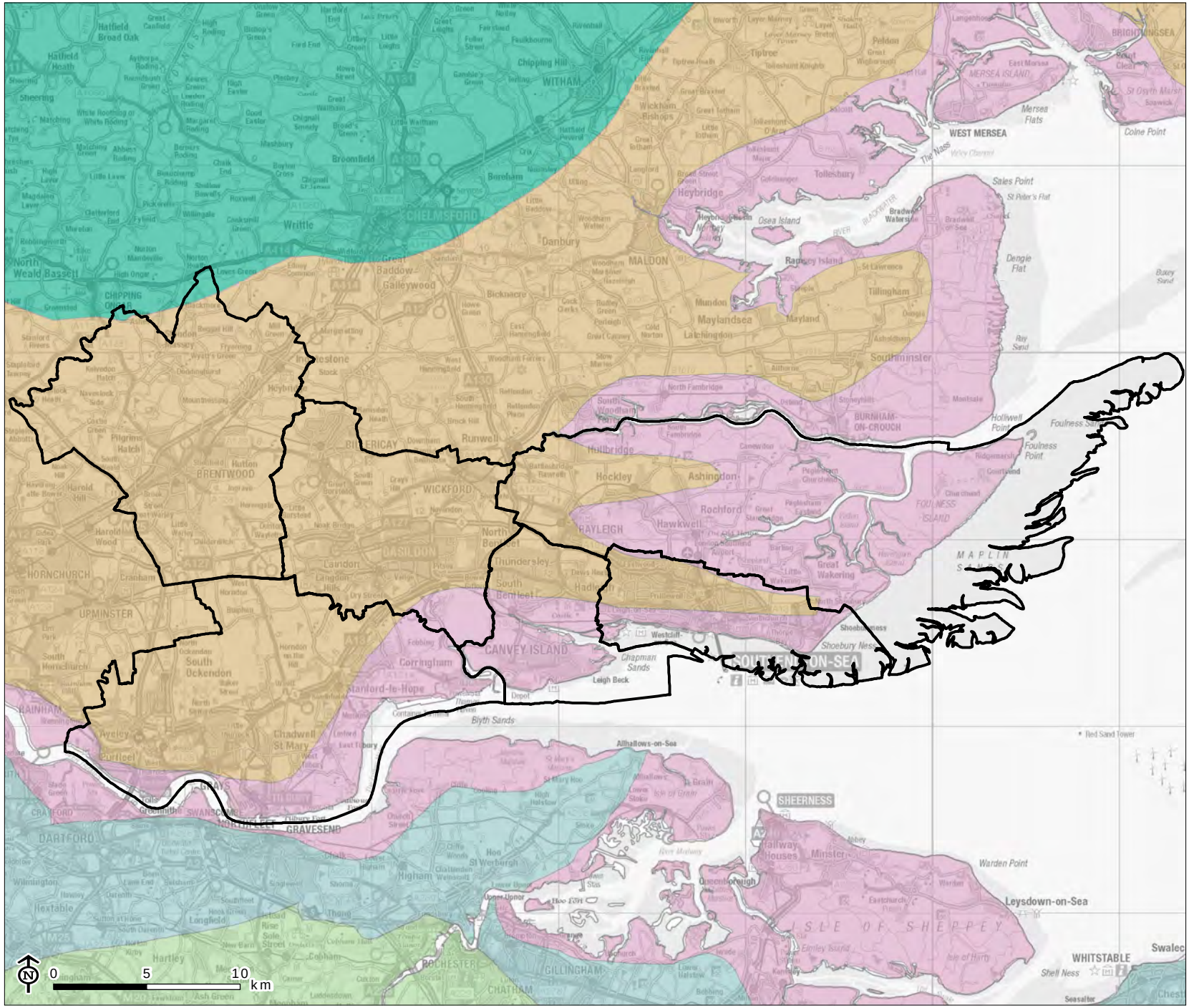
- Brentwood Hills
- Central Essex Farmland
- Crouch and Roach Farmland
- Dengie and Foulness Coast
- Roding Valley
- South Essex Coastal Towns
- South Essex Farmlands
- Thames Estuary

Map Scale @ A4: 1:290,000

LUC

CB:LA EB:Archer_L LUC FIG_9_2_10440_LCA_A4L 22/01/2019

Source: Chris Blandford Associates, TCC



SA and HRA of the South Essex Joint Strategic Plan

Figure 9.3: National Character Areas within South Essex

Authority boundaries

National Character Area

- Greater Thames Estuary
- North Downs
- North Kent Plain
- Northern Thames Basin
- South Suffolk and North Essex Clayland

Source: NE

Map Scale @ A4: 1:290,000

LUC

Chapter 10
The IIA Framework

The IIA Framework

10.1 The development of a set of IIA objectives (known as the IIA Framework) is a recognised way in which the likely environmental and sustainability effects of a plan can be described, analysed and compared.

10.2 The proposed IIA Framework for the JSP is presented in **Table 10.1**, and has been developed from the analysis of international, national and local policy objectives, the baseline information, and the sustainability issues identified for the sub-region.

10.3 The IIA Framework is supported by a proposed set of site assessment criteria that will be used to establish the potential effects of development in strategic site options identified for consideration by the South Essex Authorities. The performance of strategic sites against these assessment criteria will be used by the Authorities, alongside other technical assessments, to inform their preferred spatial strategy and strategic site allocations. More detail on the site assessment criteria is provided below.

10.4 The IIA objectives and appraisal questions (which provide a guide to the factors that should be considered when carrying out assessments) set out in the IIA Framework and the site assessment criteria are subject to change as new information comes to light during the IIA process, including in light of feedback received from consultation with the statutory bodies on this IIA Scoping Report.

Health Impact Assessment (HIA)

10.5 HIA will be integrated into the SA process. The purpose of HIA is to assist decision-makers in understanding the health impacts of a plan. It seeks to inform and enhance the decision-making process, making decisions more holistic and robust by:

- highlighting practical ways to enhance the positive health, equality and well-being effects of a plan.
- avoiding or reducing the negative health, equality and well-being effects.

10.6 The World Health Organisation states that '*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*'. This definition will be used in the IIA.

10.7 Health is a cross-cutting theme and links a number of topic areas are considered by the IIA. For example, effects of the plan on air quality are assessed because of the implications for health (as well as for biodiversity). **Table 10.2** demonstrates how health is relevant to the IIA objectives and supporting questions, drawing on the Health and Wellbeing Determinants set out in Appendix 1 of Health Impact Assessment: A practical guide[308]. This guidance promotes consideration of health equality and equity in HIA; as such, the IIA Framework includes consideration of this where appropriate and the assessment will consider whether any aspect of the JSP is likely to disproportionately affect a particular group of people.

Assumptions and assessment criteria for strategic sites

10.8 Table 10.3 sets out assumptions that will inform the assessment of strategic sites, if these are to be included in the JSP, along with rationale to inform assessments. If strategic sites are to be included, these assumptions and rationale will inform a set of appraisal criteria. If the options are less specific, e.g. key growth areas or corridors, the IIA will use the assumptions and rationale as a guide but a less detailed, more qualitative approach will be required. At this stage, the assumptions and rationale set out in **Table 10.3** are included to illustrate the likely scope and level of detail of the SA if site options are included but will be altered as appropriate throughout the SA process. This includes amendments to reflect the level of detail provided for the options being assessed and the evidence that is available to allow consistent appraisal of all reasonable alternatives at each stage of plan-making.

[308] Public Health Wales, Cardiff University and WHIASU (Wales Health Impact Assessment Support Unit) (date not available) Health Impact Assessment: A practical guide

Table 10.1: IIA Framework for the South Essex JSP

IIA Objective	Appraisal questions	Relevant SEA Topics
IIA 1 Housing: To ensure that everyone has the opportunity to live in a decent home.	Does the Plan deliver the range of types, tenures and affordable homes the sub-region needs over the Plan Period? Will it increase the range and affordability of housing to support the growing population and for all social groups? Does it respond to the needs of an ageing population and other specialist housing needs? Does it promote accessible and adaptable homes? Does the distribution of housing reflect the expected distribution of need and main commuting patterns? Does it promote good design through layout and orientation, meeting internal space standards?	Population, Human Health and Material Assets
IIA 2 Services and facilities: To ensure access to essential services and facilities close to where people live.	Does the Plan reduce the need to travel to access essential services and facilities* by providing these close to new and growing communities and/or locating new housing close to existing services and facilities? Does the plan support parking in appropriate locations to enable access to services and facilities for those with limited mobility? * E.g. schools, employment training and lifetime learning facilities, health facilities, recreation areas and services in town/district/local centres	Population, Human Health and Material Assets
IIA 3 Community cohesion: To strengthen community cohesion and reduce inequalities.	Will the Plan help deliver cohesive neighbourhoods with high levels of pedestrian activity/ outdoor interaction, where people mix? Will the Plan facilitate the integration of new neighbourhoods with existing neighbourhoods? Does the Plan seek to improve / supply community facilities? Will the Plan help to reduce levels of crime, anti-social behaviour and the fear of crime e.g. by including measures to increase safety and security of new development and public realm? Will the Plan improve or expand facilities in areas that are amongst the 30% most deprived in the country? Will it promote inclusive design, including making places accessible for people with limited mobility or disabilities?	Population and Human Health
IIA 4 Health: To improve the population's health and reduce health inequalities.	Does the Plan promote physical activity and outdoor recreation by maintaining, connecting and creating a range of accessible, new, high quality, multifunctional open spaces, green infrastructure, recreation, play and sports facilities? Does the Plan ensure access to health facilities (GPs / health centres) for all?	Population and Human Health

IIA Objective	Appraisal questions	Relevant SEA Topics
	Does the Plan protect health and wellbeing by preventing, avoiding and mitigating adverse health effects associated with, noise, vibration and odour? Does the Plan promote healthy lifestyles by encouraging and facilitating walking and cycling, including road safety? Does the Plan facilitate access to healthy food, for example by retaining and providing allotments, avoiding an over-concentration of hot food takeaways and avoiding provision of hot food takeaways in proximity to schools?	
IIA 5 Economy: Facilitate a sustainable and growing economy that creates a range of new jobs and improves vitality and viability of town centres.	Does the Plan provide an adequate supply of land and infrastructure to meet the sub-region's forecast employment needs with sufficient flexibility to respond to uncertainties and changing economic circumstances? Will employment opportunities available be mixed to suit a varied employment skills base? Does the Plan support opportunities for the expansion and diversification of business and inward investment? Does the Plan maintain and enhance the economic vitality and vibrancy of town centres by focusing development in or close to these centres? Does the Plan support an appropriate level of retail and other services in smaller service centres and rural areas? Does the Plan provide new and improved education and training facilities? Does the plan support online business operations (e.g. internet sales and marketing), home working and professional and social connections e.g. through providing high speed broadband?	Population, Human Health and Material Assets
IIA 6 Climate change mitigation: To minimise the sub-region's contribution to climate change.	Does the Plan minimise greenhouse gas emissions? Does the Plan reduce the need to travel by promoting the delivery of integrated, compact communities made-up of a complementary mix of land uses? Does the Plan support the maintenance and expansion of public transport networks? Does the Plan support the provision and maintenance of facilities for electric vehicle charging and car-sharing? Does the Plan facilitate new and enhanced walking and cycling links? Does the Plan help to address road congestion and its causes? Does the Plan promote energy efficient building design? Does the Plan encourage the provision of renewable energy infrastructure? Does the Plan support the efficient use of natural resources, minimising waste and promoting recycling?	Air, Climatic Factors

IIA Objective	Appraisal questions	Relevant SEA Topics
IIA 7 Minerals: To safeguard mineral resources.	Does the Plan avoid the sterilisation of mineral resources?	Material Assets
IIA 8 Soils: To conserve and restore soils.	Does the Plan prioritise the development brownfield land over greenfield land? Does the Plan support or lead to the remediation of contaminated land, avoiding environmental pollution or exposure of occupiers or neighbouring land uses to unacceptable health risk? Does the Plan avoid development on high quality agricultural land?	Soil and Human Health
IIA 9 Water resources: To maintain and improve the quality and quantity of water resources.	Does the Plan avoid adverse effects on the quality of water bodies? Does the Plan minimise inappropriate development in source protection zones? Does the Plan ensure there are sufficient water resources and waste water treatment capacity to accommodate the new development?	Water and Human Health
IIA 10 Air quality: To reduce air pollution and ensure improvements in air quality.	Does the Plan avoid, minimise and mitigate the effects of poor air quality? Does the Plan help to reduce road traffic congestion? Will the Plan minimise increases in traffic in Air Quality Management Areas?	Air, Climatic Factors, and Human Health
IIA 11 Climate change adaptation and flood risk: To ensure communities are able to adapt to climate change, including avoiding and mitigating flood risk.	Does the Plan avoid inappropriate types of development in areas at risk of flooding, taking into account the effects of climate change and mitigate residual risks via flood resilient design? Does the Plan seek to avoid development in locations likely to increase flood risk elsewhere? Does the plan promote the use of SuDS, where appropriate? Does the Plan safeguard human health and well-being by promoting climate change resilience through sustainable siting, design, landscaping and infrastructure? Does the Plan promote a coherent green infrastructure network?	Water, Soil, Climatic Factors and Human Health
IIA 12 Biodiversity: To conserve, connect and enhance the sub-region's biodiversity and geodiversity.	Does the Plan conserve designated and undesignated ecological and geological assets? Does the Plan identify opportunities for improvements to the conservation, connection and enhancement of ecological assets, taking into account the impacts of climate change? Does the Plan provide and manage opportunities for people to come into contact with resilient wildlife places while encouraging respect for and raising awareness of the sensitivity of such locations?	Biodiversity, Flora and Fauna

IIA Objective	Appraisal questions	Relevant SEA Topics
IIA 13 Historic environment and townscape: To conserve and/or enhance the significant qualities, fabric, setting and accessibility of the historic environment and townscape character.	Does the Plan conserve designated and undesignated heritage assets, including their setting and their contribution to wider local character and distinctiveness, avoiding adverse effects on their significance? Does the Plan outline opportunities for improvements to the conservation, management and enhancement of the historic environment, particularly at-risk heritage assets? Does the Plan promote access to, as well as enjoyment and understanding of, the local historic environment for the residents and visitors? Does it seek to enhance the range and quality of the public realm and open spaces? Will it reduce the amount of derelict, degraded and underused land? Does it encourage the use of high quality design principles to respect local character?	Cultural Heritage
IIA 14 Landscape: To conserve and enhance the quality of landscapes.	Does the Plan protect sensitive and special landscapes and townscapes? Does the Plan encourage development that will have a positive effect on the character of the area? Is the scale / density of development in keeping with important and valued features of the local landscape?	Landscape

Table 10.2: Integration of HIA topics into the IIA framework (topics shown in grey text are not likely to be significantly influenced by the JSP)

HIA topic	Relevant IIA objective and appraisal question
Lifestyles Diet Physical activity Use of alcohol, cigarettes, non-prescribed drugs Sexual activity Other risk-taking activity	**IIA 4 Health** Does the Plan promote physical activity and outdoor recreation by maintaining, connecting and creating a range of accessible, new, high quality multifunctional open spaces, green infrastructure, recreation, play and sports facilities? Does the Plan promote healthy lifestyles by encouraging and facilitating walking and cycling, including ensuring road safety? Does the Plan facilitate access to healthy food, for example by retaining and providing allotments, avoiding an over-concentration of hot food takeaways and avoiding provision of hot food takeaways in proximity to schools?
Social and community Social support and social networks Neighbourliness Sense of belonging Local pride Divisions in community Social isolation Community identity Cultural and spiritual ethos Peer pressure Racism Other social exclusion Family organisation and roles Citizen power and influence[309]	**IIA 3 Community cohesion** Will the Plan help deliver cohesive neighbourhoods with high levels of pedestrian activity/ outdoor interaction, where people mix? Will the Plan facilitate the integration of new neighbourhoods with existing neighbourhoods? Does the Plan seek to improve / supply community facilities? Will the Plan help to reduce levels of crime, anti-social behaviour and the fear of crime e.g. by including measures to increase safety and security of new development and public realm? Will the Plan improve or expand facilities in areas that are amongst the 30% most deprived in the country? Will it promote inclusive design, including making places accessible for people with limited mobility or disabilities? **IIA 13 Historic environment and townscape** Does the Plan conserve designated and undesignated heritage assets, including their setting and their contribution to wider local character and distinctiveness, avoiding adverse effects on their significance? Does the Plan promote access to, as well as enjoyment and understanding of, the local historic environment for the residents and visitors? Does it seek to enhance the range and quality of the public realm and open spaces? Will it reduce the amount of derelict, degraded and underused land? Does it encourage the use of high quality design principles to respect local character? **IIA 14 Landscape** Does the Plan protect sensitive and special landscapes and townscapes? Does the Plan encourage development that will have a positive effect on the character of the area? Is the scale / density of development in keeping with important and valued features of the local landscape?
Living / environmental conditions Built environment Neighbourhood design Housing Noise Air and water quality Attractiveness of area Green space	**IIA 1 Housing** Does the Plan deliver the range of types, tenures and affordable homes the sub-region needs over the Plan Period? Will it increase the range and affordability of housing to support the growing population and for all social groups? Does it respond to the needs of an ageing population and other specialist housing needs? Does it promote accessible and adaptable homes? Does the distribution of housing reflect the expected distribution of need and main commuting patterns? Does it promote good design through layout and orientation, meeting internal space standards? **IIA 3 Community cohesion**

[309] Whilst this is not assessed through the IIA, the IIA and plan-making processes enable citizens to input into the Local Plan.

HIA topic	Relevant IIA objective and appraisal question
Community safety Smell/odour Waste disposal Road hazards Quality and safety of play areas Indoor environment Injury hazards	Will the Plan help to reduce levels of crime, anti-social behaviour and the fear of crime e.g. by including measures to increase safety and security of new development and public realm? **IIA 4 Health** Does the Plan promote physical activity and outdoor recreation by maintaining, connecting and creating a range of accessible, new, high quality multifunctional open spaces, green infrastructure, recreation, play and sports facilities? Does the Plan protect health and wellbeing by preventing, avoiding and mitigating adverse health effects associated with, noise, vibration and odour? Does the Plan promote healthy lifestyles by encouraging and facilitating walking and cycling, including ensuring road safety? **IIA 6 Climate change mitigation** Does the Plan support the efficient use of natural resources, minimising waste and promoting recycling? **IIA 9 Water resources** Does the Plan avoid adverse effects on the quality of water bodies? Does the Plan minimise inappropriate development in source protection zones? Does the Plan ensure there are sufficient water resources and waste water treatment capacity to accommodate the new development? **IIA 10 Air quality** Does the Plan avoid, minimise and mitigate the effects of poor air quality? Does the Plan help to reduce road traffic congestion? Will the Plan minimise increases in traffic in Air Quality Management Areas? **IIA 12 Biodiversity** Does the Plan provide and manage opportunities for people to come into contact with resilient wildlife places while encouraging respect for and raising awareness of the sensitivity of such locations? **IIA 13 Historic environment and townscape** Does the Plan conserve designated and undesignated heritage assets, including their setting and their contribution to wider local character and distinctiveness, avoiding adverse effects on their significance? Does the Plan outline opportunities for improvements to the conservation, management and enhancement of the historic environment, particularly at-risk heritage assets? Does it seek to enhance the range and quality of the public realm and open spaces? Will it reduce the amount of derelict, degraded and underused land? Does it encourage the use of high quality design principles to respect local character? **IIA 14 Landscape** Does the Plan protect sensitive and special landscapes and townscapes? Does the Plan encourage development that will have a positive effect on the character of the area? Is the scale / density of development in keeping with important and valued features of the local landscape?
Economic conditions and macro-economic factors Economic development Unemployment Income Economic inactivity Type of employment Workplace conditions	**IIA 5 Economy** Does the Plan provide an adequate supply of land and infrastructure to meet the sub-region's forecast employment needs with sufficient flexibility to respond to uncertainties and changing economic circumstances? Will employment opportunities available be mixed to suit a varied employment skills base? Does the Plan support opportunities for the expansion and diversification of business and inward investment? Does the Plan maintain and enhance the economic vitality and vibrancy of town centres by focusing development in or close to these centres? Does the Plan support an appropriate level of retail and other services in smaller service centres and rural areas?

HIA topic	Relevant IIA objective and appraisal question
Gross Domestic Product	Does the Plan provide new and improved education and training facilities? Does the plan support online business operations (e.g. internet sales and marketing), home working and professional and social connections e.g. through providing high speed broadband?
Access and quality of services Medical services Shops and commercial services Public amenities Transport including parking Education and training Information technology Other caring services Careers advice	**IIA 2 Services and facilities** Does the Plan reduce the need to travel to access essential services and facilities* by providing these close to new and growing communities and/or locating new housing close to existing services and facilities? Does the plan support parking in appropriate locations to enable access to services and facilities for those with limited mobility? * E.g. schools, employment training and lifetime learning facilities, health facilities, recreation areas and services in town/district/local centres **IIA 4 Health** Does the Plan ensure access to health facilities (GPs / health centres) for all? **IIA 5 Economy** Does the Plan maintain and enhance the economic vitality and vibrancy of town centres by focusing development in or close to these centres? Does the Plan support an appropriate level of retail and other services in smaller service centres and rural areas? Does the Plan provide new and improved education and training facilities? Does the plan support online business operations (e.g. internet sales and marketing), home working and professional and social connections e.g. through providing high speed broadband? **IIA 6 Climate change mitigation** Does the Plan reduce the need to travel by promoting the delivery of integrated, compact communities made-up of a complementary mix of land uses? Does the Plan support the maintenance and expansion of public transport networks? Does the Plan support the provision and maintenance of facilities for electric vehicle charging and car-sharing? Does the Plan facilitate new and enhanced walking and cycling links?
Macro-environmental and sustainability factors Government policies Climate	**IIA 6 Climate change mitigation** Does the Plan minimise greenhouse gas emissions? Does the Plan reduce the need to travel by promoting the delivery of integrated, compact communities made-up of a complementary mix of land uses? Does the Plan support the maintenance and expansion of public transport networks? Does the Plan support the provision and maintenance of facilities for electric vehicle charging and car-sharing? Does the Plan facilitate new and enhanced walking and cycling links? Does the Plan help to address road congestion and its causes? Does the Plan promote energy efficient building design? Does the Plan encourage the provision of renewable energy infrastructure? Does the Plan support the efficient use of natural resources, minimising waste and promoting recycling? **IIA 11 Climate change adaptation and flood risk** Does the Plan avoid inappropriate types of development in areas at risk of flooding, taking into account the effects of climate change and mitigate residual risks via flood resilient design? Does the Plan seek to avoid development in locations likely to increase flood risk elsewhere? Does the plan promote the use of SuDS, where appropriate? Does the Plan safeguard human health and well-being by promoting climate change resilience through sustainable siting, design, landscaping and infrastructure?

HIA topic	Relevant IIA objective and appraisal question
	Does the Plan promote a coherent green infrastructure network?
Biological diversity	**IIA 12 Biodiversity** Does the Plan conserve designated and undesignated ecological and geological assets? Does the Plan identify opportunities for improvements to the conservation, connection and enhancement of ecological assets, taking into account the impacts of climate change? Does the Plan provide and manage opportunities for people to come into contact with resilient wildlife places while encouraging respect for and raising awareness of the sensitivity of such locations?

Table 10.3: Assumptions and rational for assessment of strategic site allocations in the South Essex JSP

IIA objective (see **Table 10.1** for supporting appraisal questions)	Assumptions and rationale for assessment
IIA 1: Housing To ensure that everyone has the opportunity to live in a decent home.	The development of any one site is unlikely to fully satisfy this IIA objective, although the delivery of all sites delivering new housing will contribute to it. It is assumed that all strategic sites will be required by policies within the JSP to provide: ■ A minimum of 30% affordable housing, including affordable rented. ■ A mix of housing types and tenures, including self-build, custom-build and starter homes at appropriate densities to their context. ■ Homes that are safe and accessible. ■ Homes that are designed to respond flexibly to the needs of an ageing population.
IIA 2: Services and facilities To ensure ready access to essential services and facilities close to where people live.	This IIA objective contains elements that also relate to IIA objective 6 (Climate change mitigation). Relevant factors are assessed in relation to both IIA objectives. Convenient provision of essential services and facilities within or close to strategic sites is assumed to result in fewer and shorter journeys to access these and to increase the likelihood that these journeys will be made on foot or by bike. It is assumed that all strategic sites will provide the following new services and facilities on-site, either in advance of occupation or phased with development with appropriate capacity, so that needs of new residents are fully met within acceptable walking distances: ■ Local centre ■ Early Years provision ■ Primary school ■ Youth centre ■ Community centre ■ Open space It is assumed that strategic sites providing at least 4,500 dwellings will additionally provide within acceptable walking distances, on the same phased basis as above: ■ Primary health care facilities ■ Secondary school The employment land area to be included in each strategic site will be provided by the South Essex Authorities. Where this is 10ha or more it will be assumed to constitute a centre of employment. A strategic site will be assumed to be within acceptable walking distance of an existing or committed secondary school when 50% or more of the site area is within 1km of the school (as represented by point data).

IIA objective (see **Table 10.1** for supporting appraisal questions)	Assumptions and rationale for assessment
	A strategic site will be assumed to be within acceptable walking distance of an existing or committed centre of employment when 50% or more of the site area is within 1km of the employment centre (as represented by shapefile data). The boundaries of existing or committed centres of employment will be provided by the South Essex Authorities and comprise individually significant employers (such as general hospitals and universities), employment areas (such as industrial parks), and town centres of higher order settlements (as defined by the SGLS). If the site is within walking distance of existing facilities but additional capacity is required to meet the demands of the site, it is assumed that the existing facilities would be enhanced or improved through developer contributions. Distance-based assessments of walkable access to existing secondary schools and employment areas will be subject to review of major barriers such as unbridged rivers, railways or strategic roads which may constrain accessibility. All effects are identified as uncertain because of uncertainties around the capacity of existing infrastructure and the new that would be delivered by the specific proposals that come forward.
IIA 3: Community cohesion To strengthen community cohesion and reduce inequalities.	Each strategic development site has the potential to affect the existing community surrounding the site and the new community occupying it. As such, two separate effects will be considered and reported as a mixed effect (e.g. --?/+) in relation to this IIA objective, as follows: *Effect on existing communities* Will be based on the degree of change to the existing community. For example, rural / dispersed communities or small settlements which are within or near to each strategic site are likely to undergo a significant change as a result of the development of that site. However, if the site and surrounding area is currently a large village or small town then the impacts of the development of the strategic site may not result in such a significant change to the existing character of the area and community. The approximate number of existing dwellings in each settlement will be used as a guide to understand the likely change to the existing community, based on the new development as a proportion of the existing. All effects are identified as uncertain because community reaction to new strategic scale development will depend on individual circumstances and values. *Effect on the new community* It is assumed that all strategic sites will provide a range of community facilities, as listed under IIA objective 2, helping to foster a sense of community.
IIA 4: Health To improve the population's health and reduce health inequalities.	There are several different factors which can influence the health of communities and, in particular, health inequalities. These include access to health and recreation facilities, exposure to noise pollution, air quality, groundwater quality and exposure to flood risk. The last three of these factors are considered more directly under other IIA objectives and are therefore scoped out of the assessment against this IIA objective to avoid duplication of assessment; where this is the case it is set out below. Access to health and recreation facilities and exposure to noise pollution are used to inform the assessment against this IIA objective. As such, all sites will receive a mixed effect (e.g. +/--) based on these two factors, as follows. *Access to health and recreation facilities* As noted under IIA objective 2, all strategic sites are assumed to make appropriate provision of open space. This will help to provide the opportunity for more active lifestyles and help to reduce inequalities in health, due to the low cost and accessible nature of the opportunity. As noted under IIA objective 2, it is assumed that all sites providing at least 4,500 dwellings will provide new primary healthcare facilities. Smaller sites are assumed to be within acceptable walking distance of an existing primary healthcare facility when 50% or more of the site area is within 800m of the facility (as represented by point data).

IIA objective (see **Table 10.1** for supporting appraisal questions)	Assumptions and rationale for assessment
	Distance-based assessment of walkable access to existing healthcare facilities is subject to review of major barriers such as unbridged rivers, railways or strategic roads which may constrain accessibility and discourage active travel. *Exposure to noise pollution* Frequent exposure to high level of noise can cause issues such as sleep disturbance, stress and physical health issues stemming from these. The World Health Organisation's Night Noise Guidelines for Europe (2009) set guideline values for health protection in terms of the metric set Lnight,outside which is the average annual noise level in the 8-hour period 2300-0700. The guidelines take account of the fact that the noise levels are measured outdoors but that the receptor (sleeping person) is indoors and that most people prefer to sleep with the window partly open. Adverse health effects begin to be observed when Lnight,outside is in the range 40-55 dB and when Lnight,outside is 55 dB or higher, adverse health effects occur frequently and there is a risk of cardiovascular disease. Since the lowest level of Lnight,outside reported in Defra's strategic noise maps is 50.0-54.9 dB the IIA assumes a minor negative effect where the majority of a strategic residential site is in this noise zone and a significant negative effect for residential development in 55.0 dB-59.9 and higher noise zones. The World Health Organisation's Guidelines for Community Noise (1999) set a guideline limit for average daytime noise in dwellings of 35 dB. Unlike the Night Noise Guidelines for Europe (2009) this limit is not based on the outdoor noise levels required to be monitored by Member States under the Environmental Noise Directive although, based on professional judgement, noise levels experienced indoors can be estimated to be, on average, 10 dB lower than outdoor noise levels so this guideline equates to an outdoor value of 45 dB. Serious annoyance in outdoor living areas occurs at outdoor noise levels of 55 dB. Defra's strategic noise maps show LAeq,16, the annual average outdoor noise levels for the 16-hour period 0700-2300, with the lowest reported noise band 55.0-59.9. The IIA assumes a minor negative effect where the majority of strategic residential site is this noise zone and a significant negative effect for residential development in 60.0 dB-64.9 and higher noise zones. The IIA does not consider exposure to noise pollution from roads and railways in relation to employment development as noise levels experienced by workers will be heavily influenced the type of work carried to be out on the premises, whether hearing protection is worn by employees, and the design of the building (e.g. offices are more likely than dwellings to be air conditioned and acoustically insulated).
IIA 5: Economy Facilitate a sustainable and growing economy that creates a range of new jobs and improves vitality and viability of town centres.	Development will affect the economy in multiple ways. The development of strategic sites will provide new homes in the area, which will increase the local workforce, providing a greater resource for businesses and organisations. In addition, the increasing population will contribute to the local economy by spending money in the area. The provision of new employment land will provide spaces for businesses to expand into, creating opportunities to achieve a prosperous economy and new employment opportunities. It is assumed that each strategic site will be supported by a suitable provision of services and facilities within a new local centre. It is also assumed that these facilities will be commensurate in scale to the size of the development site. It is assumed that provision of new employment opportunities or local centre services will complement rather than cannibalise existing employment opportunities and service centres in the surrounding area.
IIA 6: Climate change mitigation	Many factors that will influence climate change mitigation depend on design details, such as energy efficiency, inclusion of renewable energy generation and availability of electric vehicle charging points. As design details are not known at this stage of the planning process, the assessment of sites focuses on spatial factors, namely effects of the nature and location of a site on transport movements.

IIA objective (see **Table 10.1** for supporting appraisal questions)	Assumptions and rationale for assessment
To minimise the sub-region's contribution to climate change.	The implications of each site were assessed in relation to shorter journeys and those over longer distances. As such, a mixed effect (e.g. +?/+?) for this IIA objective will be reported, in accordance with the following assumptions: *Shorter journeys* Residential development that is close to centres of employment and key services and facilities can reduce the need to travel and facilitate walking and cycling for shorter journeys. All strategic sites are assumed to provide a range of new services and facilities to meet their needs, as set out under IIA objective 2. This is considered likely to result in shorter journey distances which facilitate the use of more sustainable modes of travel. Rules to be applied in calculating proximity to secondary schools and centres of employment are as set out under IIA objective 2. Distance-based assessments of walkable access to existing services and facilities will be subject to review of major barriers such as unbridged rivers, railways or strategic roads which may constrain accessibility. *Longer journeys* Longer journeys to destinations outside the site and its immediate surrounding area are assumed to generally be too far for walking and cycling. In order to reduce climate change emissions relative to journeys by private car, these depend on public transport networks such as bus and rail links. A strategic site will be assumed to be within acceptable walking distance of a railway station when 50% or more of the site area is within 1km of the employment centre (as represented by point data). Frequent peak time rail services will be defined as a half hourly or more frequent service to the most common commuting destinations during the morning and evening peak travel times. To inform this assessment, the top five commuting destinations from the Middle Super Output Area in which the strategic site is located will be identified, based on 2011 Census data. Uncertainty arises in relation to these effects because of the difficulties in predicting where people will choose to work and how they will choose to travel there.
IIA 7: Minerals To conserve mineral resources.	Development that coincides with mineral resources may prevent these resources from being extracted, i.e. sterilising them. The purpose of Minerals Safeguarding Areas is to prevent this. Uncertainty in the effects reflects that it may be possible to extract some or all of the mineral resource before development, depending on factors such as site layout and phasing of housing delivery.
IIA 8: Soils To conserve soils.	*Loss of agricultural land* Grades 1, 2 and 3a agricultural land are considered to be best and most versatile, whereas grades 3b, 4 and 5 are considered to be of lower value. However, Natural England's Agricultural Land Classification mapping does not differentiate between Grades 3a and 3b. *Prioritisation of brownfield land*

IIA objective (see **Table 10.1** for supporting appraisal questions)	Assumptions and rationale for assessment
	Prioritisation of brownfield or previously developed land over greenfield land for development helps to conserve agricultural soils and is encouraged by the NPPF. Local planning authorities are required to maintain a Brownfield Land Register, with Part 1 of the Register identifying brownfield sites appropriate for residential development. For consistency, land identified in these Part 1 Registers will be used to identify brownfield land for the IIA.
IIA 9: Water resources To maintain and improve the quality and quantity of water resources.	Effects in relation to this IIA objective relate to water quality, and to potential capacity issues in relation to water supply and wastewater treatment. As such, a mixed effect (e.g. --?/0?) effect for this IIA objective will be reported, in accordance with the following: *Water quality* Assessment of this objective relates to Groundwater Source Protection Zones (SPZs), which seek to maintain the quality of groundwater that provides our drinking water supply. In all cases, uncertainty arises because site specific mitigation may overcome significant issues. *Water scarcity and water treatment* A qualitative judgement based on evidence relating to water supply / treatment will be used to assess strategic sites against this IIA objective. In locations where there are no identified water supply or wastewater treatment issues relating to the potential scale of growth at the site, or where additional capacity is required but is considered likely to be feasible, uncertainty arises as the specific requirements will be finalised through further work including the preparation, submission and determination of a planning application. In locations where the evidence suggests that there may be constraints to the water supply or wastewater treatment capacity and there are likely to be feasibility issues with these improvements, uncertainty arises because the specific requirements will be finalised through further work including the preparation, submission and determination of a planning application, and because the mitigation to overcome capacity issues may be deliverable.
IIA 10: Air quality To reduce air pollution and ensure improvements in air quality.	Assessment in relation to this IIA objective will comprise two components and as such, a mixed effect (e.g. 0/-?) effect for this IIA objective will be reported, in accordance with the following: *Intersection with AQMAs* Air Quality Management Areas (AQMAs) are areas which have been identified as requiring where intervention to address poor air quality. If residential development is proposed in these areas, it risks exposing residents to potentially harmful air pollution. Uncertainty arises because mitigation measures may overcome these effects, but this is not known. *Potential contribution to road traffic within AQMAs* A judgement will be made as to whether car commuting journeys originating from the strategic site are likely to pass through an AQMA and therefore be likely to exacerbate existing air quality issues. To inform this assessment, the top five commuting destinations from the Middle Super Output Area in which the strategic site is located will be identified, based on 2011 Census data. Uncertainty arises in relation to all effects, as it is not known exactly how and where people will travel.

IIA objective (see **Table 10.1** for supporting appraisal questions)	Assumptions and rationale for assessment
IIA 11: Climate change adaptation To ensure communities are able to adapt to climate change, including avoiding and mitigating flood risk.	For the IIA of strategic site options, this objective will be assessed with reference to flood risk only. This is because other aspects of adapting to climate change depend on the design of development and therefore cannot be assessed by using spatial information. In all cases, the uncertainty arises because site specific mitigation may overcome significant issues.
IIA 12: Biodiversity To conserve, connect and enhance the sub-region's biodiversity and geodiversity.	Development sites that are close to wildlife sites may have the potential to adversely affect their features of interest, e.g. through habitat damage/loss, fragmentation, disturbance to species, air pollution, increased recreation pressure and so on. Conversely, there may be opportunities to promote habitat connectivity if new developments include green infrastructure. Therefore, while proximity to designated sites provides an indication of the potential for an adverse effect, uncertainty exists, as actual effects will depend on the particular sensitivities of the interest features of each wildlife site and appropriate mitigation may avoid adverse effects and may even result in beneficial effects. Effects on internationally designated sites are assessed in detail via the HRA of the JSP; effects on all categories of wildlife site and on protected species will be considered in more detail through the development management process. For the purposes of the IIA and in the absence of separately commissioned evidence, Impact Risk Zones (IRZs) defined by Natural England are used to provide an initial assessment of the potential risks posed by development proposals to: Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. IRZs define zones around each biodiversity site which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts. Note that all SACs, SPAs, Ramsar sites and NNRs are also designated as SSSIs therefore SSSIs are used as a proxy for all these designations in the IIA. A zone of influence of 400m is assumed for all locally designated wildlife sites and ancient woodland, based on professional judgement. It is possible that, where strategic site options intersect with designated biodiversity sites, site-specific (e.g. masterplanning that avoids sensitive areas) or plan-wide (e.g. requirement for all development to contribute to a Recreational disturbance Avoidance and Mitigation Strategy) mitigation measures may overcome significant negative effects but this is not known.
GIS data: **IIA 13: Historic environment** To conserve and/or enhance the significant qualities, fabric, setting and accessibility of the historic environment.	The potential effects of strategic sites will be identified in relation to two aspects of this IIA objective, resulting in a mixed effect (e.g. -?/0) in all cases as follows: *Effects on historic environment assets* If development takes place in the location of historic environment assets, there is the potential for them to be adversely affected. Even if no physical alteration of assets would occur, the setting of these features may be affected by development. Effects on the setting of historic assets are difficult to determine with any certainty during a strategic level assessment such as this IIA although the potential for effects can be assessed to some degree via a specialist study of strategic site options that takes into account: ■ the significance and sensitivity of heritage assets, including how their setting contributes to their significance; and ■ the likely scale, design and layout of potential new development. It is recommended that such a study be carried out in consultation with Historic England but in the absence of such a study, the proposed assessment criteria, based on proximity to designated historic assets, would provide some indication of the potential for effects on designated historic environment assets. In this case, non-designated heritage assets such as those appearing in Historic Environment Records (HERs) would not be included because of the strategic nature of both the JSP and its accompanying IIA.

IIA objective (see **Table 10.1** for supporting appraisal questions)	Assumptions and rationale for assessment
	Effects on townscape It is assumed that a strategic site is capable of a significant effect on townscape when it provides for a significant increase (10% or more) in the number of dwellings of a nearby settlement (within 500m of the site boundary). This is likely to significantly change the character of that settlement but whether this change will be positive or negative will depend on the quality of design of the new development, therefore the effect will be identified as uncertain.
IIA 14: Landscape To conserve and enhance the quality of landscapes.	Assessment of this objective relies on landscape sensitivity evidence. Uncertainty in the effects reflects that landscape impacts will depend on the particular design of development proposals that come forward, including the massing, layout, and height of buildings, the building materials used, and the use of landscaping.

Use of the IIA Framework

10.9 The IIA will be undertaken in close collaboration with the South Essex Local Authorities (Basildon, Brentwood, Castle Point, Rochford, Southend-on-Sea and Thurrock) responsible for drafting the JSP in order to fully integrate the IIA process with the production of the JSP.

10.10 The findings of the IIA will be presented as a colour coded symbol showing a score for the option against each of the IIA objectives along with a concise justification for the score given, where appropriate. It may be possible to group the appraisal of strategic and development management policies by theme.

10.11 The use of colour coding in the matrices will allow for likely significant effects (both positive and negative) to be easily identified, as shown in **Table 10.4:**.

Table 10.4: IIA scoring guide

++	Significant positive effect likely
++/-	Mixed significant positive and minor negative effects likely
+	Minor positive effect likely
+/-	Mixed minor effects likely
-	Minor negative effect likely
--/+	Mixed significant negative and minor positive effects likely
--	Significant negative effect likely
0	Negligible effect likely
?	Likely effect uncertain

10.12 The dividing line between sustainability scores is often quite small. Where significant effects are distinguished from more minor effects this is because, using the appraisal questions and criteria and applying professional judgement, the effect of the option on the IIA objective will be of such magnitude that it will have a noticeable and measurable effect compared with other factors that may influence the achievement of that objective.

10.13 In determining the significance of the effects of the options for potential inclusion in the JSP it will be important to bear in mind the JSP's relationship with the other documents in the planning system such as the NPPF and other national policy approaches, and regulatory requirements, as these may provide additional safeguards or mitigation of potentially significant adverse effects.

Reasonable alternatives

10.14 The IIA must appraise not only the preferred options for inclusion in the JSP but 'reasonable alternatives' to these options. This implies that alternatives that are not reasonable do not need to be subject to appraisal. Part (b) of Regulation 12(2) notes that reasonable alternatives will take into account the objectives of the plan, as well as its geographical scope. Therefore, alternatives that do not meet the objectives of national policy or are outside the Plan area are unlikely to be reasonable.

10.15 The objectives, policies and site allocations to be considered for inclusion within the JSP are in the process of being identified and reviewed. The Councils' reasons for selecting the alternatives to be included in the JSP will be reported at a later stage in the IIA process.

Chapter 11
Consultation and next steps

11.1 In order to meet the requirements of the SEA Regulations, the views of the three statutory consultees (Environment Agency, Historic England and Natural England) are being sought in relation to the scope and level of detail to be included in the IIA Report, as well as the views of other interested parties and the public.

11.2 As outlined in the introduction, the consultees are requested to consider:

- Whether the scope of the IIA is appropriate as set out considering the role of the South Essex JSP to help meet and manage South Essex's needs.
- Whether there are any additional plans, policies or programmes that are relevant to the IIA that should be included.
- Whether the baseline information provided is robust and comprehensive and provides a suitable baseline for the IIA of the South Essex JSP.
- Whether there are any additional IIA issues relevant to the JSP that should be included.
- Whether the IIA Framework is appropriate and includes a suitable set of IIA objectives and site-based assumptions for assessing the effects of the options included within the South Essex JSP and reasonable alternatives.

11.3 Responses from consultees will be reviewed and appropriate amendments made to the Scoping Report, including the baseline, policy context and IIA Framework where necessary.

11.4 The next formal output of the IIA process is expected to be at the 'Regulation 18' JSP stage of public consultation, during which reasonable alternative strategic sites / policies will be assessed. The results of this assessment will inform the South Essex planning team in their preparation of subsequent iterations of the JSP. The IIA of the JSP will be reported in an IIA Report (incorporating the later stages of the IIA process) which will be published for public consultation alongside the Draft JSP.

LUC

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