

Association of South Essex Local Authorities

South Essex Strategic Infrastructure Position Statement

Stage A Report: Baseline Study
2019



ARUP

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Executive Summary

Overview

South Essex is recognised nationally for its significant opportunities for transformational growth and the potential to deliver substantial numbers of new homes and jobs.

Seven local authorities across South Essex – **Basildon Council**, **Brentwood Borough Council**, **Castle Point Borough Council**, **Rochford District Council**, **Southend-on-Sea Borough Council** and **Thurrock Council**, plus **Essex County Council** – have recognised the need to work across borders on strategic issues, in particular on infrastructure, planning and growth, skills, housing and transport. The local authorities have set out a vision and agreed a common approach to support the region's growth and development of housing, employment and key infrastructure over the next 20 years.

The seven authorities established the **Association of South Essex Local Authorities (ASELA)** in January 2018, to lead on the implementation of the long-term growth ambitions. ASELA has signed a Statement of Common Ground to help manage strategic planning matters across local authority areas and strengthen the duty to co-operate.

To assist the delivery and implementation of the priorities, ASELA have agreed to prepare a new **Joint Strategic Plan (JSP)** for the area, the project management arrangements of which are set out in the Statement of Common Ground. The JSP aims to deliver the priorities set out in the Memorandum of Understanding and facilitate a co-

ordinated approach to strategic growth in the South Essex area, overseeing the delivery of new homes, maximising economic opportunities for the region including for businesses and skills, and aligning this to improvements in infrastructure.

The South Essex authorities aim to deliver a minimum of 96,000 new homes and over 52,000 new jobs by 2038. However, there are challenges, and the area needs strategic planning, strong delivery and investment.

Strategic Infrastructure Position Statement and Strategic Infrastructure Development Plan

ASELA has commissioned Arup to prepare a Strategic Infrastructure Position Statement (SIPS) and Strategic Infrastructure Delivery Plan (SIDP), forming part of the evidence base for the JSP. The purpose of the SIPS and SIDP is to set out the infrastructure that will be required to deliver the planned level of housing and employment growth over the plan period to 2038.

The purpose of the SIPS is to understand existing strategic provision across the study area, and what additional provision is required to support the level of housing and employment growth contained in the JSP. Stage A of the SIPS is the Baseline Study, and covers:

- strategic issues in relation to the planning and delivery of infrastructure;

- key areas of shortfalls in provision (or, vice versa, areas with capacity);
- current planned projects to meet future demand; and
- implications for the emerging JSP.

Stage B of the SIPS will be the Infrastructure Requirements Study, and will consider the infrastructure required to support the growth distribution in the emerging JSP.

The SIDP will follow and build on the SIPS, and will identify the strategic infrastructure required to support the development locations and policies within the JSP.

The information included in this Baseline Study is based on desk-based assessment undertaken in Spring 2019. The baseline will be updated, where necessary, as part of subsequent stages of work.

The study area for the Stage A of the SIPS (Baseline Study) does not include the authority of Thurrock. Given the stage of the plan making process Thurrock is currently at, it is instead producing a standalone infrastructure baseline which will inform both the Thurrock Local Plan and the wider JSP. The findings of this standalone infrastructure baseline will inform the subsequent stages of the SIPS and SIDP.

The key findings of this Baseline Study are set out below.

Transport



Existing capacity issues are known on the highways and public transport network.

There are capacity constraints on the Strategic Road Network, including

on the A12, A13, and A127. This leads to congestion, overcrowding and journey time unreliability. Additional, capacity issues are reported on the Great Eastern Main Line, particularly at peak time. Bus services are not considered to meet the needs of local people, including lack of suitable routes and poor reliability. These issues are anticipated to worsen with the planned growth in South Essex if not addressed – this could include a move towards sustainable forms of transport and changes to how (and how much) people move in the future.

London Southend Airport, Tilbury Dock, and London Gateway all have significant expansion plans, contributing to additional commuting journeys and more freight on the transport network. Mitigation may be required to ensure the efficient operation of the surrounding transport network in South Essex.

Whilst there are good east to west rail links across the JSP area, there are areas which experience current and forecast capacity issues. Whilst locations in proximity to railway stations or lines may be considered sustainable growth locations, it should be acknowledged that significant funding may be required to provide sufficient capacity to accommodate growth in a sustainable way.

Essex County Council is currently updating its strategic road model including identifying current constraints on the network. The updated model will be used to identify mitigation measures required to support planned growth.

The next steps for Stage B (Infrastructure Requirements Study) are:

- **Identify transport interventions and mitigations to make good the existing transport network and support the delivery of future growth.**

Education



The education authorities' own pupil place planning shows that there are a number of areas of future shortfall in education provision across the study area. There are no areas of significant capacity which would appear to support strategic growth and would therefore steer the emerging JSP in a particular direction. However, the JSP area's strong further and higher education offer may offer the opportunity for wider catalysts for growth.

Strategic growth locations will require new education facilities, so the lack of current spare capacity does not restrict areas being considered for growth. However, it may have an impact on the type of growth which is possible – for instance, urban intensification may not allow for sufficient sized sites required for additional education facilities.

Strategic growth may offer an opportunity to bring forward new education facilities in or near areas which have current or future capacity constraints.

The next steps for Stage B (Infrastructure Requirements Study) are:

- **Determine the education and early years and childcare**

requirement to support strategic growth locations.

Health, Adult Social Care and Emergency Services



All Clinical Commissioning Groups (CCGs) across the JSP area have identified existing capacity issues, both in the number of GP places and the quality and fitness-for-purpose of existing facilities. Strategic growth will put additional pressure on the services, and so additional capacity will be required.

Significant growth locations may warrant new standalone facilities; this may therefore be a consideration in determining strategic growth locations and quantum across the JSP area.

Strategic growth may also offer an opportunity to bring forward new healthcare facilities in or near areas which have current or future capacity constraints.

Secondary healthcare across the JSP is being redesigned through the Sustainability and Transformation Partnership (STP). As the distribution of strategic growth across the area becomes clearer, it will be important to consult with the CCGs to ensure it can be incorporated into emerging plans for secondary healthcare.

Strategic growth locations are likely to require new residential and nursing care facilities. Whilst current patterns of provision are unlikely to steer the emerging JSP in a particular direction, strategic growth may offer an opportunity to bring forward new adult social care facilities in or near

areas which have existing capacity constraints.

Emergency services are undergoing modernisation and rationalisation processes which affect the extent of the physical estate required. Strategic growth is unlikely to require additional new emergency services facilities. Instead, the recent trend is for the rationalisation of the existing estate. With this comes a greater need for collaboration and co-location with other services to ensure community visibility and close working relationships with vital partnerships.

The next steps for Stage B (Infrastructure Requirements Study) are:

- **Determine healthcare and adult social care requirements to support the strategic growth locations, taking into account local and national provision requirements and standards.**
- **Determine future estates management plans to identify where they may be future changes to emergency services facilities.**
- **Determine through consultation whether new facilities are required to support major growth areas.**
- **Continue to engage with the CCGs on the development of the STP.**

Community and Sport and Leisure



There are varying levels of capacity and constraints across the JSP area,

depending on the type of community or sports facility in questions.

Most facilities are provided on a local rather than a strategic scale, so on the whole the existing pattern of provision does not constrain growth steer the emerging JSP in a particular direction. Strategic growth locations are likely to require new facilities, so any lack of current spare capacity does not restrict areas being considered for growth.

Strategic growth may offer an opportunity to bring forward major new facilities in or near areas which have current capacity constraints; this should be considered further as the JSP progresses.

The next steps for Stage B (Infrastructure Requirements Study) are:

- **Determine the community and sports facilities requirements to support the strategic growth locations, taking into account any provision standards.**
- **Engage with Sport England, Active Essex and local authorities to understand likely requirements and delivery mechanisms.**

Open Space and Green and Blue Infrastructure



The current provision of open space and green infrastructure does not constrain growth options; it will however be important to ensure strategic growth can be served by open space (in terms of quantity, quality and accessibility), and maximises the opportunities to develop the network of green and blue infrastructure.

There is an opportunity to embed green and blue infrastructure in the JSP by including both sites and policies which allow for the development of new green and blue assets and better links with existing assets.

The next steps for Stage B (Infrastructure Requirements Study) are:

- **Determine the open space requirements to support the strategic growth locations, taking into account the provision standards set out above.**
- **Consider opportunities to upgrade poorer quality existing open space through strategic growth.**
- **Consider opportunities to deliver strategic green and blue infrastructure upgrades and strengthen the wider network through strategic growth.**

Utilities and Waste



The evidence base does not suggest there are overwhelming challenges to the supply of water, and there is a surplus supply of water across the Essex Water Resources Zones. Connections to the supply network will be required to support strategic development.

There are a number of upgrade projects planned for the JSP area. The evidence base does not suggest that there are significant challenges to meeting wastewater requirements, and Anglian Water have a statutory duty to plan for future development. However, phasing of delivery is likely to be important, and there will

be a requirement to work closely with Anglian Water once the location and timing of proposed growth is more certain.

The evidence base does not suggest there are areas where there are challenges which cannot be overcome in providing electricity to users, or areas of significant over-supply which might be utilised – although major substations in the area do have available capacity.

There are constraints in relation to new generation connections (particularly in the south and east of the study area), which could be a consideration in determining strategic growth locations across the JSP area.

The evidence base does not suggest there are any areas where there are significant challenges in providing gas to users; nor where there are areas of significant over-supply which might be utilised.

Waste planning should demonstrate an adherence to the ‘proximity principle’ – treating waste close to the source of where it is created (though also taking into account economies of scale and other considerations).

The locations of future waste facilities, as set out in the Essex and Southend-on-Sea Waste Local Plan – may have an impact on the locations available for strategic growth. The location of overhead lines and cables and high-pressure gas pipelines may also impact on the location of growth and should be taken into account in site selection and masterplanning of sites.

The next steps for Stage B (Infrastructure Requirements Study) are:

- **More detailed consultation with utilities providers will be required once there is more certainty around locations for growth.**

(SuDS) requirements, should be further considered.

Flood Protection



Flood risk should be a key consideration in the assessment of options for future strategic growth locations to be included in the JSP.

This should be in line with the Planning Practice Guidance, which sets out a sequential, risk-based approach to identifying locations for development.

In addition to flood risk areas, the standard of existing flood risk infrastructure should also be considered and a strategic approach should be taken to identifying strategic growth locations on this basis. If existing infrastructure requires upgrading, provision could be made via developer obligations.

Anglian Water's plans for future capacity and new sustainable solutions available should also be considered. In addition, the Thames Estuary TE2100 plans provide guidance across the wider strategic area for potential tidal flood risks and key risk areas that should be taken into account.

The next steps for Stage B (Infrastructure Requirements Study) are:

- **Once there is more certainty around locations for growth, the requirements for new strategic flood defences and drainage, including on-site sustainable drainage systems**

1 Introduction

1.1 Overview of the Association of South Essex Local Authorities

South Essex is recognised nationally for its significant opportunities for transformational growth and the potential to deliver substantial numbers of new homes and jobs. The recent Thames Estuary 2050 Growth Commission Report: 2050 Vision highlighted the national priority for growth and regeneration in the area, identifying the strengths of the Thames Estuary including: its proximity to London; international trade via its ports; strong educational institutions; and the availability for land to deliver new homes.

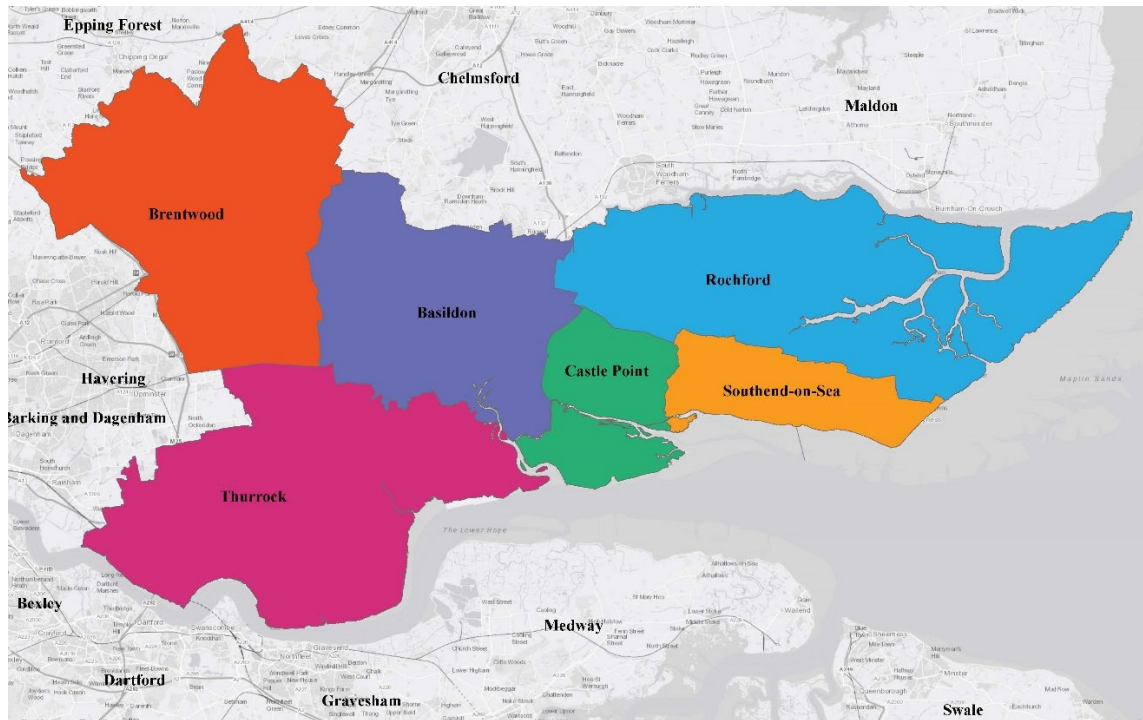
Seven local authorities across South Essex – **Basildon Council, Brentwood Borough Council, Castle Point Borough Council, Rochford District Council, Southend-on-Sea Borough Council and Thurrock Council**, plus **Essex County Council** – have recognised the need to work across borders on strategic issues particularly on social and physical infrastructure provision. The strategic issues focus on planning and growth across the area, and how sufficient social infrastructure including for education and employment, health, sports and leisure facilities and green and blue infrastructure are provided to accommodate the new communities. The authorities also concerned with the delivery of adequate transport, utilities and waste, and flood provision to support future growth. As such, the local authorities have set out a vision and agreed a common approach through a Memorandum of Understanding prepared in February 2017. The approach agrees to support the region's growth and development of housing, employment and key infrastructure over the next 20 years with a commitment amongst the Authorities for collaborative working.

The seven authorities established the **Association of South Essex Local Authorities (ASELA)** in January 2018, to lead on the implementation of the long-term growth ambitions. ASELA has signed a Statement of Common Ground (SoCG)¹ to help manage strategic planning matters across local authority areas and strengthen the duty to co-operate. This includes taking proactive approaches to planning across housing market areas and an agreement of how these will be delivered in all relevant Local Plans. All South Essex Authorities have endorsed the SoCG and have updated or will update their Local Development Schemes to reflect the South Essex Local Plan Portfolio.

¹ Available here:

<https://www.castlepoint.gov.uk/download.cfm?doc=docm93jjm4n3547.pdf&ver=5928>

Figure 1 Association of South Essex Local Authorities



ASELA has agreed a Memorandum of Understanding setting out their strategic priorities for joint working named 'South Essex 2050'. The priorities of the South Essex 2050 are:

- Provide place leadership.
- Open up spaces for housing, business and leisure development by developing a spatial strategy.
- Transform transport connectivity.
- Support the seven sectors of industrial opportunity (advanced manufacturing, construction, environmental technologies and energy, digital and creative services, life sciences and healthcare, and transport and logistics).
- Shape local labour and skills markets.
- Create a fully digitally enabled place.
- Secure a sustainable energy supply.
- Influence and secure funding for necessary strategic infrastructure.
- Enhance health and social care through co-ordinated planning.
- Work with and provide a voice for South Essex to the Thames Estuary 2050 Growth Commission and Commissioners.

1.2 Overview of South Essex Joint Strategic Plan

To assist the delivery and implementation of the priorities, ASELA have agreed to prepare a new Joint Strategic Plan (JSP) for the area, the project management arrangements of which are set out in the Statement of Common Ground. The JSP

aims to deliver the priorities set out in the Memorandum of Understanding and facilitate a co-ordinated approach to strategic growth in the South Essex area, overseeing the delivery of new homes, maximising economic opportunities for the region including for businesses and skills, and aligning this to improvements in infrastructure. It is the intention that the JSP will be supported by individual Local Plans which will set out non-strategic policies to support the higher-level JSP policies.

The South Essex authorities aim to deliver a minimum of 96,000 dwellings and over 52,000 new jobs by 2038. However, there are challenges, and the area needs strategic planning, strong delivery and investment. In particular, a large amount of the new development, especially in the first ten years of the JSP, will take place within urban areas, putting pressure on existing facilities and spaces.

1.3 Purpose of Strategic Infrastructure Position Statement and Strategic Infrastructure Development Plan

ASELA has commissioned Arup to prepare a Strategic Infrastructure Position Statement (SIPS) and Strategic Infrastructure Delivery Plan (SIDP), forming part of the evidence base for the JSP. The purpose of the SIPS and SIDP is to set out the infrastructure that will be required to deliver the planned level of housing and employment growth over the plan period to 2038.

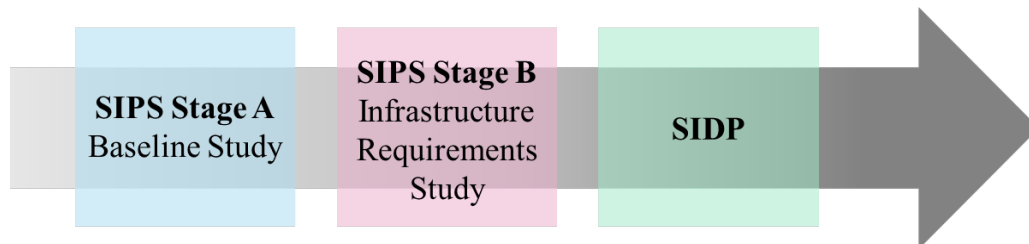
The purpose of the SIPS is to understand existing strategic provision across the JSP area, and what additional provision is required to support the level of housing and employment growth contained in the JSP. The SIPS comprises two separate stages, each with a report:

- **Stage A (Baseline Study)** (this report). This report has been produced to support Regulation 18 (Issues) Stage, and covers:
 - strategic issues in relation to the planning and delivery of infrastructure;
 - key areas of shortfalls in provision (or, vice versa, areas with capacity);
 - current planned projects to meet future demand; and
 - implications for the emerging JSP.
- **Stage B (Infrastructure Requirements Study)**. This report will be produced to support Regulation 18 (Preferred Options) Stage, and will consider the infrastructure required to support the growth distribution in the emerging JSP.

The SIDP will follow and build on the SIPS, and will support the Regulation 19 Publication Stage and the Submission JSP. It will identify the strategic infrastructure required to support the development locations and policies within the JSP. More specifically, it will:

- determine infrastructure need across the area to support planned growth;
- estimate cost, funding sources and phasing of delivery;
- identify key bodies with responsibility for delivering infrastructure;

- inform further work being undertaken by ASELA in relation to the JSP viability and implementation.



The information included in this Baseline Study is based on desk-based assessment undertaken in Spring 2019. The baseline will be updated, where necessary, as part of subsequent stages of work.

1.4 Study Area

The study area for this Baseline Report is made up of the following five local authorities (as shown in Figure 2):

- Basildon
- Brentwood
- Castle Point
- Rochford
- Southend-on-Sea

The study area does not include the authority of Thurrock. Given the stage of the plan making process Thurrock is currently at, it is instead producing a standalone infrastructure baseline which will inform both the Thurrock Local Plan and the wider JSP. The findings of this standalone infrastructure baseline will inform the subsequent stages of the SIPS and SIDP.

Whilst Thurrock falls outside of the current study area, this Baseline Report in parts does make reference to some infrastructure which falls within Thurrock. This is for the following reasons:

- Where this infrastructure serves the wider current study area (including transport, health, further and higher education, wastewater and electricity).
- Where there is a recent overarching evidence base document already in place – for example, the South Essex Indoor Built Facilities Overarching Strategy and Action Plan.

Figure 2 SIPS Stage A study area



Structure

This Stage A (Baseline Study) Report is structured as follows:

Section 2 outlines the national, sub-regional and local policy context for the delivery of infrastructure.

Section 3 summarises the methodology used to produce the Strategic Infrastructure Position Statement Stage A.



Section 4 covers transport.

Section 5 covers education.



Section 6 covers health, adult social care and emergency services.

Section 7 covers community facilities and sports and leisure.



Section 8 covers open space and green and blue infrastructure.

Section 9 covers utilities and waste.



Section 10 covers flood protection
and drainage.

2 Policy Review

2.1 National Context

2.1.1 National Planning Policy Framework

The revised National Planning Policy Framework (NPPF) (2019) requires planning authorities to positively plan for development and infrastructure required in the area to meet the needs associated with growth. Local planning authorities must progress a proportionate evidence base for infrastructure which assesses the quality and capacity of various forms of infrastructure.

Infrastructure Delivery Plans (IDPs) are therefore an important part of the evidence base for local development plans. Their purpose is to demonstrate that the infrastructure requirements necessary to support the level of housing and employment growth proposed can be delivered.

Paragraph 16 of the NPPF states that plans should be prepared positively, in a way that is aspirational but deliverable, while being prepared with the objective of contributing to the achievement of sustainable development. Specifically, the NPPF states that both strategic (paragraph 20) and non-strategic (paragraph 28) policies should set out the overall strategy for the pattern, scale and quality of development, and make sufficient provision for infrastructure, including transport and community facilities (such as health and education).

Paragraph 34 of the NPPF states the following:

“Plans should set out the contributions expected from development. This should include setting out the levels and types of affordable housing provision required, along with other infrastructure (such as that needed for education, health, transport, flood and water management, green and digital infrastructure). Such policies should not undermine the deliverability of the plan.”

2.1.2 Planning Practice Guidance

Planning Practice Guidance (PPG) (paragraphs 059 and 060, references 61-059-20190315 and 61-060-20190315) explains the role and function a Local Plan in delivering infrastructure:

- The Local Plan should identify what infrastructure is required and how it can be funded and brought on stream at the appropriate time.
- Early discussion with infrastructure and service delivery providers (alongside strategic bodies including Local Enterprise Partnerships, developers, landowners and site promoters) should be undertaken to collaboratively identify infrastructure deficits and requirements, and opportunities for addressing them. In doing so they will:

- Assess the quality and capacity of infrastructure, and its ability to meet forecast demands. Policies should set out how identified deficiencies will be addressed; and
- Take account for strategic infrastructure, including nationally and significant infrastructure, within these areas.
- An Infrastructure Funding Statement should be prepared using available evidence to set out the anticipated funding from developer contributions, and the choices local authorities have made about how these contributions will be used. At examination this can be used to demonstrate the delivery of infrastructure throughout the plan-period. Authorities will also need to ensure that policies setting out contributions expected from development do not undermine delivery of the plan (including consideration of viability).
- Where longer term growth is planned through new settlements or significant extensions to existing villages or town, less detail may be provided as the position regarding the provision of infrastructure is likely to be less certain. In these circumstances, it is expected that authorities will demonstrate a reasonable prospect that the proposals can be developed within the timescale envisaged. It is recognised that such proposals may extend outside of a single plan period; subsequent plans and plan reviews may be used as an opportunity to provide greater certainty about the delivery of the agreed strategy. Annual reviews of the infrastructure funding statement should feed back into review of plans to ensure that plans remain deliverable.

2.2 Planning Obligations

Planning obligations assist in mitigating the impact of unacceptable development to make it acceptable in planning terms. Planning obligations may only constitute a reason for granting planning permission if they meet all the tests set out in Paragraph 56 of the NPPF: necessary to make the development acceptable in planning terms; directly related to the development; and fairly and reasonably related in scale and kind to the development. The PPG (paragraph 002, reference 10-002-20190509) states that local authorities should ensure that the combined total impact of such requests, and policies more generally, does not threaten the deliverability of the plan.

Developers may be asked to provide contributions for infrastructure in several ways. This may be by way of Community Infrastructure Levy (CIL) charged, or through Section 106 Agreements and Section 278 Agreements relating to highways works. To date, only Southend-on-Sea Borough Council have a local CIL Charging Schedule in place.

Previous ‘pooling’ restrictions under the CIL Regulations 2010 (2014 amendments) (meaning that authorities could not pool more than five obligations to pay for a single piece of infrastructure) were removed as part of the 2019 amendments brought forward in September 2019.

Essex County Council's Developer's Guide to Infrastructure Contributions (2016)² sets out the approach to securing appropriate infrastructure provision. The Guide covers the administrative area of Essex County Council; the developer contribution policies of Southend-on-Sea and Thurrock are not covered in this guide as they are unitary authorities and lie outside of Essex. The Guide sets out the scope and range of contributions towards infrastructure, which the County may seek from developers and land owners to make development acceptable in planning terms. It does not cover services provided by second tier district authorities (the District and Borough Councils). It also sets out infrastructure policy standards and costing information, to help standardise the approach to delivery, and ensure new developments are sustainable. The County is currently updating the Guide, expected later in 2019.

Southend-on-Sea have produced the Planning Obligations: A Guide to Section 106 and Developer Contributions SPD 2 (2015) to advise on developer contributions. The SPG provides clarity in respect of developer contributions towards infrastructure, including information on what infrastructure may be funded by CIL and what will be site specific planning obligations under Section 106. It sets out how these mechanisms, along with planning conditions and Section 278 will be used together to help achieve sustainable development.

2.3 Collaboration and Delivery

The Government has placed greater emphasis on the requirement for strategic partners and local planning authorities to cooperate on planning issues that cross administrative boundaries, particularly those which relate to the strategic priorities. This is in recognition that successful delivery needs to be underpinned by a comprehensive package of infrastructure, phased and delivered in a timely way, ahead of, or in tandem with the development it serves. This necessitates a coordinated approach across local authority boundaries and the involvement of a range of partners, including the infrastructure providers, the councils and the Local Enterprise Partnerships, amongst others.

Paragraph 27 of the NPPF sets out the statutory requirement for strategic policy-making authorities to prepare and maintain statements of common ground, to document the cross-boundary matters being addressed and the progress being made address these in co-operation. The Statement of Common Ground should be prepared under the scope and guidance defined in the PPG Paragraph 003 Reference ID: 61-003-20180913, which includes:

- the key strategic matters being addressed;
- the plan-making authorities responsible for joint-working detailed in the statement;
- governance arrangements for the cooperation process; and
- a record of where agreements have been reached on key strategic matters.

² Essex County Council (2016) The Essex County Council Developers' Guide to Infrastructure Contributions

In the preparation of the JSP, ASELA has agreed a Statement of Common Ground and a Memorandum of Understanding and recommend the endorsement of the final JSP to all South Essex LPAs and Essex County Council. At this stage, all South Essex local planning authorities have updated their Local Development Schemes. The Statement of Community Involvement to reflect the JSP will also be updated.

The SoCG sets out that minerals and waste in South Essex is the responsibility of Thurrock and Southend Councils, and Essex County Council. This is managed through separate local planning processes and are therefore not part of the JSP. A separate SoCG will be prepared to help manage the strategic minerals and waste planning matters.

The six authorities preparing Local Plans are not all at the same stage of the plan-making process but have come together where necessary to complete evidence bases to support the delivery of the strategic growth ambitions. The SIPS and SIDP draws on existing plans and completed work by the authorities as well as other sources including the Thames Estuary 2050 Growth Commission (see below), the South East London Enterprise Partnership Strategic Economic Plan, and the South Essex Growth and Infrastructure Fund.

Other government strategies to ensure comprehensive thinking across authority boundaries include the Thames Estuary 2050 Growth Commission³ which was established to help identify and realise the growth potential of the area. The Commission was established in 2016 to develop strategic delivery plans for north Kent, south Essex and east London, recognising the Estuary's strengths from its proximity to London, its international trade gateways via the ports, and the well-renowned education and research institutions. Given the scale of the area, a strong and coordinated governance structure is required to make strategic planning decisions, particularly around infrastructure delivery. In March 2019 the Government provided a response to the Commission to demonstrate its commitment to growth in the Thames Estuary. The Government will support and deliver growth in the Estuary, affirming several commitments including creating a £1m strategic board, exploring ambitious housing and infrastructure deals with authorities in the Estuary, and continuing to progress with transport infrastructure investment.

Similarly, the South East Local Enterprise Partnership (SELEP) was established to provide a clear vision to drive private sector-led growth across the South East region. The SELEP is formed of businesses, councils, universities and other key stakeholders to look at investment priorities by functional economic area, rather than being limited to administrative boundaries.

2.4 Local Plan Growth

The individual authorities which make up ASELA are already planning for a significant level of growth through their individual Local Plans, which are all at

³ Thames Estuary 2050 Growth Commission (2018) 2050 Vision

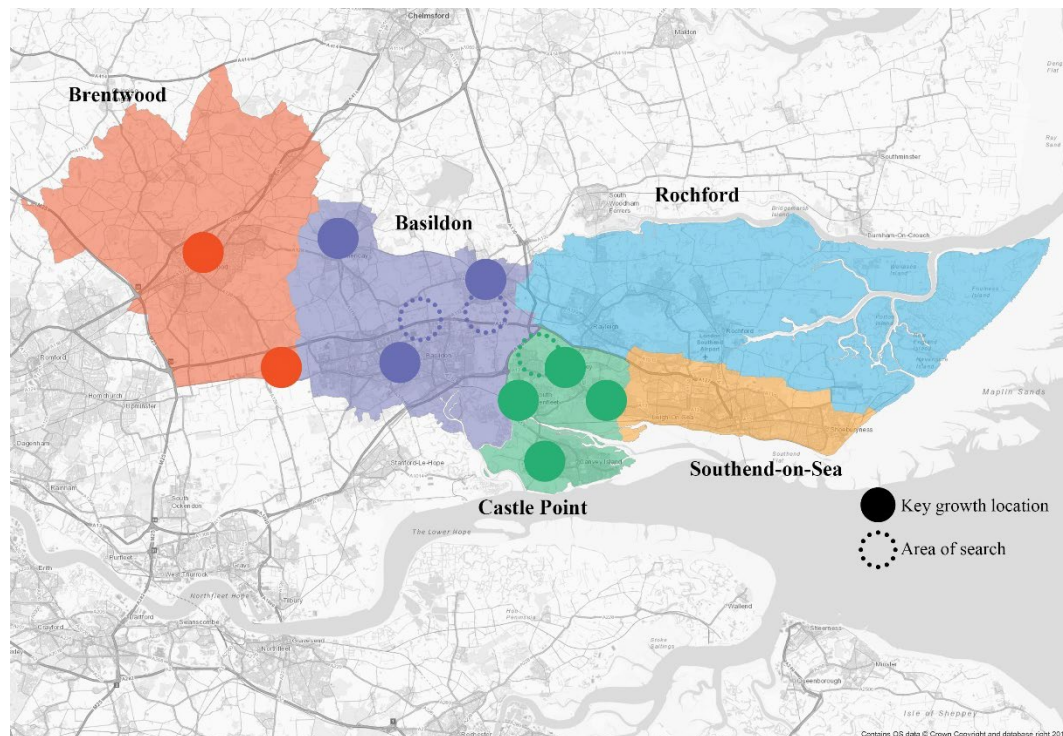
different stages of the plan making process. Table 1 and Figure 3 set out key indicative planned growth locations across South Essex.

Table 1 Indicative key planned housing growth areas across the study area

Authority	Latest Local Plan document	Date	Key growth locations
Basildon	Basildon Borough Revised Publication Local Plan (Regulation 22)	2018	<ul style="list-style-type: none"> • Main urban areas – Basildon, Billericay and Wickford • <i>South of Crays Hill (including Dale Farm)</i> • <i>South of Wickford</i>
Brentwood	Brentwood Local Plan Pre-Submission Document (Regulation 19)	2019	<ul style="list-style-type: none"> • Central Brentwood Growth Corridor – including Brentwood and Shenfield • South Brentwood Growth Corridor – including Dunton Hills Garden Village and West Horndon (mixed-use development)
Castle Point	Pre-Publication Local Plan (Full Council) ⁴	2018	<ul style="list-style-type: none"> • West of Benfleet • Other growth locations in Thundersley, Benfleet, Hadleigh and Canvey Island • <i>North West Thundersley</i>
Rochford	New Local Plan Issues and Options Document (Regulation 18)	2017	<ul style="list-style-type: none"> • N/A – a range of options consulted on as part of Issues and Options
Southend-on-Sea	Southend-on-Sea New Local Plan Issues and Options (Regulation 18)	2019	<ul style="list-style-type: none"> • N/A – a range of options consulted on as part of Issues and Options

⁴ The Pre-Submission Local Plan and Policies Map (Regulation 19) was published in December 2019, beyond the study date for this Baseline Study.

Figure 3 Indicative key planned housing growth areas across the study area



Note: the housing growth areas shown on Figure 3 reflect the information in Table 1; absence of growth areas in Rochford and Southend-on-Sea reflects the stage in plan-making rather than a lack of growth opportunities.

Much of the infrastructure identified in this Baseline Study has been proposed to support the delivery of these key growth locations, as well as wider growth across South Essex.

2.5 Options for Strategic Growth

ASELA has commissioned a South Essex Growth Locations Study to consider the options for strategic-level growth across the JSP area. This piece of work takes into account existing transport and utilities capacity, alongside a number of other criteria, in considering options for future strategic growth. The Study will form part of the wider evidence base that will inform future stages of the preparation of the emerging JSP.

The South East Essex Strategic Growth Locations Assessment, published in 2019, identifies initial growth locations in Southend-on-Sea, Castle Point and Rochford – focusing on land around the urban area of Southend-on-Sea. This assessment will also inform growth location decisions decided on by the JSP.

ASELA has also commissioned a Connectivity Study to consider the local opportunities to deliver enduring prosperity through connectivity. This complements other assessments being undertaken on road and rail capacity. The Connectivity Study will assess the connectivity around the region and identify how different approaches to movement could help the area perform better

economically, accelerating the delivery of new jobs and homes and catalysing the strong governance and policy ambitions set by ASELA.

Once the preferred options for strategic growth have been identified through the Regulation 18 Preferred Options consultation, a full assessment of the infrastructure required to support the growth will be prepared.

3 Methodology

3.1 Baseline Scope

The SIPS covers the following infrastructure topics:

- Transport
- Education
- Health, Adult Social Care and Emergency Services
- Community and Sports and Leisure
- Open Space and Green and Blue Infrastructure
- Utilities and Waste
- Flood Protection and Drainage

Given the strategic nature of the commission, it is not appropriate to include every type and scale of infrastructure within this Baseline Study; it has therefore been necessary to define strategic infrastructure in the context of the JSP. For the purposes of this study strategic infrastructure relates to those types of infrastructure which may have an impact on the distribution of growth across the study area. For example, this might be where there is a significant existing infrastructure deficit or surplus in a particular area, or where there are significant challenges to delivering infrastructure to specific locations. The definitions of strategic infrastructure are set out in Table 2.

More information on the strategic definitions and their rationale is provided in each of the topic-specific sections (Sections 4-10). Some types of infrastructure which have been excluded at this stage will be considered as part of Stage B of the SIPS when determining the infrastructure requirements to support strategic development.

Minerals extraction is not included in the definition of infrastructure. However, it is acknowledged that there is a need to safeguard important (current and future) mineral sites. The locations of safeguarded minerals areas may have an impact on the locations available for strategic growth, and the level of minerals required to deliver the potential amount of growth in South Essex is an important consideration for the JSP.

Table 2 Definition of strategic infrastructure

Ch	Topic	Included in Strategic Infrastructure Definition	Excluded from Strategic Infrastructure Definition
4	Transport	<ul style="list-style-type: none"> Major projects including air and sea projects Regional and sub-regional strategic-level highways capacity projects Strategic Road Network upgrades required to enable delivery of major growth areas Major public transport schemes 	<ul style="list-style-type: none"> Minor or local public transport upgrades Local road reinforcement upgrades Walking and cycle upgrades (which are not part of strategic corridors) Bridleways
5	Education	<ul style="list-style-type: none"> Primary education Secondary education Further and higher education 	<ul style="list-style-type: none"> Early years and childcare Adult education Skills and training SEND Temporary bulge classes
6	Health, Adult Social Care and Emergency Services	<ul style="list-style-type: none"> GPs and healthcare hubs Hospitals Large nursing and residential homes Emergency services 	<ul style="list-style-type: none"> Other forms of primary healthcare Community nursing Mental health services and specialist secondary care services Local or minor upgrades Independent living and extra care facilities
7	Community and Sports and Leisure	<ul style="list-style-type: none"> Community hubs New mixed-use facilities New multi-sport facilities Museums Relocation/major upgrades of the above existing facilities 	<ul style="list-style-type: none"> Libraries Volunteer halls Community halls Minor upgrades/extensions to existing facilities Regular 'business as usual' management and maintenance
8	Open Space and Green and Blue Infrastructure	<ul style="list-style-type: none"> New strategic open space provision (for example regional parks) Green and blue infrastructure corridor/network enhancements and developments Strategic enhancement programmes (for example provision across administrative boundaries) 	<ul style="list-style-type: none"> Local open space provision or upgrades (for example open space provision associated with development) Local green space designations Regular 'business as usual' management and maintenance
9	Utilities and Waste	<ul style="list-style-type: none"> Strategic level reinforcements or network upgrades Schemes funded through provider business plans, AMPs etc. Major projects/sites included in waste development plans 	<ul style="list-style-type: none"> Asset replacements which do not increase capacity Local level reinforcements etc. Site connections Changes to wastewater permits Water environmental improvements agreed as part of the Water Industry National Environment Programme

Ch	Topic	Included in Strategic Infrastructure Definition	Excluded from Strategic Infrastructure Definition
10	Flood Protection and Drainage	<ul style="list-style-type: none"> • Sea walls • Flood risk capacity increases • Major flood defence works • Risk management infrastructure • Sewer overflow facilities, including water company schemes relating to drainage or overspill • Major Sustainable Drainage Schemes (SuDS) 	<ul style="list-style-type: none"> • Minor upgrades • Site-level SuDS requirements • Regular ‘business as usual’ management and maintenance of flood defences Feasibility studies or investigations

3.2 Overview of Methodology

Stage A of the SIPS focuses on understanding the current strategic infrastructure provision across the study area, whether it is adequate to meet the needs of the current population, and whether there are any implications for the distribution of growth across the study area. This includes some infrastructure which is located in Thurrock, which is outside the current study area (see Section 1.4) but is within the JSP area – where this infrastructure serves the wider current study area or where there is an existing overarching evidence base in place. Stage A also identifies any planned improvements in strategic infrastructure provision.

A combination of quantitative and qualitative sources have been utilised as part of a review of secondary data sources. The evidence base used for each type of infrastructure is stated at the start of each sub-section of Sections 4-10.

This analysis was supplemented by discussions with key stakeholders and service providers.

Stage B of the SIPS will build on this assessment, along with the standalone work being undertaken for Thurrock (see Section 1.4) to consider the strategic infrastructure required to deliver growth proposed through the emerging JSP.

4

Transport



4 Transport

4.1 Overview of Strategic Infrastructure

This Baseline Study covers the following types of transport provision:

- Major projects benefitting wider regional and national geographies including air and sea projects
- Regional and sub-regional strategic-level highways capacity projects including to motorways and trunk roads
- Strategic Road Network upgrades required to enable delivery of major growth areas
- Major public transport schemes

The Baseline Study does not include:

- Walking and cycling upgrades
- Bridleways
- Minor local public transport upgrades
- Local road reinforcements or upgrades

Non-strategic upgrades and walking and cycling infrastructure have not been included in the Baseline Study because current provision is unlikely to be a major determining factor in deciding where to locate strategic growth. However, it is important that new growth is served by these types of infrastructure, and so will be included in Stage B (Infrastructure Requirements Study) of the Strategic Infrastructure Position Statement.

Essex County Council is currently updating its strategic road model including identifying current constraints on the network. The updated model will be used to identify mitigation measures as a result of planned growth.

ASELA has also commissioned a Connectivity Study to assess the connectivity around the region and identify how different approaches to movement could help the area perform better economically. Future phases of work will be aligned with the findings of this work.

4.2 Highways

Evidence Base

The following evidence has been reviewed as part of this Baseline Study.

- Basildon Infrastructure Delivery Plan (2018)
- Basildon Publication Local Plan Transport and Highway Impact Assessment (2018)

- Brentwood Infrastructure Delivery Plan (2018)
- Brentwood Borough Local Plan Transport Assessment (2018)
- Essex County Council, A127 Air Quality Management Plan Engagement Report (2018) and Frequently Asked Questions (2018)
- Essex County Council Transport Strategy: Local Transport Plan for Essex (2011)
- Essex County Council and Southend-on-Sea, A127 – Corridor for Growth (2014)
- Greater Essex Growth and Infrastructure Framework (2017)
- Castle Point, Transport Evidence for the New Local Plan (2015)
- Castle Point Transport Evidence Refresh: Interim Report (2018)
- Rochford Infrastructure Delivery Topic Paper (2017)
- Southend-on-Sea Infrastructure Delivery Plan (2014)
- Southend Local Transport Plan 3 Strategy Document 2011-2026
- Southend Central Area Action Plan (2018)
- Southend Central Area Action Plan Topic Paper 2: Strategic Highway Network (2017)
- Statement of Common Ground between the London Borough of Havering, ASELA, and Highways England: Strategic Transport Issues (2017)
- London Southend and Environs Joint Area Action Plan (2014)

Overview and Strategic Issues

Essex County Council, Southend Borough Council and Thurrock Council are the Highways and Transport Authorities across the JSP area. They are responsible for maintaining roads as well as preparing the Local Transport Plans, which set out local transport policies and identify areas in need of improvement. Individual authorities also undertake transport modelling to test their growth options and evidence the deliverability of their proposed growth plans as set out in their Local Plans. Highways England is responsible for managing the motorway and strategic highways infrastructure, which within the study area consists of the M25 and A11.

South Essex has good highways connections reflecting its strategic location close to London and as the gateway to continental Europe. The roads in the area have a nationally important function for carrying freight and long-distance traffic transporting commodities and goods in and out of the country. International connections for the transport of these goods and people are provided by London Southend Airport, and the deep-water ports at Tilbury in Thurrock and at London Gateway. The M25 and M11 run to the west of Brentwood and the study area but provide key routes to London and a strategic north-south link to the rest of the country. The main east to west strategic connectivity is provided by the A12, A127 (de-trunked in 1997) and the A13 which run through South Essex. The main north to south route is provided by the A130 connecting Chelmsford to South

Benfleet/Thundersley. These roads connect key urban areas sub-regionally and regionally and provide access to key transport infrastructure hubs and growth areas, including the Dartford Crossing. The operational effectiveness of the strategic road network therefore has significant importance for both the regional and national economy.

Despite national recognition and substantial investment in the road infrastructure, persistent network efficiency issues remain. Much of the road network is operating at or near capacity in peak periods. Congestion, poor journey time reliability and delays are regularly reported. There are planned major highways projects across Essex, including improvement to the A127 growth corridor. A Statement of Common Ground has been prepared jointly between the London Borough of Havering, AESLA, and Highways England, focusing on the impacts of cross-boundary growth on strategic routes including the A127. Other major highways projects include A127/A130 Fairglens Interchange.

Other major schemes are however likely to put further pressures on some parts of the highways network (e.g. where they join local routes) and compound existing capacity problems. Of significance is the Lower Thames Crossing, which is a new tunnel and motorway planned under the River Thames connecting Kent, Thurrock and Essex across the river to the east of London. In 2017 the preferred route was announced. Coming off the A2 in Gravesend in the south, the crossing will connect to Tilbury in Essex, with a junction connecting to the A13. High flows of traffic using the crossing will need to be accommodated on the surrounding road network. The Lower Thames Crossing is currently planned to open to traffic in 2027.

Because of the existing known highways issues and the future infrastructure projects and planned growth, suitable mitigation need to be implemented to ensure the efficient operation of the highways road network.

Key Shortfalls in Provision

Despite the good connectivity and the significance of the routes, there are some operational issues reported on the network. The Greater Essex Growth and Infrastructure Framework presents some of the network performance issues on the motorways, noting areas of high vehicle delay and congestion.

Slow journey times are reported on the M11 due to the high volumes of freight movements and number of vehicles travelling to the container ports, and the M25 experiences delays from the tailbacks occurring at busy times at the Dartford Crossing.

The A12, running around Brentwood and connecting through London to key urban areas and onto the ports of Harwich and Felixstowe, suffers from peak time congestion and poor journey time reliability. Similarly, the A13 and A127 – running through South Essex and providing strategic highway access to key areas of interest including to London Gateway Port and London Southend Airport – also report significant levels of congestion. One of the first roads built in the country specifically for cars, the A127 is ageing, congested, and unreliable, and at the end of its operational life.

Significant growth is planned across South Essex including the delivery of large-scale housing and employment growth in all boroughs/districts through both Local Plans (see Section 2.4) and the emerging JSP. Transport modelling across the boroughs/districts has identified that the existing highways network is currently near or at capacity, and any spare is likely to be compounded by the additional pressures brought on by the development. Additional strategic transport infrastructure interventions are therefore required to prevent the worsening of some of the identified issues, to support development proposals and accommodate the growth.

Current Planned Projects

There are a number of projects which are currently planned for the study area. These include upgrades to the A12, A13, and A127 (including the interchange with the A130 at Fairglen) and M25 Junction 28. The planned Lower Thames Crossing is also a significant planned project for South Essex and beyond. Relevant planned projects will form part of the SIDP.

The Government's National Air Quality Plan (and further tests) identified a number of locations along the A127 which were likely to be exceeding air quality thresholds for nitrogen dioxide; as a result, Essex County Council and Basildon Borough Council were issued a Ministerial Directive by the Government to improve the air quality on the A127 as quickly as possible. To tackle this issue, Essex County Council and Basildon Borough Council are improving air quality along the A127, to the north of Basildon, by reducing the speed limit from 70mph to 50mph.

The South East Local Enterprise Partnership (SELEP) will be a major contributor to funding transport infrastructure. SELEP has secured £442.1m from the Government's Local Growth Fund to support economic growth across its area, which includes the study area⁵. Four key priority areas have been identified which include enhancing transport connectivity and supporting housing and development. This includes an allocation of £35.6m to a programme of capacity enhancements to the A127 in Essex and Southend. An additional £3.2m of Local Growth Fund was secured to deliver Phase One of the enabling works including highways access to the Southend Airport Business Park⁶.

Essex County Council, Southend-on-Sea Borough Council Thurrock Council have responsibility for planning and delivering transport improvements. Essex Highways is a partnership between Essex County Council and Ringway Jacobs and is currently responsible for delivering several major improvement schemes and maintaining existing roads in Essex. Essex Highways major travel improvements relevant to South Essex includes multi-district schemes to the A127

⁵ South East: Growth Deal (2015) (Available at: <https://www.gov.uk/government/publications/south-east-growth-deal>)

⁶ Details available at: <https://www.southeastlep.com/app/uploads/2018/07/Southend-Airport-Business-Park-Phase-2-Full-Business-Case.pdf>

and the A13/A130. Southend-on-Sea's major highways projects include City Beach and Victoria Gateway.

Other funding sources include future applications to the Department for Transport; for example, the Local Sustainable Transport Fund, and applications to funds made available to Transport East. Individual councils will also contribute funds to the delivery of transport infrastructure including through the Capital Programme.

Transport East, the emergent Sub-National Transport Body covering South Essex submitted its 2020-25 programme for Major Road Network funding to the Department for Transport in 2019 seeking a contribution of up to £74m from the National Roads Fund towards junction improvements along the A127.

Some large scale strategic projects identified through the Local Plan process will be funded through the Community Infrastructure Levy (only currently adopted by Southend-on-Sea Borough Council) or through Section 106 Agreements. As set out in the Essex County Council's Developer Contributions Guide, developers are expected to complete or procure any necessary works to mitigate the impact of their development.

4.3 Air Transport

Evidence Base

The following evidence has been reviewed as part of this Baseline Study.

- Southend-on-Sea Infrastructure Delivery Plan (2014)
- Southend Local Transport Plan 3 Strategy Document 2011-2026
- Southend Central Area Action Plan (2018)
- London Southend and Environs Joint Area Action Plan (2014)
- London Southend Airport website

Overview and Strategic Issues

London Southend Airport serves almost one million business and leisure passengers every year, largely with flights to European destinations. Mainly low-cost airlines operate from London Southend Airport including easyJet, Flybe, and Ryanair. EasyJet signed a ten-year agreement to use London Southend Airport as its new hub in 2011 and in 2018 Ryanair announced it would base three aircraft at the airport and will operate nearly 60 flights (and investment of \$300m⁷). Continued investments have secured improvements including a mainline railway station that opened in 2011 to improve access. In 2012, a runway extension became operational and a new passenger terminal building opened. In 2018

⁷ Further details available at: <https://corporate.ryanair.com/news/new-london-southend-base-to-open-in-summer-2019/A>

planning permission was granted for extensions to the passenger terminal and associated works.

In recognition of the strategic importance of the airport and the development possibilities which could benefit the wider economy, Rochford District Council and Southend-on-Sea Borough Council have adopted the Joint Area Action Plan (JAAP) (2014). This is in response to the challenges and opportunities offered by London Southend Airport and an associated airport related employment cluster, with ambitions to increase passenger numbers to two million passengers⁸. This has in part been assisted by the delivery of the new mainline railway station to reduce travel times to reach the airport, and by lengthening the runway to accommodate the maximum capacity of passengers. The expansion of the Airport will also include new opportunities for directly related maintenance and overhaul businesses to develop.

The JAAP identifies the associated employment growth opportunities possible within the environs of the Airport. This is for both aviation-related industry and for accommodating high-tech industries and offices, creating employment capacity and attracting inward investment. Plans allocate 99,000sqm of floorspace for a new Saxon Business Park and 10,000sqm at the smaller Nestuda Way business park, in addition to 15,000sqm for redevelopment within the existing Aviation Way Industrial Estate. Together these sites are estimated to deliver approximately 6,200 additional jobs.

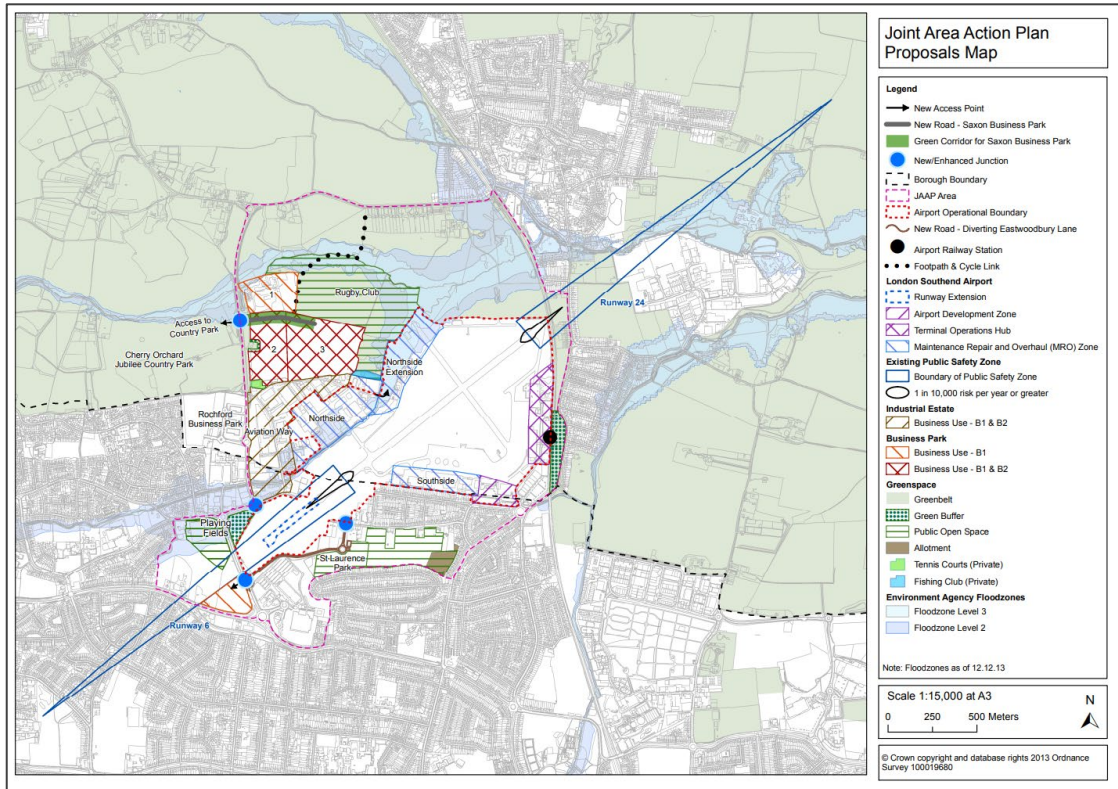
Key Shortfalls in Provision

The adopted JAAP sets out some of the transport issues that need to be overcome to support the development proposals at London Southend Airport. The Plan sets out the following transport issues and requirements:

- Need for additional capacity on the highway network as traffic flows increase.
- Limited capacity for improvement to the A127/B1013, which is the principal highways access to the airport.
- Options for transport improvements including new routes, junction improvements, and access routes.
- Encouragement of the greater use of alternative sustainable transport modes.

⁸ Note, London Southend Airport have a target of five million passengers by 2023.

Figure 4 London Southend Airport Joint Area Action Plan Proposals Map



Source: London Southend Airport Joint Area Action Plan

Current Planned Projects

The JAAP provides a framework for the regeneration and expansion of London Southend Airport. Building on other evidence base documents including the Southend-on-Sea Borough Council and the Rochford District Council's Local Plans, the JAAP assesses the impact on the surrounding transport network and identifies the future transport links and the additional infrastructure required to manage growth.

4.4 Sea Transport

Evidence Base

The following evidence has been reviewed as part of this Baseline Study.

- Forth Ports website
- London Gateway website

Overview and Strategic Issues

Two major container ports are located in South Essex: London Gateway and the Port of Tilbury, both in Thurrock. The Port of Tilbury is a multi-modal port, handling cargo for London and the rest of the South East. The port has an annual

throughput on 16 million tonnes per annum through short and deep-sea vessels. It also hosts five million square feet of warehousing, making it a key employer in the area.

London Gateway provides a deep-sea port and rail terminal, and the largest logistics and warehouse facility in Europe. There are currently three berths with a depth of 17m with an opportunity to develop three more. The Logistics Park is covered by a local development order, allowing for future expansion.

These two ports generate significant volumes of road and rail freight movements (Tilbury currently generates 13,500 vehicle movements in a typical day⁹), which will add pressures to the road and rail networks. The ports are also major employment hubs, resulting in a significant volume of commuter traffic. Expansion plans will require adequate new transport infrastructure, on the site, and to for road and rail access. There are, however, opportunities to make better use of the river as a transport route (both for freight and passengers), which the Port of Tilbury already facilitates through its construction consolidation offer and Essex (Tilbury) to Kent (Gravesend) ferry service.

Key Shortfalls in Provision

Expansion plans at both ports are under development. This includes expansions to the existing number of port berths and the associated warehouse space, and to future plans for new business parks and ancillary office uses. Given the increased number of freight movements this will generate (an estimated additional 3,000 movements a day at London Gateway) and the increased number of commuter trips produced, suitable access routes will need to be ensured. This will include rail and road access, but also comprehensive sustainable transport options.

Current Planned Projects

A development consent order has just been granted for the Port of Tilbury London Limited to build a new port terminal and associated facilities (known as 'Tilbury2') to extend the operations at the existing Port. The main proposals are a Roll-on/Roll-Off terminal for importing and exporting containers and trailers, and a Construction Materials and Aggregates Terminal for handling and processing bulk construction materials. A new road and rail corridor is proposed as part of the proposals, rerouting the existing Riverside Railhead to the Tilbury2 sites and providing a new link road between Ferry Road and Fort Road. Tilbury2 is estimated to generate an additional 3,000 vehicles per day.

4.5 Public Transport

Evidence Base

The following evidence has been reviewed as part of this Baseline Study.

- Basildon Infrastructure Delivery Plan (2018)

⁹ Further details available at: <https://www.forthports.co.uk/our-ports/tilbury-london/>.

- Basildon Publication Local Plan Transport and Highway Impact Assessment (2018)
- Brentwood Infrastructure Delivery Plan (2018)
- Brentwood Borough Local Plan Transport Assessment (2018)
- Essex County Council Transport Strategy (2011)
- Essex County Council and Southend-on-Sea, A127 – Corridor for Growth (2014)
- Essex County Council, Getting Around in Essex: A Bus and Passenger Transport Strategy (2015)
- Greater Essex Growth and Infrastructure Framework (2017)
- Castle Point: Transport Evidence for the New Local Plan (2015)
- Rochford Infrastructure Delivery Topic Paper (2017)
- Southend-on-Sea Infrastructure Delivery Plan (2014)
- Southend Local Transport Plan 3 Strategy Document 2011-2026
- Southend Central Area Action Plan (2018)
- London Southend and Environs Joint Area Action Plan (2014)

Overview and Strategic Issues

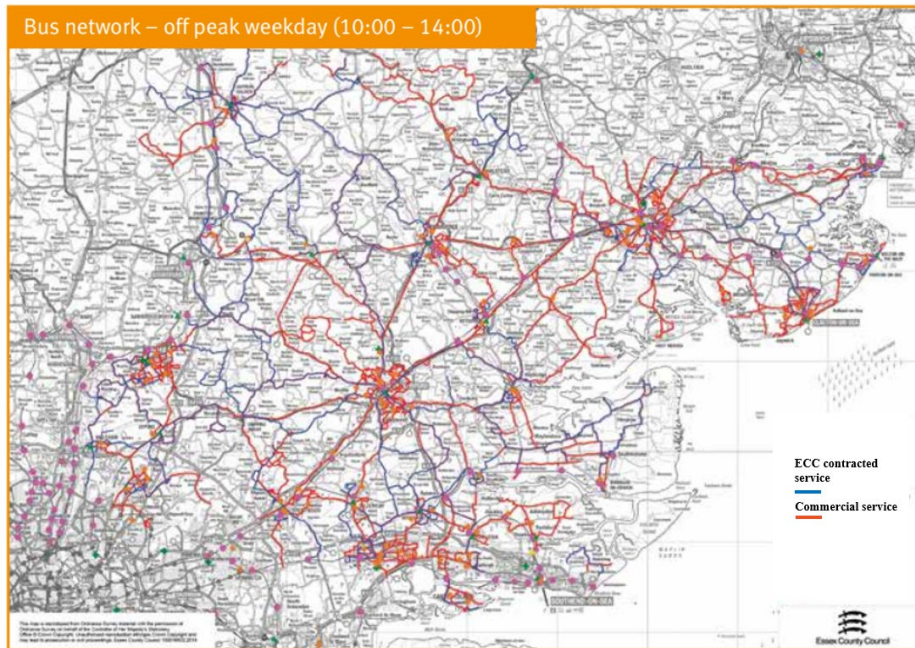
Buses

Buses are a priority in Essex. Essex County Council's Getting Around in Essex Bus Strategy states that buses can contribute to aims of sustainable economic growth for Essex communities and businesses, enabling people to live independently and have access to education and training, and assisting people in Essex to enjoy good health and wellbeing. Strong bus networks support city centres and provide people with easy and convenient access to employment and leisure. Buses also alleviate traffic by taking cars off the road and therefore reducing congestion, which benefits all road users.

Essex County Council have identified that they want a bus service that better serves existing customers, provides new services that attract new customers and offers an effective alternative to the car. It is recognised there is poor north to south bus connectivity in region, as shown in Figure 6 below (red lines illustrate commercial services, while blue are contracted services). The Getting Around in Essex Bus Strategy seeks a more joined up approach and proposed linking transport operators into the local highways panel to agree and prioritise infrastructure measures. This includes maximising the inclusion of bus infrastructure, bus service provision and supported bus travel into development frameworks and encouraging bus travel within new developments. There is also a focus on better linking bus travel planning with local plan-making to understand demand and increase bus travel.

The Getting Around in Essex Bus Strategy sets out proposals for improving passenger transport. This includes proposals to financially support valuable, but not commercial, services. This includes using public investment to address home to school transport, rural, evening, and Sunday passenger needs. This is in recognition that there is often little incentive for individual operators to run an unviable service. This is a particular problem in Southend where all buses are commercial services, with no subsidies for contracted services to support unviable routes. It should be noted that there can be a relationship between bus capacity and highways capacity (Section 4.2); for example bus priority routes or infrastructure can reduce existing road capacity. There is a perception that, without bus prioritisation, bus services are slow and cannot compete with private vehicles.

Figure 5 Essex off-peak bus network



Source: Essex County Council Transport Plan (legend added by Arup)

Rail

The rail network provides good connections east to west through South Essex, although connectivity north to south is limited. Two main routes run through South Essex, providing local and regional connectivity. The Great Eastern Main Line runs from London Liverpool Street to Norwich, stopping at Brentwood, with a branch of this line connecting Shenfield to South Essex towards Southend Airport and terminating in Southend Victoria. The Essex Thameside line connects Fenchurch Street to Southend Central, with one branch running via Basildon, and another through Grays and Tilbury. C2C Rail have confirmed large year on year increase of the town centre's two railway stations in recent years, seeing entries and exits increase by 45% between 2000 and 2016 at Victoria Station, and 36% over the same time period at Central Station¹⁰.

The Essex Local Transport Plan states that there is limited capacity on all existing rail network lines through Essex, particularly the Great Eastern Main Line. Future growth in the area is likely to compound this further. The new Elizabeth Line (Crossrail) route (anticipated opening date delayed), may alleviate some of these capacity issues by providing alternative and faster routes. Part of the line is already operating between London Liverpool Street and Shenfield, accommodating some additional journeys. The route will travel west to east starting at and terminating at Shenfield in Brentwood. Journey times of 47 minutes are expected from Tottenham Court Road in central London to Shenfield Station¹¹. The opening of the Elizabeth Line is likely to make Brentwood stations increasingly important.

¹⁰ http://www.southend.gov.uk/download/downloads/id/4884/exscaap037_-_additional_document_7_tourism_related_rail_journeys_and_trends_since_2011.pdf

¹¹ <http://www.crossrail.co.uk/route/eastern-section/>

Figure 6 Rail network within South Essex



Source: National Rail Stations Destination Map¹² (2018)

¹² Available at: <http://www.nationalrail.co.uk/static/documents/content/routemaps/BluerouteASMmapv15.pdf>

Figure 7 Elizabeth Line (Crossrail) route



Source: Transport for London

Key Shortfalls in Provision

Inter-urban connections by bus are currently limited, leading to long journey times on these routes. Passengers have stated that the bus services in Essex could be improved by more bus arrival time reliability, and more frequent buses on convenient routes. The Essex Local Transport Plan's key actions include using technology to improve bus services, including using Real Time Passenger Information, high quality web-based public transport information, and stimulating the use of public transport. The County Council has limited financial resources and relies on the commercial sector to deliver most of the bus services. All buses are commercially operated in Southend, with no subsidised contracted routes. The County, under the Transport Act, are responsible for looking at market failure to see where the needs of the residents are not met by the commercial market. The County Council has developed the Local Bus Service Assessment and Priority Policy 2015 to 2020. This is a way of balancing the different transport needs of the residents with available funding. Using the established assessment criteria, the County Council will assess requests for new services required following change to the commercial network. This will become an important process as new development sites across South Essex are brought forward.

Significant rail growth is planned in South Essex. At the same time, demand for rail travel has risen significantly in recent years and is set to continue to grow. While east to west connectivity is relatively good across the county, it is difficult to travel north to south by rail. Capacity on the existing rail network is a known issue and overcrowding is reported. The Essex Transport Plan shows that, during the morning and evening peaks, all rail lines servicing Essex are operating at or above their capacity, with a significant number of passengers standing for at least part of their journey. The Greater Essex Growth and Infrastructure Framework (2017) notes that while being one of the best performing lines in the country, the Essex Thameside Line is constrained by the size of Fenchurch Street which limits line capacity. Congestion on the Great Eastern Mainline route towards London, carrying commuters and freight, is an issue which is expected to get worse.

Figure 9 below shows sections of the transport network in South Essex where there are known issues. With specific regard to rail, the main issues and locations are identified as:

- Town Centre congestion and lack of accessibility, particularly in Basildon, Rayleigh, Hockley, Rochford Shoeburyness, Southend Central Area and Lakeside (marked with an 'E' in Figure 9);
- Rail freight – maximalisation conflicts with commuter services, particularly in Purfleet and Stanford-le-Hope/Linford (marked with an 'F' in Figure 9);
- Commuter Rail – overcrowding, excessive journey times between Thames Gateway South Essex and London, particularly in Hockley/Rochford, Leigh-on-Sea, and Tilbury (marked with an 'G' in Figure 9); and
- Transport Sustainability – lack of information, choice and connectivity, particularly in Benfleet, London Gateway, Tilbury Port, Lakeside and Purfleet (marked with an 'H' in Figure 9).

Figure 8 Section of the rail network with capacity issues in South Essex



Source: *Thames Gateway South Essex (2013), Supporting Growth and Increasing Prosperity: A Planning and Transport Strategy for Thames Gateway South Essex*

Current Planned Projects

There are a number of projects which are currently planned for the study area. These include large-scale rail improvements including the Elizabeth Line, surface access and sustainable travel upgrades to key attractors such as London Stansted Airport, and more local bus links etc. Work is underway with DfT and Network Rail to identify capacity constraints and potential interventions with a report likely to be published early in 2020.

Bus services in Essex are delivered by a range of providers. The *Getting Around in Essex* bus strategy outlines that 85% of the bus network is provided commercially, with the remaining 15% supported by Essex County Council, funded by taxpayers and fares. The County Council services cover concessionary fares, school transport and Sunday and evening services, which would otherwise not be commercial viable. They had a revenue budget of £31m for the year 2017/2018 to cover passenger transport (across Essex). Further improvements to the bus network and service provision were funded as part of the highways and transport capital budget of £208m for the year 2017/18 across Essex. Growth locations will benefit from better public transport provision and sustainable transport options, which will result in a greater demand for bus provision, thus improving the viability of routes.

Developer contributions could play a role in funding bus services, in pump priming new services for a limited period until they become commercially viable.

4.6 Implications for the JSP

Existing capacity issues are known on the highways and public transport network. Issues on the Strategic Road Network include the A12, A13, and A127. This leads to congestion, overcrowding and journey time unreliability. Additional, capacity issues are reported on the Great Eastern Main Line, particularly at peak time, and bus services are considered to not meet the needs of local people, including suitable routes and reliability. These issues are anticipated to worsen with the planned growth in South Essex if not addressed – this could include a move towards sustainable forms of transport and changes to how (and how much) people move in the future.

London Southend Airport, Tilbury Dock, and London Gateway all have significant expansion plans, contributing to additional commuting journeys and more freight on the transport network. While access arrangements in and out of the transport hubs will need to be designed, mitigations will also have to be identified to ensure the efficient operation of the surrounding transport network in South Essex.

Whilst there are good east to west rail links across the study area, there are areas of current and forecast capacity issues. Whilst locations which are in proximity to railway stations or lines may be considered sustainable growth locations, it should be acknowledged that significant funding may be required to create sufficient capacity to accommodate growth in a sustainable way.

Next steps for Stage B (Infrastructure Requirements Study)

- Identify transport interventions and mitigations to make good the existing transport network and support the delivery of future growth.

5

Education



5 Education

5.1 Overview of Strategic Infrastructure

This Baseline Study covers the following types of education provision:

- Primary education
- Secondary education
- Further and higher education

The Baseline Study does not include:

- Early years and childcare
- Adult education
- Skills and training
- Special Educational Needs and Disability (SEND) education
- Temporary bulge class projects

Early years and childcare, adult education and SEND education have not been included in the Baseline Study because the level of current capacity in these types of provision is unlikely to be a major determining factor in deciding where to locate strategic growth. However, it is important that new growth is served by these types of infrastructure, and so will be included in Stage B (Infrastructure Requirements Study) of the Strategic Infrastructure Position Statement. In particular, as such provision is often included with mainstream forms of education, consideration will need to be given to the additional requirements (in terms of site size and costs) that including these with mainstream education facilities generates. This will be considered in Stage B.

5.2 Primary Education

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Essex County Council, 10 Year Plan: Meeting the demand for school places in Essex 2019-2028 (2019)
- Essex County Council, Developers' Guide to Infrastructure Contributions (2016)
- Essex County Council, Local and Neighbourhood Planners' Guide to School Organisation
- Southend-on-Sea Borough Council, School Organisation Data Supplement (2018)

- Local authority-level infrastructure studies: Basildon Infrastructure Delivery Plan (2018); Brentwood Infrastructure Delivery Plan: 08 Education and Early Years (2018); Castle Point Community Infrastructure Needs Assessment Working Draft (2013); Rochford Infrastructure Delivery Topic Paper (2017); Southend-on-Sea Infrastructure Delivery Plan (2014); and Southend-on-Sea Topic Paper 5: Community Infrastructure (2017).
- Greater Essex Growth and Infrastructure Framework (2017)
- Consultation and supplementary information from education authorities

Overview and Strategic Issues

There are currently 155 primary schools across the study area – 34 in Southend-on-Sea and 121 across the other four districts/boroughs.

The planning of and provision of education for primary school aged children is the statutory responsibility of Essex County Council and the two unitary authorities. Essex County Council organises its education responsibility across four quadrants; Basildon, Brentwood, Castle Point and Rochford form one quadrant – ‘South Essex’ (Figure 10). Each education authority plans on the basis of schools planning areas (called clusters in Southend-on-Sea). Cross-boundary flows between schools planning areas and districts/boroughs occur, but are more pronounced for secondary education than primary due to the increased distances that older pupils are able and expected to travel (as well as the selective system retained by Southend-on-Sea).

Figure 9 South quadrant



Source: Essex County Council, 10 Year Plan: Meeting the demand for school places in Essex 2019-2028

Since the introduction of academies and free schools in 2010, the provision and operation of schools has shifted towards greater levels of institutional autonomy. All new schools are now free schools, which are a type of academy. Some are created in bidding ‘waves’ initiated by the Department for Education, and others

via the ‘presumption route’ initiated by education authorities to meet local need. The vast majority of new free schools are run by Academy Trusts, many of which now work across a large area. Academy schools are independent of local authority control, and are instead funded directly by central Government, and sponsors.

Key Shortfalls in Provision

Essex County Council predicts that the significant increase in demand for school places across the county will continue. By 2028, it is estimated that an additional 1,045 primary school places are required across the South quadrant:

- Basildon: 170 places (in all schools planning areas with the exception of Basildon Central/Laindon/Langdon Hills and Crays Hill)
- Brentwood: 336 places (across all schools planning areas)
- Castle Point: 224 places (mainly concentrated in the Thundersley/Benfleet schools planning area)
- Rochford: 315 places (in all schools planning areas with the exception of Barling/Great Wakering)

However, it should be stated that these forecasts do not necessarily include emerging local development plan allocations, given the stage in plan making of each of the local authorities.

Southend-on-Sea had a surplus capacity in primary schools of 6.7% in 2017/18 (not including those schools with a negative capacity figure). There is an uneven spread of surplus places across the borough. By 2023, the borough forecasts a total surplus rate of 8.4%, though with deficits in some schools in Leigh Cluster and to a lesser extent Shoebury/East Southend Cluster. This surplus is despite an overall reduction in available places across the borough (from 15,059 to 14,550).

The Department for Education sets out that schools should operate with a spare 5% capacity to allow for operational flexibility and maximise parental choice.

Current Planned Projects

There are a number of current planned expansions to primary schools and new primary schools across the study area, equating to around an additional 6,300 primary school places¹³. The additional school places arising from these projects will serve known existing and future capacity issues, and it is not expected they will result in significant additional capacity available for strategic growth.

There are a mixture of funding sources to finance additional school places, including developer obligations (Section 106 and CIL), basic need grant from central government, Free School Education and Skills Funding Agency funding, and contributions from schools themselves (although this would be expected to be

¹³ This does not include expansion of Riverside Primary School in Rochford, where the scale of expansion is still not known.

minimal). The main anticipated funding source is developer contributions, as set out in Department for Education guidance.

Provision Standards

Essex County Council

Essex County Council apply the following standards to calculate pupil yield (Table 3).

Table 3 Essex primary education pupil yield standards

Size of unit	Primary pupil per unit
1 bed unit or student or older person accommodation	0.00
Houses	0.3
Flats	0.15

Essex County Council's model for new primary school provision is 2FE (420 pupils) plus a 56-place early years and childcare facility on a 2.1ha site.

Southend-on-Sea Borough Council

Southend-on-Sea Borough Council apply the following standards to calculate pupil yield (Table 4).

Table 4 Southend-on-Sea primary education provision standards

Size of unit	Primary pupil per unit
Size not known	0.15
1 bed flat/house/studio	0.00
2 bed flat	0.05
2 bed mixed	0.10
2 bed house	0.15
3 bed or more dwelling	0.25

The borough states that developments of 100 new homes of mixed size result in an average pupil product of 25 pupils for early years and primary.

The borough's preferred minimum size for new primary schools is 2FE (420 pupils). The minimum landtake for a primary school is 1.5ha.

5.3 Secondary Education

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Essex County Council, 10 Year Plan: Meeting the demand for school places in Essex 2019-2028 (2019)
- Southend-on-Sea Borough Council, School Organisation Data Supplement (2018)
- Local authority-level infrastructure studies: Basildon Infrastructure Delivery Plan (2018); Brentwood Infrastructure Delivery Plan: 08 Education and Early Years (2018); Castle Point Community Infrastructure Needs Assessment Working Draft (2013); Rochford Infrastructure Delivery Topic Paper (2017); and Southend-on-Sea Infrastructure Delivery Plan (2014).
- Greater Essex Growth and Infrastructure Framework (2017)
- Consultation and supplementary information from education authorities

Overview and Strategic Issues

There are currently 36 secondary schools across the study area – 12 in Southend-on-Sea and 24 in the other four districts/boroughs. Cross-boundary flows between schools planning areas and districts/boroughs occur, particularly for secondary education due to the increased distances that older pupils are able and expected to travel.

As is the case for primary schools, the planning of and provision of education for secondary school aged children is the statutory responsibility of Essex County Council and the two unitary authorities, but that their role has changed with the introduction of academies and free schools.

Key Shortfalls in Provision

Essex County Council predicts that the significant increase in demand for school places across the county will continue. By 2028, it is estimated that an additional 890 secondary school places are required across the South quadrant. There is, however, significant variation across the four districts/boroughs with no additional places forecast to be required in Basildon. The additional places required across the remaining districts/boroughs are:

- Brentwood: 210 places
- Castle Point: 235 places
- Rochford: 445 places (focused in the Rochford/Hockley schools planning area)

(Again, it should be stated that these forecasts do not include all emerging local development plan allocations, given the stage in plan making of each of the local authorities.)

Southend-on-Sea has a 7.0% surplus in secondary school places; however, this is somewhat misleading as much of the surplus capacity is located in two schools (Southchurch High School and Cecil Jones College). As the higher primary numbers enter the secondary schools, these surpluses are anticipated to turn into an overall shortfall. An expansion programme is underway to address this shortfall (see below). By 2023 and taking into account these expansions, the borough as a whole is forecast to have a small (1.7%) surplus. Southend-on-Sea's grammar school system is also likely to skew capacity across the authority as a whole.

Current Planned Projects

There are a number of current planned expansions to secondary schools across the Southend-on-Sea and Thurrock boroughs, equating to an additional 2,180 places. The additional school places arising from these projects will serve known existing and future capacity issues, and it is not expected they will result in significant additional capacity available for strategic growth.

The potential funding sources for additional secondary places are the same as for primary education (see above).

Provision Standards

Essex County Council

Essex County Council apply the following standards to calculate pupil yield (Table 5)¹⁴.

Table 5 Essex secondary education pupil yield standards

Size of unit	Secondary and sixth form pupil per unit
1 bed unit or student or older person accommodation	0.00
Houses	0.2
Flats	0.1

Essex County Council's draft revised Developer's Guide to Infrastructure Contributions proposes a separate pupil yield for post 16 education. This is due to be adopted in 2020. The proposed standards are set out in Table 6.

¹⁴ Refer to Section 5.4 for potential changes to pupil yield for post-16 education.

Table 6 Proposed Essex secondary education and post-16 pupil yield standards

Size of unit	Secondary pupil per unit	Post-16 pupil per unit
1 bed unit	0.00	0.01
Houses (2+ beds)	0.2	0.04
Flats (2+ beds)	0.1	0.02

Essex County Council's model for new secondary school provision is a minimum of 6FE, with 8FE preferred.

Southend-on-Sea Borough Council

Southend-on-Sea Borough Council apply the following standards to calculate pupil yield (Table 6).

Table 7 Southend-on-Sea secondary and post-16 education provision standards

Size of unit	Secondary pupil per unit	Post-16 pupil per unit
Size not known	0.12	0.06
1 bed flat/house/studio	0.00	0.00
2 bed flat	0.03	0.02
2 bed mixed	0.05	0.03
2 bed house	0.07	0.04
3 bed or more dwelling	0.25	0.13

The borough states that developments of 100 new homes of mixed size average pupil product of 18 for secondary education and four for Post-16 education.

The borough's preferred minimum size for new secondary schools is 5FE (750 pupils over five years), with a minimum landtake of 8.5ha.

5.4 Further and Higher Education

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Southend-on-Sea Borough Council, School Organisation Data Supplement (2018)
- Further and higher education institutions websites

Overview and Strategic Issues

Local authorities have a duty to secure sufficient and suitable education and training provision for all young people in their area who are over compulsory

school age but under 19, or aged 19 to 25 and for whom an Education, Health and Care (EHC) plan is maintained. Where necessary, capital contributions may be sought to support additional full-time further education.

There are four main destinations for South Essex students to enter post-16 education (including locations in Thurrock, given significant cross-boundary movements for this type of education provision):

- **Secondary school sixth forms.** Ten secondary schools in Southend-on-Sea currently offer post-16 courses, five in Thurrock (including Ockenden Academy, below), and 17 across the remainder of the JSP area.
- **Ockendon Academy Studio School, Ockenden.** The Studio is a 14-to-19 school offering a range of academic qualifications in addition to work-based training.
- **South Essex College.** The College has a number of campuses across South Essex, in: Southend-on-Sea (two sites); Grays; Purfleet (High House Production Park); Basildon (across two sites); and Canvey Island. PROCAT and South Essex College merged in 2019.
- **USP College.** This is a merger of two existing colleges (SEEVIC College in Thundersley and Palmer's College in Grays), offering A Levels, vocational courses and professional qualifications, and higher education.

The University of Essex has a Southend Campus, offering health and social care, psychological and psychoanalytical, drama and business courses. There are other higher education institutions in close proximity to the JSP area (such as Anglia Ruskin University in Chelmsford), and typically students will travel further for these services and so close proximity is less important.

Whilst Essex does have good universities, there is a key shortfall in provision at higher education level. The East of England has the lowest percentage of HE staff and the third lowest number of HE staff of any UK region, and South Essex has a significant skills gap at NVQ 3 and 4. There is limited provision for retraining adults (largely due to the lack of state funding for adult skills); further education therefore largely focuses on 16-19 provision. This limits the opportunities for people in work or out of work to upskill to progress in work.

Key Shortfalls in Provision

The higher pupil numbers currently entering secondary schools is expected to impact on further education providers in the future. Plans to increase capacity across the study area are not currently known.

Current Planned Projects

South Essex College is consolidating its Basildon presence on to a new town centre. The project has been delayed due to delays in relocating Basildon Market, and an opening date has not been set yet.

5.5 Implications for the JSP

There are a number of areas of future shortfall in education provision across the study area.

There are no areas of significant capacity which would appear to support strategic growth and would therefore steer the emerging JSP in a particular direction.

Strategic growth locations will require new education facilities, so the lack of current spare capacity does not restrict areas being considered for growth. However, it may have an impact on the type of growth which is possible – for instance, urban intensification may not allow for sufficient sized sites required for additional education facilities. This is a particular issue as a large amount of the new development, especially in the first ten years of the JSP, will take place within urban areas.

Strategic growth may offer an opportunity to bring forward new education facilities in or near areas which have current or future capacity constraints.

Next steps for Stage B (Infrastructure Requirements Study)

- Determine the education requirements (including SEND) to support the strategic growth locations, taking into account the provision standards set out above. (Before this can occur, the need for an overarching demographic model for the proposed growth should be considered so that each authority and service provider work from the same population and demand projections).
- Determine the early years and childcare requirement to support strategic growth locations.

6

Health, Adult Social Care and Emergency Services



6 Health, Adult Social Care and Emergency Services

6.1 Overview of Strategic Infrastructure

This Baseline Study covers the following types of health, adult social care and emergency services provision:

- GPs and healthcare hubs
- Hospitals
- Adult social care: large nursing and residential care homes
- Emergency services: major new police, fire and ambulance facilities.

The Baseline Study does not include:

- Other forms of primary healthcare, such as dentists, pharmacies and optometry
- Community nursing
- Mental health services and specialist secondary care services such as psychiatrists, clinical psychologists and occupational therapists
- Local or minor upgrades to health provision
- Smaller nursing and residential care homes
- Independent living and extra care facilities

These types of provision have not been included in the Baseline Study because understanding current capacity in these is unlikely to be a major determining factor in deciding where to locate strategic growth. However, it is important that new growth is served by these types of infrastructure, and so they may be included in Stage B (Infrastructure Requirements Study) of the Strategic Infrastructure Position Statement.

6.2 Primary Care

The following evidence has been reviewed as part of this Baseline Study:

- NHS, Transforming Primary Care in Essex (2014) Overview and Strategic Issues
- NHS Southend CCG: NHS Southend CCG Primary Care Strategy (2014)
- Basildon and Brentwood CCG: Transforming health and care outcomes for the people of Basildon and Brentwood – Our 5-year Strategic Plan (2014)
- Draft East Essex Strategic Estates Plan (2016)
- Greater Essex Growth and Infrastructure Plan (2016)
- Southend Central Area Action Plan (SCAAP) Topic Paper 5: Community Infrastructure (2017)

Overview and Strategic Issues

Primary healthcare provides the first point of contact within the health system, which includes General Practice (GPs), pharmacies, dental and optometry¹⁵. GPs are organised in Clinical Commissioning Groups (CCGs) which are clinically-led, statutory NHS bodies responsible for the planning and commissioning of health services, including primary care, for the local area. Four CCGs cover the South Essex area (including Thurrock) (see Figure 11):

- Basildon and Brentwood CCG
- Castle Point and Rochford CCG
- Southend-on-Sea CCG
- Thurrock CCG

Figure 10 Clinical Commissioning Groups across Essex



Source: NHS, Transforming Primary Care in Essex

The NHS Transforming Primary Care in Essex document lists that there are 151 GPs in South Essex (including Thurrock), which are predominately concentrated in the major urban areas. The number of GP practices in each CCG in South Essex is set out in Table 7.

¹⁵ As set out in Section 6.1, only GPs are included in Part A of the SIPS.

Table 8 Number of GP practices in each CCG in South Essex

Clinical Commissioning Group	Number of GP practices
Basildon and Brentwood	45 practices
Castle Point and Rochford	28 practices
Southend	36 practices
Thurrock	42 practices

Source: NHS, *Transforming Primary Care in Essex*

The Transforming Primary Care in Essex document sets out the priority operational areas for the CCGs in South Essex. This is particularly in response to the anticipated population growth and the shift towards an older population with complex health needs. Issues around access to GP services and the poor quality of the premises are reported, which is expected to be exacerbated by a further strain on surgery capacity as the population grows. Many GPs are close to retirement, (with 28% of NHS England GPs retiring in the next five years), and recruitment and retention are acknowledged local problems in Essex. Essex has one of the lowest concentrations of GPs for population in England (at 0.66 GPs/1000 population compared to 0.74 GPs).

The CCGs have an ambition to move towards an integrated, flexible and responsive primary care-led health system. New models of primary care are being considered, with a focus on working at a larger scale within 'primary care hubs'. The primary care hubs are suggested to cover a population of 20,000 patients and will be integrated into communities to align with local social needs. By delivering integrated services, the need to go to hospital should be reduced by addressing health issues at an earlier stage. Primary care facilities are planned to be fully utilised, operating seven days a week and with longer opening hours, and integrated with pharmacists, dentists and optometrists.

Essex County Council's Public Health team is working with the Sustainability and Transformation Partnership (STP) to assess and plan for estates and infrastructure. This working collaboration supports a whole system-wide approach to health and wellbeing within the built environment including access to healthcare estates.

Key Shortfalls in Provision and Current Planned Projects

The four CCGs in South Essex are facing similar issues and challenges in delivering future requirements. There are existing shortfalls in GP services, particularly in more deprived areas, which will be further exacerbated by population growth.

The four CCGs covering South Essex have assessed the future demand on their estates, as set out below.

Basildon and Brentwood

Basildon and Brentwood CCG Five Year Plan has identified GP practice floorspace deficit, and states that some of the premises are in poor condition and

need replacement or refurbishment and have such focussed on six areas for priority:

Basildon:

- Basildon Central – an additional 500sqm capacity and premises to support growth.
- Basildon West (Laindon) – likely primary healthcare development required to support growth.
- Billericay – possible future demand post 2020 to support proposed new dwellings.
- Pitsea – likely development of a new primary care premise. This may involve the replacement of The Dipple Medical Centre.
- Wickford – new Wickford Health Centre (opened in 2017).

Brentwood:

- Brentwood – disposal of Hutton Clinic.

Castle Point and Rochford

Castle Point and Rochford CCG have prepared the Draft East Essex Strategic Estates Plan. The CCG identifies that, with new technology and new ways of working, new estates rationalisation and configurations may be required. These include:

- Thundersley/Benfleet Hub – several GPs identified to join together and move into a new healthcare Hub. This will include the disposal of the Thundersley and Benfleet Community Clinics which are no longer fit for purpose.
- Disposal of the existing Hadleigh Clinic and development of a new Hub.
- Closure and disposal of some existing centres on Canvey Island and a move towards a new Hub.

Southend

Southend CCG has been chosen as one of the 14 national ‘Integrated Pioneer’ locations, with a focus on integrated care and services, focussing around GP surgeries to minimise the strain on hospitals. Southend CCG are currently developing a hub model of delivering wider care. It is recognised however that smaller practices in Southend may find it more difficult to respond to changes including the increased demand placed on primary care services and providing seven day services.

St Luke’s and Shoebury have been prioritised for premise development, with options being developed for a new Hub in Shoebury. In 2019 it was announced that the NHS is investing £1.7m to provide new modern healthcare facilities in the St Luke’s Health Centre, including creating additional space to improve and increase the access to GP services¹⁶.

¹⁶ Available at: <https://southendccg.nhs.uk/news-events/464-st-lukes-2019>

The Southend Central Area Action Plan (SCAAP) promotes the provision of community facilities including health infrastructure at Queensway, Warrior Square and Victoria Gateway.

Provision Standards

Basildon and Brentwood CCG expect to increase primary care workforce by one whole time GP for every 2,000 new residents. For each new GP required, as estimated 80-100sqm of floorspace is needed, as well as training rooms within surgeries (Table 8).

Table 9 Primary care provision standards

Service	Number of residents served	Space requirement per one new GP (sqm)
GP	2,000	80-100
Primary Care Hub	20,000	Unknown

Source: NHS, *Transforming Primary Care in Essex*

6.3 Secondary Care

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Mid and South Essex Sustainability and Transformation Partnership: Summary of Proposals (2018)
- Southend Joint Strategic Needs Assessment Summary Report (2019)
- NHS England: Bed Availability and Occupancy Data – Overnight (2018)
- Thurrock CCG website
- Greater Essex Growth and Infrastructure Framework (2017)

Overview and Strategic Issues

NHS organisation and local authorities work together to develop proposals to improve health and care, in the form of Sustainability and Transformation Partnerships (STPs). The Mid and South Essex STP covers the six authorities across the JSP area, as well as Braintree, Maldon, and Chelmsford. Across the STP, there are three main hospitals – in Southend, Basildon (both in South Essex), and Broomfield near Chelmsford (in Mid Essex)¹⁷. These three hospitals provide most of hospital services for the area, including Accident and Emergency units in each hospital. The STP is proposing measures to work together to enable the three

¹⁷ Chelmsford is geographically outside of the South Essex study area but provides services to the resident population in South Essex.

hospitals to better work together to deliver more specialised care and better manage the needs of local people.

The STP places more emphasis on prevention, to reduce the strain on hospitals. This is in response to the limited hospital bed capacity in the three main hospitals in the Mid and South STP, as set out in Table 9.

Table 10 Existing overnight hospital bed capacity (October to December 2018)

Hospital	General acute bed capacity (% occupied)
Southend University Hospital NHS Foundation Trust	84.9%
Basildon and Thurrock University NHS Foundation Trust	95.1%
Mid Essex Hospital	91.4%

Source: NHS England (2018) ¹⁸

Current Planned Projects

The STP has just undergone and completed consultation on proposals for hospital services changes, which closed in March 2018. The Joint Committee of the CCGs in the Mid and South Essex STP have agreed on plans for hospital changes which will be implemented over the next three years¹⁹. These are summarised below:

- A&E improvements to all three hospitals in Southend, Basildon and Chelmsford, including development of new assessment and treatment centres, and open for 24 hours.
- Development of a new specialist stroke unit at Basildon Hospital.
- Bringing together specialist in-patient care where there is existing expertise and allowing for extended hours.
- Complex orthopaedic operations to be provided at Southend Hospital for people across South Essex.
- Services currently provided at Orsett Hospital (in Grays) will be provided in four new 'integrated medical centres' in Thurrock and new facilities in Basildon and Brentwood. This will eventually lead to the closure of Orsett Hospital once the new services are running.

¹⁸ Average daily number of available and occupied beds open overnight by sector. Available at: <https://www.england.nhs.uk/statistics/statistical-work-areas/bed-availability-and-occupancy/bed-data-overnight/> (accessed 10 March 2019)

¹⁹ Mid and South Essex Sustainability and Transformation Partnership (2018) (Available at: <http://v1.nhsmidandsouthessex.co.uk/ccgs-in-mid-and-south-essex-agree-proposals-for-hospital-changes/>)

6.4 Adult Social Care

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Essex County Council, Independent Living Programme for Older People Position Statement (2016)
- Living Well Essex: Independent Living Older People Position Statement (no date)
- Living Well Essex: Residential and Nursing Care (no date)
- Living Well Essex: Supported Living (no date)
- Essex County Council, Care Market Strategy 2017-21 (2017)
- Southend-on-Sea Local Account 2016-2017: A review of adult social care in Southend-on-Sea (2016)
- Great Essex Growth and Infrastructure Framework (2017)
- Housing, Learning and Improvement Network, SHOP@ Tool

Overview and Strategic Issues

This section focuses on residential care facilities. This includes both nursing care (which always include one qualified nurse or doctor, and can therefore cater for people with conditions that require nursing attention) and residential homes (which call in routine and emergency medical support from other agencies). It should be noted that whilst adult social care is often thought of as catering for older people, some facilities will cater in part or exclusively for other ages with specific needs. These needs have not been disaggregated in this Baseline Study.

Essex County Council and Southend-on-Sea Council, have looked at what the adult social care needs that are likely to be required across the study area over the next decade. They conclude that extended periods of residential stay are not desirable, and that more should be more done to help people stay in their homes. There is also a desire to manage demand for social care by diverting away from formal care to community-based resources. However, even if people use formal services later, increasing life expectancies mean that services are required for longer – therefore in real terms volume and general demand for social care is expected to increase in the future.

Key Shortfalls in Provision and Current Planned Projects

Greater Essex Infrastructure and Growth Framework sets out the theoretical requirements for additional nursing and residential care bed spaces. This is based upon the forecast increase of 122,600 people over the age of 75 between 2016 and 2036 across the whole of Essex. Table 10 represents the theoretical shortfalls in

current provision across the study area based only on benchmark modelling. Projects to meet the need have not been identified as yet.

Table 11 Social care accommodation and theoretical future need

Area	2016-2036 Additional Requirement	
	Nursing Care Bed Requirements	Residential Care Bed Requirement
Basildon	113	517
Brentwood	152	698
Castle Point	82	378
Rochford	72	330
Southend	113	613

Source: *Greater Essex Growth and Infrastructure Framework (2017)*

Adult social care services are privately provided, however Essex County Council have contracts with providers to subsidise a set number of bed spaces. Developer contributions could play a role in delivering specialist housing need.

Provision Standards

The Housing, Learning and Improvement Network has an online tool (SHOP@) which forecasts specialist housing requirements by local authority. For the South Essex area it uses the provision standards set out in Table 11.

Table 12 Adult social care provision standards

Size of unit	Standard	Source
Independent living	25 per 10,000 population aged 55 and over	Independent Living Programme for Older People, Essex County Council
Extra care	25 per 10,000 population aged 75 and over	Strategic Housing for Older People Analysis Tool (SHOP@)
Nursing care	45 per 10,000 population aged 75 and over	Strategic Housing for Older People Analysis Tool (SHOP@)
Residential care	65 per 10,000 population aged 75 and over	Strategic Housing for Older People Analysis Tool (SHOP@)

6.5 Emergency Services

Evidence Base

- Office of Police, Fire and Crime Commissioner: Essex Police Estates Strategy 2018-2023
- Police and Crime Commissioner for Essex: Police and Crime Plan 2016 – 2020
- Police and Crime Commissioner for Essex: Annual Report 2017 – 2018

- Police and Crime Commissioner for Essex: Fire and Rescue Plan 2019-2024
- Greater Essex Growth and Infrastructure Plan (2017)
- East of England Ambulance Service Annual Report 2017/2018
- Essex Police website
- Basildon Infrastructure Delivery Plan (2018)
- Brentwood Infrastructure Delivery Plan (2018)
- Rochford Infrastructure Delivery Topic Paper (2017)
- Southend-on-Sea Infrastructure Delivery Plan (2014)

Overview and Strategic Issues

New models for the delivery for emergency services across South Essex are being developed, with an aim to both rationalise facilities and provide a more efficient service. Emergency services plan to make savings through increased joint working across authority boundaries, and targeting resources to areas of acute need. Local need will be accommodated through community teams and representatives, offering a greater presence in community spaces. There will, however, be few new dedicated facilities.

Table 12 sets out the existing emergency services facilities in each of the local authorities across the study area.

Table 13 Existing emergency services facilities in South Essex (2017)

	Police Station	Fire Station	Ambulance Station
Basildon	1	3	3
Brentwood	0	2	1
Castle Point	0	2	2
Rochford	0	2	1
Southend	1	3	2

Source: Greater Essex Growth and Infrastructure Framework; Essex Police website

Police

South Essex is policed by Essex Police. There are just two police stations in the study area that are open to the public: one in Basildon and one in Southend-on-Sea. Other areas host policing bases and community policing; for example Brentwood shares a base with Brentwood Borough Council's offices. Essex has one of the highest funded police forces in the country, with a budget of almost £269m in 2018. Recently there has been increased collaboration with partners, notably the sharing of services with Kent Police, and closer working relationships with local authorities.

The Police and Crime Plan 2016-2020 was prepared by the Police and Crime Commissioner for Essex. One of the priorities contained in in this Plan is for

‘more local, visible and accessible policing’, ensuring that crime prevention is based in the community. There is an aspiration to work with partners to establish Community Safety Hubs in every policing district, with police co-located with local community safety partners. Along with increased mobile policing, the purpose of such a move is to ensure policing is undertaken closer to local communities. The more recent Police and Crime Commissioner for Essex Annual Report 2017/18 strategy builds on increasing efficiency in its police services, including rationalisation of the Essex Police estate and greater use of technology.

Ambulance

East of England Ambulance Service NHS Trust (EEAST) is one of twelve ambulance trusts working across England, serving Bedfordshire, Cambridgeshire, Hertfordshire, Essex, Norfolk and Suffolk. Across this area, there are 130 sites, and a fleet of 1,000 vehicles. There are ambulance stations in all districts/boroughs in the study area.

Changes to service provision are predominantly focused upon the modernisation of vehicles and medical devices, and reorganisation of the current workforce model. An Estates Strategy is currently being prepared which is considering the potential for a new hub in Ipswich, Suffolk, but has indicated no additional need in South Essex. The Southend-on-Sea IDP indicated that the station at Short Street is rented on ten-year lease which is due to expire in the near future; EEAST are reviewing the Short Street needs, in terms of estate and buildings for ambulance station. No other projects have been identified.

Fire

The Essex County Fire and Rescue Service (ECFRS) manages fire risk across Essex, including the two unitary authorities. Its Fire and Rescue Plan sets out the priorities for fire and rescue services in Essex. There is a clear focus on using local information effectively to determine risk and identify effective prevention, protection and response activity, which would limit the number of call-outs. There is also a drive for efficiency, which is seeing greater collaboration with partners by sharing resources including the shared use of estates, operational collaboration including in control rooms, and a coordinated approach to servicing remote communities. The principle objective is to make best use of resources, based on strategic priorities and evidenced need.

There is recognition that the work of Essex County Fire and Rescue Service is changing. Since 2009 the number of incidents attended has fallen significantly, particularly reported fires which have fallen by nearly 30%.

The Fire and Rescue Budget for 2019-2020 is £77,585,000, of which £10,464,000 is allocated for premises and equipment. The local authorities in South Essex have not identified any additional fire and rescue service need.

6.6 Implications for the JSP

Primary and Secondary Care

All CCGs have identified existing capacity issues, both in the number of GP places and the quality and fitness-for-purpose of existing facilities. Strategic growth will put additional pressure on the services, and so additional capacity will be required.

Significant growth locations may warrant new standalone facilities (in line with the standards set out above); this may therefore be a consideration in determining strategic growth locations and quantum across the study area.

Strategic growth may also offer an opportunity to bring forward new healthcare facilities in or near areas which have current or future capacity constraints.

Secondary healthcare across the JSP area is being redesigned through the STP. As the distribution of strategic growth across the area becomes clearer, it will be important to consult with the CCGs to ensure it can be incorporated into emerging plans for secondary healthcare.

Adult Social Care

Strategic growth locations are likely to require new residential and nursing care facilities. Whilst current patterns of provision are unlikely to steer the emerging JSP in a particular direction, strategic growth may offer an opportunity to bring forward new adult social care facilities in or near areas which have existing capacity constraints.

Emergency Services

Emergency services are undergoing modernisation and rationalisation processes which affect the extent of the physical estate required. Strategic growth is unlikely to require additional new emergency services facilities. Instead, the recent trend is for the rationalisation of the existing estate. With this comes a greater need for collaboration and co-location with other services to ensure community visibility and close working relationships with vital partnerships.

Next steps for Stage B (Infrastructure Requirements Study)

- Determine healthcare and adult social care requirements to support the strategic growth locations, taking into account the provision standards set out above.
- Determine future estates management plans to identify where they may be future changes to emergency services facilities.
- Determine through consultation whether new facilities are required to support major growth areas.
- Continue to engage with the CCGs on the development of the STP.

7

Community and Sports and Leisure



7 Community and Sports and Leisure

7.1 Overview of Strategic Infrastructure

This Baseline Study covers the following types of strategic community, sports and leisure infrastructure:

- Community hubs
- New mixed-use facilities
- New multi-sport facilities such as 3G pitches and leisure centres
- Museums
- Relocation/major upgrades of the above existing facilities

The Baseline Study does not include:

- Libraries
- Volunteer halls
- Community halls
- Minor upgrades/extensions to existing facilities
- Regular ‘business as usual’ management and maintenance

These facilities have not been included in the Baseline Study because their impact is unlikely to be ‘strategic’ in nature, (in other words, having an impact across the study area and beyond administrative boundaries) and they are unlikely to be a major determining factor in deciding where to locate strategic growth. However, it is important that new growth is served by these types of infrastructure, and so will be included in Stage B (Infrastructure Requirements Study) of the Strategic Infrastructure Position Statement.

Strategic sports facilities are commonly those which²⁰:

- Provide facilities which are the primary performance venue for a single or select number of priority sports.
- Can host sub-regional, county, borough-wide and local events.
- Provide a wide a range of opportunities for residents and visitors to participate in sport and physical activity, contributing significantly to the quality of life of residents across a wide area.
- Are a core venue for training and development of teachers, coaches, volunteers, officials and others in key sports.

²⁰ As per the South Essex Indoor Sports Facilities Strategy 2018 Tier 1 facilities.

7.2 Strategic Community Facilities

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Basildon Council, Indoor and Built Facilities Needs Assessment (2018)
- Brentwood Build Facilities Strategy (2018)
- Castle Point Borough Council, Indoor and Built Facilities Needs Assessment (2018)
- Greater Essex Growth and Infrastructure Framework (2017)
- South Essex Indoor Built Facilities Strategy, Castle Point Strategy and Action Plan (2018)

Overview and Strategic Issues

Community centres are important recreational facilities, particularly in more rural areas. Increasingly, there is a drive to create multi-functional community spaces, providing places for socialising, child care, youth clubs, clubs, activities, meetings, and sports. ‘Community hubs’ bring together services such as libraries, doctors surgeries, meeting space, and flexible and affordable workspace and facilities. Whilst community halls and parish/church halls also provide important meeting points, they do not contribute to the strategic provision of this multi-functional community space that is currently under demand.

Current Planned Projects

The provision of community facilities is commonly linked with new large housing developments and provided through associated developer obligations. For example, Rochford District Council have forecasted for community and youth facilities to be provided in relation to strategic development sites in their Infrastructure Delivery Topic Paper 2017. There are, however, few strategic-level community facilities currently planned across the study area. At present, the strategic projects include:

- Dunton Hills Community Hub (as part of a strategic plan allocation which has not yet been subject to Independent Examination); and
- Southend-on-Sea Museum.

Ongoing operation and maintenance costs are typically funded through a mixture of endowments, grants and donations, and income generating activities. Business plans should be prepared early on in the design process to ensure financial sustainability of new facilities.

Provision Standards

Generally, the boroughs/districts do not set out a floorspace or proximity standards for community facilities due to the dependency of demographics and local requirements. However, Southend-on-Sea sets out provision standards to community halls in their 2014 borough-wide IDP (see Figure 12).

Figure 11 Southend-on-Sea community facilities provision standards

Authority	Asset	Standard	Source
Southend-on-Sea	Community Halls	0.2sqm per person 0.48swm per dwelling (average 2.4 per dwelling)	Southend-on-Sea IDP

7.3 Strategic Sports and Leisure Facilities

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Basildon Council, Linking Planning, Health and Wellbeing – Topic Paper (2017)
- Basildon Council, Playing Pitch Strategy and Action Plan (2018)
- Basildon Council, Playing Pitch Strategy Assessment Report (2018)
- Basildon Council, Gardiners Lane South Playing Pitch Relocation Study (2017)
- Basildon Council, Indoor Sports Facilities Strategy and Action Plan (2018)
- Basildon Council, Indoor and Built Facilities Needs Assessment (2018)
- Brentwood Built Facilities Strategy (2018)
- Brentwood Playing Pitch Strategy (2018)
- Brentwood Leisure Strategy 2018-2028 (2018)
- Castle Point Borough Indoor and Built Facilities Needs Assessment (2018)
- Castle Point Borough Council Playing Pitch Strategy (2018)
- Rochford Playing Pitch Strategy Supplementary Planning Document (2012)
- Rochford Playing Pitch Strategy and Action Plan (2018)
- Southend-on-Sea Borough Council, Playing Pitch Strategy (2018)
- Southend-on-Sea Indoor Built Facilities Strategy (2018)
- South Essex Indoor Built Facilities Overarching Strategy and Action Plan (2018)
- South Essex Indoor Built Facilities Strategy Castle Point Strategy and Action Plan (2018)

- South Essex Playing Pitch Strategy Overarching Strategy and Action Plan (2018)
- Castle Point Borough Council, Sport and Leisure Facilities Needs Assessment (2018)

Overview and Strategic Issues

Sport England provides guidance on planning for sports facilities in England. Their strategy *Protect, Enhance, Provide* focuses on increasing the quality and maintaining the quantity of existing facilities before providing new ones. Active Essex focuses on increasing participation in physical activity and sport with a focus on 'Changing 1 million lives'. Their strategy recognises the need for appropriate quality and quantity of sports facilities to increase participation.

The South Essex Indoor Built Facilities Overarching Strategy and Action Plan identifies the following facilities as having a 'regional pull':

- Basildon Sporting Village – a leisure centre comprising: an Olympic-size swimming pool; eight-court sports hall; 100-station gym; an indoor climbing wall; 750-seater athletics stadium; two cricket pitches; two tennis courts; two artificial pitches; and six grass pitches.
- Clements Hall Leisure Centre (near Hockley in Rochford district) – facilities include: a 25-metre swimming pool; three dedicated exercise studios; a spin studio; a gym; indoor courts; and a 3G 7-a-side football pitch.
- Southend Leisure and Tennis Centre – facilities include: a swimming pool; a diving pool; a fun pool; a gym; three fitness studios; a 400m athletics track; and outdoor tennis courts.

There are a range of additional existing strategic-level sports facilities across the JSP area (including Thurrock), above and beyond those facilities identified in the South Essex Indoor Built Facilities Overarching Strategy and Action Plan:

- **Basildon's** Sports Village provides a wide range of facilities and supplies significant capacity to the surrounding area.
- **Thurrock** contains two sports sites of strategic importance which the council aims to transform into Sports Hubs – Belhus Parka and Blackshots Recreation Ground
- In **Brentwood** the largest facility is the Brentwood Centre which offers two swimming pools, a 12 court sports hall, a dedicated mixed martial arts centre and a 3G synthetic football pitch.
- **Southend-on-Sea** contains a number of 'hub sites' which are of strategic, borough wide importance, including Garon Park, Shoebury Park and Belfairs Park (as identified in the Southend-on-Sea Playing Pitch Strategy).

Evidence base documents such as the Brentwood Leisure Strategy highlight the difficulties that local authorities experience in delivering sports and leisure facilities. Due to reduced budgets and access to grants, councils need to reduce expenditure on leisure. This could be through consolidation of facilities/uses,

through different forms of delivery (e.g. with new partners including schools), or by increasing income streams from other sources.

Key Shortfalls in Provision

The South Essex Playing Pitch Strategy 2018 identifies a lack of security of tenure for clubs, a number of poor quality facilities and resultant shortfalls in playing pitches across South Essex. There is an identified need to increase the number of 3G pitches and many AGPs, athletics tracks, and tennis/netball courts are nearing the end of their lifetime. At a more localised (district/borough) scale, the evidence on existing provision levels varies considerably.

Brentwood and Basildon have sufficient playing pitch facilities to meet current demand, however in Basildon, there will be a relatively small shortfall of swimming pools by 2021 and the need for a further 15 sports halls by 2031. In addition, Epping Forest District Council is currently considering closing the Ongar Leisure Centre (which is within a 20-minute drive time for Brentwood residents), which could increase demand for facilities in Brentwood.

There is an identified shortfall of playing pitch provision in Rochford and Southend-on-Sea. The Rochford Playing Pitches SPD has brought forward a series of recommendations to increase supply in line with demand. Southend-on-Sea identified that the shortfalls could be met through improvements to existing provision however, the shortfall of 3G pitches will require additional provision (six additional full size 3G pitches to 2037). At present, education sites are being used across South Essex for competitive play but that this is not necessarily formalised and an appropriate community use agreement is required.

Southend-on-Sea also has an under supply of swimming pool space with some pool stock requiring refurbishment.

Current Planned Projects

In a similar vein to community facilities, South Essex authorities are focusing on providing multi-use facilities and to increase the range of facilities available. For example, Brentwood is considering integrating playing pitch provision into the provision of hub locations, with multi-functional play pitches. Hadleigh Park, supported by the Active Essex Strategy, will also provide a world-class outdoor sports and leisure venue with an Olympic mountain bike course at its heart. Such facilities can provide services for South Essex and the wider region.

The planning and development of strategic leisure and sporting facilities is often provided through the developer obligations relating to major developments.

The other strategic planned projects relate to new infrastructure requirements such as 3G pitches, and to relocation or redevelopment of facilities such as:

- Relocation of Gardiners Lane South.
- Relocation of Southend United FC.
- Relocation of Norman Garon Trust Football Pitches.

Implications for the JSP

As might be expected, there are varying levels of provision and capacity constraints across the study area, depending on the type of community or sports facility in questions. Most facilities are provided on a local rather than a strategic scale, so on the whole the existing pattern of provision does not steer the emerging JSP in a particular direction. Strategic growth locations are likely to require new facilities, so any lack of current spare capacity does not restrict areas being considered for growth.

However, strategic growth may offer an opportunity to bring forward major new facilities in or near areas which have current capacity constraints; this should be considered further as the JSP progresses.

Next steps for Stage B (Infrastructure Requirements Study)

- Determine the community and sports facilities requirements to support the strategic growth locations, taking into account any provision standards.
- Engage with Sport England, Active Essex and local authorities to understand likely requirements and delivery mechanisms.

8

Open Space and Green and Blue Infrastructure



8 Open Space and Green and Blue Infrastructure

8.1 Overview of Strategic Infrastructure

The Baseline Study covers the following types of strategic Open Space and Green and Blue Infrastructure:

- New strategic open space provision (for example regional parks)
- Green and blue infrastructure corridor/network enhancements and developments
- Strategic enhancement programmes (for example provision across administrative boundaries)

The Baseline Study does not include:

- Local open space provision or upgrades (for example open space provision associated with development)
- Local green space designations
- Regular ‘business as usual’ management and maintenance

Open space provision relating to specific developments has not been included in the Baseline Study because it has been delivered to support that growth and is unlikely to be a major determining factor in deciding where to locate new strategic growth to be contained in the JSP. However, it will be important that new growth is served by such provision, and so will be included in Stage B (Infrastructure Requirements Study) of the Strategic Infrastructure Position Statement. ASELA has commissioned a Green and Blue Infrastructure Strategy, which is expected to include projects to be included in the final SIDP.

Open Space and Green and Blue infrastructure is largely planned for on a district level and is sensitive to the local context. As a result, there is a wide variance across the South Essex authorities.

8.2 Strategic Open Space and Green and Blue Infrastructure

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Basildon Council, Open Space Assessment Gap Analysis (2015)
- Brentwood Green Infrastructure Strategy (2015)
- London Southend Airport and Environs Joint Area Action Plan – Walking and Cycling ‘Greenway Network’ (2016)

- Rochford District Council, Open Spaces Strategy (2015)
- Southend-on-Sea Parks and Green Spaces Strategy 2015-2020 (2015)
- Thames Gateway South Essex Green Grid Strategy (2005)

Overview and Strategic Issues

The revised NPPF (2019) emphasises the importance of green infrastructure networks and protects existing open space, detailing only specific circumstances in which it can be redeveloped (Paragraph 97). In addition, the NPPF highlights the impact of green infrastructure on health (Paragraph 91), climate change (Paragraph 150) and pollution (Paragraph 181).

Green and blue infrastructure plays an important role socially, economically and environmentally. Multi-functional green and blue networks and corridors are becoming increasingly important as a way of facilitating active and sustainable travel, improving air quality, increasing biodiversity and meeting health and wellbeing objectives. As a result, many local authorities are promoting the development of green and blue infrastructure networks.

South Essex sits within a wider network of strategic green and blue infrastructure such as the Thames Chase Community Forest (and associated network of promoted greenways), the Thames Gateway Parklands, the River Thames and smaller rivers and tributaries such as the River Crouch, River Roach, Hadleigh Ray and Holehaven Creek, and Southend coastline and beaches. Within the South Essex authorities, existing strategic open space and green infrastructure assets include Langdon Hills Country Park, Thorndon Country Park, Weald Country Park, Hadleigh Country Park, Southend coastline and multiple sites of special scientific interest (SSSI).

The local authorities across the study area vary significantly in rural to urban extent. However, even local authorities with a low built form percentage such as Brentwood do not necessarily have high public open space access.²¹

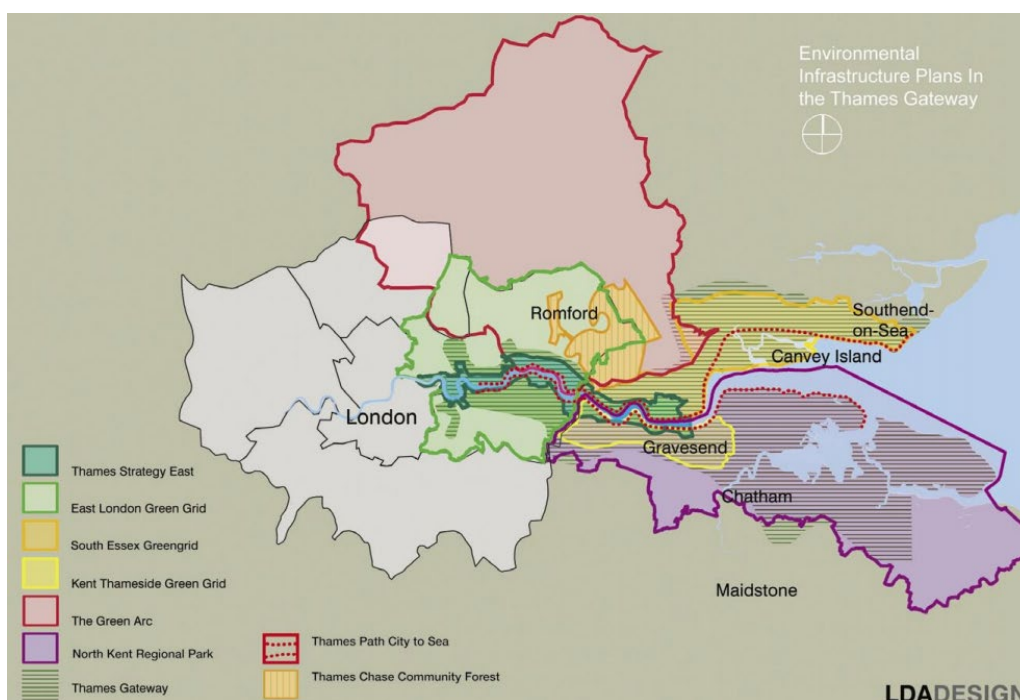
It is important to plan for green infrastructure at all spatial scales. In particular, it is important to consider how these networks will function across administrative boundaries and how strategic green links can be created throughout South Essex. There are some examples of cross-boundary collaboration. The Thames Gateway South Essex Green Grid Strategy (2005) sets out plans to create a high quality, functional green space network throughout the Thames Gateway. This includes creating new areas of outstanding landscape, riverscape and townscape character, biodiversity value, and settings for development. Other examples include Basildon Borough Council and Brentwood Borough Council who are planning to create a landscape buffer and green corridor across their boundary. However, most planning for open space and green and blue infrastructure currently takes place on a district/borough level.

²¹ Brentwood Green Infrastructure Strategy (2015) states that only 20% of Brentwood is built-up and distinguishes between large rural swathes of land that contribute to green infrastructure but are not necessarily public open space.

Despite this district/borough level planning, there have been past attempts to plan for green infrastructure at a strategic level – through initiatives such as the Thames Gateway South Essex Green Grid (2005), the East London Green Grid (2008) and the ‘Green Arc’²² (see Figure 15). However, whilst the All London Green Grid has progressed to replace the East London Green Grid, there has not been an update to the Thames Gateway South Essex Green Grid and this strategic level plan is now outdated.

ASELA has commissioned a Green and Blue Infrastructure Strategy to support the JSP, and an Essex-wide Green Essex Strategy is being finalised. Future stages of work will need to align with these strategies.

Figure 12 Previous attempts at strategic open space and green infrastructure planning in the Thames Gateway



Source: Thames Gateway South Essex Green Grid Strategy

Key Shortfalls in Provision

Assessing the provision of open space and green and blue infrastructure requires a consideration of quantity, quality and accessibility. There is a variation in the quantity of open space provision across the South Essex authorities. For example, Brentwood has 1,300ha of green spaces, compared with 455ha of parks and open space in Castle Point. (It should be noted, however, that different studies use different definitions of open and green spaces and so this comparison may not be like-for-like.) Quantity standards are relative to the population; at present, both Thurrock and Southend-on-Sea have an existing overall open space deficiency. Population growth through new housing across South Essex will increase the quantity of open space and green infrastructure required.

²² The Green Arc North East Partnership

Due to the land requirement to deliver new strategic open space and green infrastructure, it may be difficult to provide a vast amount of additional space. Improving the quality and accessibility of existing strategic open space is therefore an important priority across South Essex. A 2017 assessment of open space in Basildon revealed that over half of the total open space in the borough was categorised as ‘reasonable’ quality. A number of authorities such as Southend-on-Sea aim to achieve Green Flag standards across their parks and open spaces, improving the quality of provision. In Rochford, there is an objective to sell poorer quality open space with a view to generating capital and acquiring additional open space that offers a better strategic opportunity to contribute to a network of spaces.

In terms of accessibility, there is also a varied standard across South Essex. For example, Basildon has a generally good access to natural greenspace across the borough, whereas Brentwood has identified a need to improve accessibility. Brentwood is seeking to improve accessibility through green travel links, but projects have not progressed due to financial viability and complexity in land ownership.

This variance in provision in terms of quantity, quality and accessibility across South Essex authorities highlights a significant shortfall in provision and planning for strategic infrastructure, as well as the need to plan strategically for multi-functional green infrastructure.

Current Planned Projects

Across the study area, local authorities are pursuing a range of green infrastructure projects:

- **Brentwood** has identified a number of potential key opportunity sites to realise a visionary forward-thinking network of green corridors in Brentwood. These include Dunton Hills Garden Village, Brentwood Enterprise Park and Thriftwood Scout Camp. In addition, it has a Green Transport Corridors project which provides a net positive approach to biodiversity.
- **Rochford** plans to create a Greenway Network to the north and east of the proposed Southend Airport Business Park (SABP). In addition to providing facilities for active travel, the network will create linear parks and access to ‘green lungs’ and ‘pocket parks’. The Rochford Open Spaces Strategy seeks to deliver a good quality and accessible network of green spaces and street scenes with a focus on preserving and joining its woodland, farmland, lowland marks, creeks, mud flats and towns/villages.
- The Three Rivers Trail in **Southend-on-Sea** will provide sustainable links through Southend-on-Sea into **Rochford**, linking up key locations in the town and providing opportunities for recreation. This was identified as part of the European Urban Habitats Programme.
- **Basildon** Borough Council have allocated sites to provide an extension to the Wick Country Park in Wickford and an extension to Mill Meadows in Billericay. Pitsea Landfill is now closed and its restoration is underway to

provide new open space adjacent to the existing Wat Tyler Country Park, with opportunities for green links between the two areas.

In addition, the Thames Estuary 2050 Growth Commission prioritises the development of the Great Thames Park to help deliver the new section of the Thames Path by 2020. This was supported by the Autumn Budget 2018 which approved a study into the project²³. As part of delivering the England Coast Path, Natural England is also investigating how to improve access along a 70km stretch of the Essex coast between Tilbury and Southend-on-Sea, with support from Essex County Council, Southend Council and Thurrock Council²⁴.

Provision Standards

The provision standards set out in Figure 16 are currently applied to the following boroughs/districts. It should be noted that such standards are subject to review and may be subject to change.

Figure 13 Open space provision standards

Local Authority	Quantity Standards	Source
Basildon	5.7ha open space per 1,000 people (of which 2.6ha should be natural greenspace and 3.1ha urban parks and gardens)	Basildon Borough IDP
Southend-on-Sea	At least 2ha accessible natural greenspace within 300m of home	Southend-on-Sea Infrastructure Delivery Plan
	At least 20ha accessible natural greenspace within 1.2km of home	
	At least 60ha accessible natural greenspace within 3.2km of home	
	At least 500ha accessible natural greenspace within 10km of home	
	1 District Park per 22,900 people	
	1 Local Park per 8,900 people	
	Neighbourhood parks – 1 per 3,800 people	
	2ha natural/semi-natural greenspace per 1,000 people	
	0.8ha amenity greenspace per 1,000 people	
	1.8sqm children playspace per childbed space	

²³ HM Treasury, Policy Paper, Budget 2018 - Section 5.18 (2018) (Available at: <https://www.gov.uk/government/publications/budget-2018-documents/budget-2018>)

²⁴ Further information on the proposals for the England Coast Path are available here: <https://www.gov.uk/government/collections/england-coast-path-tilbury-to-southend-on-sea>

8.3 Implications for the JSP

The current provision of open space and green infrastructure does not constrain growth options; it will however be important to ensure strategic growth can be served by open space (in terms of quantity, quality and accessibility), and maximises the opportunities to develop the network of green and blue infrastructure.

ASELA recognises the importance of open space and green infrastructure and has commissioned a Green and Blue Infrastructure Strategy. There is an opportunity to embed green and blue infrastructure by including both sites and policies which allow for the development of new green and blue assets and better links with existing assets.

Next steps for Stage B (Infrastructure Requirements Study)

- Determine the open space requirements to support the strategic growth locations, taking into account the provision standards set out above.
- Consider opportunities to upgrade poorer quality existing open space through strategic growth.
- **Consider opportunities to deliver strategic green and blue infrastructure upgrades and strengthen the wider network through strategic growth. This will involve alignment with the Green and Blue Infrastructure Strategy currently being produced.**

9

Utilities and Waste



9 Utilities and Waste

9.1 Overview of Strategic Infrastructure

This Baseline Study covers the following types of utilities provision:

- Strategic level reinforcements or network upgrades
- Expanded water recycling centres or substations
- Schemes funded through provider business plans, AMPs etc.
- Major projects/sites included in waste development plans e.g. Essex Waste Local Plan

The Baseline Study does not include:

- Asset replacements which do not increase capacity
- Local level reinforcements etc.
- Site connections
- Changes to wastewater permits
- Water environmental improvements agreed as part of the Water Industry National Environment Programme

Water company schemes relating to drainage or overspill is covered as part of Chapter 10 – Flood Protection and Drainage.

9.2 Water

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Living Water, Our plan 2020-25 and beyond (unknown date)
- Essex and Suffolk Water, Draft Water Resources Management Plan 2020-2025 (2018)
- Essex and Suffolk Water, Water Resources Management Plan 2015-2020 (2014, plus annual update documents)
- Local authority-level infrastructure studies: Basildon Infrastructure Delivery Plan (2018); Brentwood Infrastructure Delivery Plan: 05 Water and Drainage (2018); and Southend-on-Sea Infrastructure Delivery Plan (2014).
- Affinity Water, Revised Water Resources Management Plan 2020: Briefing for Local Authorities in the Central Region (2019)
- Anglian Water, Water Recycling Long-Term Plan (2018)
- South Essex Water Cycle Study Technical Report (2011) (covering Basildon, Castle Point and Rochford)

Overview and Strategic Issues

Essex and Suffolk Water is responsible for the supply of potable water across South Essex, falling within the Essex Water Resources Zone. Essex and Suffolk Water are required to produce a Water Resources Management Plan (WRMP) every five years. The most recent final WRMP is for the 2015-2020 period, and forecasts water demand up to 2040 and documents how it will be met. The WRMP for 2020-2025 is currently being produced and a draft was published in 2018.

The Essex and Suffolk supply areas are located within some of the driest areas of the country and as such face particular challenges including a general lack of new water resources and uncertainty from climate change. Meeting the needs for the future requires both demand management and water supply initiatives.

Key Shortfalls in Provision

The per capita consumption across Essex and Suffolk is forecast to reduce annually across the planning horizon as a result of the Company's water efficiency initiatives and metering policy²⁵. Essex and Suffolk Water has recently significantly enlarged Abberton Reservoir in Colchester district, which has increased water resources across the region. The evidence base does not suggest there are any other areas where there are overwhelming challenges in providing water to users; nor where there are areas of significant over-supply which might be utilised.

Current Planned Projects

As the Water Resources Management Plan shows a surplus of supply for the Essex Water Resources Zone until at least 2045, there are no plans to develop new water resources. New water mains may be required to serve new development but this cannot be determined until the location of growth has been identified through the plan making process.

Essex and Southern Water is promoting a new scheme through its current Business Plan called the Abberton to Hanningfield Pipeline. The pipeline would allow water from Abberton Reservoir in Colchester district to be pumped to Hanningfield Reservoir in Chelmsford district. It does not increase the deployable output in the Essex Water Resources Zone, but instead increases resilience around treatment capacity across the area and so relates to the study area even if it does not fall within it.

In order to balance supply and demand within its catchment, Anglian Water is currently proposing to transfer water from the South Essex area by 2030. This will require a new resource transfer infrastructure to be identified for the South Essex area. Whilst it will not service the JSP area, the infrastructure would be located

²⁵ The Essex Water Resources Zone is forecast to have a small surplus, supporting a trade to other regions of 5Ml/day until 2035. This increases to 25Ml/d from 2036 when a 20Ml/d bulk supply agreement with Thames Water comes to an end. This surplus has been advertised to other water companies, but to date no companies have asked to progress agreements to share this surplus.

within it. Anglian Water is currently assessing the suitability of various strategic options and appropriate delivery dates; more information may become available over the course of the Strategic Infrastructure Position Statement and Strategic Infrastructure Delivery Plan.

Although Essex and Southern Waters' Water Resource Zones are in surplus through to at least 2045, it is acknowledged that eventually new water resources will need to be developed for all areas and that greater joint working between water companies will be required. The Water Resources East project (bringing together stakeholders from a range of industries) has been set up with the mission to work in partnership to safeguard a sustainable supply of water for the East of England, resilient to future challenges and enabling growth. As this project develops there may be further inputs into the Strategic Infrastructure Position Statement and Strategic Infrastructure Delivery Plan.

9.3 Wastewater

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Anglian Water, Business Plan 2020-2025 (2018)
- Anglian Water, Water Recycling Long Term Plan (2018)
- Thames Water, Our Business Plan 2020-2025 (2018)
- Thames Water, London's Wastewater Future
- South Essex Water Cycle Study Technical Report (2011) (covering Basildon, Castle Point and Rochford)
- Southend-on-Sea, Development Management Document (July 2015)
- Local authority-level infrastructure studies: Basildon Infrastructure Delivery Plan (2018); Brentwood Infrastructure Delivery Plan: 05 Water and Drainage (2018); and Southend-on-Sea Infrastructure Delivery Plan (2014).

Overview and Strategic Issues

Wastewater treatment refers to the treatment of both domestic and commercial wastewater, as well as industrial waste. It can also be rainwater run-off from impermeable surfaces such as driveways associated with buildings and dealt with by public sewers, or highways drainage from roads and pavements managed by the relevant authority. Almost all of the study area falls within Anglian Water's catchment; a portion of Brentwood district is served by Thames Water.

Anglian Water has produced a Water Recycling Long Term Plan (WRLTP) which shows the investment required over the next 25 years in relation to wastewater collection and treatment. This takes into account a projected level of growth in the region, in the locations already known. Anglian Water's WRLTP identifies the Thames Estuary region as an emerging growth corridor which should be monitored to understand scale and location of growth.

Water and wastewater companies prepare business plans on a five year investment cycle, known as Asset Management Plan (AMP). Anglian Water's plans for the next AMP period of 2020-2025 was informed by the WRLTP.

Key Shortfalls in Provision

As part of the production of the Basildon Infrastructure Delivery Plan, the Environment Agency stated that the level of development allocated through the draft Local Plan in the Billericay area would be extremely close to the available capacity at the area's water recycling centre. It may be possible to connect some of the development to other sewage catchments and/or expand the water treatment centre treatment facility, but investment would be required. This might also influence the location of the strategic growth across the study area and will need to be considered further. It should also be noted that such an upgrade has not been identified by Anglian Water as part of their business planning process and so would need to be properly assessed and discussed with Anglian Water as part of the next stages of work.

Assessment undertaken as part of the production of Brentwood Infrastructure Delivery Plan found that by 2020 both Ingatestone and Brentwood water recycling centres are likely to be discharging at a greater volume than their current consent limits. It is not clear whether this can be dealt with through a change in consent limits or whether new infrastructure will be required. Again, it should be noted that these findings would need to be properly assessed as part of Anglian Water's business planning process and the next stages of this work

The Southend-on-Sea Development Management Document (2015) sets out the Development Management policies for Environmental Management. Policy DM14 – Environmental Protection covers waste water treatments works (WWTWs), often referred to as water recycling centres. The policy states that the Essex Thames Gateway Water Cycle Study Cycle Scoping Report (March 2009) identified that Southend WWTW is currently at capacity. It also identified that increases in flow through parts of the sewerage network is likely to cause an increase in the frequency of diluted but untreated discharges from the system. Since the Scoping Report was prepared, it has however been demonstrated that current capacity at the Southend WWTW can accommodate the Core Strategy growth targets to 2021 and beyond. Future capacity will need to be re-assessed to consider the JSP strategic growth.

Current Planned Projects

Anglian Water's planned upgrade works – as set out in their Water Recycling Long Term Plan – can be broken down into flow capacity upgrades (investments to manage potential Dry Weather Flow non-compliance), and process capacity upgrades (investments made to increase the biological treatment capacity of the WRC). These are shown in Table 13.

Table 14 Wastewater infrastructure planned projects

Water Recycling Centre	Flow Capacity Upgrade	Process Capacity Upgrade
Pitsea		✓
Rayleigh East	✓	✓
Southend		✓
Tilbury (Thurrock)	✓	
Wickford	✓	

As part of the production of the Basildon Infrastructure Delivery Plan, Anglian Water indicated that a number of proposed sites are in close proximity to existing water recycling centres or existing pumping stations. No specific schemes to address any impacts arising from this proximity have been raised, and it may be that site layouts can be planned to minimise impacts.

There are two main existing funding sources for wastewater infrastructure:

- Strategic project funded through Anglian Water's business plan, funded through customer bills.
- Charges to the developer, which have recently been simplified to a standard charge for all new dwellings to fund water supply and wastewater network improvements. The purpose of these charges is to fund new or diverted networks, and are separate from the charges related to connection of individual buildings to the network for the first time.

9.4 Electricity

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Greater Essex Growth and Infrastructure Framework (2017)
- UK Power Networks Long Term Development Statement (Eastern Power Networks (2018)
- UK Power Networks Business Plan 2015-2022 (2015)
- UK Power Networks Regional Development Plans (2014): Bramford-Rayleigh; Barking, Warley and West Thurrock; Braintree-Rayleigh; and Rayleigh and Tilbury.
- Renewable Energy Planning Database (December 2018 release)
- Energy South2East (2018) Local Energy Strategy
- Local authority-level infrastructure studies: Basildon Infrastructure Delivery Plan (2018); Brentwood Infrastructure Delivery Plan: 04 Energy (2018); and Southend-on-Sea Infrastructure Delivery Plan (2014).

Overview and Strategic Issues

Electricity is transmitted through a national network of electricity lines by National Grid, before connecting to local distribution networks. The entirety of the study area falls within distribution network operator UK Power Network's (UKPN) Eastern distribution area. UKPN are required to produce Long Term Development Statements (LTDSs) giving detail of the current status of their network and any future networks.

UKPN's forecast for reinforcement investment takes into account not just new buildings but also wider changes in how electricity is expected to be used, including:

- Migration of the night-time load to the day-time load, in part due to reduced use of electricity for heating (as gas connections in rural areas becomes more common).
- Growth in air conditioning and cooling
- Growth in electric vehicles
- Growth in distributed generation and combined heat and power

Alongside secured electricity provision, SELEP, Enterprise M3 and Coast to Capital has come together to develop a local energy strategy covering a large part of the south east of England. The strategy aims to reduce emissions in the electricity, heat and transport sector and promote clean growth and take advantage of low carbon technologies. It is indicated that the total investment required will be nearly £15billion, which would meet the required emissions target for 2032, as well as creating 75,000 direct jobs. The strategy focuses on the following five priorities:

- Low carbon heating, including district heat networks and new-build homes on hydrogen grid;
- Energy saving and efficiency, including energy efficiency in home and SME support programme;
- Renewable generation, including offshore wind development, solar energy, and biofuel;
- Smart energy system, including housing and community grids and solar and microgrid on landfill sites;
- Transport revolution, including electric vehicle and hydrogen-fuelling infrastructure and modernisation of energy infrastructure in ports.

Key Shortfalls in Provision

The evidence base does not suggest there are areas where there are overwhelming challenges in providing electricity to users; all major substations (as shown on National Grid's online network capacity map²⁶) have available demand headroom

²⁶ Available at: <https://www.nationalgridet.com/get-connected/network-capacity-map> (accessed February 2019)

which is available for use. Available headrooms at major substations are shown in Table 14.

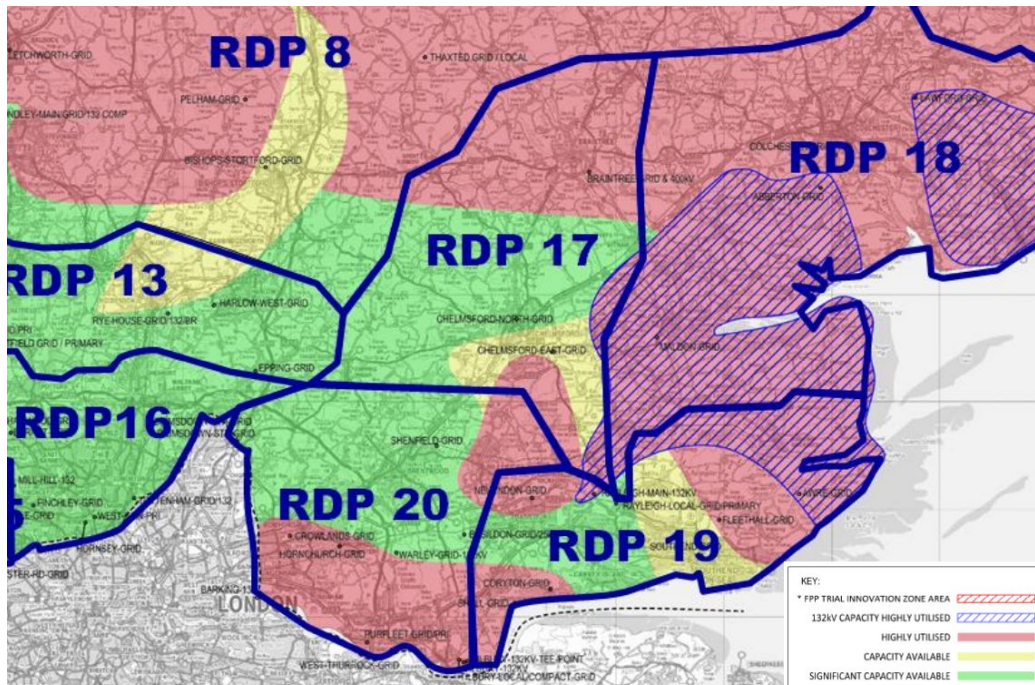
Table 15 Major substation demand headrooms

Substation	Available demand headroom
Rayleigh 400kV	700 MW
Warley 275kV	195 MW
Tilbury 400kV (Thurrock)	249 MW
Tilbury 275kV (Thurrock)	249 MW
West Thurrock 400kV (Thurrock)	50MW

Source: National Grid online network capacity map

There are however constraints in relation to new generation connections (i.e. distributed generation connecting back into the grid) – this includes areas around Foulness, Wickford and Thurrock. Whilst this is unlikely to be a key consideration in determining strategic growth locations across the JSP area, the ability of new development to incorporate distributed electricity generation may be worth considering.

Figure 14 National Grid generation heat map (green indicates significant generation capacity available)

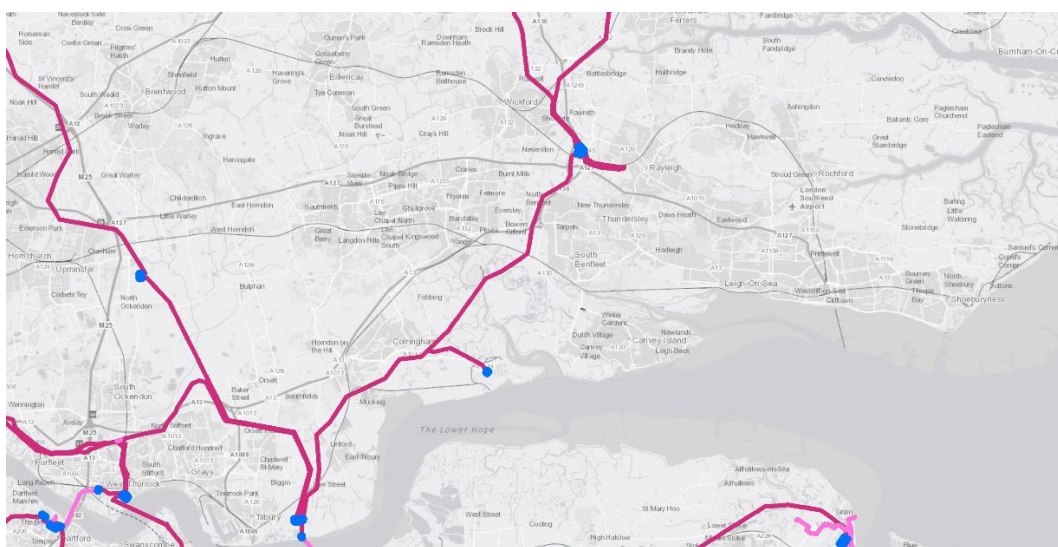


Source: UK Power Networks Bramford-Rayleigh; Barking, Warley and West Thurrock Regional Development Plans

Overhead line and cable locations are shown in Figure 18. The locations of these assets may have an impact on the locations available for strategic growth.

National Grid has produced guidance on safe distances and design of developments directly adjacent to high voltage power lines²⁷. Constraints may be overcome through masterplanning – for example through incorporating amenity areas free of built development along an overhead line route, or mitigating for any amenity impacts.

Figure 15 National Grid overhead lines (dark pink), cables (light pink) and major substations (blue)



Source: National Grid data, mapped by Arup

The various UKPN Regional Development Plans include details of a number of ‘rejected strategies’ which are not currently being taken forward for a variety of reasons. Some of these are still expected to be required in the future and may constitute future capacity constraints if not brought forward.

Current Planned Projects

The UKPN’s Long Term Development Statement includes significant upgrades at the following substations:

- Nevedon 132/33kV
- Tilbury Local 132/33kV (Thurrock)
- West Horndon Primary
- Billericay East

There are a number of smaller projects set out in the relevant UKPN Regional Development Plans. In addition, there are some proposed projects included in the Regional Development Plans which fall outside the JSP area and which appear not to serve the area, but upgrades might release capacity for the JSP area.

²⁷ National Grid, Development near overhead lines: Planning and amenity aspects of high voltage electricity transmission lines and substations (2008)

It is understood that there may be an opportunity to either upgrade or underground ageing pylon infrastructure across parts of the Dunton Hills Garden Village site in Brentwood district. This opportunity requires further consideration.

The Renewable Energy Planning Database (December 2018 release) shows the following projects with planning permission or in construction across the JSP area (including Thurrock):

- Veolia Cleanaway Project 3 (energy from waste incineration at Pitsea, Basildon)
- Balfour Beatty Thurrock Biomass CHP (at Grays)
- Tilbury Green Power (energy from waste incineration)
- Solar photovoltaics at London Distribution Park, Tilbury

A number of electricity generators within East Anglia have requested future connection into the national transmission within recent years, including East Anglia Offshore (wind) Galloper Offshore (wind), Dudgeon (wind), Sizewell C (nuclear), King's Lynn B (gas), and South Holland (gas) (source: Greater Essex Growth and Infrastructure Framework). In the longer term, Bradwell B (nuclear) in neighbouring Maldon district has been identified as a preferred site in the relevant National Policy Statement and investigative and technical studies are being undertaken on the site – though the project remains at an early stage. Whilst none of these projects fall within the study area, they have the potential both to impact the source of electricity and the physical transmission required within the area.

Upgrades to the electricity network are largely funded by regulatory allowances rather than by developers. However, projects will only proceed if a need exists. When new development is proposed, the impact of the development on network demand is assessed again. Where demand would stimulate the need for a planned project to be brought forward, or where a new project is required to support the development, the developer may be expected to contribute to the project costs. Developers are also liable for the cost of the connection to the network.

SELEP (alongside Coast to Capital LEP and Enterprise M3 LEP) have produced an action plan which sets out a number of 'project models' including district heat networks, off-gas grids, hydrogen injections, and micro and community grids. It is not yet clear what this means for South Essex.

9.5 Gas

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- National Grid, Gas Ten Year Statement (2018)
- National Grid, The Future of Gas: How gas can support a low carbon future (2018)

- National Grid, Network route maps (accessed 2019)
- National Grid, High pressure gas pipeline locations (accessed 2019)
- Local authority-level infrastructure studies: Brentwood Infrastructure Delivery Plan: 04 Energy (2018); and Southend-on-Sea Infrastructure Delivery Plan (2014).
- Greater Essex Growth and Infrastructure Framework (2017)

Overview and Strategic Issues

Gas is transported across the country through the national transmission system from supply points to gas distribution networks. The entirety of the study area falls within National Grid's East of England gas distribution network. South Essex is served by both Bacton and Isle of Grain terminals (both outside the study area), which together supply a large area of the South and East of England. The supply points and strategic network is shown in Figure 19.

The Calor Gas Terminal on Canvey Island imports and distributes liquefied petroleum gas, for use in cylinders. This terminal helps to serve a far wider area than just South Essex.

Figure 16 Strategic gas network

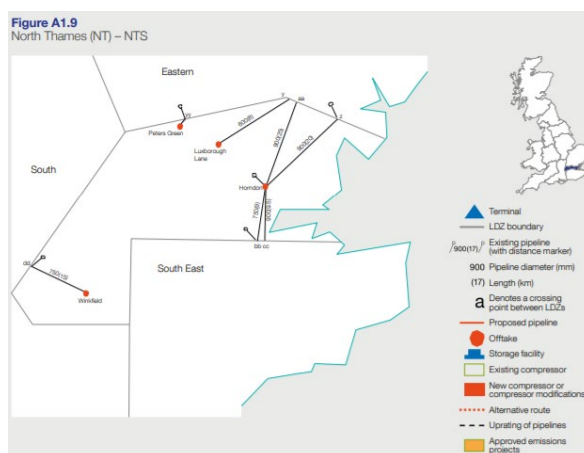
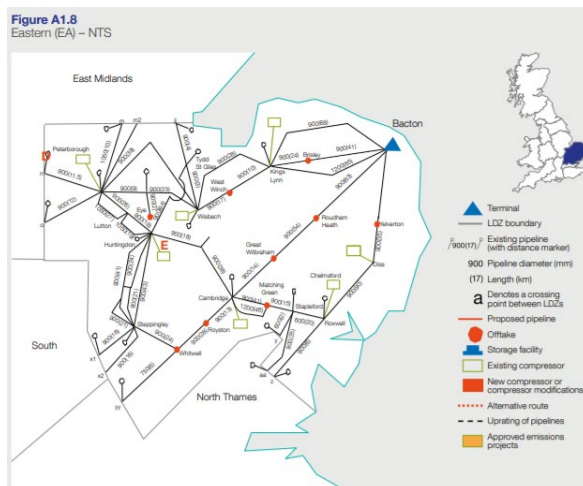
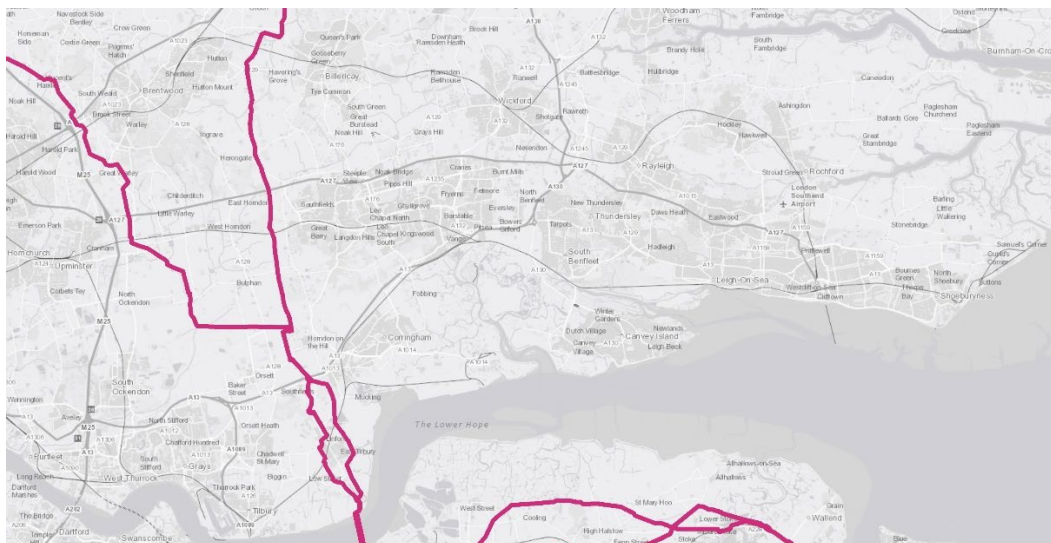


Figure 17 National Grid high pressure gas pipeline locations



Source: National Grid data, mapped by Arup

National Grid is currently undertaking long-term scenario testing as part of its Future of Gas programme, to consider future demand for gas. The amount of gas used in domestic homes is likely to reduce as a result of energy efficiency measures in industry and homes as well as emerging technologies such as heat pumps providing alternative heating sources (although future development in specific locations might increase as a result of growth). The long-term requirements for gas will depend on the extent to which the ‘electrification’ of heat takes place, as well as the rate of roll out of renewable generation.

Current Planned Projects

There are no known strategic gas supply upgrades within or to serve the study area.

9.6 Communications

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Superfast Essex website

Overview and Strategic Issues

Superfast Essex is a broadband improvement programme co-ordinated by Essex County Council (and also covering the two unitary authority areas), part of the national Superfast Britain initiative. It is closing gaps in superfast broadband coverage across a number of phases. These phases are supported by local funding contributions from local authorities as well as other sources (such as Defra in

Thurrock). Southend-on-Sea is also working closely with CityFibre/Vodafone on a rollout of ultra-high speed fibre broadband.

Key Shortfalls in Provision

It is expected that full roll out of superfast broadband across Essex will be complete by July 2020. There will still be some areas without access to superfast broadband beyond this point; these are largely more rural or remote areas where connection is more challenging. Superfast Essex therefore recognises there is still more investment needed however there is currently no guarantee if and when further funding may become available.

Current Planned Projects

Phase 3 of Superfast Essex began in November 2017 and is anticipated to be completed by December 2019. It covers parts of Basildon, Castle Point and Rochford.

Phase 4a was confirmed in July 2018 and covers Basildon, and Phase 4b (covering Thurrock) is being delivered.

9.7 Waste

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Essex and Southend-on-Sea Waste Local Plan (2017)
- Essex County Council, Minerals and Waste Authority Monitoring Report: 1 April 2016 to 31 March 2017 (2017)
- Essex County Council & Southend on Sea Council Waste Needs Assessment Update (2018)
- Joint Municipal Waste Management Strategy for Essex (2007 to 2032) (2007)
- Southend-on-Sea Municipal Waste Management Strategy 2004-2020 (2004)
- Local authority-level infrastructure studies: Brentwood Infrastructure Delivery Plan: 06 Waste (2018); and Southend-on-Sea Infrastructure Delivery Plan (2014).

Overview and Strategic Issues

Each of the six district authorities are responsible for the collection of waste; the responsibility for treatment and disposal falls on Essex County Council and the two unitary authorities, as waste planning disposal authorities.

The Essex and Southend-on-Sea Waste Local Plan was adopted by Essex County Council and Southend-on-Sea Borough Council in 2017, and is now part of the development plan. Thurrock's waste planning policies are contained in their Core

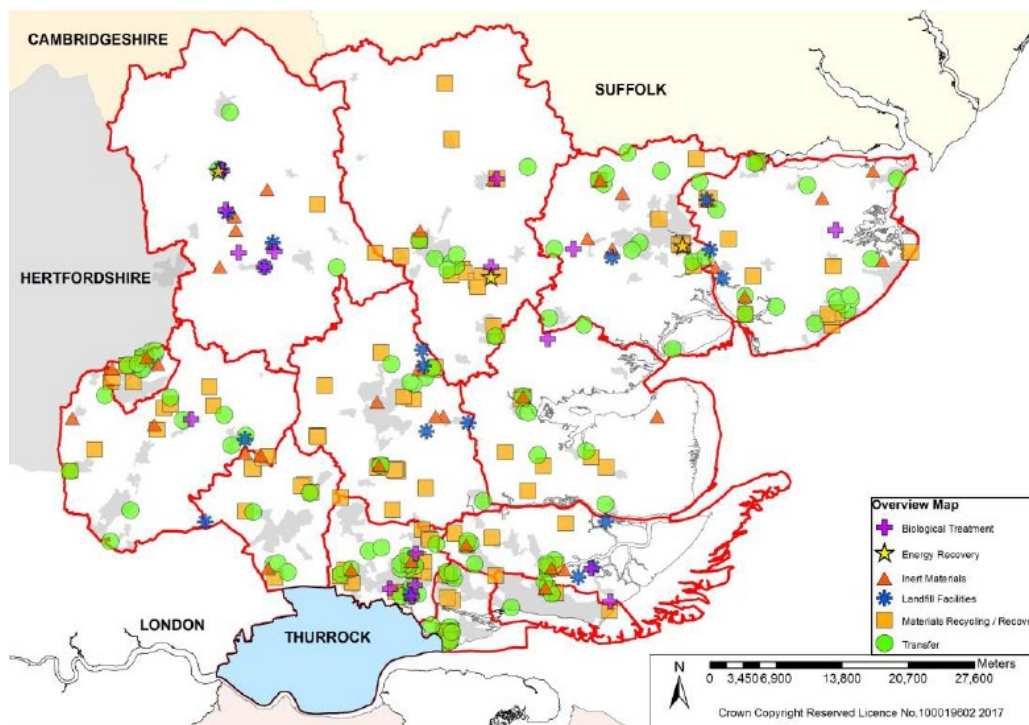
Strategy and Policies for Management of Development which was originally adopted in 2011 and subsequently amended and re-adopted in 2015.

The JSP area has historically seen waste imports from London boroughs. There is a move for London to become more self-sufficient in its waste management, and so the long term vision is for reduced residual waste imports from the capital.

Waste management across the study area aligns with the principles of the waste hierarchy, which sets out the preference for dealing with waste:

- Prevention (most preferable)
- Preparing for re-use
- Recycling
- Other recovery
- Disposal (least preferable)

Figure 18 Waste management facilities within Essex Waste Disposal Authority area (March 2017)



The Joint Municipal Waste Management Strategy for Essex includes an aspirational target of 60% of local authority collected waste to be recycled or composted by 2020. (Southend-on-Sea's Municipal Waste Strategy also contains specific targets, but are now dated.)

Key Shortfalls in Provision

As well as safeguarding existing waste management capacity, the Essex and Southend-on-Sea Waste Local Plan allocates strategic sites for new facilities to

meet shortfalls in capacity and provides a policy framework for other sites to be considered where there is a proven need for them.

Currently, local authority collected waste is managed through a network of sites across Essex. The primary facility is the Integrated Waste Management Facility Biological Treatment at Tovi EcoPark in Basildon. Within the study area, there is also a supporting municipal waste transfer station at Eastern Avenue in Southend-on-Sea, as well as a network of household waste recycling centres.

The Essex and Southend-on-Sea Waste Local Plan includes a number of allocations and areas of search (see below). The waste planning authorities are planning on the basis of future net waste self-sufficiency, with new waste development principally directed towards the key urban centres where population and economic development are concentrated. The locations of future waste facilities may have an impact on the locations available for strategic growth.

One of the Brentwood Borough Council's major allocations is the Warley Depot recycling site, which is currently the operational base of Brentwood Borough Council's municipal waste operation. There will be a need to consider an alternative location or approach to delivering major recycling points or services as this site moves forward for re-development. At present no alternative site has been proposed.

The Joint Municipal Waste Management Strategy for Essex states an aspiration to provide a household recycling centre within the Essex Waste Disposal Authority area. The locations of existing centres are shown in Figure 21.

Figure 19 Household recycling centres across Essex County Council



Note: Figure 19 does not include facilities in Southend-on-Sea.

Each year Essex County Council provides an Annual Monitoring Report which monitors the effectiveness of adopted minerals and waste planning policies. The latest version (covering April 2016 to March 2017) showed an increase in waste non-inert waste recovery, biological treatment and landfill capabilities and a smaller increase in transfer facilities, as well as a continuing shift in waste management up the hierarchy (within the proportion to landfill falling from 76.4% to 64.6% over a year).

Essex is a net exporter of household, commercial and industrial waste and hazardous waste to Greater London. In relation to hazardous waste, this is due to the lack in provision of facilities to treat (as opposed to transfer) hazardous waste. The area is a net importer of inert waste from the Greater London Area. Ongoing duty to co-operate discussions will continue to ensure the most appropriate waste management routes are pursued.

Current Planned Projects

The following Waste Local Plan strategic site allocations fall within the study area:

Biological waste management

- Basildon Water Recycling Centre (Basildon)
- Courtauld Road (Basildon) – undeveloped site adjoining existing water treatment works

Inert landfill

- Dollymans Farm (Basildon/Rochford)

In addition, the Waste Local Plan also sets out a number of ‘areas of search’ for future waste facilities, largely existing employment areas. There are a number across the study area, as set out in Table 15. These areas of search are not the same as site allocations ‘safeguarded’ locations; rather, they are simply broad areas which are considered to be suitable (in principle) for waste use.

Table 16 Areas of search in Essex and Southend-on-Sea Waste Local Plan

District	Area of search
Basildon	Burnt Mills Central, Festival Business Park, Pipp's Hill, Southfield Business Park
Brentwood	Childerditch Industrial Estate, West Horndon
Castle Point	(none)
Rochford	Rochford Business Park, Michelins Farm
Southend-on-Sea	Stock Road, Temple Farm

9.8 Implications for the JSP

Water

The evidence base does not suggest there are overwhelming challenges to the supply of water, and there is a surplus supply of water across the Essex Water Resources Zones. Connections to the supply network will be required to support strategic development.

Wastewater

There are a number of upgrade projects planned for the study area. The evidence base does not suggest that there are overwhelming challenges to meeting wastewater requirements, and Anglian Water have a statutory duty to plan for future development. However, phasing of delivery is likely to be important, and there will be a requirement to work closely with Anglian Water once the location and timing of proposed growth is more certain.

Electricity

The evidence base does not suggest there are areas where there are challenges which cannot be overcome in providing electricity to users, or areas of significant over-supply which might be utilised – although major substations in the area do have available capacity.

There are constraints in relation to new generation connections, which could be a consideration in determining strategic growth locations across the study area.

The location of overhead lines and cables in the study area may impact on the location of growth and should be taken into account in site selection and masterplanning of sites.

Gas

The evidence base does not suggest there are any areas where there are significant challenges in providing gas to users; nor where there are areas of significant over-supply which might be utilised.

The location of high pressure gas pipelines in the study area may impact on the location of growth and should be taken into account in site selection and masterplanning of sites.

Waste

Waste planning should demonstrate an adherence to the ‘proximity principle’ – treating waste close to the source of where it is created (though also taking into account economies of scale and other considerations).

The JSP and respective growth locations should be developed in compliance with policies and requirements within the adopted Essex and Southend Waste Local Plan, for the two-tier area and Southend-on-Sea. This is to ensure conformity with the adopted Local Plan.

Next steps for Stage B (Infrastructure Requirements Study)

- More detailed consultation with utilities providers will be required once there is more certainty around locations for growth.

10

Flood Protection and Drainage



10 Flood Protection and Drainage

10.1 Overview of Strategic Infrastructure

The Baseline Study covers the following types of strategic flood protection and drainage infrastructure:

- Sea walls
- Flood risk capacity increases
- Major flood defence works (generally over £1m in value)
- Risk management infrastructure
- Sewer overflow facilities, including water company schemes relating to drainage or overspill
- Major Sustainable Drainage Schemes (SuDS)

The Baseline Study does not include:

- Minor upgrades
- Site-level SuDS requirements
- Regular ‘business as usual’ management and maintenance of flood defences
- Feasibility studies or investigations

10.2 Flood Protection and Drainage

Evidence Base

The following evidence has been reviewed as part of this Baseline Study:

- Brentwood Borough Council Strategic Flood Risk Assessment (2018)
- Canvey Island Six Point Plan – An update report from the Multi-Agency Partnership (2015)
- Castle Point Borough Council Level 2 Strategic Flood Risk Assessment (2018)
- Essex County Council Brentwood Surface Water Management Plan (2015)
- Essex Country Council Local Flood Risk Management Strategy (2013)
- South Essex Surface Water Management Plan (2012)
- South Essex Level 1 Strategic Flood Risk Assessment (2018)
- Southend-on-Sea Borough Council Strategic Flood Risk Assessment, Level 1 Report (2010)
- Southend-on-Sea Borough Council Strategic Flood Risk Assessment, Level 2 Report (2010)

- Southend-on-Sea Surface Water Management Plan (2015)
- Thames Estuary 2100
- Anglian Water, Water Recycling Long Term Plan (2018)
- Anglian River Basin District River Basin Management Plan (2016)
- Thames River Basin District River Basin Management Plan (2016)
- South Essex Water Cycle Study Technical Report (2011) (covering Basildon, Castle Point and Rochford)
- Southend-on-Sea Borough Council Local Flood Risk Management Strategy (2015)

Overview and Strategic Issues

Essex County Council is the designated Lead Local Flood Authority (LLFA) for Basildon, Brentwood, Castle Point and Rochford. Essex County Council manages surface water, groundwater and ordinary watercourse flooding. For main rivers, reservoir flooding and coastal flooding, the County works with the Environment Agency and for sewer flooding they work with Thames Water and Anglian Water. Highway flooding is managed by Essex Highways and the Highway Agency.

The Essex County Council Local Flood Risk Management Strategy (2013) provides a series of measures including investigating floods, planning for future floods, influencing new development and building new flood defences.

The Essex Partnership for Flood Management seeks to ensure effective co-operation between the risk management authorities in Essex. The Essex Flood Risk Partnership was established to forge effective partnership working with the districts/boroughs and key stakeholders. Essential partners include:

- Essex County Council
- Basildon Borough Council
- Brentwood Borough Council
- Castle Point Borough Council
- Rochford District Council
- Environment Agency
- Anglian Water

The Local Strategy defines nine objectives for management of Local Flood Risk and identifies a range of potential funding sources. This also led to the development of the Flood and Water Management Steering Group internally, which acts as an officer-led operational group with representatives from Environment Agency, Anglian Water and a number of the district/borough councils.

Southend-on-Sea Borough Council is the designated LLFA for its administrative area. Southend-on-Sea is part of the South Essex Flood Risk Area and is required to contribute to the preparation of the Flood Risk Management Plan for the Anglian River Basin District. Southend-on-Sea Borough Council, with the Environment Agency and Anglian Water has formed a Local Risk Management Partnership to manage local sources of flooding. Objectives include improving understanding of the likely effects of climate changes on flood risk, encouraging future development to provide a betterment to flood risk and continuing with flood risk management measures.

Key Shortfalls in Provision

Essex County Council has sought to increase the knowledge of the flood risk within the county and to encourage better co-operation between organisations involved in flood risk management.

The LLFAs have each produced a Flood Risk Assessment. Key strategic findings from these assessments include:

Basildon

- The majority of the borough is in Flood Zone 1 (low probability, with a less than 1 in 1,000 annual probability of river or sea flooding).
- There are fluvial flood risks arising from the River Crouch, Mountnessing Brook and Haveringsgrove Brook.
- The borough is well protected from fluvial flooding by the presence of flood defences.
- Surface water flooding poses a significant risk to area.

Brentwood

- Fluvial flood risk in Brentwood is limited; again, surface water presents the most significant risk of flooding.
- Brentwood Surface Water Management Plan recommends that all new development incorporates SuDS. The objective is to maintain greenfield run-off rates, and ideally to reduce run-off by 20% in urban areas.

Castle Point

- Tidal and fluvial flooding poses most significant flood risk to the borough.
- There is a high probability of surface water flooding across the borough.
- The topography and the location of watercourses on Canvey Island means that whole island is at risk of both tidal and fluvial flooding – much is protected by defences but there is still a residual risk if defences were overtopped.
- The Canvey Island Six Point Plan aims to raise awareness of flood risk and resilience of Canvey Island. The Plan invests in surveying, cleaning, repairing infrastructure and planning for future resilience.

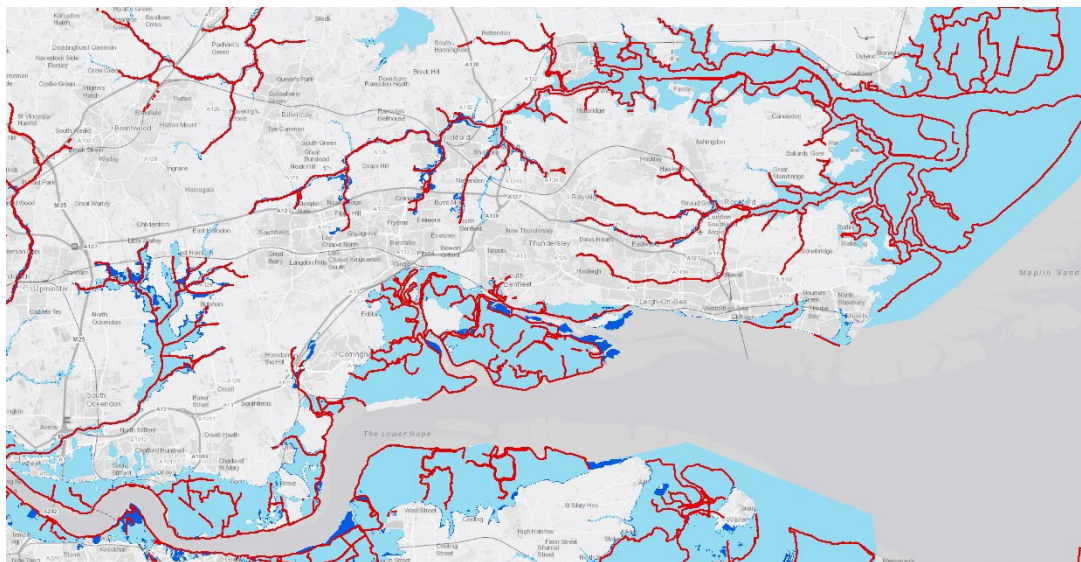
Rochford

- Tidal and fluvial flooding pose the most significant flood risk to the district – defences are in place but if these were overtopped there would be significant risk.
- Fluvial flooding primarily affects Rochford town.
- A number of high risk surface water flow paths are located within the centre of Rochford, as well as Rayleigh and Hullbridge.

Southend-on-Sea

- The Southend-on-Sea Surface Water Management Plan 2015 identifies a significant risk of flooding across the borough, with concentrations in six main areas which have been designated as Critical Drainage Areas: Eastwood; Prittle Brook; Temple Sutton; Southchurch; Shoeburyness and Chalkwell.
- Surface water flooding poses a significant flood risk, has been the cause of a number of previous floods.
- The borough is at risk from tidal flooding from both the Thames Estuary and the North Sea. It is protected by presence of a sea wall flood defence.
- Over 50% of Southend-on-Sea's coastal frontage is composed of soft cliffs in London Clay, which are in a condition of marginal stability.

Figure 20 Location of Flood Zone 2 (dark blue), Flood Zone 3 (light blue) and flood defences²⁹ (red)



Source: Defra and Environment Agency data, mapped by Arup. All rights reserved.

The South Essex Water Cycle Study Technical Report (2011) – covering Basildon, Castle Point and Rochford boroughs/districts – considered the ability to

²⁹ Flood defences protecting against river floods with a 1 per cent (1 in 100) chance of happening each year, or sea floods with a 0.5 per cent (1 in 200) chance of happening each year, together with some, but not all, defences which protect against smaller floods.

deliver SuDS across the area. It concluded that, as a result of the underlying geology and soil type (deep clay), infiltration SuDS are largely not appropriate for Basildon and the western portion of Rochford and that surface water flooding is a risk. The soil types around Rochford, Great Wakering and Foulness Island are more permeable and therefore there are greater opportunities for infiltration SuDS. Attenuation SuDS are likely to be appropriate across the Water Cycle Study assessment area, although the land take required to deliver this should be considered³⁰.

Current Planned Projects

There are a range of flood protection and drainage schemes planned for South Essex, with the objective of alleviating the risks described above. These projects are promoted by the LLFAs and Anglian Water. The projects range from drainage capacity increases to major SuDS and sea walls.

Across the authorities there are different focus points for project planning. For example, in **Rochford**, the local authority has integrated flood risk management and SuDS into its housing provision planning, whilst in **Southend-on-Sea** there is a focus on coastal flood defences such as Chalkwell Sea Wall and Cinder Path Flood Defence Works. In addition, Canvey Island in **Castle Point** is treated separately due to its unique nature and the Canvey Island Multi-Agency Partnership. The partnership has created a six-point plan with projects that range from dredging, to new technology development.

The TE2100 Plan covers the tidal Thames and its floodplain from Teddington in the west to Sheerness/Shoeburyness in the east. It aims to set a strategic direction for flood risk management in the areas which adjoin the Thames Estuary. The Plan was written in 2012 and sets out recommendations and actions needed to manage flood risk for the following century. The Environment Agency completed a 5 Year Monitoring Review in October 2016. The TE2100 plan takes into account predicted future development and the 2016 review found that any change is generally in line with the original projections and that the continued development across the Estuary has resulted in tidal flood defences now protecting more people and property than before.

The Thames Estuary 2050 vision recommends the integration of multi-functional defences to protect people and infrastructure from flooding. It states that this will require new and innovative ways of working.

A number of minor river restoration projects are planned across the Combined Essex, South Essex and Roding, Beam and Ingrebourne catchments, including at the River Crouch at Wickford. There are also a number of projects arising from Anglian Water's Water Recycling Long Term Plan in relation to improving drainage and reducing overspill from wastewater networks.

³⁰ Suitability of individual proposed development sites for the use of different SuDS techniques will need to be determined on a site-by-site basis.

10.3 Implications for the JSP

Flood risk should be a key consideration in the assessment of options for future strategic growth locations to be included in the JSP. This should be in line with the PPG, which sets out a sequential, risk-based approach to identifying locations for development.

In addition to flood risk areas, the standard of existing flood risk infrastructure should also be considered and a strategic approach should be taken to identifying strategic growth locations on this basis. If existing infrastructure requires upgrading, provision could be made via developer obligations for new developments.

It is important also to consider Anglian Water's plans for future capacity and new sustainable solutions available. In addition, the TE2100 plan provides guidance across the wider strategic area for potential tidal flood risks and key risk areas that should be considered.

Next steps for Stage B (Infrastructure Requirements Study)

- Once there is more certainty around locations for growth, the requirements for new strategic flood defences and drainage, including on-site SuDS requirements, should be further considered.