

Topic Paper 8

Green & Blue Infrastructure and Climate Change







| Topic Paper | Local Plan Issue/s covered |
|--|--------------------------------------|
| Topic Paper 1 Housing | Covers issue 2 of the Southend New |
| | Local Plan |
| Topic Paper 2 Economy | Covers issue 3 of the Southend New |
| | Local Plan |
| Topic Paper 3 Tourism | Covers issue 4 of the Southend New |
| | Local Plan |
| Topic Paper 4 Retail and Town Centres | Covers issue 5 of the Southend New |
| | Local Plan |
| Topic Paper 5 Providing for a Sustainable | Covers issue 6 of the Southend New |
| Transport System | Local Plan |
| Topic Paper 6 Design, Healthy Living & Built | Covers issue 7 of the Southend New |
| Heritage | Local Plan |
| Topic Paper 7 Social & Community | Covers issue 8 of the Southend New |
| Infrastructure Needs | Local Plan |
| Topic Paper 8 Green & Blue Infrastructure & | Covers issues 9 & 10 of the Southend |
| Climate Change | New Local Plan |

Green and Blue Infrastructure and Climate Change Topic Paper

What is this topic paper about?

The Council is making a new Local Plan that will cover the period up to 2038. As a comprehensive and up to date evidence base is essential for plan preparation, the Council has undertaken a range of studies, both in house and with external consultants to support this process.

The topic paper summarises the latest available evidence from these studies and other sources, including coastal change, flood risk, water supply and changes to biodiversity and landscape.

For urban coastal areas such as Southend the impacts of climate change can have significant implications in terms of sea rise and the need to retain and maintain sea defences that are fit for purpose. It will be essential that appropriate planning policies are put in place in the new local plan to meet the challenges of climate change and therefore this paper also covers issues such as energy, water efficiency and air quality.

Reflecting the wide scope of this topic there are a number of overlaps between this paper and others including the Transport topic paper.

To view all the topic papers and the latest update on the Local Plan evidence base please visit our website. Please note all internet links are up to date at the time of publication.

localplan.southend.gov.uk

Can I comment on this document?

The Local Plan topic papers are factual in nature and set out the national planning policy context, current situation in Southend, and some potential ways of dealing with the local issues raised, but they do not include any planning policies or site allocations. As such we are not seeking comment on these publications.

However, there will be opportunities to comment on the content of the New Southend Local Plan at various stages of its development. The Council will be undertaking public consultation on the **New Southend Local Plan Issues and Options** during early 2019. This will be followed by public consultation on **Preferred Options** and **Proposed Submission**. See our website for more details localplan.southend.gov.uk

If you wish to be kept informed of forthcoming consultations you can email planningpolicy@southend.gov.uk with your contact details.

Introduction

This topic paper has been prepared to assess the national and local policy context for green and blue infrastructure and climate change and mitigation, to consider what should be incorporated into the new Local Plan, covering the period to 2038. It summarises the latest available evidence relating to these matters and suggests how the Local Plan should deal with any important issues.

A Local Climate Impacts Profile undertaken in 2010 found that the Borough is likely to be affected in the future by having warmer and wetter winters; hotter and drier summers; an increased risk of coastal erosion; and more severe weather, such as coastal flooding and flash floods. The Local Plan must ensure that new development responds appropriately to these issues by ensuring it is sited in the most effective location and provides mitigation and/or adaptation measures where necessary.

The National Planning Policy Framework (NPPF) defines green infrastructure as "a network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities". It can be used in planning to mitigate and adapt to the impacts of climate change such as flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures.

Blue infrastructure is not specifically defined within the NPPF, but Natural England's Green Infrastructure Guidance defines it as "riverine and coastal environments within a green infrastructure network". Waterways also form important open spaces not only for biodiversity and wildlife, but for leisure, recreation, health and well-being, flood risk management and climate change adaptation and mitigation.

National Planning Policy

Local Plans should include policies to:

- promote the conservation, restoration and enhancement of priority habitats and species and pursue opportunities for securing measurable net gains for biodiversity
- protect and enhance valued landscapes, recognise the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services including trees and woodland
- maintaining the character of the undeveloped coast, while improving access to it where appropriate
- mitigate and adapt to climate change, in line with the objectives of the Climate Change Act 2008, and support the transition to a low carbon future
- prevent new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water, or noise pollution or land instability
- remediate and mitigate despoiled, degraded, derelict, contaminated and unstable land where appropriate

Biodiversity

There are five internationally designated sites for nature conservation within the administrative boundary of the Borough: Benfleet and Southend Marshes Special Protection Area (SPA) and Ramsar site; Essex Estuaries Special Area of Conservation (SAC); and Foulness SPA and Ramsar site¹. These habitats cover the intertidal part of the Thames Estuary from Benfleet to Shoeburyness and support a large number of waterfowl as well as a wide range of important bird species, in particular providing wintering feeding grounds.

¹ Source: Figure 3 Biodiversity Designations – Southend on Sea Integrated Impact Assessment Scoping Report (2017)



The single nationally designated nature conservation site within the Borough is the Leigh National Nature Reserve (NNR), and there are also five Sites of Special Scientific Interest (SSSIs). The condition of these has been improving in recent years and this is likely to continue over the plan period. There are 4 local nature reserves and 9 local wildlife sites, the largest of which is the Southend-on-Sea Foreshore, located at the mouth of the Thames Estuary.

The Local Biodiversity Action Plan consists of individual action plans for 18 Southend habitats (plus one habitat statement) and 14 species. Generally, good progress² has been made in relation to biodiversity conservation work in Southend, with new and continued projects being carried out in conjunction with the Council's conservation partners. The key issues of relevance for the Local Plan include coastal squeeze through further development and increased levels of public access and/or disturbance.

² BAP 2014 Annual Update

Blue Infrastructure

Blue infrastructure within Southend comprises the River Thames, lakes within Priory Park, Southchurch Park and Gunners Park, Eastwood Brook and Prittle Brook, which provides a link between Belfairs Woods and Priory Park, and therefore forms an important wildlife corridor and recreational route. The rivers Roach and Crouch form valuable areas for wildlife as well as opportunities for recreation. There are also lakes in Friars Park, Shoebury Park and Southchurch Park.

Within South Essex, the Thames Estuary Path³ extends from Tilbury to Leigh-on-Sea, covering 29 miles of estuary coastline. This is complemented by the England Coast Path⁴ which Natural England are progressing, which link up the extensive coastline elsewhere in South Essex with the rest of the country to create a comprehensive and accessible national trail, including the enhanced walking routes within Wallasea Island. New development should maintain the character of the undeveloped coast, while improving access to it where appropriate.

Southend's blue infrastructure network benefits from extensive nature conservation designations to protect its biodiversity and wildlife significance (specifically SPAs, SACs, RAMSAR and SSSIs), which means that a careful balance needs to be struck between protection of these important environments, and access for local communities and visitors alike. The cumulative impact of growth across South Essex is expected to increase pressure for recreational and leisure pursuits in or nearby European sites, impacting on their integrity.

The Council, together with the local authorities of Basildon, Braintree, Brentwood, Castle Point, Chelmsford, Colchester, Maldon, Rochford, Tendring and Thurrock and Natural England are working together to develop an Essex Coast Recreational Avoidance and Mitigation Strategy (RAMS). This will identify various mitigation measures to alleviate the increasing recreational pressures and so protect the natural habitat of the coast. These measures will be funded from developer contributions from new housing development. The RAMS will be subject to public consultation later in the year and it is anticipated that it will be adopted as a Supplementary Planning Document to support the Southend New Local Plan in the Summer of 2019.

³ http://www.thamesestuarypath.co.uk/

⁴ https://www.nationaltrail.co.uk/england-coast-path

Green Infrastructure

Almost 600 hectares of parks and open space are accessible to residents in the Borough, including district, local and neighbourhood parks, playing fields and sports areas and woods⁵. Five parks received Green Flag Awards in 2016/17, the benchmark national standard for parks and green spaces in England and Wales. In 2016 Southend was awarded 3 Blue Flag awards for East Beach, Shoebury Common and Thorpe Bay, and 7 Seaside Awards for Bell Wharf Beach, Chalkwell Beach, Jubilee Beach, Thorpe Bay Beach, Three Shells Beach, Shoebury Common Beach and East Beach. In addition, Belfairs Park Wood is classified as Ancient Semi-Natural Woodland and part dates back to the twelfth century. There are also smaller areas of woodland located in the northwest of the Borough. These spaces can help improve air quality and provide wildlife habitats as well as providing areas for informal recreation and relaxation.

Southend is a densely populated area with limited opportunities for new open

space. Whilst it has hectares of parks and open space these are not evenly distributed, with the wards of Westborough, Victoria and Kursaal having the most limited provision of open space in the Borough⁶. In practice it may be difficult to meet the open space accessibility standard that all residents have easy access to a public open space of at least 0.02 hectares in area. The Parks and Green Space Strategy 2015 – 2020 aims to improve on this by introducing new open spaces where this is made possible by new developments. It also aims to improve the connections between existing spaces by landscaping, tree planting and better signage and route finding.

The role of new Country Parks will be explored as part of the South Essex Joint Strategic Plan. One such location could be to the north-east of the Borough as identified in the Core Strategy (para 9.14) to complement the existing facilities at Hadleigh and Cherry Orchard Jubilee Country Parks in Castle Point and Rochford. It will be important to work with adjoining local authorities to promote new open space for the benefit of existing residents and to serve a growing population.

⁵ Source: Figure 14 Open Space and Recreation Areas in Southend – Integrated Impact Assessment Scoping Report (November 2017)

⁶ Source: Annual Report of Director of Public Health (2015) (Southend Borough Council)



The borough's green infrastructure network also plays a vital role in climate change mitigation and adaptation. Additional tree planting and soft landscaping such as green walls and roofs can reduce the urban heat island effect making the built environment more comfortable during the summer months. It can assist in surface water and flood management, store the greenhouse gas carbon dioxide, improve air quality and provide habitats for wildlife. The Council has implemented major public realm schemes incorporating green infrastructure including Pier Hill, but small interventions can make a significant difference as part of a wider network and it will therefore be important that the new local plan seeks such provision in new development schemes throughout the Borough.

Minerals and Soils Resources

Southend-on-Sea contains no deposits of sand and gravel aggregates. There are some brickearth deposits, which were used in the manufacture of stock bricks. National planning policy is to conserve brickearth resources, reduce damaging environmental impacts during extraction and processing and to remediate and restore such land to beneficial and sustainable new uses afterwards. The owner and operator of the brickworks within the borough has previously advised that these reserves are no longer economically viable, and thus the Core Strategy concluded that there was no foreseeable justification for their continued safeguarding. However Core Strategy CP5 (Minerals and Soils Resources) allows for the extraction of brickearth subject to certain criteria including need, future remediation and sustainable transportation of materials.

Nonetheless, brickearth deposits also provide very high quality agricultural land. National policy seeks to maintain and enhance the resilience and quality of soils, and to encourage the sustainable use of soil resources, including the best and most versatile agricultural land. Areas of poorer agricultural land should be developed in preference to that of higher quality. There is an element of 'best and most versatile' agricultural land in Southend, located predominantly to the north and north east edges of the Borough, some of the highest quality. Core Strategy Policy CP5 protects such land from irreversible damage where this is consistent with the full range of sustainability objectives. A Green Belt Study and a Landscape Study are being undertaken and these, along with other evidence base studies will inform decisions on whether such land should be explored for possible release to address the needs for future housing, employment and supporting infrastructure.

Coastal Change

The effects of climate change for the East of England by 2050 for a medium emissions scenario⁷ are likely to lead to an increase in winter and summer mean temperatures of approximately 2 to 2.5 degrees, with significantly less rainfall in summer and greater rainfall during the winter months, with an increase in sea level of about 36 cm. Over the next 100 years⁸ these trends are set to continue, with more frequent extreme events, such as flash flooding, storms and coastal erosion, and a sea level rise of 0.8m. The Southend Shoreline Strategy identifies physical measures that will be required along the length of the foreshore to upgrade or maintain sea defences, in order to 'hold the line' and sustain the current standards of protection. This will require careful planning and design to ensure that any new schemes are sensitive to their surroundings and do not have adverse impacts on the local habitat, tourism and leisure, and do not impair important views.

Flood Risk and Flood Risk Management

Erratic and unsettled weather can also lead to flash flooding, particularly within areas adjacent to inland waterways. The Strategic Flood Risk Assessment⁹ Level 1 (2010) found that the main two sources of flooding for this area are tidal flooding from the River Thames

⁷ <u>http://ukclimateprojections.metoffice.gov.uk/</u>

⁸ https://www.gov.uk/government/publications/thames-estuary-2100-te2100

⁹ http://www.southend.gov.uk/downloads/file/1690/southend_flood_risk_assessment_-_level_1_main_reportpdf

Estuary and North Sea, and fluvial flooding from the Prittle Brook, Eastwood Brook and Willingale watercourse that runs through Southchurch Park. There is a risk from surface water flooding predominantly due to the extent of impermeable surfaces within the urban area, sewer flooding due to the inadequate capacity of the sewage system and blockages, and river flooding within Eastwood in the vicinity of Eastwood Brook. There is a need to manage development within areas of flood risk, particularly within the Central Seafront Area. The Southend Surface Water Management Plan (2015) also identifies six Critical Drainage Areas¹⁰ which experience localised issues of surface water flooding during heavy rainfall events.



Figure 5: Identified CDAs within Southend-on-Sea

The Borough Council already works closely with the Environment Agency and Anglian Water on flood issues and has established a local flood risk management partnership to manage local sources of flooding. Current planning policies require development proposals in areas of high risk to undertake a flood risk assessment and to direct development to less vulnerable areas. New developments should also incorporate properly designed Sustainable Drainage Systems (SuDS) and urban greening measures to reduce the rate and quantity of surface water runoff by using natural drainage methods.

¹⁰ Source: Figure 5 Identified Critical Drainage Areas within Southend on Sea – Integrated Impact Assessment Scoping Report

Renewable Energy and Low Carbon Development

In planning for the future of the town and its resilience to climate change it is crucial that development is more energy efficient and uses sources of renewable energy. For a third consecutive year Southend on Sea was named as one of the top three 'greenest cities' in the UK by both the UK Vitality Index and Cities Outlook. Both are national indices that report upon the health of the UK's largest cities and towns (outside of London) and take into consideration the volume of CO2 emissions per capita and performance in terms of household waste that is being recycled. It provides an excellent incentive to continue pushing our credentials and ambition of becoming a 'low carbon, smart city'.

The Borough Council has developed a Low Carbon Energy and Sustainability Strategy covering the period to 2020. This focuses on delivering low carbon growth, improving energy efficiency and providing for a more sustainable future with the aim of establishing Southend as a Low Carbon Smart City. The review and updating of the strategy will form an important input to the development of the new local plan.

As Southend-on-Sea is a densely developed urban area with tightly drawn boundaries and the foreshore is of international, national and local significance for biodiversity, there is very limited opportunity within the Borough for commercial scale electricity generation capacity from any source within its boundaries. However there is scope for small scale generation from renewables. For example in 2016/17 Edwards Hall and Heycroft Primary Schools installed solar panels and biomass boilers were added at Temple Sutton School, and a solar farm is being installed on land within the London Southend Airport Business Park, which will generate approximately 5MW. The local plan should support growth in renewables whilst taking account of environmental protection objectives and local amenity concerns.

Air Quality

The main source of air pollution in the Borough is road traffic emissions from major roads, notably the A13, A127 and A1159, although commercial, industrial and domestic sources also contribute to pollution levels. The estimated total carbon dioxide (CO₂) emissions¹¹

¹¹ The statistics show emissions allocated on an "end-user" basis - the general principle here is that emissions are distributed according to the point of energy consumption (or point of emission if not energy related). Except for the energy industry, emissions from the production of goods are assigned to where the production takes place – thus as with the national inventories, emissions from the production of goods which are exported will be included, and emissions from the production of goods which are excluded.

https://www.gov.uk/government/publications/local-authority-emissions-estimates

within Southend have fallen from 916 kilo tonnes (kt) in 2005 to 628kt in 2015. Compared with surrounding authorities in South Essex, per capita CO₂ emissions in Southend are similar to neighbouring authorities of Rochford and Castle Point, but lower than the nearby Boroughs of Basildon and Thurrock.

Southend-on-Sea Borough Council declared an Air Quality Management Area (AQMA) for nitrogen dioxide at the junction between Prince Avenue, Hobleythick Lane and Rochford Road (also known as "The Bell Junction") in 2016 and proposed junction improvement works seeking to better manage traffic flows to reduce pollution to below AQMA levels.



Electric Car at charging point

New housing and employment provision in the Borough and sub-regionally has the potential to have adverse effects on air quality through increasing traffic flows and associated levels of pollutants such as nitrogen dioxide. Careful consideration must therefore be given to the impact of new development on air quality. In addition to using green infrastructure to mitigate the effects of poor air quality, opportunities exist at the local level to adapt our transport behaviours/adopt modal shift and utilise walking and cycling networks and public transport, as well as promoting the use of electric cars in the Borough. Providing for a choice of means of travel for work and leisure trips will help to reduce air pollution across the Borough from vehicle traffic as well as assisting in the transition to a low carbon economy.

Noise and Light Pollution

National planning policy also requires local authorities to ensure new development is appropriate for its location taking into account the likely effects of noise and light pollution on existing and future residents.

Waste

The Essex and Southend Waste Local Plan, adopted in 2017¹² states that new waste development should be principally directed towards the key urban centres of Basildon, Chelmsford, Colchester, Harlow and Southend-on-Sea. This approach reflects the location of

¹² <u>https://www.essex.gov.uk/Environment%20Planning/Minerals-Waste-Planning-Team/Planning-</u> Policy/Documents/Waste_Local%20_Plan2017.pdf

the main population centres and where growth and employment is concentrated in the Plan area, and ensures that the majority of waste arising can be managed and treated as close as possible to its source. The Plan does not identify a requirement for any new waste management sites in the Borough up to 2032, and therefore it is not necessary to address this matter in the Southend Local Plan.

In addition, as the Essex and Southend Waste Local Plan provides up-to-date planning policies for dealing with waste development proposals in Essex and Southend-on-Sea until 2032, there is no requirement to include any such policies in the Local Plan.

Water

The Southend Sewage Works has capacity constraints in terms of transfer and transmission, and fails the enhanced treatment standard of the European Water directive. The Sewage Works discharge to the River Thames, which falls under the Bathing Waters Directive and Shellfish Waters Directive, as well as to the Crouch and Roach Special Protection area which is covered by the Habitats Directive and the European Birds directive. Even without the level of housing development anticipated in the Local Plan, a new treatment works and new mains sewers are likely to be required to serve the Borough.

Contaminated Land

There are considerable areas of potentially contaminated land throughout the Borough, particularly around Southend-on-Sea and Shoeburyness. However, no land in the Borough is listed in the public register (set up to comply with Part IIA of the Environmental Protection Act 1990). This includes land that has been designated as a special site, and also details where remediation notices have been served. Policies in the Local Plan must ensure new development is appropriate for its location, remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate, and take account of the likely effects of pollution on health, living conditions and the natural environment, and the potential sensitivity of the site.

Table 1: Green and Blue Infrastructure and Climate Change Issues and existing policy coverage

| Issues the Local Plan needs to address | Coverage by adopted |
|--|---------------------|
| | planning policies |
| Maintain or improve favourable status of internationally | KP1, KP2, CP4, |
| designated sites for nature conservation | CS1, CS2 |
| Maintain or enhance condition of nationally designated | KP1, KP2, CP4, |
| wildlife sites, local wildlife sites and protected open spaces | CS1, CS2 |
| Promote multifunctional use of green infrastructure in | CP7, DM2, CS1 |
| mitigating and adapting to Climate Change | |
| Protection and identification of potential additions and | KP2, KP3, DM6, CS1, |
| enhancement of green grid/cross ref with health and | CS2 |
| wellbeing and transport policies | |
| Identify strategic interventions to enhance existing green and | KP2, KP3, DM6, CS1, |
| blue infrastructure resource and address quantitative | CS2 |
| deficiencies and/or barriers to connectivity | |
| Avoid development on contaminated land where it is not | CP5, DM14 |
| possible to undertake required remediation | |
| Protect BMV agricultural land and encourage the sustainable | CP5 |
| use of soil resources. Conserve minerals deposits, minimise | |
| environmental impacts of mineral workings and transportation | |
| of aggregates | |
| Promote greater awareness of the natural assets of the | CP4, CP7 |
| Borough through education, signage etc. | |
| Seek developer contributions towards mitigating the impacts | KP1, KP2, KP3, DM6, |
| of development pressure on the town's natural coastal | CP4, DS4, CS1 |
| assets?? | |
| Plan for the future impacts of climate change on our coastal | KP1, KP2, CP4, DM2, |
| defences – develop criteria based policy to assess impact of | DM6, DS4, CS1 |
| upgraded or maintained sea defences | |
| Determine the risk of flooding from all sources and identify | KP1, KP2, DM6, DS4 |
| where development can take place in areas with a low | |
| probability of flooding | |
| Manage and mitigate the risk of surface water flooding | KP1, KP2, DS4 |
| Promote urban greening and SUDS in all new development | KP2, KP3, DM2, DS4 |
| Promote water and energy efficiency in new development – | KP2, DM2 |

| require higher standards of energy and water efficiency in | |
|---|---------------------|
| buildings (than national standards) – evidence to adopt | |
| national technical standard on water efficiency | |
| Sustain and contribute to compliance with national objectives | DM2, DM15 |
| and relevant limit values for pollutants, taking into account the | |
| AQMA and cumulative impacts from individual sites in local | |
| areas. | |
| Mitigate and adapt to climate change through design of | KP1, KP2, KP3, DM2, |
| buildings and public realm | DM15 |
| Avoid noise giving rise to significant adverse impacts on | KP1, KP2, CP3, DM15 |
| health and quality of life | |
| Require large developments to incorporate renewable energy | KP2, KP3, DM2 |
| schemes (evidence to require x% renewables or low carbon | |
| energy sources in all new development?) | |
| Require carbon reduction and capture measures as part of | KP2, KP3, DM2 |
| major new development | |
| | |

| Evidence Base/Reference Documents | | |
|---|----------------------|--|
| Parks & Green Spaces Strategy 2015-2020 | www.southend.gov.uk/ | |
| Southend Space for Nature | | |
| The Southend Surface Water Management Plan | www.southend.gov.uk/ | |
| (SWMP) | | |
| Strategic Flood Risk Assessment (SFRA) | www.southend.gov.uk/ | |
| Local Flood Risk Management Strategy (LFRMS) | www.southend.gov.uk/ | |
| Essex and South Suffolk Shoreline Management | www.southend.gov.uk/ | |
| Plan (2010) | | |
| Southend Low Carbon Energy and Sustainability | www.southend.gov.uk/ | |
| Strategy 2015 – 2020 and Annual Report | | |
| Southend Borough Council Annual Monitoring | www.southend.gov.uk/ | |
| Report 2017 | | |